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Ansiedad generalizada entre adolescentes en Colombia: prevalencia al finalizar la educación secundaria*

Sandra Aguilar-Gomez† Camila Galindo‡

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Resumen

Esta nota presenta evidencia preliminar sobre la prevalencia de síntomas de ansiedad generalizada entre estudiantes que se encontraban finalizando la educación secundaria en Colombia. Para ello, se utiliza una encuesta implementada por el Icfes y aplicada a estudiantes que presentaron el examen Saber 11° en 2024 y 2025, enlazada con registros administrativos del examen. Los resultados muestran que los síntomas de ansiedad son frecuentes entre los estudiantes al final de la educación media: 22% presenta síntomas moderados y 14% síntomas severos, de acuerdo con la escala GAD-7. Asimismo, se observan diferencias marcadas por sexo, con mayores niveles de ansiedad entre las mujeres en todos los síntomas evaluados. Aunque se trata de evidencia preliminar de un estudio en curso, la nota aporta un primer diagnóstico descriptivo sobre la prevalencia de ansiedad entre adolescentes en Colombia.

Palabras clave: ansiedad generalizada; salud mental adolescente; educación secundaria; Saber 11; Colombia.

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Generalized Anxiety Among Adolescents in Colombia: Prevalence at the End of Secondary School

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Abstract

This note presents preliminary evidence on the prevalence of generalized anxiety symptoms among students nearing the end of secondary school in Colombia. To do so, we use a survey implemented by Icfes and administered to students who took the Saber 11° exam in 2024 and 2025, linked to the exam's administrative records. The results show that anxiety symptoms are common among students at the end of secondary school: 22% exhibit moderate anxiety symptoms and 14% severe anxiety symptoms according to the GAD-7 scale. We also document marked gender differences, with female students reporting higher levels of anxiety across all symptoms considered. Although these findings are preliminary and part of an ongoing study, this note provides a first descriptive diagnosis of the prevalence of anxiety symptoms among adolescents in Colombia.

Keywords: generalized anxiety; adolescent mental health; secondary education; Saber 11; Colombia.

Contents

1 Introduction

Adolescent mental health has become an increasingly important policy concern because of its implications for students' well-being, educational trajectories, and future labor market outcomes. Globally, mental disorders account for a substantial share of the burden of disease among children, adolescents, and young adults, and anxiety disorders are among the most prevalent conditions within this population (Patel et al., 2007; World Health Organization, 2025). Existing evidence also suggests that a large share of mental health problems emerges before adulthood, making adolescence a critical period for early detection and timely intervention.

Within this broader set of conditions, anxiety is particularly relevant. Symptoms of generalized anxiety can interfere with concentration, sleep, emotional regulation, and the ability to cope with stressful situations, all of which are closely linked to learning and academic performance. The literature has also documented that mental health problems during adolescence can have persistent consequences for human capital accumulation, labor market outcomes, and future earnings, while generating substantial social and economic costs for health and education systems (Smith & Smith, 2010; Layard, 2017; Bloom et al., 2012; Wittenberg et al., 2023). Understanding the prevalence of anxiety symptoms among adolescents is therefore important not only from a public health perspective, but also for the design of education policies aimed at promoting student well-being and supporting successful transitions into higher education.

Despite the importance of this issue, large-scale evidence on anxiety symptoms among adolescents remains limited in Latin America and in Colombia in particular. Much of the available research relies on clinical samples, local surveys, or studies with restricted geographic coverage, making it difficult to obtain a comprehensive picture of the prevalence of anxiety symptoms and the disparities that may exist across student groups. This limitation is especially important in the Colombian context, where the transition from secondary to postsecondary education coincides with a period of major academic, labor market, and family decisions, and where social and territorial inequalities may amplify students' vulnerability to mental health problems.

