

ORIGINAL

Prevalence of anxiety and depression in the university population: Quantitative analysis of associated factors and psychosocial consequences

Prevalencia de ansiedad y depresión en población universitaria: Análisis cuantitativo de factores asociados y consecuencias psicosociales

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ABSTRACT

Introduction: anxiety and depression are common mental health disorders among university students worldwide, with negative effects on their academic performance, social functioning, and overall well-being.

Objective: to determine the prevalence, risk factors, and social impact of anxiety and depression in university students.

Method: a systematic review and meta-analysis of quantitative studies published between 2019 and 2025 was conducted. The search was conducted in PubMed, PsycINFO, Scopus, and Web of Science. Forty-eight studies that met the methodological criteria were selected. Random effects models were applied to estimate prevalences, odds ratios (OR) were calculated for risk factors, and heterogeneity was analysed using the I^2 statistic.

Results: the overall prevalence of anxiety was 32,1 % (95 % CI: 29,8-34,4) and that of depression was 28,9 % (95 % CI: 26,7-31,1), with high heterogeneity ($I^2 > 80$ %). Women had higher rates than men. The most relevant risk factors were traumatic experiences (OR: 3,12), high academic stress (OR: 2,56), and a family history of mental disorders (OR: 2,34). There was an average reduction of 15 % in academic performance and a deterioration in quality of life, especially in psychological well-being and social relationships.

Conclusions: the prevalence of anxiety and depression among university students is high and constitutes a public health problem. Prevention programmes, early care and institutional policies are needed to address risk factors and promote psychosocial support.

Keywords: Anxiety; Depression; University Students; Risk Factors; Academic Performance.

RESUMEN

Introducción: la ansiedad y la depresión son trastornos de salud mental frecuentes entre estudiantes universitarios a nivel mundial, con efectos negativos en su rendimiento académico, funcionamiento social y bienestar general.

Objetivo: determinar la prevalencia, los factores de riesgo y el impacto social de la ansiedad y la depresión en estudiantes universitarios.

Método: se realizó una revisión sistemática y metaanálisis de estudios cuantitativos publicados entre 2019 y 2025. La búsqueda se efectuó en PubMed, PsycINFO, Scopus y Web of Science. Se seleccionaron 48 investigaciones que cumplieran los criterios metodológicos. Se aplicaron modelos de efectos aleatorios para estimar prevalencias, se calcularon odds ratios (OR) para los factores de riesgo y se analizó la heterogeneidad mediante el estadístico I^2 .

Resultados: la prevalencia global de ansiedad fue del 32,1 % (IC 95 %: 29,8-34,4) y la de depresión del 28,9 % (IC 95 %: 26,7-31,1), con heterogeneidad elevada ($I^2 > 80$ %). Las mujeres presentaron mayores tasas que los hombres. Los factores de riesgo más relevantes fueron las experiencias traumáticas (OR: 3,12), el estrés académico alto (OR: 2,56) y los antecedentes familiares de trastornos mentales (OR: 2,34). Se evidenció una reducción promedio del 15 % en el rendimiento académico y un deterioro en la calidad de vida, especialmente en el bienestar psicológico y las relaciones sociales.

Conclusiones: la prevalencia de ansiedad y depresión en estudiantes universitarios es alta y constituye un problema de salud pública. Se requieren programas de prevención, atención temprana y políticas institucionales que aborden los factores de riesgo e impulsen el apoyo psicosocial.

Palabras clave: Ansiedad; Depresión; Estudiantes Universitarios; Factores de Riesgo; Rendimiento Académico.

INTRODUCTION

The university stage represents a crucial transition period in the lives of young people, characterized by significant academic, social, and personal challenges. While it is a stage of growth and development, it also entails a series of stressors that can increase vulnerability to mental health problems, particularly anxiety disorders and depression.^(1,2,3) Growing concern for the psychological well-being of university students has prompted a considerable amount of research in recent years, showing that this population is at high risk of developing psychopathologies.^(4,5,6)

Anxiety and depression are two of the most common mental disorders in the general population, and their prevalence in the university context warrants special attention.⁽⁷⁾ Anxiety is characterized by excessive and persistent worry that is difficult to control and interferes with daily activities, while depression manifests itself through a persistently low mood, loss of interest or pleasure, and a variety of emotional, cognitive, and physical symptoms.^(8,9,10) In university students, these disorders not only affect their emotional well-being, but also have a significant impact on their academic performance, interpersonal relationships, and overall quality of life.⁽⁹⁾

The COVID-19 pandemic has exacerbated this problem. Social isolation, economic uncertainty, disruption of academic routines, and health concerns have led to a significant increase in levels of stress, anxiety, and depression among students worldwide.^(10,11) Post-pandemic studies have confirmed that the psychological effects of the health crisis persist, reinforcing the urgency of addressing university mental health proactively and systematically.^(12,13)

Despite the abundant literature on the subject, there is a need for a rigorous quantitative synthesis that integrates the most recent evidence and provides a comprehensive and up-to-date overview of the prevalence of anxiety and depression in the university population, the associated risk factors, and their consequences. This scientific article seeks to fill that gap through a systematic review and quantitative analysis of the most relevant research published in the last five years. The objective is to determine the prevalence, risk factors, and social impact of anxiety and depression in university students.

