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Effects of Academic Stress on Psychological Distress and Suicidal Ideation in University Students: The Mediating Role of Coping Strategies

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Abstract

Background: University students have been recognized as a population vulnerable to mental health problems. This study explored the direct and indirect effects of academic stress on psychological distress and suicidal ideation in Colombian university students, emphasizing the mediating role of adaptive coping strategies.

Methods: A total of 1,170 undergraduates (*M* age = 24; *SD* = 7.77) from a private university completed validated self-report instruments assessing academic stress (SISCO), coping strategies (ACEA), depression, anxiety, and stress (DASS-21), and suicidal ideation (PANSI). Path analysis was conducted using AMOS with bias-corrected bootstrapping (5,000 resamples).

Results: Results showed that academic stress symptoms were positively associated with perceived stress, depressive symptoms, and suicidal ideation, while negatively associated with adaptive coping. Seeking social support and positive reappraisal partially mediated the relationship between academic stress and psychological outcomes. The strongest mediation effect was found between academic stress and depression (VAF = 65.4%), followed by suicidal ideation (VAF = 22.3%) and perceived stress (VAF = 2.18%). Moreover, perceived stress served as a key intermediary, reinforcing its role as a transdiagnostic mechanism linking academic stress to emotional vulnerability. The model demonstrated excellent fit (CMIN/DF = 0.089; RMSEA = 0.000; CFI = 1.00), supporting the proposed mediation structure.

Conclusions: Findings underscore the importance of enhancing students' coping capacities—especially social support and cognitive reappraisal—to reduce psychological distress and suicide risk in academic settings. Interventions targeting stress appraisal and adaptive coping may improve emotional well-being and resilience among university students.

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1. Introduction

University students have been recognized as a population vulnerable to mental health problems (Akter & Barua, 2025; Asif et al., 2020; Howlader et al., 2024; Restrepo et al., 2023), as they navigate a transitional period characterized by the need to assume new responsibilities and cope with academic, social, economic, and emotional pressures. These stressors may contribute to the development of conditions such as depression, anxiety, stress, and suicidal ideation. In line with this, recent research has reported an increasing prevalence of these mental health issues, particularly within university student populations (Gull et al., 2025; Mak, 2025).

In the Colombian context, empirical evidence (Alpi & Bechara, 2020; Castaño et al., 2022; Gallo-Barrera et al., 2022; Londoño et al., 2022; Restrepo et al., 2018) indicates a high prevalence of depressive and anxiety symptoms among undergraduate students, particularly during the initial stages of their academic trajectory. These mental health difficulties have been consistently associated with concerns about academic achievement, strained interpersonal relationships, and residence in environments characterized by elevated levels of hostility (Li et al., 2024; Salifu & Yidana, 2024). Notably, students reporting depressive symptomatology also frequently endorsed symptoms of anxiety, highlighting the substantial comorbidity between these conditions in this population (Luo et al., 2025).

Suicidal ideation has also been associated with a range of risk factors, including alcohol use, consumption of psychoactive substances (PAS), high levels of family dysfunction, and an increased risk of clinical depression (Castaño et al., 2022). Additional contributing factors identified in the literature include separation from one's home and familiar environment upon entering university, perceived lack of family support, a history of maltreatment in interpersonal or familial relationships, poor social skills, experiences of sexual abuse, and a family history of suicide (Cañón et al., 2024).

From a global perspective, recent studies such as Bloomfield et al. (2024) have identified several predictors of anxiety among university students, including a prior diagnosis of mental health disorders before entering university, exposure to traumatic events, personality traits such as extraversion and neuroticism, poor sleep quality, and experiences of academic stress. Moreover, post-pandemic research has reported elevated rates of depression and suicidal ideation in university populations, attributed to factors such as economic crises, increased anxiety levels resulting from severely limited interactions with faculty and peers, and the adoption of dysfunctional routines that may have negatively impacted students' mental health (Macalli et al., 2025).

A more in-depth examination of one of the key factors influencing university students' mental health highlights the role of academic stress (Restrepo et al., 2020). Barraza Macías (2008) conceptualizes academic stress as a systemic process that emerges when students, within educational settings, are exposed to demands that—based on their individual cognitive appraisal—are perceived as stressful, thereby generating a psychological imbalance. Empirical findings from Arpi Barazorda et al. (2024), Estrada-Araoz et al. (2024), and Abarca Castillo et al. (2022) indicate that academic stress adversely affects self-care practices, nutritional habits, sleep quality, and overall health status among university students. Moreover, it exerts a negative impact on academic performance and motivation, ultimately impairing students' capacity to cope with academic demands and diminishing their overall academic satisfaction (Zhang et al., 2022).

