



Academic procrastination profiles among university students: A multivariate cluster-based analysis



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ABSTRACT

The objectives of this study were to identify and characterize profiles of academic procrastination among university students using cluster analysis and to examine differences between these profiles based on various sociodemographic and academic variables. A quantitative approach was adopted, using a nonexperimental, cross-sectional design with a descriptive-comparative scope. The sample comprised 906 university students from different study programs. Data were collected using the Multidimensional Procrastination Scale (MPS), which consists of 20 items distributed across four dimensions: planning, responsibility, negative beliefs, and determination. The data were presented using descriptive statistics and analyzed through hierarchical cluster analysis using Ward's method, factor analysis to represent the profiles, and analyses of variance (ANOVAs) to compare the groups. The results revealed three clearly differentiated profiles: low, moderate, and high procrastination. Significant differences in procrastination levels were also observed according to sex, age, study program, and academic semester, whereas employment status had no significant effect on procrastination levels. In conclusion, academic procrastination has a heterogeneous and multidimensional structure, which can inform the design of educational interventions tailored to different academic procrastination profiles.

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1. Introduction

Academic procrastination (AP) is a widespread and persistent phenomenon that affects the performance and well-being of students in higher education (Delgado-García et al., 2025; Trelles et al., 2024). It is conceptualized as a voluntary and unjustified act that involves delaying important academic tasks or activities despite being aware of the possible negative consequences of such delay (Savaş et al., 2025; Vilca, 2022). This behavior has been widely recognized in the literature as a quintessential failure with respect to the processes of self-regulation of learning. The prevalence of AP is remarkably high among university students, thereby resulting in considerable concern among educators. According to recent estimates, between 80% and

95% of university students experience some form of academic procrastination (Işıkğöz et al., 2025). Even more concerning is the fact that a significant proportion of students, ranging between 30% and 50%, report experiencing procrastination constantly and problematically. In the Latin American context, studies conducted in Ecuador and Peru also report a high prevalence of this behavior among university students (Trelles et al., 2024).

The consequences of AP are multifaceted and negatively impact the students' academic and personal lives. At the academic level, AP is correlated with lower performance, lower grades, and, in severe cases, a greater intention to drop out of school (Tan and Prihadi, 2022; Tapullima Mori and Ramírez García, 2022). At the personal level, AP is associated with increased levels of stress, anxiety, depression, feelings of guilt, and low self-esteem, thus undermining the psychological and general well-being of students (Jiang, 2024).

Attempts to understand the mechanism underlying AP have led to the identification of various predictive factors. Studies in this field have reported that procrastination is intrinsically linked

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to low levels of self-regulation, which manifests as problems with time management and a lack of self-control (Marie-Amélie and Shankland, 2023). In addition, emotional factors play a crucial role in this context: AP is often used as a dysfunctional strategy to avoid negative emotions associated with aversive or challenging tasks, such as fear of failure or anxiety before evaluation (Fuentes Chavez et al., 2025). Similarly, low levels of intrinsic motivation and a strong lack of motivation have consistently been linked to higher levels of procrastination (Öztekin et al., 2025; Vlachopanou et al., 2025).

Despite the vast body of research that has established the relationships between individual variables (motivation, self-efficacy, and emotional regulation) and AP, most previous studies have reported using a variable-centered approach. Although this approach is useful for identifying general correlations, it can obscure the inherent heterogeneity within the population of students who experience procrastination. Different profiles of students can engage in AP for intrinsically different reasons, such as the search for excitement or the desire to avoid failure, thus suggesting the need for approaches that classify individuals into homogeneous subgroups (Tapullima Mori and Ramírez García, 2022).

Therefore, there is a methodological gap in the literature that justifies the application of person-centered methodologies, such as cluster analysis or latent profile analysis, in this context (Gadosey et al., 2024). These methods are essential for the identification and characterization of typologies or profiles of academic procrastination that capture the complex interactions among cognitive, affective, and behavioral factors in the context of specific subgroups of students. The identification of these profiles is crucial to obtain a more nuanced understanding of AP, thus allowing the determination of whether students delay tasks because of planning deficits or emotional avoidance mechanisms (Gadosey et al., 2024).