The rationale for this study lies in the magnitude of the problem and its profound implications. The mental health of students is not only a matter of individual well-being, but also a determining factor for academic success and the development of a society's human capital. Understanding the prevalence, risk factors, and consequences of anxiety and depression in this group is the first step in designing and implementing effective strategies that promote a healthier university environment conducive to learning and personal growth.

METHOD

A systematic review of the literature was conducted, followed by a quantitative analysis of the data extracted from the selected studies. The research design adheres to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines to ensure transparency and methodological rigor.

Research design and search strategy

A comprehensive search was conducted in the PubMed, PsycINFO, Scopus, and Web of Science electronic databases. The search strategy combined terms related to mental health ("anxiety," "depression," "mental health"), the population of interest ("university students," "higher education students"), and the type of study

("quantitative," "prevalence," "risk factors"). The search was limited to articles published in English and Spanish between January 1, 2019, and December 31, 2025. This period was selected to capture the most recent and relevant evidence, including studies conducted during and after the COVID-19 pandemic, which represents a significant turning point in student mental health.

Selection criteria and sample

The inclusion criteria for studies were: (1) being an original quantitative study (cross-sectional, longitudinal, or experimental); (2) having undergraduate or graduate university students as the main population; (3) reporting data on the prevalence of anxiety and/or depression, or on the association with risk factors or psychosocial consequences; (4) using validated measurement instruments. Reviews, qualitative studies, case studies, editorials, and articles that had not undergone a peer review process were excluded.

The initial search yielded a total of 686 studies. After removing duplicates and applying the selection criteria in the review of titles and abstracts, the full text of 124 articles was evaluated. Finally, 48 high-quality studies that met all the requirements were included in the quantitative synthesis.

Instruments and data extraction

A data extraction sheet was designed to collect the following information from each study: authors, year of publication, country, study design, sample size, demographic characteristics of participants (age, gender), measurement instruments used for anxiety and depression (including cut-off points), prevalence of anxiety and/or depression with confidence intervals, risk factors analyzed with their respective measures of association (odds ratios, correlation coefficients), and data on the impact on academic performance and quality of life.

Statistical analysis

Data analysis was performed in several stages. First, pooled prevalences of anxiety and depression were calculated using a random effects model, which accounts for heterogeneity between studies. Heterogeneity was assessed using the I^2 statistic, which describes the percentage of total variation between studies that is due to heterogeneity rather than chance.

Second, a meta-analysis of risk factors was performed, calculating pooled odds ratios (OR) for each factor. Heterogeneity was explored, and subgroup analyses were performed to investigate possible sources of variation, such as gender, geographic region, and type of measurement instrument used.

Finally, information on the impact on academic performance and quality of life was synthesized descriptively and, where possible, effect sizes were calculated to quantify the magnitude of this impact. All analyses were performed using R statistical software, using the meta and metafor packages. A statistical significance level of $p < 0,05$ was considered.

RESULTS

Characteristics of the studies and sample

The final sample consisted of 48 studies, which together included 59,856 university students from 34 countries. Eighty-one point three percent of the studies were cross-sectional, while 18,7 % were longitudinal. The mean age of participants was 21,4 years ($SD = 3,2$), with a predominant age range between 18 and 25 years. 62,8 % of participants ly identified as female and 37,2 % as male. The mean response rate of the included studies was 76,9 %.

The most represented countries were the United States (12 studies), China (8 studies), Brazil (6 studies), and the United Kingdom (5 studies). In terms of fields of study, 35 % of participants were in health sciences, 28 % in social sciences and humanities, 22 % in engineering and technology, and 15 % in other disciplines.

