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Academic stress and self-esteem in students of a Public Educational Institution in Trujillo, 2026

Katheryn Nayeli Rojas-Salazar¹,  Helaman Ernesto Guevara-Alcalde¹,  Jose Luis Olivera-Orihuela¹  Andrea Nicole Cumpa-Sandoval¹ 

¹ Universidad César Vallejo, Trujillo, Peru

ABSTRACT

Background: Academic stress represents an important challenge during adolescence because increasing school demands may affect students' psychological well-being and adaptation. Self-esteem may play a relevant role in how adolescents perceive and respond to these demands. **Objective:** To determine the association between academic stress and self-esteem among students at a public educational institution in Trujillo, Peru, in 2026. **Methods:** An observational, analytical, cross-sectional study with a quantitative approach was conducted in 151 adolescents. Academic stress and self-esteem were assessed using structured questionnaires with evidence of content validity and adequate internal consistency. Categorical variables were summarized using frequencies and percentages, and associations were evaluated using Pearson's chi-square test, with statistical significance set at $p < 0.05$. **Results:** Academic stress was predominantly moderate (54.3%), followed by high (35.1%) and low (10.6%) levels. Self-esteem was mainly moderate (75.5%), followed by high (23.8%) and low (0.7%) levels. No statistically significant association was found between overall academic stress and self-esteem ($p = 0.218$). However, the self-esteem dimension of power was associated with overall academic stress ($p = 0.010$), while task overload ($p = 0.002$) and concern about grades ($p = 0.043$) were associated with overall self-esteem. **Conclusions:** Overall academic stress and self-esteem were not significantly associated; however, specific dimensions of both constructs showed significant associations, suggesting that their relationship may be better understood through dimensional rather than exclusively global assessment.

Keywords: Stress; Self-Esteem; Adolescent; Psychological Stress; Students.

***Corresponding author:** Katheryn Nayeli Rojas-Salazar
Professional School of Psychology, César Vallejo University, Trujillo, Peru.
E-mail address: katherynn@ucvvirtual.edu.pe

ORCID iDs: K.N. Rojas-Salazar, 0009-0006-0550-9756; H.E. Guevara-Alcalde, 0009-0002-2940-9507; J.L. Olivera-Orihuela, 0009-0001-5998-7191; A.N. Cumpa-Sandoval, 0009-0009-2138-8650

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Introduction

The sustained increase in academic demands among secondary school students has emerged as an important concern within contemporary educational systems because of its potential implications for academic performance, emotional stability, and social adjustment [1,2]. During adolescence—a developmental stage characterized by substantial social, biological, and psychological changes—students undergo an ongoing process of identity consolidation, which may increase their vulnerability to stressors arising from the school environment [2]. According to the World Health Organization (WHO), approximately one in seven adolescents worldwide experiences a mental health disorder, with stress representing an important factor affecting their overall development and psychosocial well-being [3].

From a conceptual perspective, academic stress can be understood as an adaptive response to educational demands that exceed an individual's perceived coping resources [4]. Within this context, academic overload, pressure to achieve high grades, and elevated external expectations may progressively generate tension and, when inadequately managed, contribute to emotional exhaustion, anxiety, and persistent difficulties in concentration [5,6].

Self-esteem, in turn, represents a fundamental component of psychological well-being during adolescence because it influences how young people perceive themselves, evaluate their abilities, and respond to adversity [7]. Adequate levels of self-esteem have been associated with better school adjustment, healthier interpersonal relationships, and greater emotional stability, potentially contributing to more adaptive responses to academic demands [8]. Conversely, low self-esteem has been associated with insecurity, reduced motivation, and poorer academic performance [7,9].

At the international level, studies conducted in European settings have reported increasing levels of academic stress among secondary school students in association with changes in educational practices and adverse effects on emotional regulation [5]. In Latin America, particularly in Andean settings in Peru and Bolivia, available evidence indicates that students have experienced substantial levels of stress related to post-pandemic adaptation to virtual learning environments, pressure to achieve academic outcomes, and socioeconomic inequalities that restricted access to technological resources [10]. In Peru specifically,

official reports indicate that more than 60% of secondary school students experience persistent concern and fear of academic failure [11]. These circumstances have been associated with difficulties in cognitive processes such as attention and memory, as well as physical manifestations including fatigue and sleep disturbances [1,11].

Nevertheless, national evidence remains inconsistent. While some studies have reported a significant inverse association in which lower self-esteem is accompanied by higher levels of academic stress [12,13], other local studies have found no statistically significant association between the overall measures of these constructs, suggesting that social environment, family support, and other contextual resources may contribute to variations in their relationship [14,15].

