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Positive and negative affect as predictors of university academic performance: systematic review and meta-analysis

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Keywords

Higher education
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Publication bias
Meta-regression

Abstract

Positive and negative affect are key emotional dimensions for understanding learning processes and academic performance in university students. This study presents a systematic review and meta-analysis of empirical evidence published between 2015 and 2025 on the association between affect and academic performance in higher education. Following PRISMA guidelines, 14 studies were included. The results indicate that positive affect shows a clear and consistent direction of effect, with a moderate and statistically significant association with academic performance (r = .27, 95% CI [.12, .41], I^2 = 90.91%). In contrast, negative affect showed an inconsistent direction of effect and a weak, non-significant association (r = –.11, 95% CI [–.28, .07], I^2 = 95.45%). Moderation analyses examining study-level methodological characteristics (type of affect measure, type of academic performance measure, and study design) did not identify any statistically significant moderators, and subgroup differences disappeared when meta-regression models were applied. Both meta-analyses exhibited high heterogeneity (I^2 > 90%), but only positive affect showed a significant association with academic performance. These results underscore the need for more precise affective measures, longitudinal and context-sensitive research designs, and teaching practices that explicitly integrate the affective dimension into the university learning experience.

El afecto positivo y negativo como predictores del rendimiento académico universitario: una revisión sistemática y metaanálisis

Palabras clave

Educación superior
Rendimiento académico
PANAS
Sesgo de publicación
Meta-regresión

Resumen

El afecto positivo y negativo son dimensiones emocionales clave para comprender los procesos de aprendizaje y el rendimiento académico en estudiantes universitarios. Este estudio presenta una revisión sistemática y un metaanálisis de la evidencia empírica publicada entre 2015 y 2025 sobre la asociación entre afecto y rendimiento académico en la educación superior. Siguiendo las directrices PRISMA, se incluyeron 14 estudios. Los resultados mostraron que el afecto positivo presenta una dirección del efecto clara y consistente, con una asociación moderada y estadísticamente significativa con el rendimiento académico (r = .27, IC del 95% [.12, .41], I^2 = 90.91%). En contraste, el afecto negativo presenta una dirección del efecto inconsistente y una asociación débil y no significativa (r = –.11, IC del 95% [–.28, .07], I^2 = 95.45%). Los análisis de moderación que han examinado las características metodológicas a nivel de estudio (tipo de medida del afecto, tipo de medida del rendimiento académico y diseño del estudio) no identificaron moderadores estadísticamente significativos, y las diferencias entre subgrupos desaparecieron al aplicar modelos de meta-regresión. Ambos metaanálisis mostraron alta heterogeneidad (I^2 > 90%), pero solo el afecto positivo evidenció una asociación significativa con el rendimiento académico. Estos resultados subrayan la necesidad de medidas afectivas más precisas, diseños de investigación longitudinales y sensibles al contexto, así como prácticas docentes que integren explícitamente la dimensión afectiva en el contexto de aprendizaje universitario.

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Over the past decade, research on university students' academic performance has moved beyond an exclusive focus on cognitive, structural, or sociodemographic variables. Emotional and motivational factors are now increasingly recognized as key predictors of academic success (e.g., Cobo-Rendón et al., 2020). Within this framework, affect –conceptualized within a dimensional approach to emotions– has emerged as a key construct in educational research. Nevertheless, despite the growing body of empirical studies addressing this issue, important conceptual, methodological, and applied gaps persist, limiting the systematic integration of existing evidence.

Positive affect (PA) captures the extent to which a person feels enthusiastic, active, and alert. Negative affect (NA) represents a general dimension of subjective distress and unpleasant engagement, and encompasses aversive mood states such as distressed, guilty, hostile, irritable, nervous, and afraid (Watson et al., 1988). The distinction between PA and NA has been widely applied in affective and educational psychology to describe students' overall emotional tone. These two dimensions are not opposite poles of a single continuum but instead independent components that can coexist at varying levels.

In educational contexts, this affective dimension has been linked to higher intrinsic motivation (González-Arias et al., 2025; Kljajic et al., 2022; Stanley et al., 2020) and greater academic engagement (Kamtsios, 2023; Oriol et al., 2017; Rodríguez-Muñoz et al., 2021; Uludag, 2016). It is also related to adaptive emotion regulation strategies, such as cognitive reappraisal (Balzarotti et al., 2017), as well as to perceptions of control and challenge (Kamtsios, 2023). Furthermore, studies have connected it with psychological well-being (Cobo-Rendón et al., 2020) and elevated levels of hope (Rand et al., 2020).

In contrast, NA has been associated with decreased intrinsic motivation (González-Arias et al., 2025); maladaptive coping strategies (Phillips & Shewmaker, 2024); lower levels of engagement, control, and challenge (Kamtsios, 2023); dropout (Năstasă et al., 2022); dejection; and catastrophic thinking (Allen et al., 2017).

Although affect is consistently related to variables that are important for academic functioning, this evidence does not allow for clear conclusions regarding the existence of a direct and systematic association between affect and academic performance. A growing body of studies reports a positive association between PA and academic performance, suggesting that students who experience higher levels of enthusiasm, energy, and engagement tend to achieve better academic outcomes (Balzarotti et al., 2017; González-Arias et al., 2025; Kljajic et al., 2022; Marín-Álvarez et al., 2024; Oriol et al., 2017; Phillips & Shewmaker, 2024; Rodríguez-Muñoz et al., 2021; Uludag, 2016). However, the magnitude of this association varies considerably across studies, ranging from weak or near-zero effects to strong correlations, depending on the measurement instruments, study design, and contextual characteristics of the samples.

The role of NA is even more debated: while it is generally associated with poorer outcomes (Balzarotti et al., 2017; González-Arias et al., 2025; Kljajic et al., 2022; Marín-Álvarez et al., 2024; Năstasă, et al., 2022), certain studies suggest that, under specific conditions, NA may enhance performance by fostering alertness or activation (Almulla, 2024; Barker et al., 2016), whereas other studies report non-significant relationships (Allen, et al., 2017; Choi et al., 2018; Kamtsios, 2023; Phillips & Shewmaker, 2024; Zumárraga-Espinosa, 2023). These inconsistencies may stem from differences in research design (cross-sectional, longitudinal, experimental), affect measurement (trait vs. state questionnaires, experience sampling), performance indicators (objective grades vs. self-reports), and intervening variables (motivation, strategies, personality), along with the cultural and educational heterogeneity of samples, which further challenges comparability and generalization.

Overall, the existing literature suggests that, although affect is widely acknowledged as relevant to academic functioning in higher education, the strength, direction, and interpretability of its association with academic performance remain unclear. In particular, it is still uncertain whether PA constitutes a stable predictor of academic performance, or whether NA should be conceptualized as a risk factor, an adaptive signal, or a construct contingent on the method of measurement. These inconsistencies highlight the need for a systematic synthesis of the available evidence. Given the growing interest and the dispersion of empirical findings, it is necessary to conduct a synthesis of literature that integrates, compares, and clarifies the existing evidence on the relationship between affect and academic performance in higher education. Although previous systematic reviews have examined emotions and academic performance (e.g., Xie et al., 2025), no study to date has specifically focused on the role of PA and NA, as independent yet complementary dimensions, in university students' academic achievement.

