

Anxiety and Academic Performance in University Students

PhD. Esperanza Viloría Hernández

Professor

Universidad Autónoma de Baja California
School of Humanities
Baja California, México

PhD. Manuel Aurelio Marquez Ortega

Professor

Universidad Autónoma de Baja California
School of Humanities
Baja California, México

PhD. Victoria Elena Santillan Briceño

Professor

Universidad Autónoma de Baja California
School of Humanities
Baja California, México

Abstract

The purpose of this research is to identify the factors associated with anxiety and their correlation with academic performance in university students at the Universidad Autónoma de Baja California. The study was carried out in two stages. The first stage was descriptive, and it measured the prevalence and anxiety levels of the students using the Adult Manifest Anxiety Scale A version (AMAS-A), as well as the academic performance perceived by the students in four academic activities: written evaluation, oral presentation, course complexity, and class overcrowding. The population selected for this research consists of first-semester students, both men and women (n=294) enrolled in the 2015/2016 school year. Stratified sampling was used to select an equivalent number of the different academic levels considering the gender variable. The results highlight the positive relationship of anxiety and two of the activities performed by the students: a written evaluation and an oral presentation. In conclusion, the results obtained in this study will allow re-focusing the strategies implemented by the institution to address the mental health of its students.

Keywords: Anxiety, Academic Performance, Higher Education, Mental Health

Introduction

Common mental disorders are increasing all over the world. Between 1990 and 2013, the number of people with depression or anxiety has increased by nearly 50%, from 416 million to 615 million. About 10% of the world's population is affected, and mental disorders account for 30% of non-fatal diseases worldwide (World Health Organization, 2019).

Anxiety is a factor associated with school dropout and underachievement in university students. Thirty percent of students show symptoms of anxiety in the first semesters of school since they face several challenges, such as choosing a program, learning new concepts, adapting to groups, passing exams, or planning their activities within the university (Arco Tirado, López, Heilborn Díaz, and Fernández Martín, 2005).

Among the different reports on change processes in new university students, it was found that for most of them, changes represent a positive effect on stress, as they perceive them as stimulating and motivating; however, stress puts some of them in a vulnerable situation both physically and mentally (Arco Tirado, López, Heilborn Díaz, y Fernández Martín, 2005).

The challenge of dealing with change and adaptation causes academic performance issues in some students, leading in many cases to learning difficulties or even forcing some to drop out of university. In 2018, Mexico was the number one country in university dropout rates amongst 21 countries. The report stated that five out of ten young people were at risk of dropping out of school (Organization for Economic Co-operation and Development, 2019). Anxiety can change and increase inside the school, since students may perceive an evaluation of their level of competence as threatening, especially if they expect negative consequences in case of poor performance. It is estimated that 25% of university students in other countries register high levels of test anxiety with a high tendency to fail (Esacalona y Miguel-Tobal, 1996; Ramos y Pérez, 2009).

The study of anxiety in the academic field has increased, particularly around anxiety and its treatment. In the case of education, it is an issue that has become extremely important, as it is associated with performance, failure, and school dropout (López, 2001).

Literature Review

Anxiety is an emotional state, a mix of feelings, behaviors, and physiological reactions or sensations. On the subjective side, anxiety is a unique feeling or emotion that is qualitatively different from any other emotional states such as sadness, depression, anger, or grief (Huertas, 1997; Khoshlessan y Pial, 2017). It is distinguished by various degrees of feelings of apprehension, fear, terror, or nervousness. On the more objective or behavioral side, anxiety manifests itself in the form of increased activity of the autonomic nervous system and symptoms such as heart palpitations, sweating, respiratory disturbances, and muscle tension (Huertas, 1997).

Anxiety is also considered a psychological state, whose effects interfere with the performance of tasks that require focus and long periods of concentration, affecting individuals of any class, race, gender, and religion (Sandín y Chorot, 1995). It also involves a feeling of fear and apprehension that is confusing, vague, and quite unpleasant. The anxious person worries a lot, especially about unknown dangers.

Furthermore, people with anxiety show a combination of the following symptoms: heart palpitations, shortness of breath, diarrhea, loss of appetite, fainting, dizziness, sweating, insomnia, frequent urination, and shaking. All these physical symptoms occur in both fear and anxiety, although with fear, people easily identify what they are afraid of, while with anxiety, people are not aware of their reasons for concern (Sarason, 1996).

