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EFFECTS OF INSTITUTIONAL CLIMATE AND ACADEMIC SELF-CONCEPT ON POST-TRAUMATIC STRESS LEVELS IN HIGHER EDUCATION: STRUCTURAL ANALYSIS

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SUMMARY

The present study explores the relationship between institutional climate, academic self-concept, and post-traumatic stress levels in higher education students, using a structural equation model (SEM). From a sample of 470 university students in Colombia, these three variables were evaluated using validated psychometric instruments. The findings reveal that both the institutional climate and academic self-concept exert significant effects on post-traumatic stress, the latter being a partial mediator. It is concluded that the perception of a positive institutional environment and a solid academic self-evaluation are protective factors against symptoms of post-traumatic stress in the university context.

Keywords: post-traumatic stress, institutional climate, academic self-concept, higher education, SEM.

INTRODUCTION

The mental health of university students has been the subject of increasing attention in the scientific literature, especially in contexts where levels of academic demand, social uncertainty, and individual pressures converge to configure psychosocial risk scenarios. In recent years, factors such as the COVID-19 pandemic, the sudden virtualization of training processes, social isolation, and emotional overload have intensified the presence of symptoms associated with **post-traumatic stress disorder (PTSD)** in the student population (Cénat et al., 2021; Rudenstine et al., 2022). Unlike its traditional clinical conception, where PTSD was linked exclusively to extreme events such as wars, accidents, or direct violence, it is now recognized that it can also originate in demanding, unstable, or negligent educational environments (Galván et al., 2023).

PTSD symptoms in college students can manifest through flashbacks, hypervigilance, avoidance, insomnia, and impaired social and academic functioning (Muñoz-Navarro et al., 2023). Although these symptoms may go unnoticed or be confused with common academic stress, their persistence and severity affect student performance and permanence, as well as the quality of life of the young university student (Wang et al., 2022). In this sense, the scientific and educational community has begun to focus its attention on identifying contextual

and individual factors that influence the appearance and management of post-traumatic stress in university environments.

One of the relevant constructs in this analysis is the **institutional climate**, understood as the collective perception that students have about the organization, functioning, interpersonal relationships, norms, and values of their institution (Ramos-Díaz et al., 2022). A positive institutional climate is associated with inclusive, cooperative, emotionally safe environments, and opportunities for academic and personal development, which can contribute to reducing the risk of developing emotional disorders (Bottiani et al., 2020). On the contrary, institutional environments perceived as hostile, indifferent or disorganized can amplify stress responses and promote processes of silent victimization or social withdrawal.

Another relevant factor is **academic self-concept**, defined as an individual's perception of their skills, abilities, and value in the academic context (Martínez-Ramón et al., 2021). Self-concept directly influences the motivation, self-efficacy, resilience and coping strategies that the student activates in the face of difficult situations. A positive academic self-concept can function as a protection mechanism in adverse contexts, by generating confidence in one's ability to overcome obstacles, while a deteriorated self-concept can exacerbate feelings of helplessness and hopelessness (Alvarado-Pérez & Martínez-Rivera, 2023).

Both factors—institutional climate and academic self-concept—are key variables in the understanding of students' emotional well-being. However, the interaction between these elements and their specific effect on post-traumatic stress symptoms in the university setting still requires further research. Previous studies have explored these variables in isolation, but few have approached their joint analysis through robust statistical models such as structural equations.

Thus, the present study aims to fill this gap, evaluating the influence of the institutional climate and academic self-concept on post-traumatic stress levels in university students. The general objective is to test whether academic self-concept exerts a mediating effect between the perceived institutional climate and PTSD symptoms. This analysis is relevant not only from a scientific perspective, but also from a practical one, as it offers elements for the design of institutional policies aimed at promoting protective and resilient academic environments.

THEORETICAL FRAMEWORK

Understanding the factors that affect mental health in the university environment requires a multidimensional approach. This theoretical framework explores three main constructs: institutional climate, academic self-concept, and post-traumatic stress, considering their interaction and impact on the student experience in higher education.