The present study

The present study aims to systematically review and quantitatively synthesize the empirical literature published over the past decade on the relationship between PA, NA, and academic performance among university students. Specifically, this systematic review and meta-analysis pursues the following objectives: (1) to estimate the pooled association between PA and academic performance in university students; (2) to estimate the pooled association between NA and academic performance in university students; and (3) to examine whether methodological characteristics of the studies (type of affect measurement, type of academic performance indicator, and study design) account for variability in effect sizes through subgroup and meta-regression analyses.

Accordingly, the present systematic review and meta-analysis was guided by the following research questions: (a) what is the overall association between PA and academic performance in university students?; (b) what is the overall association between NA and academic performance in university students?; and (c) whether study-level methodological characteristics, including type of affect measurement, type of academic performance indicator, and study design, moderate these associations. In line with the quantitative nature of the meta-analytic compo-

nent, it was hypothesized that PA would be positively associated with academic performance, whereas NA would be negatively associated with academic performance, and that methodological characteristics of the studies would partially account for the observed heterogeneity in effect sizes.

Method

Literature search and quality control

A systematic approach was adopted to identify, analyze, and synthesize relevant content from scientific publications. A structured search was conducted in the following peer-reviewed databases: Scopus, Web of Science, and PsycINFO. The protocol of the PRISMA statement (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) was followed for the planning, preparation, and reporting of systematic reviews and meta-analyses (Liberati et al., 2009; Moher et al., 2009).

The search strategy combined Boolean operators and key terms related to PA and NA, performance, and university students, using the following search formula: *("Positive affect*" OR "Negative affect*") AND ("University students" OR "College students" OR "Undergraduates" OR "Higher education students") AND ("Academic performance" OR "Academic achievement" OR "Academic success"*) (2015-2025) (Articles) (article title, abstract, keywords). Searches were conducted in both English and Spanish, and limited to titles, abstracts, and keywords. Effect sizes were expressed as Pearson's correlation coefficients (r). When necessary, reported statistics were converted to r. All correlations were transformed to Fisher's z prior to analysis and reconverted to r for reporting.

Inclusion and exclusion criteria

To ensure the quality, relevance, and coherence of the studies included in this systematic review, the following inclusion and exclusion criteria were established a priori and applied systematically throughout the selection process:

Inclusion criteria

Studies were included if they met the following requirements: 1) Study type: Quantitative empirical research with cross-sectional, longitudinal, experimental, or quasi-experimental designs, published in peer-reviewed scientific journals; 2) Population: Undergraduate university students, with no restrictions on age, gender, or country of origin; 3) Variables: Predictor or explanatory variable: PA and/or NA, measured with validated psychometric instruments (e.g., PANAS). Dependent variable: Academic performance, assessed through grades (GPA), objective academic evaluations, or self-reported performance; 4) Publication period: Articles published between January 2015 and December 2025; 5) Language: Publications in English or Spanish; and 6) Accessibility: Full-text studies available through recognized scientific databases (Scopus, Web of Science, PsycINFO).

Exclusion criteria

Studies were excluded if they met any of the following conditions: 1) Document type: Theoretical reviews, systematic reviews or meta-analyses, editorials, letters to the editor, book chapters, theses, or conference proceedings; 2) Non-university populations: Studies focused exclusively on children, adolescents (pre-university), or graduate students without reporting results separately by academic level; 3) University populations with clinical conditions: Studies focused exclusively on university students with clinical diagnoses (e.g., anxiety, depression, dyslexia), unless data for non-diagnosed students were reported separately; 4) Non-validated instruments: Research using instruments without published psychometric evidence to measure affect or academic performance; 5) Absence of analysis of the affect-performance link: Studies including one of the variables of interest (affect and/or performance) but not explicitly analyzing their relationship; and 6) Duplication: Studies duplicated across databases or published in more than one source; in such cases, the most complete or recent version was retained.

Data coding and extraction

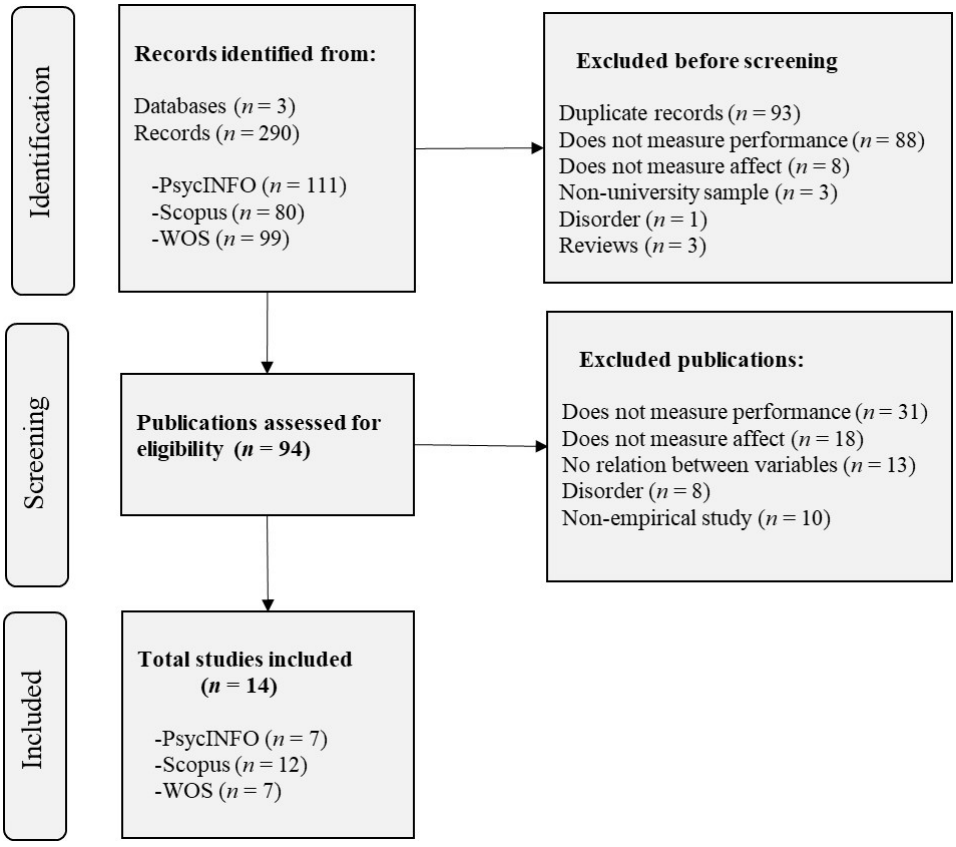
The selection of studies was carried out in several stages (see Figure 1). The initial identification stage was limited to articles published over a 10-year period. This initial exploration yielded a total of 290 records. After removing duplicates ($n = 93$) and screening the titles and abstracts of the remaining articles, studies were excluded if they did not assess academic performance ($n = 88$), affect ($n = 8$), did not include a university sample ($n = 3$), involved participants with a clinical condition ($n = 1$), or review articles ($n = 3$). Subsequently, a full-text assessment was conducted, excluding manuscripts that did not measure affect ($n = 18$) or performance ($n = 31$), did not analyze the relationship between affect and performance ($n = 13$), involved samples with a clinical condition ($n = 8$), or were non-empirical studies ($n = 10$). This process resulted in a final selection of 14 articles (see Figure 1). For coding and data extraction, the software package Rayyan was used (Ouzzani et al., 2016). Two reviewers (F.G. and L.M.) independently assessed the titles and abstracts of the studies. The interrater agreement, according to Cohen's Kappa, was $\kappa = .79$. Disagreements between the reviewers were resolved through discussion.