Anxiety can be considered as an alert and activation system for situations perceived as threatening. It is a phenomenon that occurs in all people and that, under normal conditions, improves performance and adaptation to the social, work, or academic environment. It has the vital purpose of mobilizing us under threatening or worrying situations, thus enabling us to do what is necessary to avoid the risk, neutralize it, assume it, or face it adequately (Birenaum y Pinku, 1997).

When anxiety levels are higher than the established parameters and the response is inappropriate, anxiety ceases to be functional. In other words, the person invests time and effort into the manifestation of the symptoms, taking away dedication to other activities of daily life, which in turn creates more anxiety. Because of this, the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (American Psychiatric Association, 2013) considers the following behaviors for the diagnosis of generalized Anxiety Disorders (AD): excessive and persistent worry and difficulty to control different events or activities of daily life, in conjunction with three or more symptoms of physiological overactivation. Besides, such anxiety or worry must be present most days for at least six months.

Anxiety and Academic Performance

Within the framework of education, particularly higher education, there has been a significant interest in understanding the cognitive and behavioral elements or factors that contribute or affect the performance of students in school activities. Since the 1960s, there have been reports of studies on the cognitive process through which anxiety produces deterioration in academic performance. These studies focus on explaining the students' difficulty in concentrating on self-assessing thoughts, which tend to devalue their skills rather than evaluating the task. In general terms, anxious students concentrate more on the difficulty of the task than on academic mastery and frequently focus more on their lack of personal and emotional abilities and the failures they have experienced in previous exams (Contreras et al., 2005; Morales, 1999; Miguel, 2006).

Academic performance depends on the combination of the individual's anxiety and the nature or difficulty of the task. According to research reports, a high degree of anxiety facilitates mechanical learning but inhibits more complex knowledge, which is less known or depends on improvisation skills. Thus, anxiety can facilitate learning of complex tasks such as mathematics when the student's self-esteem is not threatened, or the task is challenging. In this sense, moderate anxiety in mathematics facilitates learning, while high levels inhibit it by affecting cognitive and motivational processes. Furthermore, it can be said that complex tasks in more anxious students tend to yield the worst results (Contreras, et al., 2005).

It has been found that learning-focused people handle anxiety differently from those who are motivated by positive opinions or the fear of failure. Students who focus on learning goals (intrinsically), set themselves objectives related to the search of knowledge and the acquisition and improvement of specific skills. Mistakes are accepted as an inherent part of learning and as learning opportunities without showing states of anxiety that block the process. On the contrary, students who are motivated by the search of positive opinions (extrinsically) see mistakes as failures, and any situation of uncertainty is considered a threat, which results in states of higher anxiety (Huertas, 1997).

Twenge (2000) developed research where the anxiety scores of 170 American university students (representing 4,0192 students) were measured. The levels of anxiety were measured using the Taylor Manifest Anxiety Scale (TMAS), the Eysenck Personality Inventory (EPI), the Eysenck Personality Questionnaire (EPQ), and the State-Trait Anxiety Inventory (STAI). The results derived from the scores showed a correlation between time passed and the constant, significant increase in anxiety among university students. Moreover, it was found that anxiety levels are associated with social skills deficits in the individuals and the perception of environmental threats in the classroom and around the task.

The academic performance of university students is affected by a complicated context influenced by a series of daily factors (effort, work capacity, the intensity of study, competencies, aptitude, personality, attention, motivation, memory, relational environment), as well as a set of academic activities (studying, reading, taking notes, doing homework and spending time preparing for exams) that constitute a significant source of stress and anxiety for students and can influence their physical and psychological well-being (Aranceli, 2006; Morales, 1999).

According to the above, anxiety is a factor related to academic performance. For this reason, it is essential to know the prevalence of anxiety levels and establish said levels to allow promoting intervention strategies that attend to the mental health of university students.

Methodology

The purpose of this research is to identify the factors associated with anxiety and their correlation with academic performance in university students at Universidad Autónoma de Baja California. Specifically, two objectives were established: a) to measure the levels of anxiety in first semester students and, b) to establish a relationship between anxiety and academic performance in university students of the School of Political Science and the School of Pedagogy and Educational Innovation.

The research was carried out in two stages. The first stage was descriptive, and it measured the prevalence and anxiety levels of the students at both schools considered for the study. The second stage consisted of an analysis of the relationship between anxiety levels and the academic performance perceived by the students.