This note presents preliminary evidence on the prevalence of generalized anxiety symptoms among students nearing the end of secondary school in Colombia. We rely on a survey designed and implemented by Icfes and linked to administrative records from the Saber 11° exam, which makes it possible to study students' mental health alongside information on their demographic, socioeconomic, and academic characteristics. The survey was administered to students who took the Saber 11° exam in the second semester of 2024 and 2025, corresponding to Calendar A institutions, and collected 45,128 responses across the two rounds. Because survey responses can be linked to administrative records for the full population of examinees, the analysis also uses inverse probability weighting to improve the representativeness of the sample and recover population-level descriptive patterns.

Our preliminary results show that symptoms of generalized anxiety are common among students at the end of secondary school in Colombia. More than one third of students report frequent symptoms such as excessive worry, trouble relaxing, irritability, or feeling afraid that something awful might happen, and roughly one in three students exhibits moderate or severe anxiety symptoms. We also document marked gender disparities: female students report substantially higher levels of anxiety than male students across all GAD-7 items and are considerably more likely to be classified as having moderate or severe anxiety symptoms. These patterns suggest that mental health may constitute an additional dimension of inequality in the transition to higher education and underscore the importance of incorporating mental health indicators into discussions of student well-being, educational trajectories, and equity.

By documenting the prevalence and distribution of generalized anxiety symptoms among students completing secondary education in Colombia, this note seeks to contribute to the growing policy discussion on adolescent mental health. Rather than providing a clinical diagnosis, the analysis aims to characterize the extent of anxiety symptoms in a broad cohort of students, identify groups with higher levels of vulnerability, and provide evidence that can inform prevention, support, and student well-being strategies within the education system.

2 Data

This note draws on data from a survey administered by Icfes to students who took the Saber 11° exam in the second semester of 2024 and 2025. The Saber 11° exam is taken by students enrolled in grade 11, the final year of secondary education prior to potential entry into higher education. In both years, the survey targeted students in the Calendar A subsystem,[1] which comprises the vast majority of secondary school students in Colombia. In total, the survey collected 45,128 responses across the two rounds: 17,623 in 2024 and 27,505 in 2025.

The survey was administered online using the email addresses provided by students at the time of Saber 11° registration. To increase participation, Icfes implemented a multi-stage outreach strategy. First, communication materials were shared with school principals and administrative staff to inform them about the study and encourage participation among eligible students. Second, outreach efforts were expanded through teachers, particularly in public schools, who helped disseminate information about the survey and its purpose. Third, reminder emails were sent directly to students to encourage completion. The questionnaire also included an identity validation protocol requiring respondents to enter their identification number, which was cross-checked against administrative records to verify that the respondent had registered for the exam and to ensure consistency with the Saber 11° database. This validation procedure made it possible to link survey responses to students' administrative records from the exam.

The analysis in this note focuses on symptoms of generalized anxiety, measured using the Generalized Anxiety Disorder 7-item scale (GAD-7) (Spitzer et al., 2006). The GAD-7 is a widely used screening instrument that asks respondents how often, during the previous two weeks, they were bothered by seven symptoms associated with generalized anxiety, including excessive worry, trouble relaxing, irritability, and fear that something awful might happen. Responses are recorded on a four-point scale ranging from "not at all" to "nearly every day," allowing the construction of both item-specific measures of symptom prevalence and an aggregate index of anxiety severity. Because the survey responses can be linked to

[1] Colombia has two academic calendars that determine the timing of high school graduation and the administration of the Saber 11° exam. Calendar A follows a January–November school year, while Calendar B runs from August to June. Students take the exam in the session corresponding to their graduation cohort. Calendar A institutions account for the vast majority of Saber 11° examinees nationwide.

administrative records from the Saber 11° exam, the analysis can also characterize anxiety symptoms by students' demographic, socioeconomic, and academic characteristics.