Statistical analysis and meta-analytic procedures

Meta-analyses were conducted using random-effects models. Statistical heterogeneity was assessed using Cochran's Q test and quantified with the I^2 index. To examine potential sources of heterogeneity, subgroup analyses and mixed-effects meta-regression models were performed. Moderator variables included type of affect measurement (PANAS vs. other instruments), type of academic performance measure (objective vs. self-reported), and study design (cross-sectional vs. longitudinal). Publication bias was evaluated through visual inspection of funnel plots and formally tested using Egger's regression test. All analyses were conducted using R statistical software.

Figure 1

Flow diagram of the information sources selected for the systematic review (PRISMA)



Results

Risk of bias assessment

To analyze the methodological quality and the likelihood of bias of the studies included in this systematic review, the AXIS tool (Appraisal tool for Cross-Sectional Studies), developed by Downes et al. (2016), was used.

This instrument was specifically designed to evaluate cross-sectional observational studies and is composed of 20 items organized into three dimensions: report quality (clarity of the title and abstract, presentation of results, conflicts of interest, etc.), methodological quality (adequacy of the design, validity of measurements, sample selection); and risk of bias (presence of selection, information, and reporting biases). For the purposes of this review, the assessment focused on items that directly affect internal validity and risk of bias, whereas items mainly related to formal aspects of reporting were not considered. Based on these criteria, 10 key AXIS items were selected, covering clarity of objectives and design, validity of key measurements, appropriateness of statistical analyses, sample representativeness, and discussion of limitations (see Table 1).

In the assessment of risk of bias and methodological quality of the 15 included studies, consistent strengths were observed in aspects related to internal validity. All studies clearly defined their objectives and employed designs appropriate for the stated purposes, as well as valid and appropriate measures to assess both affect and academic performance. In addition, statistical analyses were appropriate and well described in all cases, reinforcing the internal consistency of the findings. However, systematic weaknesses were identified in the items related to risk of bias, particularly in sample representativeness. In 13 of the 14 studies, it was not adequately justified that the sample was representative of the target population, which suggests a potential selection bias and limits the generalizability of the results.

Coding and data extraction

This review examined research articles that analyzed the relationship between PA and/or NA and academic performance in university students (see Appendix). The 14 studies included in this systematic review were published between 2016 and 2025, with a higher concentration in the last four years (2022-2025), reflecting growing interest in the relationship between affect and academic performance in higher education contexts. The samples consisted of university students with average ages ranging from 19.7 to 22.6 years. In the studies that reported this information, the mean age was 20.75 years with a standard deviation of 2.95 years. However, in four of the fourteen articles, the average age of the participants was not specified. Regarding gender, most samples showed a greater proportion of women: on average, 59.08% were women and 40.92% were men. Geographically, the studies came from

Table 1

Risk of bias assessment of the included studies using the AXIS tool

Study	1	2	3	4	5	6	7	8	9	10
Allen et al (2017)	Yes	Yes	Yes	Yes	Yes	Yes	**No**	Yes	Yes	Yes
Almulla (2024)	Yes	Yes	Yes	**No**	Yes	Yes	Yes	Yes	Yes	**No**
Balzarotti et al (2017)	Yes	Yes	Yes	Yes	Yes	Yes	**No**	Yes	Yes	Yes
Choi et al (2018)	Yes	Yes	Yes	Yes	Yes	Yes	**No**	Yes	Yes	Yes
González-Arias et al (2025)	Yes	Yes	**No**	Yes	Yes	Yes	**No**	Yes	Yes	Yes
Kamtsios (2023)	Yes	Yes	Yes	Yes	Yes	Yes	**No**	Yes	Yes	Yes
Kljajic et al (2022)	Yes	Yes	Yes	Yes	Yes	Yes	**No**	Yes	Yes	Yes
Marín-Álvarez et al (2024)	Yes	Yes	Yes	Yes	Yes	Yes	**No**	Yes	Yes	Yes
Năstasă et al (2022)	Yes	Yes	Yes	Yes	Yes	Yes	**No**	Yes	Yes	Yes
Oriol et al (2017)	Yes	Yes	Yes	Yes	Yes	Yes	**No**	Yes	Yes	Yes
Phillips & Shewmaker (2024)	Yes	Yes	Yes	Yes	Yes	Yes	**No**	Yes	Yes	Yes
Rodríguez-Muñoz et al (2021)	Yes	Yes	Yes	Yes	Yes	Yes	**No**	Yes	Yes	Yes
Uludag (2016)	Yes	Yes	Yes	Yes	Yes	Yes	**No**	Yes	Yes	Yes
Zumárraga-Espinosa (2023)	Yes	Yes	Yes	Yes	Yes	Yes	**No**	Yes	Yes	Yes

Note. AXIS tool items: 1. The study objective is clearly defined. 2. The study design is appropriate for the objective. 3. Key variables are clearly defined and validly measured. 4. The measurement of affect is adequately reported. 5. The measurement of academic performance is adequately reported. 6. Statistical analyses are appropriate and well described. Items related to risk of bias: 7. The sample is representative of the target population. 8. Sampling methods are clearly described. 9. Results are clearly presented. 10. Study limitations are discussed.

13 different countries: Chile (n = 3), United States (n = 2), Canada (n = 1), Saudi Arabia (n = 1), Greece (n = 1), Ecuador (n = 1), Romania (n = 1), Spain (n = 1), South Korea (n = 1), Italy (n = 1), Australia (n = 1), the United Kingdom (n = 1), and Cyprus (n = 1). Methodologically, all studies employed quantitative, non-experimental designs, with a predominance of cross-sectional and correlational approaches; however, three studies incorporated longitudinal or multilevel designs, enriching the methodological diversity of the corpus.

Meta-analysis results: relationship between positive affect and academic performance

The heterogeneity analysis revealed substantial variability among the included studies. For the meta-analysis of PA, 12 studies were included. The Q statistic was 120.95 (df = 11), p < .001, and the heterogeneity index I^2 reached 90.91%, indicating that most of the observed variability in effect sizes reflects true differences between studies rather than sampling error. These values suggest that a fixed-effects model is not appropriate. Accordingly, a random-effects model with Fisher's z transformation was applied. The combined effect size, converted back to the correlation metric, was r = .27, with a 95% confidence interval [.12, .41]. The overall effect was statistically significant (Z = 3.4, p < .001), indicating a moderate positive association between PA and academic performance (Figure 2).

Publication bias analysis

To examine the possible presence of publication bias, Egger's test was applied. The result showed a regression intercept (b_0) = -.19, 95% CI [–.92, .53], with a z statistic = -.52 and a p value = .6. Consequently, no statistically significant indications of publication bias were found in the set of studies analyzed. The visual inspection of the funnel plot showed a distribution with greater concentration toward the left side (Figure 3).