Participants

The population selected for this research consists of first-semester students, both men and women (N=1532) enrolled in the 2015/2016 school year. Stratified sampling was used to select an equivalent number of the different academic levels considering the gender variable. Table 1 describes the sample of the study comprised of 294 students, where 55% (n=162) were women, and 45% (n=132) were men. The sample consisted of 52% (n=153) morning shift students and 48% (n=141) afternoon shift students.

Table 1. Distribution of students enrolled in the common core by program (n=294).

	Morning Shift		Afternoon Shift		Total	
	n	%	n	%	n	%
Women	54	18	108	37	162	55
Men	99	34	33	11	132	45
Total	153	52	141	48	294	100

Instrument

Two instruments were used to achieve the purpose of this study. The first instrument was a version of the Adult Manifest Anxiety Scale Version A (AMAS-A) to measure the level of manifest anxiety of university students, excluding manifest anxiety due to exams. In addition to the standardized instrument, the second instrument used required the following information:

gender, program, semester, age, marital status, employment status, and type of work. Participants were also asked for information about their high school studies: type of institution, grade point average, toughest courses, year of graduation, and whether they failed any courses. Four academic situations were also evaluated: written evaluation, oral presentation, course complexity, and class overcrowding.

Results

The population studied consisted of 294 students with an average age of 20 years. Participants come from public schools 84% (n=80), and private schools 16% (=15). It was identified that 57% (n=167) of the students, had greater difficulty in mathematical logic activities and 22% (=65) in natural sciences.

Regarding high school course failure, 48% (=141) mentioned they had failed a course and had to take it a second time. From this percentage, 57% (=80) were women, and 42% (n=59) were men. Upon entering university, the failure rate decreased to 14% (n=41).

According to the AMAS test results (Adult Manifest Anxiety Scale), based on the score obtained, the results can be classified as low level, "normal" expected level, slightly elevated level, clinically significant level, and extreme level. It is worth mentioning that in this research, no participants showed an extreme level.

When analyzing the general anxiety shown by the students, 32% (=95) showed a low level of anxiety, 40% (n=118) an expected level, 20% (n=60) showed a slightly elevated level, and 7% (n=21) has a clinically significant level of anxiety. Concerning the slightly elevated level of anxiety, it is worth noting that 68% (=41) were women, and 32% (n=19) were men. This means that men had a proportionately low level of anxiety (see Table 2).

Table 2. Distribution of students to total anxiety experienced by gender (N=294).

Total Anxiety Experienced	Gender					
	Male		Female		Total	
	n	% ¹	n	%	n	%
Low Level	24	58	71	75	95	32
Expected Level	40	55	78	66	118	40
Slightly Elevated Level,	19	32	41	68	60	21
Clinically Significant Level	5	23	16	76	21	7

¹ Percentage calculated based on the total by line,

Pearson's correlation was used to assess the relationship between academic situations (written evaluation, oral presentation, course complexity, and class overcrowding), and anxiety in university students. Table 3 shows the analysis of the correlation between indicators of the written evaluation, oral presentation, course complexity, and class overcrowding, with the AMAS-A anxiety test. As expected, a significant and positive correlation was found between most of the indicators.

The results confirm that the written evaluation to which the students are exposed is associated with slightly elevated levels of anxiety ($r=.780^{**}$), followed by oral presentations ($r=.670^{**}$). There is also a positive relationship between clinically significant levels and the written evaluation ($r=.320^{**}$) and oral presentation ($r=.350^*$). It is concerning that anxiety affects the performance of these two competencies of students in the school environment (see Table 3).

Table 3. Correlation coefficient for the academic situation indicators and the AMAS-A anxiety test (n=294).

Indicator	AMAS-A		
	Expected Level	Slightly Elevated Level	Clinically Significant Level
Written Evaluation	.300**	.780**	.320**
Oral Presentation	.360*	.670**	.350*
Course complexity	.480**	.500*	.221*
Class overcrowding	.450*	.532**	.120*

* $p < 0.05$, ** $p < 0.01$,

Additionally, there is a positive correlation between the physiological anxiety scale measured by the test (AMAS-A) and the academic situation indicators, especially written evaluation ($r=.800^{**}$), oral presentation ($r=.750^*$), and class overcrowding with slightly elevated levels. It is relevant to highlight the negative effect of clinically significant levels and their correlation with oral presentations ($r=.345^{**}$).

