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What do I need from myself as a student but also from others to reduce the impact of stress on academic performance? Self-efficacy and social support

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Introduction: The literature emphasizes the link between academic stress and academic performance and the fact that the most vulnerable students are first-year students, but we still need to understand the underlying mechanism for forming targeted intervention strategies and the protective factors. The main objective of the present study was to test the mediating effect of self-efficacy and social support on the relationship between academic stress and academic performance. We also aimed to identify the main sources of stress and their significant sources of support.

Methods: Data were collected via an online survey platform in January 2024, with 436 students, with a mean age of 19.99 ± 3.72, responding affirmatively to our invitation. Thus, in this cross-sectional study, the sample was a convenience sample.

Results: The highest source of stress was the pressure to perform, followed by time restraints, perceptions of workload and examinations, and self-perceptions. The highest level of support is obtained from significant others, followed by family support and, last, friends' support. Both self-efficacy and social support partially mediate the effect of academic stress on academic performance.

Conclusions: Our results suggest that one way to improve students' performance, even when they experience academic stress, is to increase their levels of social support, especially from family, as well as their self-efficacy. These results can be used by services that provide psychological support to students in order to design and implement intervention programs.

KEYWORDS

academic performance, self-efficacy, social support, academic stress, university students

1 Introduction

Higher education accomplishment and academic performance have a positive long-term impact both on the individual's career development and on society at large, and a better understanding of the factors influencing them is imperative (Stajkovic et al., 2018). Higher education institutions are an essential pillar of society, and their performance is largely based on student performance (Abbas et al., 2021; Maajida Aafreen et al., 2018). However, dropout is still a significant problem (Ibáñez-Cubillas et al., 2023). As such, international policies are being considered for implementation with the aim of increasing the number of those who attend and complete tertiary education and have skills that enable

them to enter the labor market (UN-ODS-UN, 2020). Often, an indicator of academic success is academic performance, also found among the categories of factors explaining school dropout (Mellizo-Soto, 2022). Students who perform poorly academically are more likely to drop out or to change college or university (Belloc et al., 2011), and it is important to identify the factors that favor good and very good results.

The most vulnerable to dropping out of school and academic stress are first-year students (Casanova et al., 2021; Chemers et al., 2001). Most of them move away from home to pursue university studies, thus diminishing parental support and supervision (Casanova et al., 2021; Gonzalez, 2021) and are challenged in their autonomy and personal maturity (Holdsworth et al., 2018). With the achieving of new status, young people have to cope with a higher level of educational demands, which comes with higher levels of academic stress (Hitches et al., 2022) and the need to create new personal relationships (Lamis et al., 2016). The extent to which these young people believe in their ability to cope, manage their abilities to successfully accomplish goals, and tend to relate to challenges as tasks to be faced rather than avoided. All these influence their performance (Doménech-Betoret et al., 2017). In other words, the level of self-efficacy has a significant effect on academic performance.

The best-known definition of stress is that by Lazarus and Folkman (1986), which states that stress arises in a person's relationship with his or her environment when he or she appraises the environment as threatening and exceeding the resources needed to cope with it, thus putting his or her well-being at risk. During higher education students often experience high, or at least moderate, levels of stress (Khan, 2023; Alkhawaldeh et al., 2023), which further has significant effects on health, quality of life, and academic performance (Hitches et al., 2023; Deng et al., 2022; Pascoe et al., 2020). The link between negative stress, self-efficacy, and low academic achievement is well-known in literature, but the underlying mechanisms are not yet fully understood and known (Grøtan et al., 2019), and is a part of the literature that needs to be further explored. A range of internal factors such as self-efficacy and external factors such as support from friends, family, or significant others are important protective factors (Sharififard et al., 2020; Arnett, 2013; León Hernández et al., 2019), especially in the first year of studies, which is a transitional period (Krypel and King, 2010; García and Velazquez, 2020).

Bandura (1994, 1997) defines self-efficacy as a person's view of his or her ability to achieve high levels of performance for events that significantly influence his or her life, further impacting on how he or she feels, thinks, behaves, and sets goals. Self-efficacy theory is a segment of social cognitive learning theory which argues that individuals will attempt to accomplish goals for which they feel capable of accomplishing and avoid those for which they foresee failure (Bandura, 1994, 1997). Self-efficacy is a motivational product, the level of which is closely related to a person's incentive to successfully accomplish goals and cope with academic stress (Capri et al., 2012).

Bearing in mind that a person's opinions can influence the outcomes of a task to a greater extent than the skills themselves, it becomes self-evident why it is important to study this variable in relation to academic performance. Without a healthy attitude toward academic tasks, inherent to university life, students may be overwhelmed by stress (Beiter et al., 2015), and their performance will be profoundly affected (García and Velazquez, 2020).