3 Representativeness and weighting adjustments

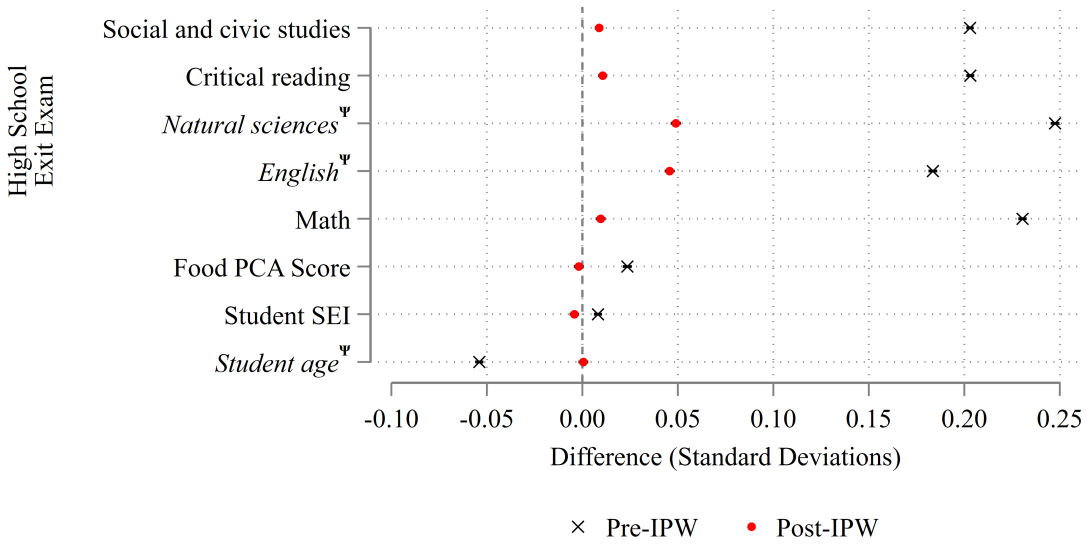
The survey data used in this note combine responses from two survey rounds administered to students who took the Saber 11° exam in the second semester of 2024 and 2025. In total, the survey collected 45,128 responses: 17,623 in 2024 and 27,505 in 2025. Because participation in the survey was voluntary and the sample was therefore non-probabilistic, raw survey estimates are not necessarily representative of the full population of Saber 11° examinees in each year. In particular, students who choose to respond to an online survey may differ systematically from non-respondents in both academic achievement and socioeconomic background.

To address this concern, we implement an inverse probability weighting (IPW) strategy that reweights survey respondents to resemble the full population of Saber 11° test takers in each application year, following the non-probability survey weighting framework described in Wu (2022).[2] The weighting procedure is estimated separately for the 2024 and 2025 survey rounds, using the universe of students who took the exam in each year as the target population. Conceptually, the approach consists of estimating each student's probability of responding to the survey as a function of observed characteristics available in the administrative records and then weighting respondents by the inverse of that estimated response probability. This procedure gives greater weight to students who are underrepresented in the survey sample relative to their prevalence in the underlying population and, in turn, reduces bias due to observable differences between respondents and non-respondents.

The propensity score models are estimated using information available for the full population of Saber 11° examinees, including standardized test scores, socioeconomic indicators, demographic characteristics, and school attributes. After estimating year-specific weights, we pool the two survey rounds into a single analytic sample and apply the corresponding IPW weights in all descriptive analyses reported in this note.

[2]See also Lee (2006), Bethlehem & Biffignandi (2011), Lee & Valliant (2009), and Elliott & Valliant (2017) for related discussions of propensity score weighting and inference in non-probability samples.

FIGURE 1: Covariate Balance Before and After IPW Weighting



Note: The figure reports standardized differences between survey respondents and the full population of Saber 11° examinees before and after inverse probability weighting (IPW). Weights are estimated separately for the 2024 and 2025 survey rounds and then applied to the pooled sample. Black lines represent 95% confidence intervals, constructed using bootstrapping with 200 iterations and 10% stratified samples based on survey response status. $^{\Psi}$ indicates variables excluded from the IPW estimation. *Source:* Authors' calculations based on Saber 11° administrative records and survey data.