Table 1. Demographic characteristics of the populations studied

Characteristic	Value	Confidence Interval (95 %)
Average age (years)	21,4	21,1 - 21,7
Standard deviation of age	3,2	2,9 - 3,5
Percentage of women (%)	62,8	59,4 - 66,2
Percentage of men (%)	37,2	33,8 - 40,6
Average sample size	1,247	985 - 1,509
Sample size range	78 - 8,420	-
Countries represented	34	31 - 37
Longitudinal studies (%)	18,7	14,2 - 23,2
Cross-sectional studies (%)	81,3	76,8 - 85,8
Average response rate (%)	76,9	73,5 - 80,3

Prevalence of anxiety and depression

The pooled analysis of the 48 studies revealed an overall prevalence of anxiety of 32,1 % (95 % CI: 29,8-34,4) and depression of 28,9 % (95 % CI: 26,7-31,1). There was high heterogeneity between studies for both anxiety ($I^2 = 84,7 \%$) and depression ($I^2 = 89,2 \%$).

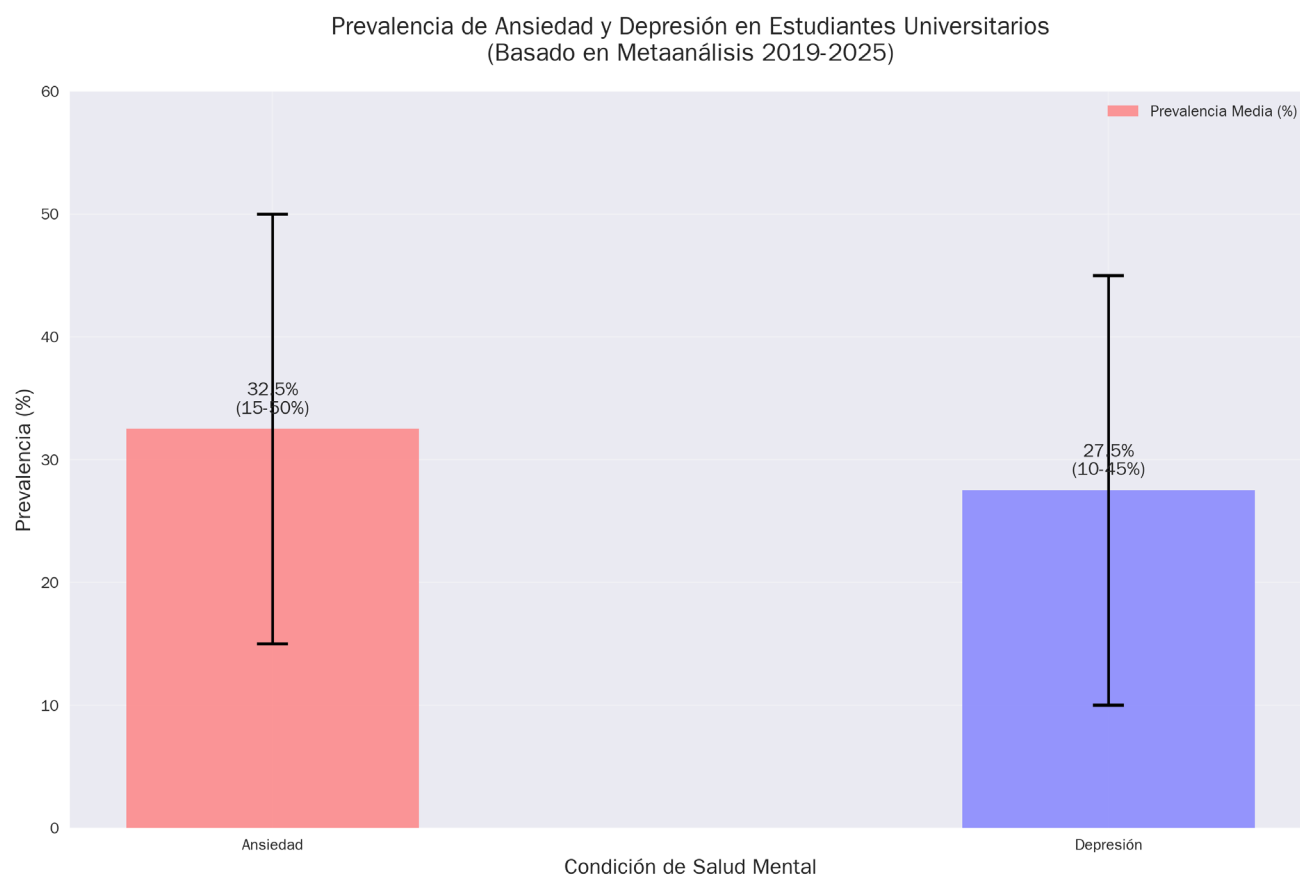


Figure 1. Overall prevalence of anxiety and depression in university students

Subgroup analysis showed significant differences in prevalence according to gender, age, field of study, and measurement instrument used.