Moderator analyses: sources of heterogeneity

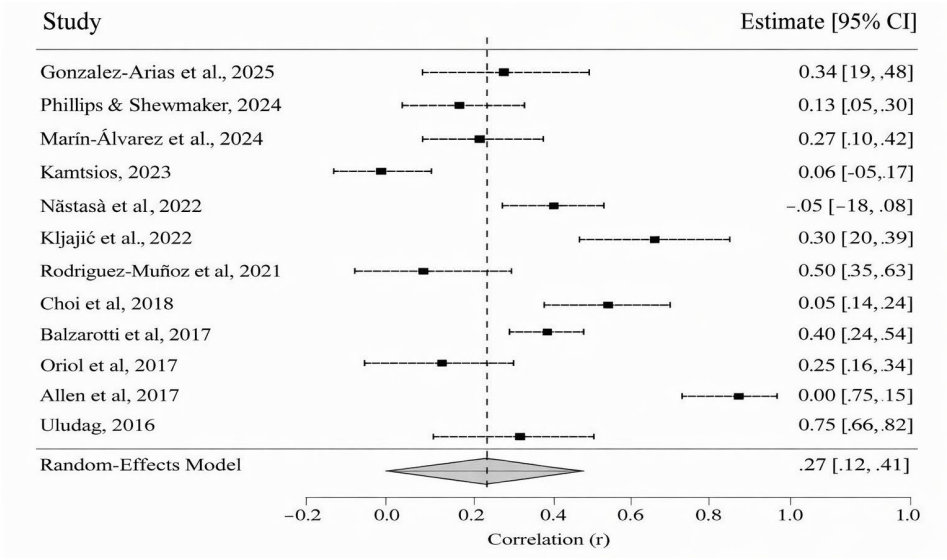
To examine the consistency of the association between PA and academic performance across different methodological characteristics, additional analyses were conducted to explore potential moderating variables. The results of these analyses are presented below, organized by the type of affect measure, the type of academic performance measure, and the study design.

Type of affect measurement. Subgroup analyses showed a correlation of r = .3 (95% CI [.11, .47], k = 9) for studies using the PANAS and r = .17 (95% CI [−.04, .37], k = 3) for studies employing other affect measures. Although studies using the PANAS tended to report larger effect sizes, the mixed-effects meta-regression did not provide statistically significant evidence of moderation by affect measure (β = −.14, SE = .19, p = .47), possibly due to the small number of studies in the "other measures" subgroup.

Type of academic performance measurement. For studies assessing self-reported academic performance, the pooled correlation was r = .39 (95% CI [.11, .61], k = 5). For those using objective performance measures, the correlation was r = .18 (95% CI [.02, .32], k = 7). The subgroup comparison did not reveal statistically significant differences (Qbetween(1) = 2.05, p = .15), and the mixed-effects meta-regression was consistent with this pattern (β = .22, SE = .16, p = .15).

Figure 2

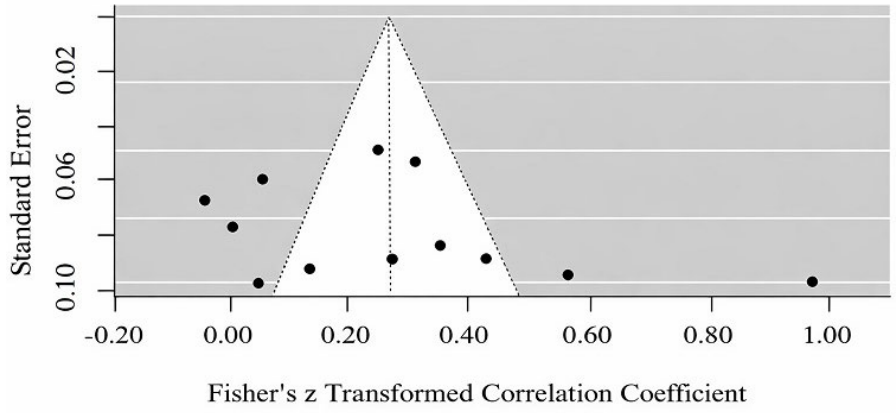
Forest plot of correlations between positive affect and academic performance in university students



Note. The forest plot of effect sizes (*r*) and their 95% confidence intervals. Each dot represents the effect size of an individual study, while the horizontal lines indicate the confidence intervals. The dotted blue vertical line indicates the combined effect size estimated using a random-effects model.

Figure 3

Funnel plot assessing publication bias in studies on positive affect and academic performance



Note. Funnel plot of effect sizes (*r*) against the standard error for the studies included in the meta-analysis. Each black dot represents an individual study. The dotted vertical line indicates the combined effect size estimated using a model.

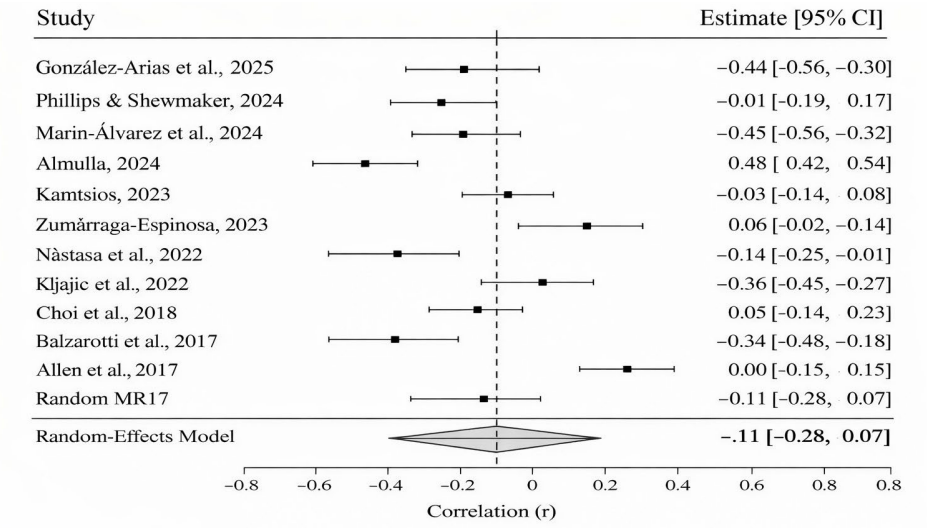
Study design. Cross-sectional studies showed a pooled correlation of $r = .25$ (95% CI [.07, .42], $k = 9$), whereas longitudinal studies showed $r = .31$ (95% CI [−.01, .57], $k = 3$). The subgroup comparison suggested statistically significant differences between designs ($Q_{between}(1) = 10.72$, $p < .01$); however, the mixed-effects meta-regression did not confirm study design as a significant moderator ($\beta = .06$, $SE = .2$, $p = .75$).