In university students, academic stress has been consistently associated with higher levels of suicidal ideation (Khumanlambam et al., 2025). Longitudinal and cross-sectional studies indicate that intense academic demands and pressure can increase depressive symptoms and suicide-related thoughts, often through maladaptive appraisal and coping processes (Ang & Huan, 2006; Okechukwu et al., 2022; Wu et al., 2022). From a cognitive–emotional perspective, stressful academic situations that are appraised as uncontrollable or exceeding one's coping resources may foster negative expectations about the future and feelings of entrapment, which are central features of hopelessness—a well-established predictor of suicidal ideation and behavior (Klonsky et al., 2012; Pineda-Roa et al., 2024). In addition, evidence suggests that cognitive–emotional regulation strategies and perceived social support can mediate or buffer the impact of academic stress on mental health outcomes in university samples, providing a plausible pathway from stress appraisal to suicide-related thoughts and plans (Restrepo et al., 2023).

In line with the aforementioned findings, several studies have underscored the critical role of coping strategies—understood as the knowledge, skills, and strategic behaviors individuals employ to regulate emotions elicited by stressful situations (Freire et al., 2019)—in the management of academic stress. Specifically, the use of strategies such as seeking social support, planning, positive reappraisal, and, more broadly, behaviors that reinforce a sense of self-efficacy (Khan, 2023) have been found to facilitate students' recovery from the psychological imbalance caused by academic stress. These strategies also contribute to a reduction in anxiety symptoms resulting from the high demands of the academic environment (Pontes et al., 2024).

It is worth highlighting that findings from various empirical studies have demonstrated that academic stress exerts a significant indirect effect on anxiety, mediated by coping strategies (Rahiman et al., 2023). Along similar lines, Alexandre et al. (2022) reported that coping strategies involving control, withdrawal, social support, and avoidance played a mediating role in the

relationship between academic stress and the dimensions of anxiety, depression, and stress, as assessed in a sample of university students. Furthermore, research by Okechukwu et al. (2021) and Khan et al. (2016) found that coping styles mediated the relationship between academic stress and suicidal ideation. Similarly, Genc (2017) demonstrated that emotion-focused coping exerted a statistically significant mediating effect on the relationship between anxiety and academic performance.

In addition to individual and academic factors, the sociocultural context of Colombia is likely to shape how university students cope with distress and seek help (García-Montalvo et al., 2025). In this setting, mental health-related stigma has been described as a key sociocultural barrier that limits recognition of problems and use of psychological services, both in the general population and among young people (Campo-Arias et al., 2014; Mascayano et al., 2016). Studies with Colombian university students also show that self-stigma related to seeking professional help is common and associated with more negative attitudes toward psychological services (Larrahondo et al., 2021). Moreover, structural barriers such as fragmented and insufficient mental health services further restrict timely access to care for youth (Donetto et al., 2024; Garavito et al., 2023). These sociocultural and structural constraints may foster reliance on internal coping strategies and informal social networks, while discouraging formal help-seeking in Colombian university populations (Agyapong-Opoku et al., 2025).

1.1 Aims and Hypotheses

The present study starts from the premise that academic stress is common among university students and functions as a salient risk factor for psychological distress; accordingly, we modeled academic stress as a key exogenous (independent) predictor in the multivariate analyses and examined adaptive coping as the psychological mechanism linking stress to mental-health outcomes, positing that higher academic stress undermines the use of adaptive coping strategies, which in turn is associated with greater distress. Our objective was to quantify the direct and indirect associations among academic stress, adaptive coping, perceived stress, depressive symptoms, anxiety, and suicidal ideation. We hypothesized that (1) higher academic stress would be positively associated with perceived stress, depressive symptoms, anxiety, and suicidal ideation; that (2) greater use of adaptive coping would be negatively associated with these outcomes; and that (3) adaptive coping would partially mediate the association between academic stress and each outcome, such that part of the positive effect of academic stress on distress would occur indirectly via reduced adaptive coping.