Therefore, the objective of this research is to identify and characterize the profiles of academic procrastination among university students via a cluster analysis. This approach can allow population means to be transcended with the goal of providing a detailed description of the existing subgroups, thus facilitating the design of more precise psychoeducational interventions.

2. Methodology

A quantitative, nonexperimental, cross-sectional design with a descriptive-comparative scope was used for the study. Similarly, multivariate analysis techniques were used, specifically including cluster analysis and factor analysis, for the purposes of identifying and characterizing academic procrastination profiles among university students.

The sample comprised 906 university students, with 446 women (49.2%) and 460 men (50.8%), indicating a relatively balanced composition

between the groups. The participants ranged between 17 and 38 years old. The most frequent ages were between 18 and 22 years, which accounted for the majority of the sample: 18 years (10.7%), 19 years (15.6%), 20 years (15.2%), 21 years (15.7%), and 22 years (14.8%). This confirms the predominance of a juvenile age profile, which is typical of higher education students.

With respect to the curriculum, the distribution was as follows: The greatest number of students belonged to the Social Sciences ($n = 294$; 32.5%), followed by Science, Technology and Environment ($n = 250$; 27.6%), Language, Literature, Psychology and Philosophy ($n = 241$; 26.6%) and, finally, Mathematics, Physics, Computing and Informatics ($n = 121$; 13.4%). Similarly, the employment statuses of the participants were recorded; 488 students (53.9%) reported working at the time of the evaluation, whereas 418 (46.1%) were not working. Finally, information regarding the academic semester was collected, and the participants were found to be widely distributed from the first to the tenth semester. The semesters reported by the greatest number of participants were the third (16.4%), the seventh (16.6%), the fourth (15.0%), and the sixth (9.5%); the remaining semesters were distributed as follows: first (9.6%), second (7.2%), fifth (7.5%), eighth (6.8%), ninth (4.3%), and tenth (7.2%).

To measure academic procrastination levels, the Multidimensional Procrastination Scale (MPS) was used. This measure contains 20 items distributed across four dimensions: Planning (Items 1, 5, 7, 11, 15, and 20), Responsibility (Items 2, 3, 8, 12, 16, and 17), Negative beliefs (Items 4, 9, 13, and 18), and Determination (Items 6, 10, 14, and 19).

The items were scored using a five-point Likert scale, on which higher values indicated a greater degree of procrastination in the dimension evaluated, and some items had negative scores. The scale has exhibited adequate levels of reliability and validity in previous studies, and in this study, its internal consistency was evaluated by calculating the Cronbach's alpha coefficient, which was 0.82.

The instrument was administered virtually through a digital platform. Before the students accessed the questionnaire, they read and agreed to provide informed consent, thus guaranteeing the anonymity, voluntary nature, and confidentiality of the information collected. Once the data were collected, they were exported to a database in Excel format and subsequently processed using the statistical software SPSS (version 26). The data analysis involved three stages.

a. Cluster analysis: To identify procrastination profiles, a hierarchical cluster analysis was conducted using Ward's (1963) method and calculation of the squared Euclidean distance. The optimal number of clusters was determined through inspection of the dendrogram and the agglomeration schedule. The agglomeration coefficients showed progressive increases throughout the clustering process, with a notable increase between stages 902

and 903 ($\Delta = 7.549$) and the largest increase between stages 904 and 905 ($\Delta = 12.581$). Since stage 903 corresponds to a three-cluster solution, this structure was considered to provide the most appropriate balance between within-cluster homogeneity and between-cluster differentiation. Consequently, the three-cluster solution was retained for subsequent analyses of academic procrastination profiles.