The link between self-efficacy and academic performance is supported by both earlier studies (Multon et al., 1991) and recent studies (Khan, 2023; Farid and Ashrafzade, 2020; León Hernández et al., 2019; Wilson et al., 2019; Talsma et al., 2018). Among factors that might influence academic performance, self-efficacy ranks first (Richardson et al., 2012), or second (Schneider and Preckel, 2017). Also, the mediating effect of self-efficacy has been demonstrated in the relationship between Big Five traits and academic performance (Stajkovic et al., 2018). And the need to study self-efficacy and academic performance of first-year students has been pointed out by authors such as García and Velazquez (2020), and is still a gap in the literature.

Social support acts as a buffer in the face of stress-generating events, in which other people provide resources to help coping (Cohen and Wills, 1985). According to the stress buffer theory (Kawachi and Berkman, 2001), social support has a protective role providing young people at the coping level with a positive attitude toward themselves and the situation they are facing. Among students, social support promotes psychological health by mediating hopelessness and depressive symptoms in predicting suicidal thoughts (Lamis et al., 2016). Maluenda-Albornoz et al. (2023) obtained results according to which perceived social support is a significant predictor of sense of belonging for first-year students, the relationship between the two variables being a strong one. In other words, a higher level of social support is associated with a greater sense of belonging, which in turn has an impact on academic performance (Antúnez et al., 2017). Also, Lopez-Angulo et al. (2021) indicate that a higher perception of social support is associated with a decrease in thoughts or intentions to drop out of academic studies among first-year students. The importance of social support and relationships with family, friends, and teachers in students' adjustment was also emphasized by a meta-analytic review of 44,668 students' responses (Credé and Niehorster, 2012). Students who experience a greater sense of social support will tend to feel connected to the learning environment, actively use adaptive cognitive strategies for learning, perform better on learning tasks, experience positive emotions in the classroom (Moreira and Lee, 2020), and have higher academic engagement (Chen et al., 2023) and achievement (Zhang et al., 2024). Although researchers agree on the beneficial role this variable has in students' lives (Bland et al., 2012), it is not yet known whether social support coming from different sources, e.g., from parents, friends, significant other, has an equivalent effect, still being an important gap in the literature (Gonzalez, 2021; Ouweneel et al., 2011). Among first-year students family support decreases, leading to feelings of loneliness (Dorrance Hall et al., 2017), and that of friends and family encourages positive attitudes toward university and decreases stress levels (Collings et al., 2014). In general, among students low levels of social support are associated with higher levels of stress (McLean et al., 2023).

Based on this information, along with other evidence from the literature, the main objective of the present study was to test the mediating effect of self-efficacy and social support on the relationship between academic stress and academic performance.

We also aimed to identify first-year students' main sources of stress and their significant sources of support. Thus, the hypotheses of our study are (1) self-efficacy mediates the effect of academic stress on academic performance and (2) social support mediates the effect of academic stress on academic performance.

2 Materials and methods

Data were collected via an online survey platform (Google Forms) in January 2024. The study received ethical approval from the ethics committee of the Faculty of Psychology and Educational Sciences (number 595/12.05.2023). All participants were asked for consent to participate in the study, were assured of the confidentiality of their responses, and were treated in accordance with the Declaration of Helsinki.

2.1 Participants

First-year undergraduate students of Psychology and Educational Sciences, full-time undergraduate, from a faculty in the North-East region of Romania were invited to participate in the present study. We invited 559 students to participate in our survey, of which 436 (78%) students responded positively with an average age of 19.99 ± 3.72. Of these, 404 identified themselves as female and 32 as male. As can be seen in Table 1, more than half of the participants, 239 to be more precise, come from urban areas, while 197 are from rural areas. In terms of residence at the time of completing the instruments, 117 were living in a dormitory, 181 in rented accommodation, 90 with their parents, 11 in a host family, and 37 in a privately owned dwelling. Assessing marital status, we were able to identify that 12 subjects were married, 209 in a relationship and 215 single. Most of them, 423 to be exact, had no children.

TABLE 1 Socio-demographic characteristics of the sample.

Variable	Frequency	Percentage (%)
Age		
18	41	9.4
19	291	66.7
20	47	10.8
21	22	5
≥22	35	8.1
Gender		
Female	404	92.7
Male	32	7.3
Environment		
Rural	197	45.2
Urban	239	54.8
Residence		
Home	117	26.8
Rent	181	41.5
Parents	90	20.6
Host	11	2.5
Personal residence	37	8.5
Marital status		
Married	12	2.8
In a relationship	209	47.9
Alone	215	49.3
Children		
Yes	13	3
No	423	97

2.2 Measures

2.2.1 Demographic questionnaire

Through this questionnaire, we collected the following information about the participants: faculty, year of study, age, gender, background, residence, marital status, and whether they have children or not.