2. Materials and Methods

2.1 Participants

The study sample comprised 1,170 undergraduate students (54.18 % female; 45.81 % male) enrolled at a private university in Colombia. A non-probabilistic convenience sampling approach was employed, including individuals who voluntarily agreed to participate, provided informed consent, and fully completed the online survey containing the study instruments. Participants had a mean age of 24 years (*SD* = 7.77). The mean scores were 22.46 for female (*SD* = 6.33) and 25.81 for male (*SD* = 8.85). Regarding marital status, the majority were single (79.1%), followed by students in consensual unions (11.7%), married (7.9%), divorced (1.1%), and widowed (0.2%). The sample was evenly divided between students who were concurrently employed (50.0%) and those exclusively engaged in academic activities (50.0%).

In terms of socioeconomic status, the largest proportion of participants reported belonging to stratum 3 (43.3%), followed by stratum 2 (27.7%), stratum 4 (13.1%), stratum 1 (10.3%), stratum 5 (4.8%), and stratum 6 (0.8%), based on the national socioeconomic stratification system. In Colombia, this system classifies households into six strata (from 1 to 6) according to housing and public service conditions, serving as a proxy for socioeconomic status. For the purposes of analysis, strata 1 and 2 are considered low socioeconomic status, strata 3 and 4 as middle, and strata 5 and 6 as high. This classification is widely used in social research and public policy to assess disparities in access to resources and living conditions.

Participants were primarily enrolled in programs within the social sciences (33.6%) or disciplines related to marketing and communication (29.6%). Additional representation was noted among students pursuing degrees in engineering or accounting (20.6%), and business or management (16.2%). With respect to academic progression, 62.4% were in the early stages of their studies (semesters 1–3), 31.4% were in intermediate stages (semesters 4–7), and 6.2% were in advanced stages (semesters 8–10). At the time of data collection, most participants were not receiving psychological treatment (91.2%), whereas 8.8% reported currently engaging in mental health services. Additionally, 10.7% indicated having received a formal diagnosis from a mental health professional. Regarding pharmacological treatment, 4.1% reported using psychiatric medication, and 4.5% disclosed the use of psychoactive substances. In both cases, many participants denied current use (95.9% and 95.5%, respectively).

2.2. Measures

2.2.1 SISCO Inventory of Academic Stress

The SISCO Inventory is an instrument specifically designed for university students in Spanish-speaking contexts (Barraza Macías, 2007). It consists of 31 items distributed across three

dimensions: (1) sources of academic stress (stressors), (2) stress symptoms (physical, emotional, and behavioral), and (3) coping strategies employed by students to regulate academic stress. Items are rated on a 5-point Likert scale ranging from 1 ("never") to 5 ("always"). Several studies have reported adequate reliability indices for the instrument, with Cronbach's alpha coefficients exceeding .80 across subscales, indicating acceptable internal consistency (Barraza Macías, 2007, 2010). The inventory has been validated in multiple Latin American educational settings, demonstrating cultural relevance and sensitivity to the academic conditions experienced by university students (Castillo et al., 2018; Castillo-Navarrete et al., 2024; Manrique-Millones et al., 2019).

2.2.2 Depression, Anxiety, and Stress Scales – 21 items (DASS-21)

The DASS-21 is a self-report instrument developed to assess negative emotional states across three dimensions: depression, anxiety, and stress (Lovibond & Lovibond, 1995). The short version comprises 21 items (7 per subscale) and evaluates symptom severity during the past week using a 4-point Likert scale ranging from 0 ("does not apply at all") to 3 ("applies very much or most of the time"). Subscale scores are calculated by summing the corresponding items and multiplying by two, to align with the original 42-item version. The Spanish adaptation used in the present study was validated by Bados, Solanas, and Andrés (2005), and has demonstrated solid psychometric properties. In their validation, Cronbach's alpha coefficients were reported as .84 for depression, .70 for anxiety, and .82 for stress, along with evidence of convergent validity with other clinical measures. The DASS-21 is brief in administration (approximately 5 minutes) and suitable for use in university populations.

2.2.3 Positive and Negative Suicide Ideation Inventory (PANSI)

The PANSI (Osman et al., 2001) is a 14-item self-report measure comprising two subscales: Negative Suicide Ideation (8 items), which assesses thoughts related to hopelessness, worthlessness, and the desire to die; and Positive Suicide Ideation (6 items), which evaluates protective thoughts such as the desire to live, hopefulness, and emotional connectedness. Items are rated on a 5-point Likert scale (1 = "never" to 5 = "always") based on experiences during the past week. The instrument has demonstrated strong psychometric properties in international studies, including a stable bifactor structure and high internal consistency (α = .91 for the negative subscale and α = .85 for the positive subscale), as well as evidence of convergent, discriminant, and predictive validity in relation to measures of depression and hopelessness (Osman et al., 2001). In its adaptation to the Colombian context, the PANSI retained its factorial structure, explaining 64% of the total variance, and demonstrated high reliability (α = .92 for negative ideation and α = .79 for positive ideation). It also showed significant correlations with

measures of depression, self-esteem, and hopelessness (Villalobos-Galvis, 2010), supporting its construct validity among Spanish-speaking university populations.