This variability in previous findings highlights an important knowledge gap in the context of northern coastal Peru. Established theoretical frameworks include Morris Rosenberg's Theory of Self-Esteem, which proposes that self-evaluation contributes to the regulation of thoughts and behaviors when individuals face environmental challenges [16], and the Transactional Theory of Stress developed by Richard Lazarus and Susan Folkman, which conceptualizes stress as the result of a cognitive appraisal in which environmental demands are perceived as exceeding personal resources [17]. However, further evidence is needed to clarify how specific dimensions of these constructs are associated within vulnerable urban settings. In cities such as Trujillo, public educational institutions may face infrastructure limitations, substantial academic demands, and heterogeneous socioeconomic conditions that could influence the relationship between academic stress and adolescents' self-evaluation.

From a scientific perspective, this study seeks to provide empirical evidence on the dimensional relationship between academic stress and self-esteem and thereby contribute to educational psychology research in the local context. From a practical perspective, the findings may support teachers, school counselors, and educational authorities in making informed decisions when developing strategies aimed at addressing the negative consequences of academic stress. Methodologically, the study applies a quantitative approach and validated and reliable instruments to provide an objective basis for future research.

Therefore, the primary objective of this study was to determine the association between academic stress and self-esteem among students at a public educational

institution in Trujillo, Peru, in 2026. The specific objectives were to identify the level of academic stress among the students, determine their level of self-esteem, and assess the associations between the dimensions of academic stress and self-esteem. The null hypothesis stated that there was no statistically significant association between overall academic stress and self-esteem in the study population.

Materials and methods

Study design and setting

An observational, analytical, cross-sectional study with a quantitative approach was conducted among secondary school students at a public educational institution in Trujillo, Peru. Data collection was carried out during the 2026 academic year. The study was reported in accordance with the recommendations of the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guideline for cross-sectional studies. [18]

Population, sample, and sampling

The target population comprised 1,104 students enrolled in secondary education during the study period. An initial sample size of 260 students was estimated using the finite-population formula for qualitative variables, considering an expected prevalence of academic stress of 65% based on previous regional evidence [12], a 95% confidence level, and a 5% margin of error.

The final analytic sample comprised 151 students, who were included in the study and had data available for the final statistical analysis. Participants were selected using simple random probability sampling, ensuring that each eligible student had a known and non-zero probability of selection.

Eligibility criteria

Students who regularly attended classes and whose parents or legal guardians provided written informed consent were eligible to participate. In addition, each adolescent provided voluntary assent before completing the questionnaires.

Blank questionnaires, incomplete or duplicate records, and responses from students with a high rate of recent school absenteeism were excluded according to the predefined eligibility criteria.

Study variables

The main study variables were academic stress and self-esteem.

Academic stress was assessed globally and across five dimensions: pressure related to studying, workload or task overload, concern about grades, self-expectations, and discouragement. The overall score was categorized as low, moderate, or high.

Self-esteem was assessed globally and through four dimensions: bonding, uniqueness, power, and guidelines. The overall score was categorized as low, moderate, or high.

The secondary sociodemographic variables included age and sex.

Data collection instruments

Data were collected using structured questionnaires administered through a survey-based approach [18]. Academic stress was assessed using an adapted questionnaire based on the SISCO Inventory, whereas self-esteem was evaluated using a structured scale covering the four dimensions of bonding, uniqueness, power, and guidelines.

Content validity of the instruments was previously assessed through expert judgment. Internal consistency was evaluated in a pilot study involving 12 adolescents aged 14 years who had characteristics similar to those of the target population [19]. The psychometric analysis yielded an overall Cronbach's alpha coefficient of 0.80, indicating adequate internal consistency of the instruments.

The questionnaires were administered in printed format under standardized classroom conditions.

Procedure

After obtaining the corresponding authorization to conduct the study, parents and legal guardians received information about the research and the informed consent forms. Students whose parents or guardians authorized their participation were subsequently invited to participate and were asked to provide their own voluntary assent.

The questionnaires were administered face-to-face in the classroom by the researchers. Before completion, students received standardized information regarding the purpose of the study, the voluntary nature of participation, and the confidentiality of their responses.

Completed questionnaires underwent a manual quality-control process to identify blank, incomplete, or duplicate records. The database was subsequently reviewed and cleaned before statistical analysis.

Statistical Analysis

Statistical analyses were performed using IBM SPSS Statistics, version 27.0. Categorical and sociodemographic variables were summarized using absolute frequencies and percentages. Academic stress and self-esteem were described globally and according to their respective dimensions.