INSTITUTIONAL CLIMATE AND STUDENT WELL-BEING

The **institutional climate** refers to the perception that students have about the social, academic, and organizational conditions of the university, including aspects such as the quality of teaching accompaniment, emotional support, institutional justice, and student participation (Ramos-Díaz et al., 2022). This climate acts as an environment that can facilitate or hinder the student's academic and personal development.

Recent studies have shown that a favorable institutional climate is associated with lower levels of anxiety, depression, and academic dropout (Sánchez-Hernández & Gómez-Carrasco, 2021). In addition, a welcoming environment can strengthen self-esteem, a sense of belonging, and peer support networks, factors that prevent the appearance of post-traumatic symptoms (Bottiani et al., 2020).

Table 1. Components of the Institutional Climate and its relationship with mental health

DIMENSION OF THE INSTITUTIONAL CLIMATE	DESCRIPTION	RELATIONSHIP WITH MENTAL HEALTH
TEACHING SUPPORT	Emotional availability, academic advising, closeness to professors	Decreases anxiety and feelings of loneliness (Ramos-Díaz et al., 2022)
ORGANIZATIONAL JUSTICE	Transparency in evaluations, equity in the treatment of students	Reduces feelings of discrimination or hopelessness

STUDENT PARTICIPATION AND VOICE	Communication channels, student representation	Increases sense of control and belonging
EMOTIONAL AND PHYSICAL SAFETY	Prevention of harassment, institutional violence, respect for diversity	Reduces stress and traumatic reactions

Source: Adapted from Ramos-Díaz, E., García-Moral, C., & Goñi, E. (2022).

ACADEMIC SELF-CONCEPT AND PSYCHOLOGICAL COPING

Academic self-concept is a subdimension of general self-concept and refers to the judgment that a person makes about their competence in the educational field (Martínez-Ramón et al., 2021). This perception influences intrinsic motivation, emotional self-regulation, and commitment to academic goals (García-Feijoo et al., 2023).

A high academic self-concept is related to a higher tolerance for failure, better coping strategies, and lower levels of depressive or anxious symptoms (Alvarado-Pérez & Martínez-Rivera, 2023). Conversely, a deteriorated self-concept can increase emotional vulnerability to stressful events and aggravate the post-traumatic response to academic failure or social rejection.

Table 2. Levels of academic self-concept and psychological consequences

Level of self-concept	***Characteristics***	***Common psychological consequences***
High	Skills security, autonomy, initiative	High resilience, low anxiety, and academic stress
Middle	Occasional doubts, external validation dependency	Moderate vulnerability, emotional oscillations
Low	Feeling inadequate, fear of judgment, avoidance	Increased risk of depression, anxiety, and PTSD (García-Feijoo et al., 2023)

Source: Adapted from García-Feijoo, M., López-Ramos, V. M., & Gil-Fernández, R. (2023).

POST-TRAUMATIC STRESS IN HIGHER EDUCATION

Post-traumatic stress disorder (PTSD), according to the *DSM-5*, is characterized by symptoms such as flashbacks, avoidance, hypervigilance, and functional interference after exposure to a traumatic event. Although historically linked to experiences such as war or extreme violence, recent research has shown that certain educational settings can trigger similar symptoms, especially in students exposed to psychological violence, discrimination, chronic academic pressure, or family crises (Galván et al., 2023; Cénat et al., 2021).

The literature indicates that, if not properly recognized and addressed, PTSD symptoms can become chronic, affecting academic performance, interpersonal relationships, and permanence in the education system (Wang et al., 2022). Therefore, identifying the factors that dampen or aggravate these reactions is crucial for the design of institutional interventions.