2.2.4 Academic Stress Coping Scale (ACEA)

The ACEA was developed by Cabanach, Valle, Rodríguez, Piñeiro, and Freire (2010) as part of the Academic Stress Questionnaire. It consists of 23 items rated on a 5-point Likert scale (1 = "never" to 5 = "always") that measure the frequency with which students use various cognitive and behavioral strategies to cope with academic demands. Factor analyses conducted by the authors identified a three-factor structure: Positive Reappraisal, Seeking Social Support, and Planning and Personal Resource Management, which collectively explained approximately 61% of the total variance (Cabanach et al., 2010). Internal consistency was high, with Cronbach's alpha values ranging from .86 to .91 for the subscales and between .89 and .92 for the total scale. The ACEA is grounded in the transactional model of stress and coping proposed by Lazarus and Folkman (1984) and has demonstrated robust psychometric properties and factorial stability across diverse university samples (Cabanach et al., 2010, 2018).

2.3 Data analysis

The analyses were conducted using SPSS version 28.0 and AMOS version 26. Frequency analyses were performed for the sociodemographic characteristics of the participants, and descriptive analyses were conducted for the variables. There were no missing data. Data normality was assessed using the Kolmogorov-Smirnov (K-S) test, revealing non-parametric distributions. Spearman's rho coefficient was used to perform correlation analysis between the variables. The psychometric properties of the instruments were analyzed by estimating internal consistency (Cronbach's alpha and composite omega) and conducting an exploratory factor analysis (EFA) (Byrne, 2016).

A path analysis was performed to evaluate: (1) the direct effects of academic stress on adaptive coping strategies, psychological distress (operationalized as anxiety, depression, and perceived stress), and suicidal ideation; (2) the direct effects of adaptive coping strategies on psychological distress and suicidal ideation; and (3) the mediating role of adaptive coping strategies in the association between academic stress, psychological distress, and suicidal ideation. Multivariate normality was assessed through Mardia's multivariate skewness coefficient. As the coefficient exceeded the critical value defined by $p(p + 2)$, the assumption of multivariate normality was violated. Consequently, the model was estimated using the maximum likelihood method with bias-corrected bootstrapping procedures to obtain robust parameter estimates. Standardized total, direct, and indirect effects were computed using 5,000 bootstrap resamples and 95% bias-corrected confidence intervals, in accordance with current recommendations for mediation analysis in structural equation modeling (Hayes, 2018).

Model fit was evaluated using the chi-square (χ^2) probability level and the chi-square/degrees of freedom ratio (χ^2/df). A χ^2 probability level equal to or greater than 0.05 ($p \geq .05$) would indicate a good fit (Jöreskog & Sörbom, 1993), and χ^2/df should be less than 3 (Schermelleh-Engel et al., 2003). Additionally, comparative fit indices such as the Incremental Fit Index (IFI ≥ 0.90), the Comparative Fit Index (CFI ≥ 0.90), the Goodness of Fit Index (GFI ≥ 0.90), and its adjusted counterpart (AGFI ≥ 0.90), the Normed Fit Index (NFI ≥ 0.90), the Tucker-Lewis Index (TLI ≥ 0.90), and the Root Mean Square Error of Approximation (RMSEA ≤ 0.08) were used. IFI, CFI, GFI, and AGFI values equal to or greater than 0.90, and an RMSEA value equal to or less than 0.08, are considered adequate (Byrne, 2016; Hu & Bentler, 1999; McArdle & Nesselroade, 2014).

3. Results

Table 1 presents the mean and standard deviation values for all variables and their respective dimensions, based on the original factorial structure of the instruments used. According to the results of the Kolmogorov–Smirnov test, all variables exhibited distributions that significantly deviated from normality. Consequently, Spearman's rank-order correlation was employed to compute the correlation coefficients.