The **Academic Stress Scale** (França and Dias, 2021) consists of 18 items that represent potential stress-generating situations for students. Responses are given on a 5-point Likert scale, ranging from 1 (Totally disagree) to 5 (Totally agree). The scale assesses four factors: *pressure to perform* made up of items that cause stress due to peer competition, parental expectations and teacher criticism of student performance, *perceptions of workload and examinations* made up of items that assess stress related to very high demands, high level of tasks and worry about failing tests, *self-perceptions* assesses academic self-confidence, confidence in making appropriate academic decisions and professional success, and the *time restraints* factor addresses stress due to time constraints in completing class assignments, catching up on missed assignments, and limited time for relaxation. For our study, we calculated the score for the four factors, as well as the total score for the 18 items. In terms of internal consistency, on our group of subjects, the pressures to perform scale obtained an α–Cronbach's α of 0.53, the perceptions of workload and examinations scale an α–Cronbach's α of 0.67, self-perceptions an α–Cronbach's α of 0.74, time restraints an α–Cronbach's α of 0.63, and the whole instrument registered an α–Cronbach's α of 0.85, demonstrating an internal consistency adequate for the research. The validity of this tool was recently demonstrated by França and Dias (2021).

The College Students' Academic Performance Scale (Li et al., 2022) was used to assess students' subjective perceptions of their academic performance through 19 items and the following four dimensions: *learning efficiency* (e.g., The extent to which I complete my work tasks as per teacher's requirements), *interpersonal promotion* (e.g., The extent to which I am considerate and caring to other students), *learning dedication* (e.g., The extent of my persistence in overcoming difficulties to complete learning tasks), and *objective achievement* (e.g., My overall performance compared to the class average). The answers are given on a 5-step Likert-type scale, with 1 representing not at all able or lowest and 5 representing

fully able or highest. The higher the scores, the higher the academic performance. Cronbach's α for the 19 items was 0.90, for the learning efficiency dimension was 0.81, 0.84 for the interpersonal promotion dimension, 0.83 for the learning dedication dimension, and 0.79 for the objective achievement dimension. Li et al. (2022) demonstrated that the scale has a good validity, performing a confirmatory factor analysis which showed an SFL ranging from 0.73 to 0.88, being >0.5.

The General Self-Efficacy Scale (GSE; De las Cuevas and Peñate, 2015) was used to measure general self-efficacy using 10 items on a scale from 1 (not true at all) to 4 (completely true). We chose this scale due to the fact that this scale explicitly refers to personal agency, that is, the belief that our own actions are responsible for successful outcomes (e.g., I can solve most problems if I invest the necessary effort) and does not assess optimism as other scales do. The maximum score that can be obtained is 40 and the minimum 10, the higher the score the higher the self-efficacy. The internal consistency of the instrument is good, for our group of subjects Cronbach's α is equal to 0.91. The convergent validity of this scale was demonstrated by De las Cuevas and Peñate (2015).

The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988) is a scale that assesses a person's perception of the support received from three sources: significant others (e.g., There is a special person who is around when I am in need), family (e.g., My family really tries to help me), and friends (e.g., I can count on my friends when things go wrong). Responses are recorded on a 7-step Likert-type scale ranging from 1 (very strongly disagree) to 7 (very strongly agree). Significant Other subscale obtained a Cronbach's α of 0.94, family subscale a Cronbach's α of 0.93, and friends subscale 0.94. Cronbach's α for all 12 items is 0.92. The scale demonstrated good validity in the study by Zimet et al. (1988).

2.3 Statistical analysis

All analyses were conducted using IBM SPSS 26 for Windows (IBM Corporation, Armonk, NY, USA). To test the two hypotheses we used the methodology proposed by Hayes (2013), using PROCESS (model 4, 2013). The mediation method is the approach proposed by Baron and Kenny (1986). The variables of the present research do not differ statistically significantly from a normal distribution, as the absolute value of the skewness coefficient is not >1 (Labăr, 2008). Extreme scores were identified and removed. The following extreme cases were identified: pressure to perform–1 extreme high case, self-perceptions–1 extreme high case, learning efficiency–1 extreme low case, learning dedication–5 extreme low cases, objective achievement–4 extreme low cases, total score performance–2 extreme low cases, significant others–77 extreme low cases, and social support total score–7 extreme low cases. Having performed analyses for the study variables with and without the extreme cases and observing that there are no significant changes in the results obtained, it was decided to ignore them and report the results with the extreme cases removed (Tabachnick and Fidell, 2013).