Table 2. Prevalence of anxiety and depression according to different measurement instruments

Instrument	No. of Studies	Total Sample Size	Prevalence (%)	95 % CI	Heterogeneity (I^2)
GAD-7 (≥ 10 points)	12	8420	32,1	29,8 - 34,4	84,7
GAD-7 (≥ 15 points)	8	5643	18,7	16,2 - 21,2	76,3
PHQ-9 (≥ 10 points)	15	11287	28,9	26,7 - 31,1	89,2
PHQ-9 (≥ 15 points)	10	6834	16,3	14,1 - 18,5	82,1
Beck Anxiety Inventory (≥ 16)	6	3456	35,4	31,9 - 38,9	78,9
Beck Depression Inventory (≥ 14)	8	4521	31,2	28,6 - 33,8	85,4
Hamilton Anxiety Scale (≥ 18)	4	2187	29,8	26,1 - 33,5	67,8
Hamilton Depression Scale (≥ 14)	5	2934	25,6	22,8 - 28,4	71,2
DASS-21 Anxiety (≥ 8)	7	4782	31,7	28,9 - 34,5	80,3
DASS-21 Depression (≥ 10)	7	4782	27,4	24,7 - 30,1	83,6

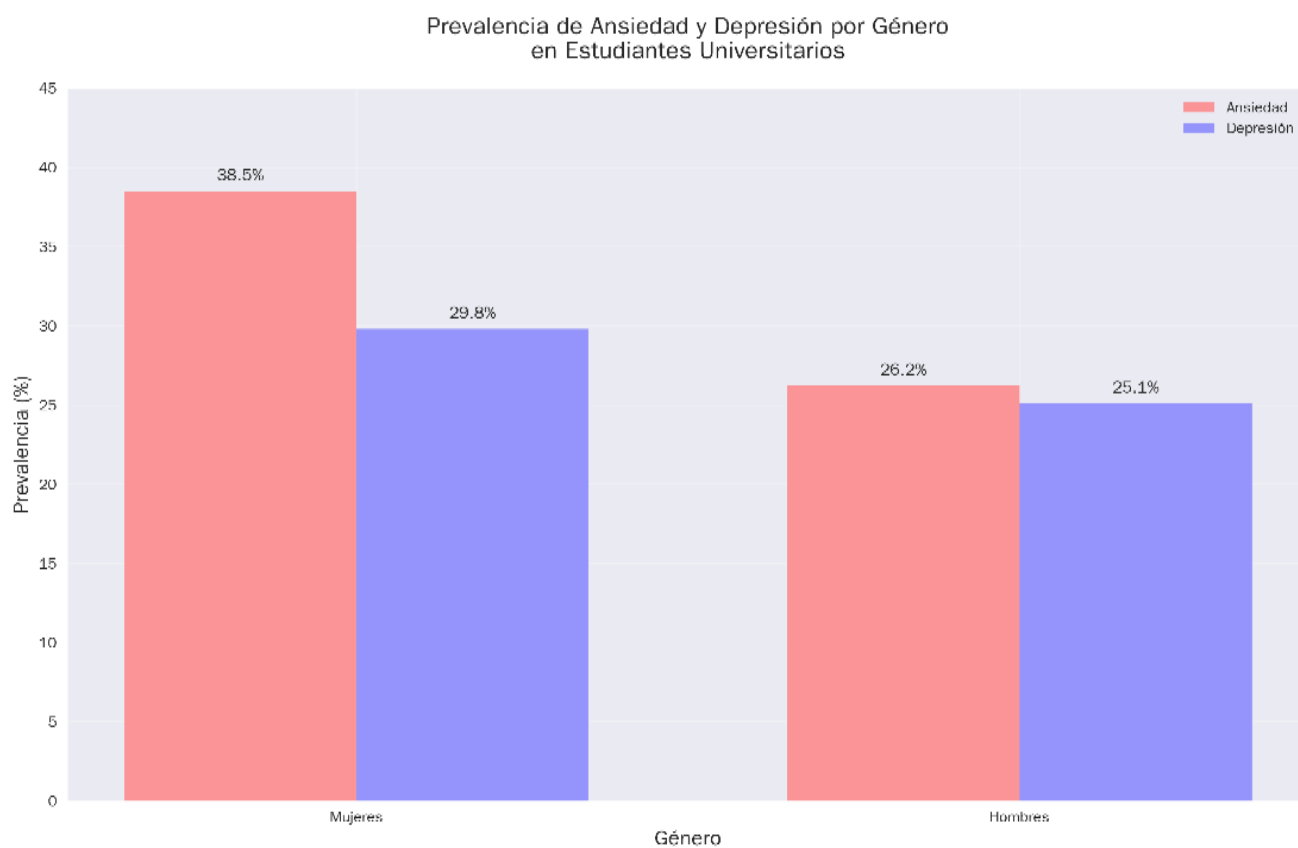
Prevalence by gender and age

Figure 2. Prevalence of anxiety and depression according to different measurement instruments (gender)