Table 1

Summary Statistics for the Variables and Their Dimensions

Variables/Dimensions	*M*	*DE*	*K-S*
Academic Stress			
Stressors	12.63	8.27	< 0.05
Symptoms	11.48	8.53	< 0.05
Coping	19.39	9.20	< 0.05
Coping Strategies			
Positive Reappraisal	27.08	7.64	< 0.05
Seeking Social Support	19.20	6.58	< 0.05
Planning	20.61	6.27	< 0.05
Suicidal Ideation			
Protective Factors (positive)	14.79	5.28	< 0.05
Risk Factors (negative)	3.45	5.71	< 0.05
Psychological distress			
Depression	5.47	4.61	< 0.05
Anxiety	5.93	4.90	< 0.05
Stress	7.55	4.67	< 0.05

The analysis of zero-order correlation coefficients revealed multiple statistically significant associations among the variables and their respective dimensions.

However, most of these correlations were of low magnitude. Notably, moderate-to-high positive correlations were observed between academic stress symptoms and risk factors associated with suicidal ideation, as well as with depression, anxiety, and perceived stress. In addition, strong positive correlations were identified among the levels of depression, anxiety, and perceived stress. All values of the correlation coefficients are displayed in Table 2

Table 2

Zero-Order Correlation Coefficients

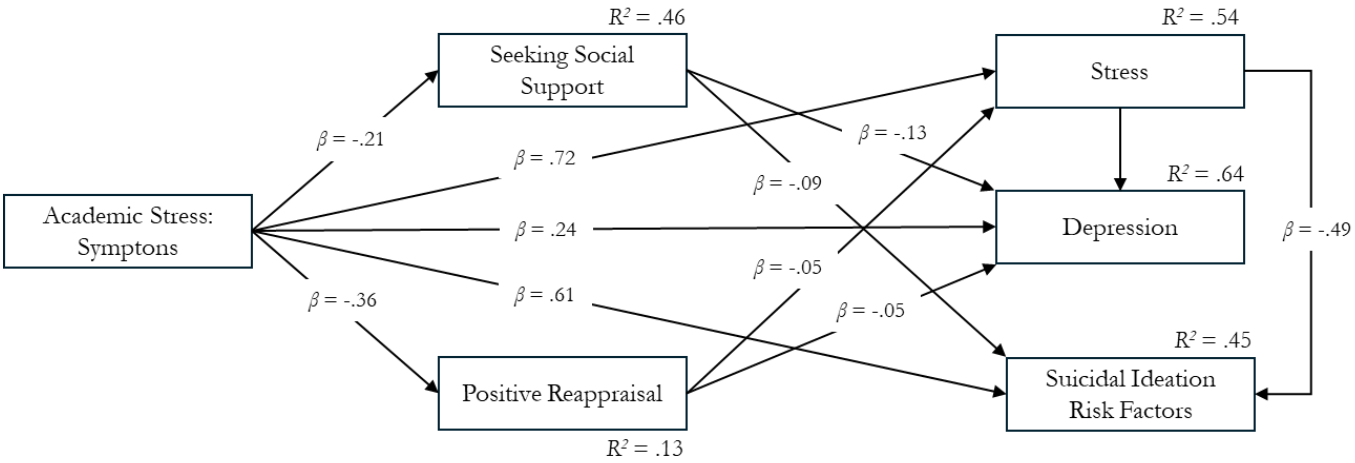
		1	2	3	4	5	6	7	8	9	10	11
1.	Stressors	1	.58*	.17*	-.14*	-.03	-.14*	.00	.26*	.38*	.39*	.43*
2.	Symptoms		1	.04	-.36*	-.21*	-.35*	-.19*	.50*	.68*	.67*	.73*
3.	Coping			1	.45*	.34*	.44*	.46*	-.08*	-.08*	.00	.03
4.	Positive Reappraisal				1	.65*	.85*	.65*	-.29*	-.39*	-.27*	-.30*
5.	Seeking Social Support					1	.64*	.50*	-.23*	-.32*	-.18*	-.18*
6.	Planning						1	.57*	-.24*	-.38*	-.26*	-.28*
7.	Protective Factors (positive)							1	-.24*	-.31*	-.17*	-.14*
8.	Risk Factors (negative)								1	.65*	.53*	.47*
9.	Depression									1	.75*	.75*
10.	Anxiety										1	.80*
11.	Stress											1