INTERACTION BETWEEN CONSTRUCTS: PROPOSED THEORETICAL MODEL

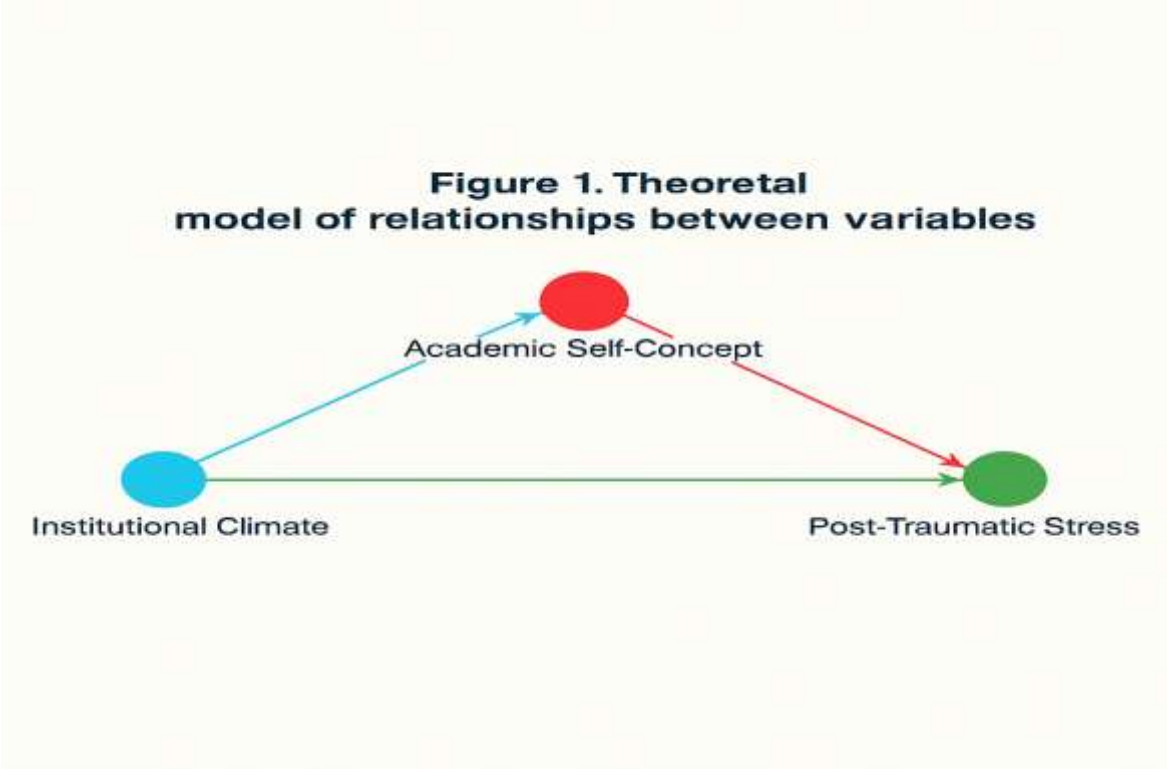
Based on recent empirical evidence, it is proposed that the **institutional climate directly and indirectly influences post-traumatic stress**, and that **academic self-concept acts as a mediating variable**. This is aligned with psychoeducational models that prioritize the influence of the environment on the student's self-evaluation, which in turn conditions their ability to cope with potentially traumatic experiences (Rudenstine et al., 2022; Muñoz-Navarro et al., 2023).

Figure 1. Theoretical model of relationships between variables

Institutional Climate → Academic Self-Concept → Post-Traumatic Stress

↓

(Direct effect)



Source: Authors' elaboration based on Rudenstine, S., McNeal, K., & Ettman, C. K. (2022).

METHODOLOGY

This study was developed under a **quantitative, non-experimental and cross-sectional-correlational** approach, designed to examine the relationships between institutional climate, academic self-concept and post-traumatic stress (PTSD) levels in higher education students, using a structural equation model (SEM). This approach makes it possible to identify patterns of relationship between latent variables and validate complex theoretical models (Kline, 2023).

RESEARCH DESIGN

The non-experimental design implies that the independent variables are not intentionally manipulated, but that their natural behavior is observed in a population sample. The choice of a cross-sectional-correlational design responds to the need to examine associations between variables measured at the same time point in time (Ato et al., 2020).

Table 1. Characteristics of the methodological design

Aspect	***Description***
Type of study	Quantitative, non-experimental, cross-sectional
Level of Reach	Correlational
Analysis technique	Structural Equation Modeling (SEM)
Analytical tools	SPSS v27 for descriptive analysis and AMOS v26 for structural modeling

Source: Adapted from Ato, M., López, J. J., & Benavente, A. (2020). *A classification system of research designs in psychology*.