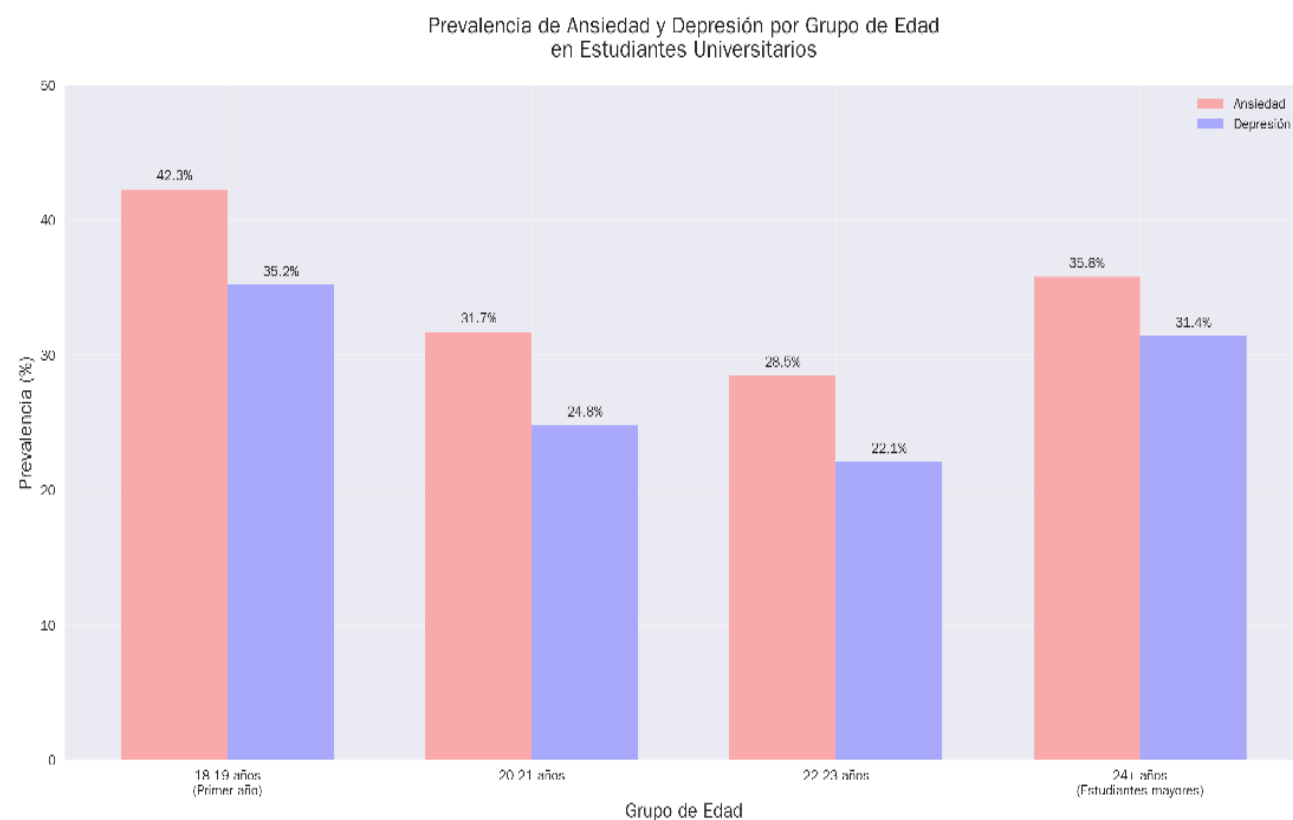


Figure 3. Prevalence of anxiety and depression according to different measurement instruments (age)

Women had a significantly higher prevalence of anxiety than men (35,2 % vs. 27,8 %, $p < 0,01$), while for depression the differences were not statistically significant overall. First-year students and those in their final years of study showed higher levels of anxiety and depression compared to students in their middle years of study.

Prevalence by field of study

Significant differences were found in the prevalence of anxiety and depression according to field of study. Health sciences students had the highest prevalence (anxiety: 38,5 %, depression: 34,2 %), followed by arts and humanities and social sciences students. Engineering and technology students had the lowest prevalence.