*$p < .01$

The path analysis indicated a satisfactory model fit (CMIN = 0.89, p = 0.766; CMIN/DF = 0.089; RMR = 0.035; AGFI = 0.999; RMSEA = 0.000), supporting the conceptualization of academic stress symptoms as an independent variable that explains psychological distress (stress and depression) and risk factors associated with suicidal ideation (i.e., hopelessness, worthlessness, and the desire to die). In the structural model, academic stress (symptoms) exerted negative direct effects on both coping strategies—seeking social support ($\beta = -.21$, $p < .05$) and positive reappraisal ($\beta = -.36$, $p < .05$). Seeking social support predicted lower stress ($\beta = -.13$, $p < .05$) and lower depression ($\beta = -.05$, $p < .05$), and positive reappraisal likewise predicted lower stress ($\beta = -.09$, $p < .05$) and lower depression ($\beta = -.05$, $p < .05$). Stress, in turn, showed a negative direct effect on suicidal-ideation risk factors ($\beta = -.49$, $p < .05$). The model explained 46% of the variance in seeking social support ($R^2 = .46$), 13% in positive reappraisal ($R^2 = .13$), 54% in stress ($R^2 = .54$), 64% in depression ($R^2 = .64$), and 45% in suicidal-ideation risk factors ($R^2 = .45$), indicating moderate to substantial explanatory power across outcomes. Table 3 summarizes the total and indirect effects observed among the variables in the model.

Figure 1

Path analysis



The values of the indirect effects support the conclusion that adaptive coping strategies partially mediate the relationship between academic stress symptoms, perceived stress, depression, and negative suicidal ideation. The variance accounted for by the mediation (VAF) of coping strategies in the relationship between academic stress symptoms and perceived stress was 2.18%, indicating a minimal mediation effect. In the relationship between academic stress symptoms and depression, the VAF was 65.4%, representing a substantial partial mediation. Lastly, the VAF corresponding to the relationship between academic stress symptoms and negative suicidal ideation was 22.3%, suggesting a partial mediation effect of low to moderate magnitude.

Table 3

Total, Direct, and Indirect Effects

	Effects				
	Positive Reappraisal	**Seeking Social Support**	**Stress**	**Depression**	**Suicidal Ideation**
	β [CI 95%]	*β* [CI 95%]	*β* [CI 95%]	*β* [CI 95%]	*β* [CI 95%]
Academic Stress Symptoms					
Total	-.362 [-.409/-.309]	-.214 [-.271/-.153]	.734 [.693/.758]	.683 [.645/.713]	.509 [.466/.552]
Direct	-.362 [-.409/-.309]	-.214 [-.271/-.153]	.717 [.681/.745]	.236 [.187/.292]	.605[.586/.640]
Indirect	——	——	.016 [.006/.031]	.447 [.399/.480]	.114 [.094/.221]
Positive Reappraisal					
Total	——	——	-.045 [-.082/-.016]	-.076 [-.136/-.013]	——
Direct	——	——	-.045 [-.082/-.016]	-.051 [-.106/.002]	——
Indirect	——	——	——	——	——
Seeking Social Support					
Total	——	——	——	-.135 [-.180/-.083]	-.091 [-.160/-.029]
Direct	——	——	——	-.135 [-.180/-.083]	-.091 [-.160/-.029]
Indirect	——	——	——	——	——
Stress					
Total	——	——	——	.544 [.277/.595]	.492 [.486/.501]
Direct	——	——	——	.544 [.486/.595]	.492 [.277/.501]
Indirect	——	——	——		
R^2	0.13	0.46	0.54	0.64	0.45

Note. All effects were statistically significant at $p < .05$.

The effects of Academic Stress Symptoms on the other variables were decomposed into direct and indirect components, with Positive Reappraisal and Seeking Social Support specified as mediators. Academic Stress Symptoms showed strong negative direct effects on both Positive Reappraisal and Seeking Social Support, indicating that higher Academic Stress levels were associated with lower use of these coping strategies. In turn, Positive Reappraisal exerted small but significant protective effects on Stress and Depression whereas Seeking Social Support was negatively associated with Depression and Suicidal Ideation. Through these mediating pathways, Academic Stress showed a strong total effect on Stress, largely accounted for by a direct path and a small indirect component. The total effect of Symptoms on Depression was also substantial, combining a modest direct effect and a large indirect effect via reduced Positive Reappraisal and Seeking Social Support and their downstream impact on Stress and Depression. For Suicidal Ideation, Symptoms displayed a strong direct effect and a smaller but significant indirect effect, yielding a moderate-to-large total association that is partly transmitted through their influence on the coping mediators and Depression.