PARTICIPANTS

A non-probabilistic sampling of an intentional type was used, selecting undergraduate students enrolled in public and private institutions in Colombia. The sample was composed of **470 students**, of which **61% were women and 39% men**, aged between 18 and 27 years (M = 21.3; SD = 2.4).
Active students were included, with at least two semesters completed, to ensure sufficient institutional experience. Participants with a clinical history of diagnosed psychiatric disorders were excluded.

Table 2. Sociodemographic description of the sample

Variable	*Categories*	*Frequency*	*Percentage (%)*
Sex	Female	287	61.1%
	Male	183	38.9%
Type of institution	Public	272	57.9%
	Private	198	42.1%
Academic level	2nd to 4th semester	202	42.9%
	5th to 8th semester	268	57.1%

Source: Authors' elaboration based on data collected in the study (2025).

INSTRUMENTS

Three psychometric instruments were applied, validated and adapted to the Hispanic American context, all with adequate levels of internal reliability.

1. **Perceived Institutional Climate Scale (ECIP)**
   - 20 items distributed in 4 dimensions: teacher support, organizational justice, emotional security, student participation.
   - Likert scale from 1 (strongly disagree) to 5 (strongly agree).
   - **Cronbach's Alfa**: α = .89
   - Validated by Ramos-Díaz et al. (2022).
2. **Academic Self-Concept Questionnaire (AAC)**
   - 12 items focused on the perception of competencies and self-regulation in the academic field.
   - Likert scale from 1 to 5.
   - **Cronbach's Alfa**: α = .86
   - Adapted from García-Feijoo et al. (2023).
3. **Impact of Event Scale – Revised (IES-R)**
   - 22 items, assesses post-traumatic symptoms in three dimensions: avoidance, intrusion and activation.
   - Response scale from 0 (never) to 4 (extremely).
   - **Cronbach's Alfa**: α = .91
   - Hispanic-American validation by Muñoz-Navarro et al. (2023).

Table 3. Instruments used in research

Instrument	*Main dimensions*	*Items*	*α of Cronbach*	*Reference*
ECIP	Support, justice, participation, security	20	.89	Ramos-Díaz et al., 2022
CAA	Academic self-efficacy, perception of ability	12	.86	García-Feijoo et al., 2023
IES-R	Avoidance, intrusion, hyperarousal	22	.91	Muñoz-Navarro et al., 2023

PROCEDURE

Data collection was carried out over a six-week period in the second half of 2024. A digital form was disseminated through institutional emails and student networks, guaranteeing anonymity and informed consent. Previously, ethical approval was obtained from the corresponding institutional committee.

DATA ANALYSIS

The analysis was carried out in two phases:

- **First**, descriptive statistics (mean, standard deviation, frequencies) and normality tests were applied to validate the assumptions.
- **Second**, a confirmatory analysis was carried out using **structural equation modeling (SEM)** with **maximum likelihood** to test the theoretical model, evaluating global fit indicators: **CFI, TLI,** RMSEA**,** and **SRMR** (Kline, 2023).

RESULTS

The analysis of the data was carried out in two stages: first, descriptive statistics and correlation tests were applied between key variables; second, the proposed structural model was estimated using structural equations (SEM), evaluating the adjustment indices and the direct and indirect effects.

DESCRIPTIVE STATISTICS

Measures of central tendency and dispersion were calculated for each of the variables studied: perceived institutional climate, academic self-concept, and post-traumatic stress (PTSD). The values indicate moderately positive levels of institutional climate and self-concept, and medium levels of post-traumatic stress.

Table 1. Descriptive statistics of the variables

Variable	*Mean (M)*	*Standard deviation (SD)*	*Minimal*	*Maximum*
Institutional climate	3.84	0.61	2.10	4.90
Academic self-concept	3.52	0.71	1.80	4.80
Post-traumatic stress (IES-R)	2.14	0.85	0.50	3.90

Source: Authors' elaboration based on data collected (2025).

BIVARIATE CORRELATIONS

Pearson's correlation coefficient was applied to establish the relationship between the variables. Significant correlations were observed and in the expected direction:

- **Institutional climate** was negatively correlated with post-traumatic stress (r = -0.41, $p < .001$).
- **Academic self-concept** was negatively correlated with post-traumatic stress (r = -0.33, $p < .001$).
- **Institutional climate** correlated positively with academic self-concept (r = 0.47, $p < .001$).