3 Results

In order to identify the factors that determine the highest level of stress, as well as the most important source of support, we calculated means and standard deviations. As can be seen in Table 2, the highest source of stress is the pressure to perform (M = 14.01 ± 3.52), followed by time *restraints* (M = 13.35 ± 3.57), perceptions of workload and examinations (M = 12.07 ± 3.31), and self-perceptions (M = 9.81 ± 2.98). The highest level of support is obtained from significant other (M = 25.59 ± 2.97), followed by family support (M = 21.57 ± 6.43), and, last, friends' support (M = 20.83 ± 6.48).

We further identified the correspondence between the study variables by calculating the correlation coefficient *r* Pearson. Most correlations are statistically significant (see Table 3), but we further present only medium and strong correlation:

Pressure to perform correlates positively with perceived workload ($r = 0.56$, $p < 0.001$), self-perceptions ($r = 0.47$, $p < 0.001$), time *restraints* ($r = 0.51$, $p < 0.001$), $p < 0.001$), and negatively with general self-efficacy ($r = -0.33$, $p < 0.001$).

Perceived workload correlates positively with self-perceptions ($r = 0.45$, $p < 0.001$), time *restraints* ($r = 0.66$, $p < 0.001$), and negatively with general self-efficacy ($r = -0.33$, $p < 0.001$).

Self-perceptions correlate positively with time *restraints* ($r = 0.51$, $p < 0.001$), academic stress total score ($r = 0.74$, $p < 0.001$), and negatively with general self-efficacy ($r = -0.58$, $p < 0.001$), learning efficiency ($r = -0.48$, $p < 0.001$), interpersonal promotion ($r = -0.35$, $p < 0.001$), learning dedication ($r = -0.46$, $p < 0.001$), objective achievement ($r = -0.48$, $p < 0.001$), and academic performance total score ($r = -0.53$, $p < 0.001$).

TABLE 2 Descriptive statistics for support and stress sources.

	Minimum	Maximum	Mean	Std. deviation
Significant other support	18	28	25.59	2.971
Family support	4	28	21.57	6.434
Friends support	4	28	20.83	6.488
Pressure to perform	6	22	14.01	3.523
Time restraints	5	22	13.35	3.575
Perceptions of workload and examinations	4	20	12.07	3.318
Self-perceptions	4	18	9.81	2.983

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TABLE 3 Bivariate correlations between study variables.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Pressure to perform (1)	1														
Perceptions of workload and examinations (2)	0.561**	1													
Self-perceptions (3)	0.472**	0.453**	1												
Time restraints (4)	0.518**	0.665**	0.519**	1											
Academic stress total score (5)	0.800**	0.834**	0.741**	0.845**	1										
Significant other support (6)	−0.110*	−0.089	−0.182**	−0.098	−0.146**	1									
Family support (7)	−0.193**	−0.129**	−0.278**	−0.172**	−0.234**	0.270**	1								
Friends support (8)	−0.086	−0.122*	−0.199**	−0.149**	−0.170**	0.355**	0.404**	1							
Social support total score (9)	−0.170**	−0.125**	−0.262**	−0.182**	−0.226**	0.611**	0.762**	0.780**	1						
General self-efficacy (10)	−0.337**	−0.333**	−0.585**	−0.408**	−0.512**	0.163**	0.178**	0.160**	0.211**	1					
Learning efficiency (11)	−0.235**	−0.284**	−0.486**	−0.429**	−0.442**	0.183**	0.305**	0.205**	0.272**	0.497**	1				
Interpersonal promotion (12)	−0.165**	−0.193**	−0.359**	−0.241**	−0.299**	0.142**	0.261**	0.238**	0.256**	0.378**	0.538**	1			
Learning dedication (13)	−0.202**	−0.286**	−0.462**	−0.353**	−0.401**	0.111*	0.257**	0.142**	0.186**	0.485**	0.605**	0.633**	1		
Objective achievement (14)	−0.188**	−0.250**	−0.484**	−0.276**	−0.367**	0.135*	0.138**	0.102*	0.135**	0.442**	0.482**	0.396**	0.481**	1	
Academic performance total score (15)	−0.238**	−0.299**	−0.530**	−0.381**	−0.445**	0.166**	0.292**	0.230**	0.268**	0.529**	0.827**	0.843**	0.815**	0.680**	1

*$p < 0.05$, **$p = 0.001$.