Associations between categorical levels of academic stress and self-esteem were evaluated using Pearson's chi-square test. The same procedure was used to assess associations between the global variables and their respective dimensions. Statistical significance was established at $p < 0.05$.

Ethical considerations

The study was conducted in accordance with the ethical principles of the Declaration of Helsinki [19] and internationally accepted standards for research involving human participants, including respect for persons, beneficence, non-maleficence, confidentiality, and scientific integrity [20].

Participation was strictly voluntary. Written informed consent was obtained from the parents or legal guardians, and voluntary assent was obtained from all participating adolescents before data collection. Confidentiality and privacy were protected throughout the study by coding the participants' information and excluding personal identifiers from the analytical database. The information collected was used exclusively for scientific purposes.

Results

Regarding the overall level of academic stress, most adolescents presented a moderate level (54.3%), followed by a high level (35.1%) and a low level (10.6%) (Table 1).

Table 1. Overall level of academic stress among adolescents

Level	n	%
High	53	35,1
Moderate	82	54,3
Low	16	10,6
Total	151	100,0

In the analysis by dimensions, the highest proportions classified at the high level were observed for self-expectations (46.4%) and task overload (40.4%). In contrast, study pressure and concern about grades were predominantly classified at the moderate level, accounting for 64.2% and 49.0% of participants, respectively (Table 2).

Table 2. Academic stress levels according to dimensions

Dimension	High n (%)	Moderate n (%)	Low n (%)
Study pressure	31 (20,5)	97 (64,2)	23 (15,2)
Task overload	61 (40,4)	73 (48,3)	17 (11,3)
Concern about grades	43 (28,5)	74 (49,0)	34 (22,5)
Self-expectations	70 (46,4)	51 (33,8)	30 (19,9)
Discouragement	47 (31,1)	74 (49,0)	30 (19,9)

Regarding overall self-esteem, 75.5% of participants were classified at the moderate level, followed by 23.8% at the high level, whereas only 0.7% were classified at the low level (Table 3).

Table 3. Overall level of self-esteem among adolescents

Level	n	%
High	36	23,8
Moderate	114	75,5
Low	1	0,7
Total	151	100,0

At the dimensional level, bonding and uniqueness showed similar distributions, with 84.1% of participants classified at the moderate level in both dimensions. The power dimension showed the highest proportion of participants at the high level (34.4%), whereas 73.5% of participants were classified at the moderate level in the guidelines dimension. For the global association analysis, Pearson's chi-square test showed no statistically significant association between overall academic stress and overall self-esteem ($p = 0.218$). (Table 4).

Table 4. Self-esteem levels according to dimensions

Dimension	High n (%)	Moderate n (%)	Low n (%)
Bonding	20 (13,2)	127 (84,1)	4 (2,7)
Uniqueness	21 (13,9)	127 (84,1)	3 (2,0)
Power	52 (34,4)	98 (64,9)	1 (0,7)
Guidelines	39 (25,8)	111 (73,5)	1 (0,7)

When the global constructs were analyzed against their respective dimensions, the power dimension of self-esteem was significantly associated with overall academic stress ($p = 0.010$). Likewise, task overload ($p = 0.002$) and concern about grades ($p = 0.043$) were significantly associated with overall self-esteem. No statistically significant associations were identified for the remaining dimensions (Table 5).

Table 5. Association between overall constructs and their respective dimensions

Overall variable	Dimension assessed	X ²	df	P value
Academic stress	Bonding	1,602	4	0,808
	Uniqueness	4,195	4	0,380
	Power	13,357	4	0,010*
	Guidelines	5,650	4	0,227
Self-esteem	Study pressure	9,399	4	0,052
	Task overload	17,191	4	0,002*
	Concern about grades	9,862	4	0,043*
	Self-expectations	4,948	4	0,293
	Discouragement	2,087	4	0,720

Discussion

The main finding of this study was the absence of a statistically significant association between overall academic stress and self-esteem among adolescents attending a public educational institution in Trujillo ($p = 0.218$). This finding is consistent with those reported by Sánchez [14] and Oyola [15], who also found no significant association between the overall measures of these constructs in Peruvian school populations. These results suggest that academic demands and school-related stress may not necessarily be accompanied by corresponding differences in adolescents' global self-evaluation.