Meta-analysis results: relationship between negative affect and academic performance

The heterogeneity analysis revealed substantial variability among the included studies. For the meta-analysis of NA, 11 studies were included. The Q statistic was 298.91 ($df = 10$), $p < .01$, and the heterogeneity index I^2 reached 95.45%, suggesting that nearly all the observed variability in effect sizes is due to true differences between studies rather than random error. These values indicate that a fixed-effects model is not appropriate for synthesizing the data. Therefore, a random-effects model with Fisher's z transformation was applied, assuming that effect sizes may vary depending on the methodological and contextual characteristics of the studies. The combined effect size, converted back to the original metric, was $r = –.11$, with a 95% confidence interval [–.28, .07]. This result indicates a weak negative association between NA and academic performance. However, since the confidence interval includes zero, the effect is not statistically sig-

Figure 4

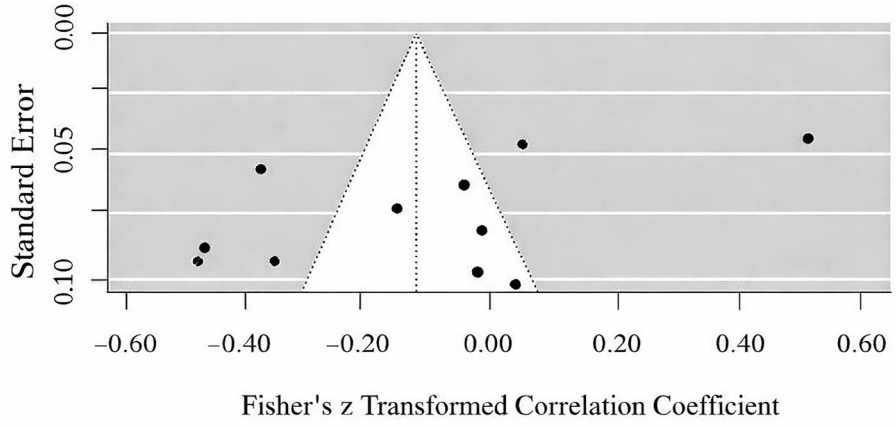
Forest plot of correlations between negative affect and academic performance in university students



Note. The forest plot represents the effect sizes of each individual study (correlations between negative affect and academic performance transformed to Fisher's *z*), along with their respective 95% confidence intervals. The dotted blue line indicates the combined effect size estimated using a random-effects model, reconverted to the correlation metric (*r*).

Figure 5

Funnel plot assessing publication bias in studies on negative affect and university academic performance



Note. Funnel plot of effect sizes (*r*) against the standard error for the studies included in the meta-analysis. Each black dot represents an individual study. The dotted vertical line indicates the combined effect size estimated using a model.

nificant ($Z = -1.19$, $p = .232$). The high heterogeneity observed suggests that the studies differ markedly in their results, which may be attributable to uncontrolled methodological, contextual, or cultural factors (Figure 4).

Publication bias analysis

To examine the possible presence of publication bias, Egger's test was applied. The result showed a regression intercept (b_0) = 0.4, 95% CI [–0.23, 1.02], with a z statistic = 1.25 and a $p = .21$, indicating no statistically significant evidence of asymmetry in the funnel plot. Although the result does not reach conventional levels of statistical significance, the findings should be interpreted with caution due to the high heterogeneity observed across studies.

Moderator analyses: sources of heterogeneity

To clarify whether methodological characteristics influence the association between NA and academic performance, a series of moderator analyses was conducted to assess potential sources of variation across studies. These analyses help determine the robustness of the overall effect and identify conditions under which the association may differ. The results are

presented below, organized by type of affect measure, type of academic performance measure, and study design.

Type of affect measurement. Subgroup analyses indicated a correlation of $r = -.18$ (95% CI [−.35, −.01], $k = 7$) for studies using the PANAS and $r = .02$ (95% CI [−.34, .37], $k = 4$) for studies employing other affect measures. A subgroup comparison did not indicate significant differences between instruments (Qbetween(1) = 1.2, $p = .27$). Consistently, the mixed-effects meta-regression did not provide statistically significant evidence of moderation ($\beta = .2$, $SE = .19$, $p = .27$).

Type of academic performance measurement. For studies using self-reported academic performance, the pooled correlation was $r = -.05$ (95% CI [−.37, .29], $k = 5$). For those employing objective performance measures, the correlation was $r = -.16$ (95% CI [−.33, .01], $k = 6$). The subgroup comparison did not indicate statistically significant differences between measurement types (Qbetween(1) = .38, $p = .54$), a pattern consistent with the mixed-effects meta-regression ($\beta = .12$, $SE = .19$, $p = .54$).

Study design. Cross-sectional studies showed a pooled correlation of $r = -.09$ (95% CI [−.3, .12], $k = 9$), whereas longitudinal studies showed $r = -.17$ (95% CI [−.48, .17], $k = 2$). The subgroup comparison did not indicate significant differences between study designs (Qbetween(1) = 0.11, $p = .75$), although longitudinal studies showed a descriptively stronger negative association. Consistently, the mixed-effects meta-regression provided no statistically significant evidence of moderation by study design ($\beta = -.08$, $SE = .25$, $p = .75$), likely due to the small number of longitudinal studies.

Taken together, the meta-analysis results reveal differentiated patterns in the relationship between affective dimensions and academic performance. On the other hand, PA showed a direct and moderate association with academic performance ($r = .27$, 95% CI [.12, .41]), indicating that higher levels of positive emotions tend to be related to better academic outcomes. In contrast, NA displayed a very weak and non-significant negative association with academic performance ($r = –.11$, 95% CI [–.28, .07]), suggesting that its influence on performance is minimal or inconsistent. Both analyses revealed high heterogeneity across studies, underscoring the need to consider methodological and contextual factors when interpreting the effects. These findings highlight the more robust and stable role of PA in the academic domain, in contrast to the variability and uncertainty associated with NA.

Discussion

The present systematic review and meta-analysis aimed to clarify the relationship between PA, NA, and academic performance in university students by quantitatively synthesizing empirical evidence published over the last decade. The results of the meta-analysis indicate that PA is consistently and positively associated with academic performance. This finding is consistent with theoretical models proposing that PA broadens cognitive and motivational resources, thereby increasing academic engagement, persistence, and students' capacity to cope with academic demands (Fredrickson, 2013).

However, the high heterogeneity observed in effect sizes suggests that the strength of the association between PA and academic performance is sensitive to methodological and contextual factors. Although subgroup and meta-regression analyses examining affect measurement, academic performance indicators, and study design did not identify statistically significant moderators, this does not conclusively rule out methodological influences. The lack of robust moderation effects may be attributable to substantial residual heterogeneity, small subgroup sizes, and limited sample representativeness –largely due to the use of convenience samples, which likely reduced statistical power and hindered the detection of systematic patterns.

Moreover, variability in effect size magnitude may also reflect the influence of more complex psychological and contextual processes that were not directly modeled in the present meta-analysis. In particular, PA may operate through mediating mechanisms such as intrinsic motivation, academic engagement, self-efficacy, the use of adaptive emotion regulation strategies, or perceptions of control and change (Balzarotti et al., 2017; González-Arias et al., 2025; Kamtsios, 2023; Kljajic et al., 2022; Oriol et al., 2017; Rodríguez-Muñoz et al., 2021; Stanley et al., 2020; Uludag, 2016). The activation and relevance of these mechanisms may vary as a function of the educational context, student characteristics, and specific academic demands, thereby contributing to the high heterogeneity observed across studies.

With regard to NA, a small and non-significant pooled effect size was observed, together with substantial heterogeneity across studies. This pattern indicates that the association between NA and academic performance does not follow a uniform direction, but rather varies considerably across studies, including negative, null, and even positive associations in certain contexts. Subgroup analyses and meta-regression models examined whether this variability could be attributed to methodological differences. Although descriptive differences were observed, these were not confirmed by meta-regression, suggesting that such characteristics do not systematically account for the observed heterogeneity.

A central element for interpreting these findings is the conceptual heterogeneity in the definition and measurement of NA. The coexistence of general measures of emotional distress with situational indicators tied to specific academic experiences implies that functionally distinct emotional processes are being aggregated under a single analytic category. In this context, the presence of empirical findings with opposite or null directions suggests that NA does not exert a consistently detrimental influence on academic performance; rather, its impact may depend on factors such as the intensity and duration of NA, the context in which it is experienced, and the availability of regulatory resources.