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Time *restraints* correlate negatively with general self-efficacy ($r = -0.40$, $p < 0.001$), learning efficiency ($r = -0.42$, $p < 0.001$), learning dedication ($r = -0.35$, $p < 0.001$), and academic performance total score ($r = -0.38$, $p < 0.001$).

Academic stress total score correlates negatively with general self-efficacy ($r = -0.51$, $p < 0.001$), learning efficiency ($r = -0.44$, $p < 0.001$), learning dedication ($r = -0.40$, $p < 0.001$), objective achievement ($r = -0.36$, $p < 0.001$), and academic performance total score ($r = -0.44$, $p < 0.001$).

Significant other support correlated positively with friends support ($r = 0.35$, $p < 0.001$), whereas family support correlates positively with friends support ($r = 0.40$, $p < 0.001$), social support total score ($r = 0.76$, $p < 0.001$), and learning efficiency ($r = 0.30$, $p < 0.001$).

General self-efficacy correlates positively with learning efficiency ($r = 0.49$, $p < 0.001$), interpersonal promotion ($r = 0.37$, $p < 0.001$), learning dedication ($r = 0.48$, $p < 0.001$), objective achievement ($r = 0.44$, $p < 0.001$), and academic performance total score ($r = 0.52$, $p < 0.001$). Learning efficiency positively correlates with interpersonal promotion ($r = 0.53$, $p < 0.001$), learning dedication ($r = 0.60$, $p < 0.001$), and objective achievement ($r = 0.48$, $p < 0.001$).

Interpersonal promotion positively correlated with learning dedication ($r = 0.63$, $p < 0.001$) and objective achievement ($r = 0.39$, $p < 0.001$), whereas learning dedication positively correlated with objective achievement ($r = 0.48$, $p < 0.001$).

Testing Hypothesis 1: self-efficacy mediates the effect of academic stress on academic performance (Figure 1). First we analyze the effect of the independent variable academic stress on the mediator variable self-efficacy. Thus, academic stress explains 24% of the variance of self-efficacy ($R^2 = 0.2466$, $p < 0.001$), and the coefficient of the regression equation equals -0.2770 [$t_{(432)} = -11.8911$, $p < 0.001$], with CI 95% [-0.3227– (-0.2312)]. High academic stress scores are associated with low self-efficacy scores.

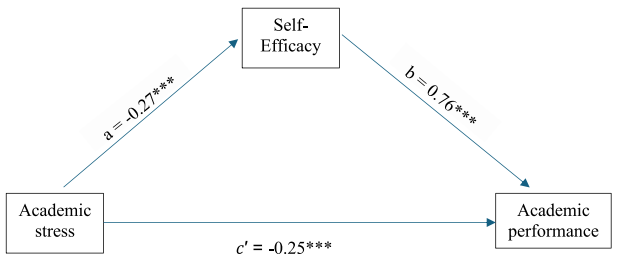

FIGURE 1
Effect of academic stress on academic performance as mediated by self-efficacy. ***$p < 0.001$.

The predictors academic stress ($p < 0.001$) and self-efficacy ($p < 0.001$) have a significant effect on academic performance, explaining 32% of its variance ($R^2 = 0.3241$). For path b the coefficient is equal to 0.7678 [$t_{(431)} = 8.9579$, $p < 0.001$], and the standardized value is 0.4087, with 95% CI [0.5993–0.9363]. Thus, high self-efficacy scores are associated with high academic performance scores. As for the direct effect, it is equal to -0.2539 [$t_{(432)} = -5.3104$, $p < 0.001$], with CI 95% [-0.3478– (-0.1599)]. The standardized direct effect size is -0.2423. As the direct effect is statistically significant, the mediation is partial.

In terms of the total effect, stress explains 19% of the variance of academic performance ($R^2 = 0.1982$, $p < 0.001$). The coefficient of the regression equation is -0.4665 [$t_{(432)} = -10.3349$, $p < 0.001$], with a standardized value equal to -0.4452. For the total effect CI 95% [-0.5552– (-0.3778)]. Information on the indirect effect is recorded in Table 4.

Hypothesis 2 claims that social support mediates the effect of academic stress on academic performance (Figure 2). We tested this hypothesis with both the total score of social support as a mediator and the three dimensions of social support as mediators. We first present the results obtained for the total score of social support as mediator in the relationship between academic stress and academic performance.

Analyzing the effect of academic stress on the mediator social support, we observe that the independent variable explains 4% of its variance ($R^2 = 0.0493$, $p < 0.001$), and the coefficient of the regression equation is -0.2966 [$t_{(425)} = -4.6966$, $p < 0.001$], having CI 95% [-0.4207– (-0.1725)].