The results describe the substantial relationship between the academic performance of university students and anxiety in a complex context, influenced by a series of daily aspects that are a significant source of stress and anxiety for students. This can affect their physical and psychological well-being as established by Aranceli, 2006, and Morales in 1999 (see Table 4).

Table 4. The correlation coefficient between academic situation indicators and the AMAS-A anxiety test (n=294).

Indicator	AMAS- A Physiological Anxiety		
	Expected Level	Slightly Elevated Level	Clinically Significant Level
Written Evaluation	.200**	.800**	.321*
Oral Presentation	.260*	.750**	.345**
Course complexity	.380**	.620*	.320*
Class overcrowding	.150*	.700**	.200*

*p<0.05, **p<0.01,

Conclusion:

The results show that students from both schools show moderate levels of anxiety. The most significant sources of anxiety for the students were worrying about the consequences of their grades on the written evaluation and the oral presentation. The study also found that the professor's personality and behavior, teaching methods, and teaching practices were also sources of anxiety in the classroom.

Gender did not have a substantial impact on anxiety in relation to the measured indicators. However, women showed higher levels of anxiety than men. No difference was observed between the morning and afternoon shift students either. These results highlight a common problem in the life of university students. Also, the results of this study will allow re-focusing the strategies implemented by the institution to address the mental health of its students.

References

Aranceli, S. P. (2006). Evaluación de niveles, situaciones generadoras y manifestaciones de estrés académico en alumnos de tercer y cuarto año de una Facultad de Estomatología. *Revista Estomatológica Herediana* 16 (1) , 15-20.

Arco Tirado, J.L., López, Ortega S., Heilborn Díaz, A. V., y Fernández Martín, F.D. (2005). Terapia breve en estudiantes universitarios con problemas de rendimiento académico y ansiedad: eficacia del modelo “La Cartuja”. *International Journal of Clinical and Health Psychology*. V. 5 (3), 589-608.

Birennaum, M., y Pinku, P. (1997). Effects of test anxiety, information organization, and testing situation on performance on two test formats. *Contemporary Educational Psychology*, 22, 23-28.

Contreras, F., Espinosa, J.C., Esguerra, G., Haikal, A., Polanía A., y Rodríguez, A. (2005). Autoeficiencia, ansiedad y rendimiento académico en adolescentes. *Diversitas*. V1 (2), 183-194.

Escalona, A., y Miguel-Tobal, J.J. (1996). Ansiedad ante los exámenes: evolución histórica y aportaciones prácticas para su tratamiento. *Ansiedad y Estrés*. Vol.2, (2-3), 195-209.

Huertas, J. (1997). *Motivación. Querer aprender*. Argentina: Aique.

Khoshlessan, R., y Pial, D.K. (2017). Analyzing International students’ study anxiety in higher education. *Journal of International Students*. Vol 7 (2), pp 311-328. <https://files.eric.ed.gov/fulltext/EJ1129158.pdf>

López, J. J. (2001). *Médico UVI*. México: Medicina Familiar.

Manual de Diagnóstico y Estadístico de los Trastornos Mentales (2016). *Trastornos de Ansiedad*. American Psychiatric Association.

Miguel. (2006). *American Academy of Family Physicians*. American Academy of Family Physicians. <http://www.FamilyDoctor.org>

Morales. (1999). *El entorno familiar y el rendimiento escolar*. Andalucía: Consejería de Educación y Ciencia.

Organización Mundial de la Salud (2019). Trastornos mentales. <https://www.who.int/es/news-room/fact-sheets/detail/mental-disorders>

Organización para la Cooperación y el Desarrollo Económico (2019). *Informe 2019 para América Latina*. México; Autor.

Ramos, A.A., y Pérez, M. F. (2009). Escuelas y Fracaso. Niveles y Territorios. *Revista Iberoamericana de Educación*. 51, 1-25.

Reynols, R. C. Richmon, O.B. y Lowe P.A. (2007). Escala de Ansiedad Manifiesta en Adultos. México: Manuel Moderno.

Sandín, B.; Chorot, P. (1995). Conceptos y categorización de los trastornos de ansiedad. En A. Belloch, *Manual de psicopatología* (págs. 54-78). Madrid: Mc Graw Hill.

Sarason, y. S. (1996). *Psicología anormal, el problema de la conducta inadaptada*. México: Prentice-Hall Hispanoamericana.

Twenge, J. (2000). The age of anxiety? Birth cohort change in anxiety and neuroticism, 1952-1993. *Journal of Personality and Social Psychology*.