4. Discussion

The findings of the present study underscore the mediating role of the coping strategy of seeking social support in the relationship between academic stress symptoms and both depressive symptomatology and suicide-related risk factors. Prior empirical evidence has consistently demonstrated that social support serves as a significant mediator in the process by which university students manage academic stress and its psychological consequences (Abdul Aziz et al., 2023; Gupta et al., 2024; Howlader et al., 2024; Khallad & Jabr, 2016; Khan, 2016; Muhtar & Wijaya, 2024; Pontes et al., 2024). In light of these findings, fostering strong interpersonal support networks—particularly involving family and close peers—may constitute a protective factor, as they facilitate emotional validation and increase the sense of shared experience, thereby improving students perceived ability to cope with academic demands.

In this line of results, Wan et al. (2022) emphasized that increased peer interaction among young adults is positively associated with greater reliance on peers during adverse situations. Conversely, limited perceived support from close social networks tends to heighten feelings of loneliness and perceived incompetence, conditions under which depressive symptoms may become more pronounced, thereby increasing vulnerability to suicidal ideation (Darvishi et al., 2024).

Likewise, Pui Yung Chyu and Chen (2024) investigated the mediating effects of perceived support from peers, teachers, and parents in the associations between academic stress and various psychological outcomes, including depression, anxiety, and somatization. Their results showed that perceived peer support significantly mediated the relationship between academic

stress and depression, whereas perceived teacher support mediated the links between academic stress, anxiety, and somatic symptoms.

To further elucidate the results of the present study, it is essential to consider that perceived social support refers to an individual's subjective evaluation of the availability, adequacy, and reliability of social resources during times of psychological need (Zhou et al., 2015). Within this framework, the use of social support seeking as a coping strategy operates as a protective mechanism (Vicary et al., 2025) that may attenuate the adverse psychological consequences of academic stress experienced during university life

It can therefore be posited that the presence of a robust social support network contributes to enhanced psychological well-being and serves as a moderating factor in mitigating the detrimental effects of academic stress on university students' mental health (Banstola et al., 2020) . Social support facilitates access to both emotional reassurance and instrumental assistance, which are critical in navigating academically stressful or adverse situations

Another salient finding of the present study concerns the mediating role of positive reappraisal—a cognitive coping strategy through which individuals reinterpret stressful events by emphasizing their potential benefits or positive aspects (Folkman, 1997). This form of cognitive reframing was found to partially mediate the association between academic stress symptoms and both perceived stress and depressive symptomatology, suggesting its regulatory function in attenuating the emotional consequences of academic demands. Supporting this interpretation, Buzdar and Ikram (2024), in a study conducted with university students during the COVID-19 pandemic, employed mediation analyses and confirmed the explanatory contribution of positive reappraisal in the relationship between academic stressors and students' emotional regulation capacities. Their findings highlight the role of positive reappraisal as a psychological resource that facilitates adaptive adjustment by modulating the subjective appraisal of stress-inducing situations.

In a similar studies Freire Rodríguez and Ferradás Canedo (2020), Vein Marciniak et al. (2024), Souto-Gestal et al. (2018), and Martínez de la Rosa et al. (2025) found that students with greater proficiency in employing coping strategies—specifically, problem-focused coping and positive reappraisal—when confronted with emotionally taxing academic demands, exhibited a significant reduction in perceived stress levels throughout their academic training. Furthermore, the consistent use of positive reappraisal was identified as a protective factor in the prevention of depressive symptomatology (Toribio Pérez & Andrade Palos, 2025), underscoring its relevance as a cognitive-emotional regulation mechanism that enhances psychological resilience in high-stress academic environments.

The mediation model derived from the present study demonstrated that perceived stress functions as an intermediate mechanism through which academic stress symptoms exert their influence on both depressive symptomatology and suicide-related risk. This pattern of results is consistent with findings reported by Wang et al. (2023), who identified perceived stress as a significant mediator in the association between extracurricular engagement and suicidal ideation among university students. Likewise, Freitas et al. (2023) and Akram et al. (2023) reported that students exposed to elevated levels of stress exhibited increased vulnerability to academic underperformance and the onset of clinically significant depressive symptoms—outcomes that are strongly associated with lower quality of life and greater severity of psychological dysfunction. These findings underscore the central role of perceived stress as a transdiagnostic factor linking academic strain to adverse emotional and behavioral outcomes in higher education contexts.