The predictors academic stress and social support explain 22% of the variance of academic performance, having a statistically significant effect ($R^2 = 0.2223$, $p < 0.001$). For path b the coefficient is equal to 0.1388 [$t_{(424)} = 4.0867$, $p = 0.001$], the standardized value is 0.1795, with CI 95% [0.0720–0.2056]. As for the direct effect (c') it is equal to -0.4108 [$t_{(424)} = -9.0585$, $p < 0.001$], with a standardized value of -0.3979, with CI 95% [-0.5000– (-0.3217)]. The mediation is partial, due to the fact that the direct effect is statistically significant.

When considering the total effect, stress explains 19% of the variance of academic performance ($R^2 = 0.1916$, $p < 0.001$). The coefficient of the regression equation is -0.4520 [$t_{(425)} = -10.0379$, $p < 0.001$], with a standardized value of -0.4378 and

TABLE 4 Total, direct, and indirect effect of academic stress on academic performance.

	Effect	if	*t*	*p*	LLCI	ULCI
Total effect of X on Y	−0.4665	0.0451	−10.3349	$p < 0.001$	−0.5552	−0.3778
Direct effect of X on Y	−0.2539	0.0478	−5.3104	$p < 0.001$	−0.3478	−0.1599
	Effect	BootSE	BootLLCI	BootULCI		
Indirect effect(s) of X on Y	−0.2126	0.0337	−0.2807	−0.1477		

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95% CI [−0.5405– (−0.3635)]. Information on the indirect effect is recorded in Table 5.

Further, in order to analyze the impact of the mediator, we considered the social support factors, namely significant other support, family support, and friends' support, then introduced them into the model (Figure 3). To begin with, we obtained that stress explains 1% of the variance of the significant other support variable ($R^2 = 0.0192$, $p = 0.0085$), the coefficient of the regression equation is −0.0389 [$t_{(357)} = -2.6446$, $p = 0.0085$], and the CI 95% [−0.0679– (−0.0100)]. As for the second mediator, academic stress explains 5% of family support ($R^2 = 0.0543$, $p < 0.001$) with the coefficient of the regression equation being −0.1286 [$t_{(357)} = -4.5293$, $p < 0.001$] and CI 95% [−0.1844– (−0.0728)]. For the third mediator, stress is a significant predictor explaining 1% of the variance of friends' support ($R^2 = 0.0145$, $p = 0.0225$), with the coefficient of the regression equation equal to −0.0666 [$t_{(357)} = -2.2923$, $p = 0.0225$], and CI 95% [−0.1238– (−0.0095)].

Stress together with the three mediators explains 23% of the variance in academic performance, the model being statistically significant ($R^2 = 0.2312$, $p < 0.001$). Of the three mediators, only the effect of family support is statistically significant [b = 0.2313, $t_{(354)} = 2.4242$, $p = 0.0158$], with CI 95% [0.0437–0.4188]. Significant other support does not statistically significantly predict academic performance [b = 0.1929, $t_{(354)} = 1.0184$, $p = 0.3092$], for which CI 95% [−0.1796 to 0.5655]. Friend support also does not statistically significantly predict academic performance [b = 0.1339, $t_{(354)} = 1.3927$, $p = 0.1646$], for which CI 95% [−0.0552 to 0.3230].

Path c', of the direct effect is statistically significant, the regression coefficient b = −0.4215, $t_{(354)} = -8.3742$, $p < 0.001$, the standardized coefficient equals −0.4029, and the CI 95%

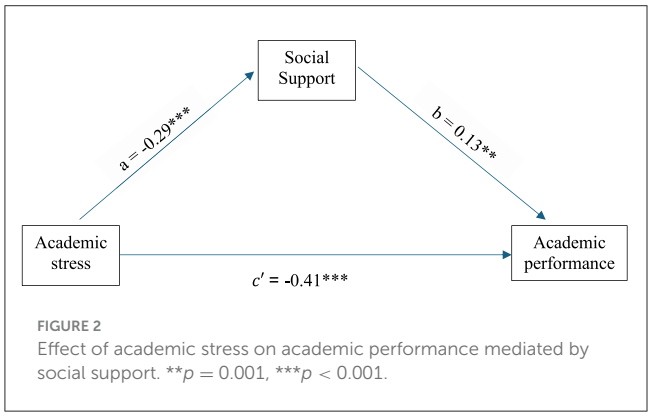

FIGURE 2
Effect of academic stress on academic performance mediated by social support. **$p = 0.001$, ***$p < 0.001$.