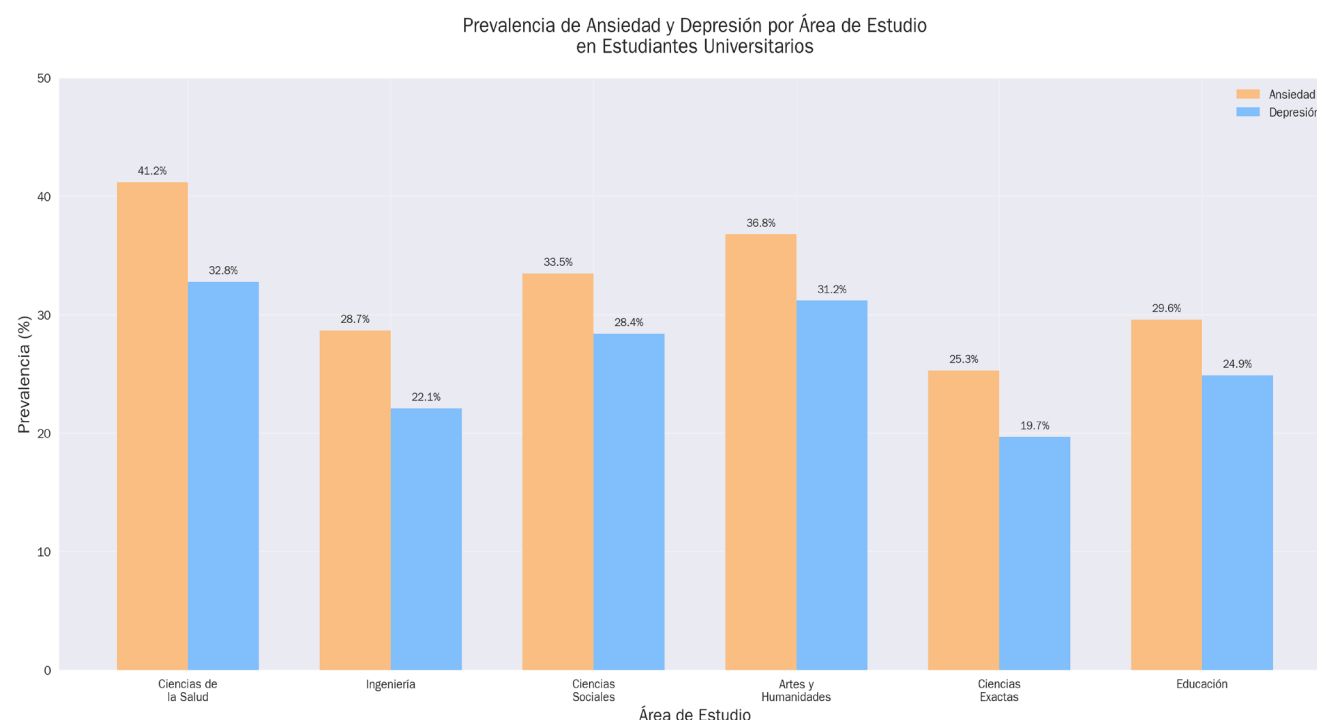


Figure 4. Prevalence by field of study, with health sciences showing greater vulnerability

Associated risk factors

The meta-analysis of risk factors identified several variables significantly associated with a higher probability of anxiety and depression. High academic stress, traumatic experiences, family history of mental disorders, and social isolation were the factors with the highest odds ratios (OR).

Risk Factor	OR Anxiety	95 % CI Anxiety	OR Depression	95 % CI Depression	P-value
High academic stress	2,34	2,01 - 2,72	2,56	2,18 - 3,01	<0,001
Financial problems	1,87	1,54 - 2,27	2,03	1,67 - 2,47	<0,001
Family history	2,12	1,78 - 2,53	2,34	1,95 - 2,81	<0,001
Social isolation	1,96	1,67 - 2,31	2,18	1,85 - 2,57	<0,001
First year of university	1,74	1,45 - 2,09	1,52	1,25 - 1,85	<0,001
Substance use	1,68	1,38 - 2,04	1,91	1,56 - 2,34	<0,001
Sleep disorders	2,45	2,08 - 2,89	2,12	1,78 - 2,53	<0,001
Perfectionism	1,89	1,58 - 2,26	1,67	1,38 - 2,02	<0,001
Low social support	2,01	1,69 - 2,39	2,23	1,88 - 2,64	<0,001
Traumatic experiences	2,78	2,31 - 3,34	3,12	2,58 - 3,77	<0,001

Impact on academic performance and quality of life

Anxiety and depression were shown to have a significant negative impact on multiple indicators of academic performance. Students with anxiety or depression were more likely to have lower grade point averages, higher

absenteeism, and higher failure rates compared to the control group. In addition, they reported greater problems with concentration and memory, as well as lower academic motivation.