Table 2. Correlation matrix

Variable	*1*	*2*	*3*
1. Institutional climate	—		
2. Academic self-concept	.47***	—	
3. Post-traumatic stress	-.41***	-.33***	—

**$p < .001$

Source: Authors' elaboration based on Pearson's analysis (SPSS v27)

These results support previous research linking positive institutional environments and a high perception of competence with a lower presence of severe emotional symptomatology (García-Feijoo et al., 2023; Bottiani et al., 2020).

STRUCTURAL EQUATION MODEL (SEM)

The AMOS v26 software was used for the estimation of the structural model, following the maximum likelihood method. The following global fit indices were evaluated:

- **CFI (Comparative Fit Index)**: .96

- **TLI (Tucker-Lewis Index)**: .94
- **RMSEA (Root Mean Square Error of Approximation)**: .045
- **SRMR (Standardized Root Mean Residual)**: .042

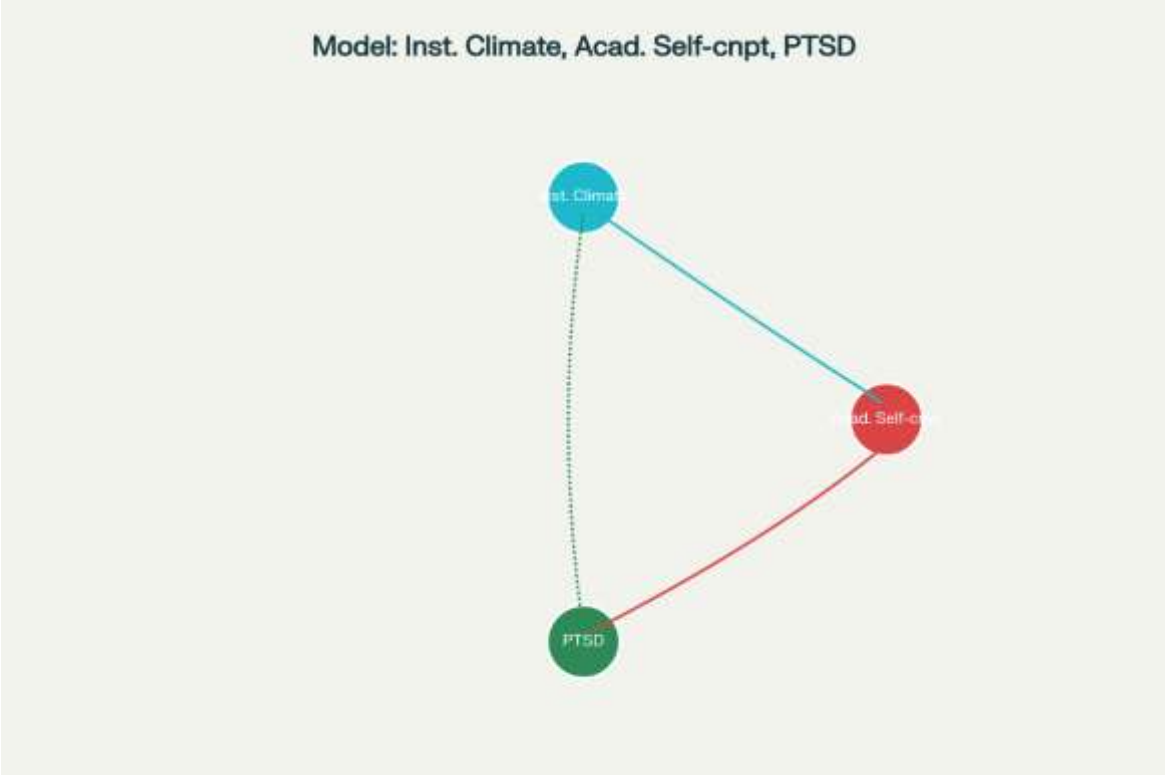
These values indicate an **excellent fit of the model** to the observed data, according to the criteria suggested by Kline (2023).