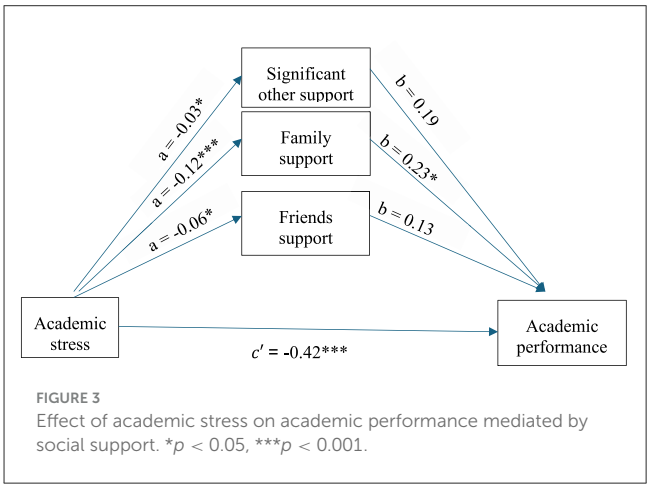

FIGURE 3
Effect of academic stress on academic performance mediated by social support. *$p < 0.05$, ***$p < 0.001$.

TABLE 5 Total, direct, and indirect effect of academic stress on academic performance, with social support as a mediator.

	Effect	if	t	p	LLCI	ULCI
Total effect of X on Y	−0.4520	0.0450	−10.0379	$p < 0.001$	−0.5405	−0.3635
Direct effect of X on Y	−0.4108	0.0454	−9.0585	$p < 0.001$	−0.5000	−0.3217
	Effect	BootSE	BootLLCI	BootULCI		
Indirect effect(s) of X on Y	−0.0412	0.0133	−0.0704	−0.0189		

TABLE 6 Total, direct, and indirect effect of academic stress on academic performance, with the 3 dimensions of support as mediators.

		Effect	if	t	p	LLCI	ULCI
Total effect of X on Y		−0.4676	0.0495	−9.4438	$p < 0.001$	−0.5650	−0.3702
Direct effect of X on Y		−0.4215	0.0503	−8.3742	$p < 0.001$	−0.5204	−0.3225
		Effect	BootSE	BootLLCI	BootULCI		
Indirect effect(s) of X on Y:	Total	−0.0462	0.0164	−0.0824	−0.0175		
	Significant other support	−0.0075	0.0082	−0.0267	0.0062		
	Family support	−0.0297	0.0136	−0.0603	−0.0069		
	Friends support	−0.0089	0.0078	−0.0270	0.0031		

[−0.5204– (−0.3225)]. Analyzing the total effect, academic stress explains 19% of the variance of academic performance, the effect is statistically significant ($R^2 = 0.1999$, $p < 0.001$). The coefficient of the regression equation is −0.4676 [$t_{(357)} = -9.4438$, $p < 0.001$], with a standardized value equal to −0.4471, with CI 95% [−0.5650– (−0.3702)]. Again, the averaging is partial, and information on the indirect effect is given in Table 6.

4 Discussion

In this study, we set out to identify the factor that determines the highest level of stress among first-year students and the source from which they rate receiving the highest level of support. Next, we analyzed the relationship between academic stress and academic performance, as well as the mediating effect in this relationship of variables such as self-efficacy and social support. Our hypotheses assume that the relationship between academic stress and academic performance is mediated by (1) self-efficacy and (2) social support.

The pressure to perform is the factor that generates the highest level of stress for the students included in the study, followed by stress caused by time restraints and, in thirdly, perceptions of workload and examinations and self-perceptions. In terms of social support, students feel that they receive the highest level of support from significant others, followed in the same place by support from family and friends.

The first hypothesis of our study was partially confirmed, with self-efficacy partially mediating the relationship between academic stress and academic performance. In the model we tested, stress is a negative predictor of self-efficacy and self-efficacy is a positive predictor of academic performance. What is very important is that self-efficacy changes the sign of the influence of stress on academic performance, acting as a protective factor. The negative relationship between stress and self-efficacy has also been identified by other studies (Galindo-Domínguez and Bezanilla, 2021; Posada and Liu, 2017; Siddiqui, 2018). The fact that higher levels of self-efficacy are associated with higher levels of academic performance has also been identified by León Hernández et al. (2019), who argue that when students have a high perception of their effectiveness in accomplishing an academic task, they are more engaged and persist longer in accomplishing it, even when faced with challenges, including academic stress. The same results were also obtained by Khan (2023) in his pilot study, in which he emphasized the need for further research on the relationship between these two variables. Moreover, the two variables have often been linked, with their positive correlation demonstrated in several studies (Alyami et al., 2017). Also, self-efficacy reduces the risk of burnout in students (Capri et al., 2012) and helps them controlling unpleasant emotions and changes deriving from their emerging adult status more effectively (León Hernández et al., 2019). García and Velazquez (2020) obtained results showing that low levels of self-efficacy are related to low student performance and high levels of anxiety among students.