Practical implications

The available evidence underscores the importance of integrating the affective dimension into university teaching practices. The facilitating role of PA suggests that institutions should promote experiences that strengthen the psychological resources that may mediate the relationship between PA and academic performance. Specifically, regarding explanatory

mechanisms, several studies included in this review highlighted the mediating role of variables such as academic self-efficacy (Oriol et al., 2017), engagement (Rodríguez-Muñoz et al., 2021; Uludag, 2016), academic resilience (Almulla, 2024; Năstasă et al., 2022; Zumárraga-Espinosa, 2023), autonomous motivation (González-Arias et al., 2025), and coping strategies (Phillips & Shewmaker, 2024). These findings point to the importance of an integrative approach that examines not only the direct relationship between affect and performance but also the indirect pathways through which this influence operates.

Therefore, it is necessary to promote affective balance in students through valid and reliable instruments that allow for the accurate assessment of the relationship between PA and NA at specific stages of the learning process. Such information could facilitate the early detection of emotional difficulties and serve as a basis for designing interventions aimed at strengthening key variables such as emotion regulation, resilience, and coping. In this regard, only two of the studies analyzed proposed an integrated measure of PA and NA using the difference between both components (PA minus NA) (Allen et al., 2017; Choi et al., 2018). However, this measure has limitations, as it does not account for the proportion of students experiencing high or low levels of each type of affect, nor the average intensity of these emotional experiences within the group. These factors may play a crucial role in understanding affective dynamics over time, particularly when considering processes such as emotional contagion (Herrando & Constantinides, 2021).

Moreover, several interventions focused on emotion regulation have been shown to be effective in educational contexts (e.g., Salem et al., 2025). In particular, the evidence suggests that such interventions can significantly reduce students' NA (Pogrebtsova et al., 2018). It is also important to consider interventions aimed at strengthening moderating and mediating variables in the relationship between affect and academic performance, such as self-efficacy, engagement, resilience, autonomous motivation, and coping strategies, which were identified as relevant factors in this meta-analysis.

Consequently, it is advisable to conduct continuous monitoring of students' affective profiles throughout the academic year, along with the psychoeducational variables mentioned above. To achieve this, it is necessary to develop assessment tools for affect that not only integrate the positive and negative dimensions but also allow for more precise measurements of affective levels at the group level, facilitating a richer and more contextually grounded interpretation of emotional well-being in educational settings. In any case, these implications should be implemented cautiously, as the limited representativeness of the samples in the studies analyzed may have biased the magnitude of the observed effects. Therefore, it is recommended that interventions be individualized, considering students' contextual, personal, and academic characteristics.

Limitations

This systematic review and meta-analysis present several important limitations. The limited representativeness of the samples, due in most studies to the use of convenience sampling, restricts the generalizability of the findings and may have influenced the magnitude of the observed associations, particularly in the case of PA. The high heterogeneity suggests substantial differences across studies in terms of design, measurement instruments, and educational contexts, as well as possible influences of uncontrolled variables (e.g., institutional characteristics, type of assessment, or sociodemographic factors). A specific limitation concerns the operationalization of NA, as the combination of conceptually distinct measures reduces the coherence of the estimated effect. Moreover, the predominance of cross-sectional designs limits the ability to establish temporal or causal relationships.

Future research directions

The results of this systematic review and meta-analysis allow for the identification of several priority directions for future research. First, the predominance of cross-sectional designs limits the temporal and causal interpretation of the findings. Given that prior studies have shown that affect fluctuates across the academic year and may exert cumulative or delayed effects on academic performance (Balzarotti et al., 2017; Barker et al., 2016; Rodríguez-Muñoz et al., 2021), there is a need to prioritize longitudinal and multilevel designs that enable the examination of intraindividual changes in affect and their dynamic relationship with academic performance. Second, the findings reveal a clear asymmetry between the two affective dimensions. Whereas PA shows a stable effect direction, NA exhibits weak and inconsistent associations. This instability may be related to heterogeneity in its operationalization, which ranges from general measures of distress to specific indicators embedded within academic resilience scales. Future research should more precisely distinguish between general NA and negative emotional responses situated in specific academic contexts, as well as between trait and state affect.

Third, prior evidence suggests that the relationship between affect and academic performance is embedded within broader motivational and self-regulatory processes. Variables such as academic self-efficacy and engagement (Oriol et al., 2017; Rodríguez-Muñoz et al., 2021), autonomous motivation (González-Arias et al., 2025), academic resilience (Năstasă et al., 2022), and coping strategies following failure (Phillips & Shewmaker, 2024) should be incorporated into mediational models. Likewise, future research should adopt person-centered approaches that allow for the examination of affective profiles and include more precise measures of affect that combine PA and NA (Allen et al., 2017). Such designs could help clarify the conditions under which certain forms of NA may coexist with adaptive academic functioning (Almulla, 2024; Barker et al., 2016).

Finally, the limited sample representativeness identified in most studies underscores the need for larger, more diverse, and multi-institutional samples, which would enhance the generalizability of the findings and allow for more robust analyses of methodological and contextual factors. Overall, future research

should move toward stronger, theoretically integrated, and context-sensitive designs that explicitly address the sources of variability identified in this meta-analysis and enable a more precise understanding of when, how, and for whom affect influences academic performance.

Conclusions

Overall, this meta-analysis shows that PA is a consistent and meaningful predictor of academic performance in university students, whereas NA exhibits a weak and non-significant association marked by substantial variability across studies. The high heterogeneity observed underscores the role of complex psychological and contextual mechanisms in shaping these relationships, highlighting the importance of fostering PA in higher education and adopting a nuanced, context-sensitive view of NA.

Author contributions

Conceptualization: F.G.L., A.D.J.
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Writing – review & editing: F.G.L., L.M.H., A.D.J.

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Declaration of interests

The authors declare that there is no conflict of interest.

Data availability statement

Data sharing is not applicable to this article as the analyses developed are not from new data sets.

References

*Allen, M. S., El-Cheikh, S., & Turner, M. J. (2017). A longitudinal investigation of irrational beliefs, hedonic balance and academic achievement. *Learning and Individual Differences, 58*, 41-45. https://doi.org/10.1016/j.lindif.2017.07.003

*Almulla, M. O. (2024). Academic resilience and its relationships with academic achievement among students of King Faisal University in Saudi Arabia. *Revista De Gestão Social E Ambiental, 18*(9), Article e07391. https://doi.org/10.24857/rgsa.v18n9-134

*Balzarotti, S., Chiarella, V., & Ciceri, M. R. (2017). Individual differences in cognitive reappraisal predict emotional experience prior to achievement situations: a prospective study. *Journal of Individual Differences, 38*(3), 144-154. https://doi.org/10.1027/1614-0001/a000231

Barker, E. T., Howard, A. L., Galambos, N. L., & Wrosch, C. (2016). Tracking affect and academic success across university: happy students benefit from bouts of negative mood. *Developmental Psychology, 52*(12), 2022-2030. https://doi.org/10.1037/dev0000231

*Choi, I., Lim, S., Catapano, R., & Choi, J. (2018). Comparing two roads to success: self-control predicts achievement and positive affect predicts relationships. *Journal of Research in Personality, 76*, 50-63. https://doi.org/10.1016/j.jrp.2018.07.001

Cobo-Rendón, R., Pérez-Villalobos, M. V., Páez-Rovira, D., & Gracia-Leiva, M. (2020). A longitudinal study: affective wellbeing, psychological wellbeing, self-efficacy and academic performance among first-year undergraduate students. *Scandinavian Journal of Psychology, 61*(4), 518-526. https://doi.org/10.1111/sjop.12618

Downes, M. J., Brennan, M. L., Williams, H. C., & Dean, R. S. (2016). Development of a critical appraisal tool to assess the quality of cross-sectional studies (AXIS). *BMJ open, 6*(12), Article e011458. https://doi.org/10.1136/bmjopen-2016-011458

Emmons, R. A. (1992). Abstract versus concrete goals: personal striving level, physical illness, and psychological well-being. *Journal of Personality and Social Psychology, 62*(2), 292-300. https://doi.org/10.1037/0022-3514.62.2.292

Fredrickson, B. L. (2009). *Positivity*. Crown Publishers.