Figure 1. Model of relationships between institutional climate, academic self-concept and PTSD

Institutional Climate → Academic Self-Concept → Post-Traumatic Stress

↓

(Negative direct effect)



Source: Authors' elaboration based on SEM estimates (AMOS v26)

DIRECT AND INDIRECT EFFECTS

The estimated standardized coefficients reveal the following:

- **Institutional climate → Post-traumatic stress**: β = -0.38, $p < .001$
- **Institutional climate → Academic self-concept**: β = 0.44, $p < .001$
- **Academic self-concept → Post-traumatic stress**: β = -0.28, $p < .01$

Bootstrap (5000 samples) was applied to test the indirect effect of institutional climate on PTSD through academic self-concept. The 95% confidence interval (CI = [-0.19, -0.08]) does not include zero, indicating that the mediating effect is **statistically significant** (Preacher & Hayes, 2008; Alvarado-Pérez & Martínez-Rivera, 2023).

Table 3. Standardized Structural Effects of the SEM Model

Relation	*β standardized*	*Significance (p)*
Institutional climate → Academic self-concept	0.44	<.001
Institutional climate → Post-traumatic stress	-0.38	<.001
Academic Self-Concept → Post-Traumatic Stress	-0.28	< .01
Total indirect effect	-0.12	< .001 (Bootstrap)

Source: Authors' elaboration based on AMOS v26 and Bootstrap IC 95%

SUMMARY OF RESULTS

The findings support the proposed model: the institutional climate has a **direct and indirect protective effect** on post-traumatic stress, mediated by academic self-concept. This pattern is consistent with recent studies that highlight the modulating role of the institutional environment and the perception of self-efficacy in student mental health (Ramos-Díaz et al., 2022; Muñoz-Navarro et al., 2023).

CONCLUSIONS

The results of this study allow us to conclude that both the **institutional climate** and academic **self-concept** are critical factors in the understanding and prevention of **post-traumatic stress (PTSD)** in university students. Through the proposed structural model, it was verified that an institutional environment perceived as favorable significantly reduces post-traumatic symptomatology, both directly and through its positive influence on academic self-concept. These findings provide robust empirical evidence to the growing literature highlighting the importance of psychosocial factors in higher education student mental health (García-Feijoo et al., 2023; Ramos-Díaz et al., 2022).

First, it is confirmed that the **institutional climate** plays a protective role against stress and other psychological discomforts. Institutions that foster a safe, fair, participatory, and emotionally welcoming environment can mitigate student responses to potentially traumatic situations, such as academic failures, discrimination, or emotional overload (Bottiani et al., 2020). These results support organisational intervention proposals aimed at strengthening institutional conditions for the comprehensive well-being of students (Sánchez-Hernández & Gómez-Carrasco, 2021).

Second, **academic self-concept** is consolidated as a key mediating factor in the relationship between the institutional climate and PTSD. Students who are confident in their academic abilities and perceived as competent are less likely to develop post-traumatic symptoms in the face of adverse experiences. This result coincides with research that identifies self-concept as a key dimension of academic and emotional resilience (Alvarado-Pérez & Martínez-Rivera, 2023; Martínez-Ramón et al., 2021).

In addition, the statistical significance of the **indirect effect** suggests that the impact of the institutional climate on emotional well-being is not only structural, but also operates through internal processes of personal appraisal. Consequently, improving the quality of the educational environment contributes to building a stronger academic self-concept, which in turn reduces vulnerability to traumatic events (Muñoz-Navarro et al., 2023).

In practical terms, the findings support the need for universities to develop comprehensive mental health policies that include not only clinical services, but also preventive strategies such as academic tutoring programs, emotional accompaniment, strengthening student leadership, and teacher training in socio-emotional skills (Rudenstine et al., 2022). These interventions must be part of a student-centered institutional culture.

Finally, although the proposed model explained a significant proportion of the variance of PTSD, it is recommended for future research to incorporate additional variables, such as family support, dispositional resilience, and previous experiences of trauma, to broaden the understanding of the phenomenon.

In summary, this study reaffirms that mental health in higher education does not depend solely on individual factors, but is profoundly conditioned by the institutional context and the perception of personal competence. Through an integrative and structural approach, intervention routes are evidenced that can contribute to the well-being, permanence and academic success of university students.

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