Before applying IPW, respondents in the survey sample differed systematically from the average Saber 11° examinee. On average, survey respondents outperformed the full population in mathematics, English, natural sciences, critical reading, and social and civic competencies by roughly 0.15 to 0.25 standard deviations. At the same time, respondents were somewhat more socioeconomically disadvantaged than the average student, with a lower average socioeconomic index and worse indicators of food access. These pre-weighting differences are consistent with the survey rollout strategy and with the fact that participation was not random. After applying the IPW adjustment, these differences are substantially reduced, bringing the weighted survey sample much closer to the distribution of the full population in both academic and socioeconomic characteristics (Figure 1).

The improvement in covariate balance is not limited to the variables most strongly associated with survey participation. After weighting, we also observe substantial reductions in differences for characteristics that were not directly targeted by the weighting procedure, including age and some standardized test outcomes. Appendix Figure A.1 provides additional evidence on post-weighting balance for a broader set of categorical covariates. Taken

together, these results suggest that the IPW procedure is effective in improving the representativeness of the survey sample. After weighting, the pooled sample represents 752,975 students in the target population, of whom 55 percent are female.

4 Results

Symptoms of generalized anxiety are common among high school graduates in the country. Table 1 presents the prevalence of symptom severity and the categories of minimal, mild, moderate, and severe generalized anxiety symptoms based on the GAD-7. More than one third of students report worrying too much, having trouble relaxing, becoming easily annoyed or irritable, or feeling afraid as if something awful might happen more than half of the days or nearly every day during the past 2 weeks. Across the seven items on the GAD-7 scale, students report an average of 2.1 symptoms more than half of the days or nearly every day during the past 2 weeks, and 61% report at least one symptom at that frequency. In general, 22% of students have moderate generalized anxiety symptoms and 14% have severe generalized anxiety symptoms.

Female students are more likely than male students to report any anxiety symptom more than half of the days or nearly every day. The gender gap in symptom prevalence at that frequency is about 7-17 percentage points. For items such as worrying too much about different things or becoming easily annoyed or irritable, around 43-45% of female students report experiencing them, compared with about 30% of male students (Figure 2, Panel A). Consequently, 43% of female students have at least moderate anxiety symptoms, with 25% classified as having moderate symptoms and 18% as having severe symptoms, compared with 27% of male students, with 18% classified as having moderate symptoms and 9% as having severe symptoms (Figure 2, Panel B). Girls are also 15 percentage points less likely than boys to have minimal anxiety symptoms (21% among girls vs 35% among boys).

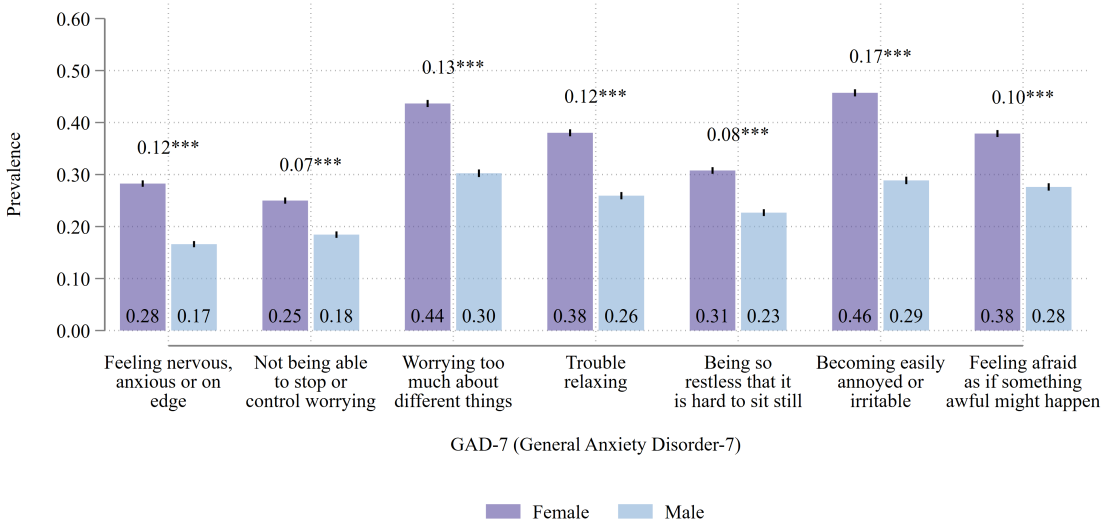
TABLE 1: **GAD-7 Anxiety Symptoms and Severity Categories**