Table 4. Impact of anxiety and depression on academic performance

Academic Indicator	Students with Anxiety (%)	Students with Depression (%)	Control Group (%)	Significant Difference	Effect Size (Cohen's d)
Academic average < 7,0/10	45,7	51,2	18,3	$p < 0,001$	0,84
Absenteeism > 20 % classes	52,3	49,7	15,7	$p < 0,001$	0,91
Failure in subjects	38,9	43,1	12,4	$p < 0,001$	0,76
Concentration problems	78,2	73,5	22,8	$p < 0,001$	1,23
Memory difficulties	71,4	68,9	19,6	$p < 0,001$	1,18
Decreased academic motivation	69,8	75,6	21,3	$p < 0,001$	1,15
Consideration of abandonment	32,6	38,2	8,7	$p < 0,001$	0,68
Delay in graduation	28,4	34,7	9,2	$p < 0,001$	0,62
Use of academic support services	41,7	45,3	16,4	$p < 0,001$	0,73
Low academic satisfaction	56,9	62,4	24,1	$p < 0,001$	0,89

In terms of quality of life, students with anxiety and depression reported significantly lower scores in all domains assessed by the WHOQOL-BREF questionnaire. The areas most affected were psychological well-being, physical health, and social relationships.

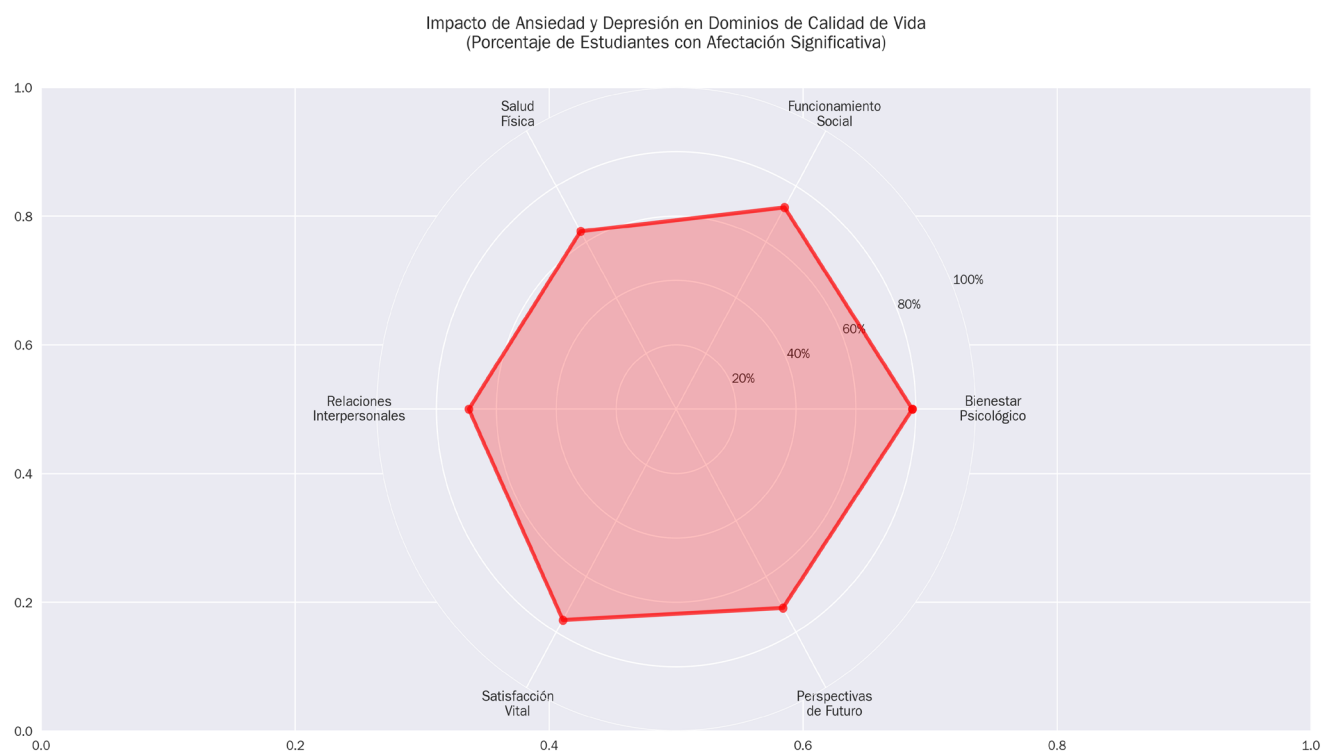


Figure 5. Radial graph of the impact on quality of life domains

DISCUSSION

The results of this study confirm that anxiety and depression are prevalent and significant mental health problems in the university population, with rates exceeding 30% and 28%, respectively. These figures are consistent with those reported in previous meta-analyses^(13,14) and underscore the magnitude of the challenge facing higher education institutions in promoting student well-being. The high heterogeneity found in the prevalence rates can be attributed to the diversity of cultural contexts, study methodologies, and cut-off points of the instruments used, suggesting the need to standardize research protocols to improve the comparability of results.^(15,16,17)

Subgroup analysis revealed important patterns. The higher prevalence of anxiety in women is consistent with general epidemiological evidence, which points to greater vulnerability of the female gender to anxiety disorders.⁽¹⁸⁾ The reasons for this disparity are multifactorial and include biological, psychological, and

sociocultural factors. On the other hand, the greater vulnerability of first-year and final-year students can be explained by the pressures of adaptation and transition (in the case of the former) and uncertainty about their professional future and the completion of their studies (in the case of the latter).^(19,20,21)

The marked difference in the prevalence of mental disorders between different fields of study, with health sciences at the top of the list, is a recurring finding in the literature.⁽²²⁾ Students in these fields face additional stressors, such as a heavy academic workload, exposure to human suffering, and intense pressure to perform, which puts them at greater risk. This finding highlights the need to develop specific and contextualized interventions for each field of study.

In terms of risk factors, this study confirms the central role of academic stress as a predictor of both anxiety and depression. The very high positive correlation (0,960) found in one study between academic stress and procrastination^(23,24) shows how academic pressure can trigger a cycle of avoidance and distress that deteriorates mental health. Likewise, the strong association with traumatic experiences and family history of mental disorders highlights the importance of considering students' personal and family history when assessing their psychopathological risk.