One of the strengths of this study is the sample size (1,170 students), which provides access to a heterogeneous data set from the population in terms of semester, academic program, and age group, thereby increasing statistical power and strengthening the external validity of the findings. Likewise, the multidimensional assessment of variables involved in students' mental health, such as suicidal ideation, academic stress, perceived stress, anxiety, depression, and coping strategies, revealed the mediating role of coping strategies in the effects of academic stress on these emotional states. The results provide significant evidence for the design of effective interventions aimed at promoting mental health in higher education contexts.

This study constitutes the first empirical contribution to demonstrate the mediating role of perceived stress in the relationship between academic stress, depressive symptomatology, and suicidal ideation among university students, thereby offering a novel explanatory framework for understanding the emotional impact of academic stressors. The findings support the assertion that the influence of academic stress on mental health is not exclusively attributable to the objective demands of academic tasks, but is significantly shaped by students' cognitive and emotional processing of such demands (Palamarchuk & Vaillancourt, 2021). Consistent with the transactional model of stress proposed by Lazarus and Folkman (1984), stress is conceptualized as a psychological state emerging from an individual's appraisal of environmental challenges in relation to their perceived coping capacity.

The present findings underscore the central role of mediating variables—such as seeking social support, positive reappraisal, and perceived stress itself—in modulating the psychological consequences of academic strain. These mechanisms not only buffer the emotional impact of stress but also account for indirect pathways through which academic stress contributes to mental health deterioration.

The empirical evidence derived from this model provides a robust foundation for designing early, targeted interventions within higher education institutions. Specifically, strengthening students' social and emotional support systems through peer mentoring programs, faculty-student engagement initiatives, and academic counseling services (Hyseni Duraku et al., 2023; Palamarchuk & Vaillancourt, 2021; Bocanegra & Cupil, 2024) may facilitate help-seeking behaviors and enhance students' perceived capacity for coping with academic adversity. In parallel, cognitive-behavioral intervention frameworks may be employed to promote cognitive restructuring skills that enable students to reinterpret academic challenges as opportunities for personal and academic growth, thereby attenuating the affective burden associated with academic stress.

An additional limitation concerns the degree of overlap between our measures of academic stress and perceived stress. The SISCO subscales were originally developed to capture stressors and stress responses specifically anchored in the academic context, whereas the DASS-21 perceived stress score reflects a broader evaluation of how overwhelming and uncontrollable current life circumstances are. As expected, these constructs were correlated; however, the association between academic stress symptoms (SISCO) and perceived stress (DASS-21) was particularly strong (r = .73), indicating substantial shared variance and suggesting partial redundancy. This pattern implies that academic stress symptoms may reflect not only reactions to academic demands but also more general aspects of perceived stress. Consequently, the overlap between these measures may inflate some of the observed associations and should be considered when interpreting the results. Future research should further disentangle domain-specific and global stress processes, for instance by using multimethod assessments and more fine-grained measures that separate context-bound symptoms from general stress appraisals.

6. Conclusions

In conclusion, these findings highlight the need to conceptualize academic stress as a transversal determinant of university students' mental health, with broad implications for both affective and behavioral outcomes. The development of evidence-based programs focused on emotional regulation and stress management is essential to reduce vulnerability to depression and suicidal ideation in this population.

In particular, it would be important to incorporate training in stress coping skills into the curriculum, especially in the first semesters of adaptation to university life, as a strategy to promote resources that reduce vulnerability to mental health problems such as anxiety or depression. Likewise, it is important to offer academic counseling and psychological support

services within higher education institutions to ensure that students have appropriate and adequate spaces that promote emotional well-being and mental health.

Overall, the study advocates for the implementation of comprehensive, resilience-oriented interventions aimed at strengthening adaptive coping skills and mitigating the psychological impact of academic stress in university settings.

Ethical approval

This study was conducted in accordance with the ethical standards of the institutional and with the 1964 Helsinki Declaration and its later amendments. Ethical approval was obtained from the Politécnico Grancolombiano, Medellín (Approval No. SEMCI2024-FSCC-CVSSL-127 Date: 01/04/2024).

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Data Availability Statement

The datasets generated and analyzed during the current study are available from the corresponding author upon reasonable request.

Conflict of interest statement

The authors have no conflicts of interest to disclose.

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Author Contributions

TCQ: study design, data collection, literature search, manuscript preparation, funding acquisition. JER: statistical analysis, data interpretation, manuscript preparation. RCA: study design, data collection, literature search, manuscript preparation.

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