With respect to the second hypothesis, the results are similar, in the sense that social support partially mediates the effect of academic stress on academic performance. Our proposed second mediator has the same protective effect, changing the sign of the relationship. If academic stress is a negative predictor for social support, the mediator instead has a positive effect on academic performance. Because we wanted to see whether all three factors of social support mediate the relationship between academic stress and academic performance, we tested a model in which the three factors were included as mediators for the above-mentioned relationship. The results revealed that only family support is a significant mediator, although mediation is only partial. This outcome, in the context of the above result on the hierarchy of sources of support, is surprising and extremely important. Basically, students rate that they receive the highest level of support from their significant other, but the significant other is not a significant mediator, family support is.

It is possible that they perceive support from their significant other at a higher level because they spend more time together, see each other more often, especially if they are in the same city, or university campus, while the family remained in the hometown, interactions are more infrequent and predominantly via telephone. We know about our participants that only about 20% still live with their parents, which may explain the level of perceived support from their parents. Future studies looking at the way in which contact with the family is maintained and its possible effect on the relationship we tested may provide further and clarifying information.

Basically, social support, particularly through the dimension of family support, generates positive emotional and behavioral attitudes (Li et al., 2023), which further encourage high academic performance despite the presence of academic stress. Our results being in agreement with existing evidence in the literature that perceived social support has a crucial role in shaping students' academic achievement (Nair et al., 2024). Students who experience social support, especially family support, are embedded in a supportive network and are thus in a more advantageous position to cope with stress and achieve academic performance (Li et al., 2018). In addition to the positive link with academic performance, family support has been identified as an important factor in students' psychological, financial, and academic health (Nair et al., 2024). The fact that social support has a buffering effect against stress is a known fact in the literature (Rueger et al., 2016), and our results also support this effect in the relationship of stress with academic performance.

The practical conclusions of the present findings have implications not only for students, but also for parents, teachers and specialists providing counseling and personal development services for students. Counseling services for students can consider the implementation of programs to develop students' self-efficacy and to increase social support, especially the family support dimension. Basically, by increasing the strength of self-efficacy, students can achieve better academic outcomes, thus tempering some of the impact of encountered stressors (Stajkovic et al., 2018). Along with evidence that self-efficacy can be improved (Bartimote-Aufflick et al., 2016), our results provide intervention suggestions that can make a real difference for students' academic progress. These strategies to increase self-efficacy are absolutely necessary, especially in the first year of studies, a difficult period that can confront students with a range of difficulties (García and Velazquez, 2020).

5 Limits and future research directions

Data were collected from a single university and faculty. Data from a representative sample are absolutely necessary, otherwise they cannot be generalized. Another limitation is the cross-sectional nature of the study, a limitation that can be overcome, as we know, by longitudinal studies. The fact that self-efficacy in general and not academic self-efficacy was assessed may also be a limitation. Studies clarifying whether different results are obtained for academic self-efficacy are needed. Our data were collected at the end of the first semester, with some authors suggesting that different results might be obtained if data were collected at the beginning of the semester (García and Velazquez, 2020). Galyon et al. (2012) identified that self-efficacy correlates with academic performance in the middle of the semester, but not in the earlier stages of the term. As a result, studies examining the relationship between self-efficacy and academic performance at both the beginning and end of the semester are needed. Accounting for other mediators, such as mental health (Barbayannis et al., 2022), is another future research direction. Also, conducting longitudinal studies in testing the impact of psychosocial interventions applied in student counseling services may be another direction. Another limitation may be the mode of data collection, which was through online forms. This did not allow us to control the environmental conditions in which the data were collected.

6 Conclusion

Despite the limitations mentioned above, these results extend our knowledge about the role that self-efficacy and social support play in students' lives, particularly in relation to their academic performance. They suggest that one way to improve students' performance, even when they experience academic stress, is to increase the level of social support, especially from family, as well as self-efficacy.

Data availability statement

Raw data supporting the conclusions of this article will be made available by the authors upon request without unjustified reservation.

Ethics statement

The study received ethical approval from the Ethics Committee of the Faculty of Psychology and Educational Sciences (number 595/12.05.2023). The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their informed consent to participate in this study.

Author contributions

AP: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. CS: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. CD: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. OG: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. MB: Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing, Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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