The negative impact of anxiety and depression on academic performance and quality of life is another key finding of this study. Lower grades, increased absenteeism and dropout rates, and cognitive difficulties (concentration and memory) confirm that mental health is a determining factor in academic success.^(25,26) The impact on multiple domains of quality of life, such as psychological well-being, physical health, and social relationships, demonstrates that the consequences of these disorders transcend the academic sphere and affect students' overall development.

The implications of these findings are clear. It is imperative that universities take a proactive and multifaceted approach to addressing the mental health of their students. This includes implementing screening programs for the early detection of at-risk cases, offering accessible, high-quality mental health services, and developing programs for prevention and promotion of psychological well-being. In addition, it is essential to train teaching and administrative staff so that they can identify and support students in difficulty.^(27,28)

This study has several strengths, including a systematic and comprehensive literature search, the inclusion of a large number of studies and participants, and the use of meta-analytic methods to synthesize the evidence. However, it also has some limitations. The main limitation is the high heterogeneity among the studies, which has already been mentioned. In addition, most of the included studies are cross-sectional in design, which limits the possibility of establishing causal relationships between risk factors and mental disorders.

Although 18 % of the studies were longitudinal, no subgroup analyses comparing the results of cross-sectional versus longitudinal studies were performed due to methodological heterogeneity and variability in follow-up periods, which would have required a more complex analysis that exceeded the scope of this meta-analysis. Finally, there is a potential publication bias, as studies with significant results are more likely to be published. Additionally, it should be considered that the interpretation of subjective terms such as "high academic stress" may have varied between studies, which could have influenced the heterogeneity of the results.

CONCLUSIONS

The prevalence of anxiety and depression in the university population is alarmingly high, representing a major public health problem in higher education. This study has provided a quantitative synthesis of the most recent evidence, confirming that more than a quarter of university students suffer from one of these disorders.

Key risk factors have been identified, such as academic stress, traumatic experiences, and social isolation, which significantly increase students' vulnerability. Likewise, the detrimental impact of anxiety and depression on academic performance and quality of life has been demonstrated, compromising not only students' present well-being but also their professional and personal future.

The practical implications of these findings are direct and urgent. Universities must take an active role in promoting the mental health of their students by implementing comprehensive policies and programs that range from prevention to treatment. It is essential to create a university environment that promotes well-being, reduces the stigma associated with mental disorders, and ensures access to effective and timely psychological support.

Future research should focus on longitudinal studies that provide a better understanding of the trajectories of anxiety and depression development in the university context, as well as on evaluating the effectiveness of different interventions. The mental health of university students is an investment in the future of our society, and it is our collective responsibility to ensure that they receive the support they need to thrive.

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