Fredrickson, B. L. (2013). Positive emotions broaden and build. In P. Devine & A. Plant (Eds.), *Advances in experimental social psychology* (vol. 47, pp. 1-53). Burlington.

*González-Arias, M., Dibona, P., Soto-Flores, B., Rojas-Puelles, A., Amato, M., Álvarez-Trigo, D., & Castillo, R. (2025) Academic performance, self-reported motivation, and affect in higher education: the role of basic psychological need satisfaction. *Frontiers in Psychology, 16*, Article 1519454. https://doi.org/10.3389/fpsyg.2025.1519454

Herrando, C., & Constantinides, E. (2021). Emotional contagion: a brief overview and future directions. *Frontiers in Psychology, 12*, Article 712606. https://doi.org/10.3389/fpsyg.2021.712606

*Kamtsios, S. (2023). The interplay of academic hardiness, passion for studies and affective experiences in undergraduates' happiness and GPA scores: a person-oriented approach. *Psychological Studies, 68*(3), 359-373. https://doi.org/10.1007/s12646-023-00729-3

*Kljajic, K., Schellenberg, B. J. I., & Gaudreau, P. (2022) Why do students procrastinate more in some courses than in others and what happens next? Expanding the multilevel perspective on procrastination. *Frontiers in Psychology. 12*, Article 786249. https://doi.org/10.3389/fpsyg.2021.786249

Lazarus, R. S. (1991). *Emotion and adaptation*. Oxford University Press.

Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gøtzsche, P. C., Ioannidis, J. P., Clarke, M., Devereaux, P. J., Kleijnen, J., & Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: explanation and elaboration. *Journal of Clinical Epidemiology, 62*(10), e1-e34. https://doi.org/10.1016/j.jclinepi.2009.06.006

Low, M., King, R. B., & Caleon, I. S. (2016). Positive emotions predict students' well-being and academic motivation: the broaden-and-build approach. In: King, R., Bernardo, A. (eds) *The psychology of Asian learners*. Springer. https://doi.org/10.1007/978-981-287-576-1_30

*Marín-Álvarez, F., Flores-Prado, L., Figueroa, O., Polo, P., Varela, J.J., & Muñoz-Reyes, J. A. (2024) Quantitative evaluation of a theoretical-conceptual model based on affective and socio-behavioral dimensions to explain the academic performance of mathematics students. *Frontiers in Psychology, 15*, Article 1372427. https://doi.org/10.3389/fpsyg.2024.1372427

Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & PRISMA Group. (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS Medicine, 6*(7), Article e1000097. https://doi.org/10.1371/journal.pmed.1000097

*Năstasă, L. E., Cocoradă, E., Vorovencii, I., & Curtu, A. L. (2022). Academic success, emotional intelligence, well-being and resilience of first-year forestry students. *Forests, 13*(5), Article 758. https://doi.org/10.3390/f13050758

*Oriol, X., Mendoza, M., Covarrubias, C. G., & Molina, V. M. (2017). Positive emotions, autonomy support and academic performance of university students: the mediating role of academic engagement and self-efficacy, *Revista de Psicodidáctica, 22*(1), 45-53. https://doi.org/10.1387/RevPsicodidact.14280

Ouzzani, M., Hammady, H., Fedorowicz, Z., & Elmagarmid, A. (2016). Rayyan - a web and mobile app for systematic reviews. *Systematic Reviews 5*, Article 210. https://doi.org/10.1186/s13643-016-0384-4

*Phillips, L., & Shewmaker, J. (2024). Supporting healthy affect and coping after perceived failure in college students in Christian higher education. *Christian Higher Education, 24*(1), 22-37. https://doi.org/10.1080/15363759.2024.2385300

Pogrebtsova, E., Craig, J., Chris, A., O'Shea, D., & González-Morales, M. G. (2018). Exploring daily affective changes in university students with a mindful positive reappraisal intervention: a daily diary randomized controlled trial. *Stress and Health: Journal of the International Society for the Investigation of Stress, 34*(1), 46-58. https://doi.org/10.1002/smi.2759

Rand, K. L., Shanahan, M. L., Fischer, I. C., & Fortney, S. K. (2020). Hope and optimism as predictors of academic performance and subjective well-being in college students. *Learning and Individual Differences, 81*, Article 101906. https://doi.org/10.1016/j.lindif.2020.101906

*Rodríguez-Muñoz, A., Antino, M., Ruiz-Zorrilla, P., & Ortega, E. (2021). Positive emotions, engagement, and objective academic performance: a weekly diary study. *Learning and Individual Differences, 92*, Article 102087. https://doi.org/10.1016/j.lindif.2021.102087

Salem, G. M. M., Hashimi, W., & El-Ashry, A. M. (2025). Reflective mindfulness and emotional regulation training to enhance nursing students' self-awareness, understanding, and regulation: a mixed method randomized controlled trial. *BMC Nursing, 24*(1), Article 478. https://doi.org/10.1186/s12912-025-03086-w

Stanley, P., Schutte, N., & Phillips, W. J. (2020). Meta-analytic investigation of the relationship between intrinsic motivation and affect. *European Journal of Applied Positive Psychology, 4*(5), 1-11.

*Uludag, O. (2016). The mediating role of positive affectivity on testing the relationship of engagement to academic achievement: an empirical investigation of tourism students. *Journal of Teaching in Travel & Tourism, 16*(3), 163177. https://doi.org/10.1080/15313220.2015.1123130

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology, 54*(6), 1063-1070. https://doi.org/10.1037//0022-3514.54.6.1063

Xie, J., Cho, K. W., Wei, T., Xu, J., & Fan, M. (2025). The effects of academic emotions on learning outcomes: a three-level meta-analysis of research conducted between 2000 and 2024. *Learning and Motivation, 90*, Article 102109. https://doi.org/10.1016/j.lmot.2025.102109

*Zumárraga-Espinosa, M. (2023). Resiliencia académica, rendimiento e intención de abandono en estudiantes universitarios de Quito. (2023). *Revista Latinoamericana De Ciencias Sociales, Niñez y Juventud, 21*(3), 1-34. https://doi.org/10.11600/rlcsnj.21.3.5949