In contrast, Vega [13] reported a significant inverse association between self-esteem and school-related stress, whereby lower self-esteem was accompanied by higher levels of stress. Differences between studies may be related to variations in sociocultural contexts, characteristics of the school environment, family support, and the psychometric instruments used to assess both constructs. From the perspective of the Transactional Theory of Stress proposed by Lazarus and Folkman [17], stress responses depend on the cognitive appraisal of environmental demands in relation to available coping resources. Therefore, the absence of an overall association in the present study may reflect the involvement of individual and contextual factors that were not fully captured by global scores alone.

Regarding academic stress, most students presented moderate levels, followed by high levels, while only a small proportion showed low stress. At the dimensional level, self-expectations and task overload showed the highest proportions within the high-stress category, whereas study pressure and concern about grades were predominantly moderate. These findings indicate that academic stress was common among the adolescents evaluated, particularly in relation to workload and self-imposed expectations. From an educational perspective, this pattern suggests the importance of reviewing the distribution of academic demands and strengthening school-based strategies aimed at time management, realistic goal setting, and adaptive coping with academic requirements.

With respect to self-esteem, most adolescents were classified at the moderate level, while approximately one quarter presented high self-esteem and very few were classified at the low level. Bonding and uniqueness were predominantly moderate, whereas the power dimension showed the greatest proportion of high scores. These

findings differ from those reported by Sánchez [14], whose study identified a greater proportion of students with low self-esteem. Such differences may be associated with variations in the social and educational contexts in which adolescents develop. In accordance with Rosenberg's conceptualization of self-esteem [16] and the theoretical contributions of Coopersmith [20], self-evaluation is a multidimensional psychological process that may vary according to perceived competence, social relationships, and personal experiences.

Although no significant association was identified between the global measures of academic stress and self-esteem, the dimensional analysis revealed more specific relationships. The power dimension of self-esteem was significantly associated with overall academic stress ($p = 0.010$). Similarly, task overload ($p = 0.002$) and concern about grades ($p = 0.043$) were significantly associated with overall self-esteem. These findings suggest that specific components of academic stress and self-esteem may be related even when the overall constructs are not. In particular, perceptions of personal competence and control may be relevant when adolescents experience academic demands, while excessive workload and concern about academic performance may be associated with differences in self-evaluation. However, because of the cross-sectional design, these associations should not be interpreted as causal relationships.

From an educational perspective, the findings support the value of assessing academic stress and self-esteem beyond their global scores. School-based psychological and educational strategies could place particular emphasis on workload management, concerns related to grades, realistic academic expectations, and students' perceived sense of competence and control. Rather than assuming that increasing general self-esteem will necessarily reduce academic stress, interventions may benefit from addressing the specific dimensions in which significant associations were identified.

Among the strengths of this study were the assessment of both constructs at global and dimensional levels, the use of structured instruments with evidence of content validity and adequate internal consistency, and the analysis of specific associations that might have remained undetected if only overall scores had been considered. Nevertheless, several limitations should be acknowledged. The cross-sectional design prevents establishing temporal or causal relationships, and the study was conducted in a single public educational institution, which may limit the generalizability of the

findings to other school populations. In addition, data were obtained through self-reported questionnaires and may therefore be subject to response or information bias. Future studies should include larger and multicenter samples, incorporate longitudinal designs, and evaluate additional family, social, and educational variables that could contribute to explaining the relationship between academic stress and self-esteem.

Conclusions

Overall academic stress and self-esteem were not significantly associated among the adolescents evaluated. Academic stress was predominantly moderate to high, whereas self-esteem was mainly moderate. Nevertheless, the dimensional analysis identified significant associations between the power dimension of self-esteem and overall academic stress, as well as between task overload and concern about grades and overall self-esteem. These findings suggest that specific dimensions of academic stress and self-esteem may be related even when no significant association is observed between the overall constructs.

Author Contributions Statement (CrediT)

KNR: Conceptualization, Methodology, Investigation, Writing – Original Draft, Project Administration. **HEG:** Formal Analysis, Validation, Data Curation, Writing – Review & Editing. **JLO:** Resources, Investigation, Visualization, Writing – Review & Editing. **ANC:** Methodology, Data Curation, Investigation, Supervision Writing – Review & Editing.

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Conflict of Interest

The authors declare that they have no financial, institutional, professional, or personal conflicts of interest that could have influenced the design, conduct, analysis, interpretation, or reporting of this study.

Data Availability

The anonymized dataset supporting the findings of this study is available from the corresponding author upon reasonable and justified academic request. The data have not been made publicly available because the study involved adolescent participants and public disclosure could potentially compromise the confidentiality of the participants and the participating educational institution. Access to the dataset will therefore be subject to appropriate confidentiality and ethical safeguards.

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