Panel A. GAD-7 items	(1) Not at all	(2) Several days	(3) More than half the days	(4) Nearly every day
Feeling nervous, anxious or on edge	0.2668	0.5035	0.1323	0.0975
	(0.0024)	(0.0027)	(0.0018)	(0.0016)
Not being able to stop or control worrying	0.3863	0.3935	0.1276	0.0926
	(0.0026)	(0.0026)	(0.0018)	(0.0016)
Worrying too much about different things	0.1934	0.4308	0.2041	0.1716
	(0.0021)	(0.0026)	(0.0021)	(0.0020)
Trouble relaxing	0.2666	0.4079	0.1766	0.1488
	(0.0024)	(0.0026)	(0.0020)	(0.0019)
Being so restless that it is hard to sit still	0.3639	0.3651	0.1563	0.1148
	(0.0026)	(0.0026)	(0.0019)	(0.0017)
Becoming easily annoyed or irritable	0.2465	0.3728	0.1910	0.1898
	(0.0023)	(0.0026)	(0.0021)	(0.0021)
Feeling afraid as if something awful might happen	0.3101	0.3576	0.1574	0.1749
	(0.0025)	(0.0025)	(0.0019)	(0.0020)
Number of positive symptoms			2.1352	
			(0.0123)	
At least one positive symptom			0.6108	
			(0.0026)	
Panel B. GAD-7 anxiety severity	(1) Minimal	(2) Mild	(3) Moderate	(4) Severe
Anxiety score categories	0.2718	0.3737	0.2181	0.1364
	(0.0024)	(0.0026)	(0.0022)	(0.0018)
Post-IPW number of observations			752,975	
Number of observations			45,128	
First survey round share			39.05%	

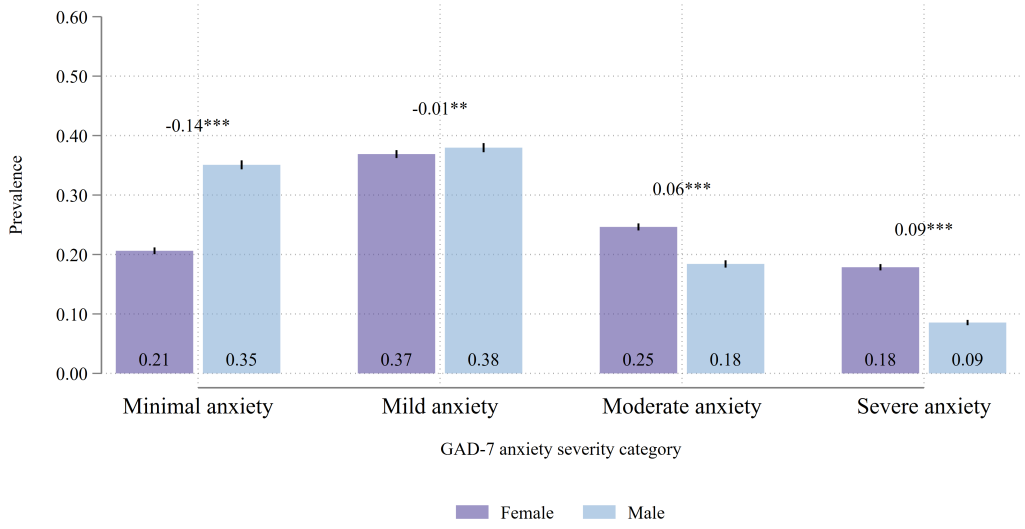
Note: Panel A reports the distribution of responses across the four original GAD-7 response categories ("Not at all", "Several days", "More than half the days", and "Nearly every day") for each questionnaire item. Estimates correspond to weighted prevalence rates and therefore sum to one across columns within each row, up to rounding error. "Number of items answered positively" reports the average number of GAD-7 items for which respondents selected either "More than half the days" or "Nearly every day", while "Proportion of respondents with any positive response" indicates the share of respondents reporting at least one symptom with that frequency. Panel B reports the distribution of respondents across anxiety severity categories based on the total GAD-7 score. The GAD-7 total score ranges from 0 to 21 and is calculated by assigning scores of 0, 1, 2, and 3 to the response categories "Not at all", "Several days", "More than half the days", and "Nearly every day", respectively. Anxiety severity categories are defined as follows: 0–4 = minimal anxiety, 5–9 = mild anxiety, 10–14 = moderate anxiety, and 15–21 = severe anxiety. Robust standard errors are reported in parentheses. *Source:* Authors' own calculations based on survey data.