Appendix

Summary of the studies included in the meta-analysis

Reference	Objectives	Design	Affect measure	Performance measure	Sample / Country	A-AP	r
González-Arias, et al., 2025	Relationships between basic psychological needs, affect, self-reported motivation, and academic performance.	Quantitative, non-experimental, cross-sectional, comparative, and correlational	Positive and Negative Affect Schedule (PANAS) (short version)	Grade Point Average (GPA) obtained in the courses. Self-reported by students.	*N* = 148 *M* = 21 years (*SD* = 3.21) 58.8% women, 37.8% men, 3.4% not specified Chile	PA-AP NA-AP	.34 -.44
Phillips & Shewmaker, 2024	To examine how NA and the use of coping strategies (especially maladaptive ones) influence the improvement of academic performance in university students who experienced an academic failure.	Quantitative, non-experimental, correlational, and cross-sectional, with mediation analysis, and data collection before and after the exam.	Positive and Negative Affect Schedule (PANAS)	Official grades from exams 1 and 2 of the economics course.	*N* = 122. Subsample *M* = 19.7 (*SD* not reported) 68% men, 32% women USA	PA-AP NA-AP	.13 -.01
Marín-Álvarez et al., 2024	A theoretical-conceptual model describing the direct and indirect relationships between affective dimensions (PA and NA), personality traits (Big Five), and cooperative behaviors, with academic performance.	Quantitative, non-experimental, cross-sectional, correlational	Positive and Negative Affect Schedule (PANAS)	Grade obtained on a mathematics test	*N* = 130 *M* = 20.1 (*SD* = 3.99) 75.3% men and 24.7% women Chile	PA-AP NA-AP	.27 -.45
Almulla, 2024	To examine the relationship between resilience and academic performance. To explore differences in academic resilience according to gender and field of study (humanities vs. sciences).	Quantitative, non-experimental, cross-sectional, and correlational	Academic Resilience Scale (ARS-30). Dimension: negative affect	Self-reported academic grades by students	*N* = 600. Age not reported. 65.5% women, 34.5% men. Saudi Arabia	PA-AP NA-AP	--- .48
Kamtsios, 2023	To examine how affective experiences, academic passion (harmonious and obsessive), and academic strength (commitment, control, challenge) combine into distinct psychological profiles. To analyze how these profiles predict academic performance (GPA) and happiness.	Quantitative, non-experimental, cross-sectional, and correlational	Positive and Negative Affect Schedule (PANAS)	Average grades (GPA, self-reported by students)	*N* = 293. Age not reported. 87.7% women, 13.3% men. Greece	PA-AP NA-AP	.06 -.03
Zumárraga-Espinosa, 2023	To study the relationship between dimensions of resilience and academic performance. To examine the relationship between academic resilience dimensions and dropout intention. To explore the moderating role of academic level in the effect of academic resilience on academic performance and dropout intention.	Quantitative, non-experimental, correlational, cross-sectional, explanatory	Academic Resilience Scale (ARS-30). Dimension: NA	Self-report. Students were asked to indicate their cumulative grade point average, considering all courses taken up to the time of the survey.	*N* = 550 M = 21.67 *(SD* = 3.32) 67.3% women, 32.7% men Ecuador	PA-AP NA-AP	--- .06
Năstasă, et al., 2022	To analyze whether emotional intelligence, emotions (positive and negative), well-being, and resilience are related to academic performance, dropout intention, and actual dropout.	Quantitative, non-experimental, correlational with a predictive approach	Workplace PERMA-Profiler (PA). Academic Resilience Scale (ARS-30) (negative affect)	Academic performance objectively measured through ECTS credits obtained at the end of the first year of studies	*N* = 227. Age not reported. 76.6% men, 23.4% women. Romania	PA-AP NA-AP	-.05 -.14

Kljajic, et al., 2022	To examine the mediating role of procrastination in the relationships between two types of motivation—autonomous motivation and controlled motivation—and three academic outcomes: academic performance (grades), PA, NA.	Quantitative, non-experimental, correlational, cross-sectional with multilevel analysis	Positive and Negative Affect Questionnaire by Emmons (1992)	Official final grades of each course, obtained directly through the University Registrar's Office	*N* = 359 *M* = 19.27 (*SD* = 3.24) 71.3% women, 28.7% men Canada	PA-AP NA-AP	.30 -.36
Rodríguez-Muñoz et al., 2021	Short-term effects of positive emotions on academic performance. Intraindividual variability in positive emotions. Association of positive emotions with academic performance through student engagement.	Weekly diary design with a multilevel approach (1-1-1), in which predictor, mediator, and outcome were assessed at the weekly (intraindividual) level	Abbreviated version of the Positive and Negative Affect Schedule (PANAS)	Academic performance objectively assessed weekly through Grade Point Average (GPA)	*N* = 116 *M* = 20.5 years (*SD* = 1.63) 59.4% women, 40.6% men Spain	PA-AP NA-AP	.50 ---
Choi, et al., 2018	To compare the importance of self-control and PA (or emotional well-being, EWB) as predictors of achievement and interpersonal relationships	Quantitative, non-experimental, correlational, and cross-sectional	Positive and Negative Affect Schedule (PANAS)	Grade Point Average (GPA)	*N* = 110 *M* = 22.59 (*SD* = 1.64) 65.5% women, 35.5% men South Korea	PA-AP NA-AP	.05 .05
Balzarotti, et al., 2017	To examine whether the use of cognitive reappraisal prior to an evaluative situation predicts positive and negative affect as well as subsequent academic performance, and to explore whether this effect is indirect (mediated by affect)	Quantitative, non-experimental, prospective, with longitudinal design and repeated measurements	Positive and Negative Affect Schedule (PANAS)	Final grade obtained in the academic exam selected by each participant. Self-reported with reference to actual performance	*N* = 130 *M* = 22.05 years (*SD* = 1.74) 85% women, 15% men Italy	PA-AP NA-AP	.40 -.34
Oriol, et al., 2017	To determine whether variables such as teacher autonomy support and PA experienced in the classroom predict academic performance through the mediating effects of self-efficacy and academic engagement	Quantitative, non-experimental, correlational, cross-sectional, predictive	Positive Emotions Scales (Fredrickson, 2009.)	Students were asked to report their average grades from the previous semester	*N* = 428 *M* = 20.37 (*SD* = 2.71) 63.5% women, 36.5% men Chile	PA-AP NA-AP	.25 ---
Allen, et al., 2017	To investigate the cross-sectional and longitudinal associations among irrational beliefs, hedonic balance (difference between positive and negative affect), and academic performance	Quantitative, non-experimental, longitudinal, correlational	Positive and Negative Affect Schedule (PANAS)	Final objective grade (average percentage) of the semester obtained through the university's electronic management system	*N* = 175 *M* = 20.23 (*SD* = 5.06) 82.86% women, 17.14% men Australia and UK	PA-AP NA-AP	.00 .00
Uludag, 2016	To investigate the effects of student engagement and PA on academic performance	Quantitative, non-experimental, cross-sectional, correlational	Positive and Negative Affect Schedule (PANAS) (PA only)	Grade Point Average (GPA) (self-reported)	*N* = 112. Age not reported. 59.8% men, 40.2% women Cyprus	PA-AP NA-AP	.75 ---

Note. Main characteristics of the 14 studies included in the meta-analysis. The following are presented: authorship and year of publication, country, methodological design, sample size and characteristics, measurement instruments used for the main variables, and effect size between affect and academic performance (A-AP), specifically between positive affect and academic performance (PA-AP), and between negative affect and academic performance (NA-AP).