FIGURE 2: Anxiety Symptoms and Severity Categories, by Gender

(a) Prevalence of Items Reported "More than Half the Days" or "Nearly Every Day"



(b) Distribution of Anxiety Severity Categories



Note: Panel (a) reports the prevalence of respondents who answered each GAD-7 item as "more than half the days" or "nearly every day." Panel (b) reports the proportion of respondents classified into each GAD-7 anxiety severity category. The GAD-7 total score ranges from 0 to 21 and is calculated by assigning scores of 0, 1, 2, and 3 to the response categories "not at all", "several days", "more than half the days", and "nearly every day", respectively. Severity categories are defined as follows: 0–4 = minimal anxiety, 5–9 = mild anxiety, 10–14 = moderate anxiety, and 15–21 = severe anxiety. In both panels, estimates are obtained from weighted linear probability models controlling for survey-wave fixed effects. Vertical black lines represent 95% confidence intervals. *Source:* Authors' own calculations based on survey data.

5 Conclusions

This note provides preliminary evidence on generalized anxiety symptoms among students nearing the end of secondary school in Colombia. Using a survey linked to Saber 11° administrative records and reweighted to improve representativeness, we document that anxiety symptoms are common among adolescents in the country. A sizeable share of students report frequent symptoms of worry, irritability, trouble relaxing, and fear, and roughly one third exhibit moderate or severe anxiety symptoms according to the GAD-7 scale.

The results also reveal pronounced gender disparities. Female students consistently report higher levels of anxiety than male students across all symptom domains and are substantially more likely to fall into the moderate and severe anxiety categories. These patterns suggest that mental health may be an important dimension of inequality during the transition out of secondary school and highlight the need to better understand the factors associated with students' emotional well-being at this stage of the life cycle.

Because this note presents early evidence from an ongoing study, the findings should be interpreted as a preliminary descriptive characterization of adolescent mental health in Colombia. In future work, we will study socioeconomic gradients and explore the relationship between anxiety symptoms and students' academic performance. Nonetheless, our early results on the high prevalence of anxiety, particularly among girls, highlight the importance of considering mental health as an important factor for eductional policy.

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A Online Appendix

FIGURE A.1: Covariate Balance Before and After IPW Weighting (Dummy Variables)

Note: The figure reports standardized differences between survey respondents and the full population of Saber 11° examinees before and after inverse probability weighting (IPW). Weights are estimated separately for the 2024 and 2025 survey rounds and then applied to the pooled sample. Black lines represent 95% confidence intervals, constructed using bootstrapping with 200 iterations and 10% stratified samples based on survey response status. $^{\Psi}$ indicates variables excluded from the IPW estimation. *Source:* Authors' calculations based on Saber 11° administrative records and survey data.