b. Factor analysis and graphical representation: To visualize the distribution of participants across the identified clusters, a Principal Component Analysis (PCA) was performed using the 20 items of the Multidimensional Procrastination Scale. The first two principal components were retained for graphical representation, as they jointly accounted for 60.48% of the cumulative explained variance (Component 1 = 45.872%; Component 2 = 14.609%). Component extraction was conducted using the Principal Components method, followed by Varimax rotation with Kaiser normalization to improve the interpretability of the component structure. The suitability of the data for PCA was confirmed by an excellent Kaiser–Meyer–Olkin measure ($KMO = 0.951$) and a significant Bartlett’s test of sphericity, $\chi^2(190) = 12,141.014$, $p < .001$. Finally, regression-based component scores (REGR) derived from the first two components were used to construct a two-dimensional scatterplot, allowing visualization of the spatial distribution of the three academic procrastination profiles.

c. Descriptive and inferential analysis: A one-way analysis of variance (ANOVA) was conducted to compare the levels of academic procrastination according to various categorical variables (sex, age, study program, academic semester, and employment status). This test is adequate since it involves a quantitative dependent variable and categorical independent variables. Given the large sample size in this study ($n = 906$), asymptotic normality of the means was assumed, thus guaranteeing the robustness of the contrast. In all analyses, $p < .05$ was considered to indicate statistical significance.

3. Results and discussion

A hierarchical cluster analysis (Ward method, squared Euclidean distance) was conducted on the 20 items of academic procrastination. The dendrogram revealed a structure involving three clusters, which was subsequently validated by a means analysis of the groups (Table 1).

Cluster 1 had intermediate mean values for most of the items ($M = 2.57$ – 3.74) and intermediate levels in both factorial dimensions. This suggests that students engage in adequate general planning but are inconsistent in terms of responsibility and determination, especially when they encounter demanding tasks.

Cluster 2 had very low scores for the items directly related to procrastination ($M = 1.50$ – 1.65) and high scores for the inverted or self-regulation items ($M = 4.21$ – 4.41). This profile corresponds to

students who exhibit low levels of procrastination and have low scores in terms of behavioral and emotional factors, thus reflecting high levels of planning, responsibility, and determination, alongside a few negative beliefs. This group is characterized by consistent academic self-regulation skills.

In contrast, Cluster 3 had consistently high scores ($M = 3.35$ – 4.36) for almost all the items, thus constituting a group of extreme or chronic procrastinators, who obtained high scores in the behavioral and emotional dimensions. When this configuration is linked with the structure of the MPS, a pattern that is characterized by low levels of planning, less responsibility, a high presence of negative beliefs, and low levels of determination is observed. This group reflects the typical profile of the chronic procrastinator, who experiences difficulties in terms of emotional and cognitive regulation in the context of academic activities.

The global means confirm the differences between the profiles: Cluster 1 = 3.26 (moderate procrastination), Cluster 2 = 2.05 (low procrastination), and Cluster 3 = 3.75 (high procrastination). These results reveal the heterogeneity that characterizes the patterns of academic procrastination observed among university students and offer a solid basis for the development of interventions adapted to each profile.

3.1. Cluster analysis in the factorial space

The distribution of the three clusters identified by the Ward method projected in the plane defined by the two main procrastination factors is shown in Fig. 1. The first factor (on the horizontal axis) represents the behavioral dimension, which is associated with delays in initiating or completing tasks, whereas the second factor (on the vertical axis) reflects the emotional dimension, which is linked to avoidance, disorganization, and self-regulation difficulties.

Cluster 2, which corresponds to the low procrastination group, is concentrated in the left-inferior region of the plane, thus indicating high levels of self-regulation and minimal emotional avoidance. This group is the smallest, thereby suggesting a high degree of homogeneity in the patterns of academic behavior observed in this group.

Cluster 1, which was identified as the moderate procrastination group, is located in the center-right zone and has low scores in the emotional dimension, thus representing mainly behavioral and situational procrastination.

On the other hand, Cluster 3, which corresponds to the high procrastination group, is located mostly in the upper part of the graph and has high scores for both factors. This group is characterized by greater dispersion, thus indicating internal heterogeneity and the presence of students with severe emotional and behavioral procrastination.

Overall, the graphical distribution of clusters confirms the differentiation of profiles and the coherence between the factorial dimensions and the

procrastination patterns identified by the cluster analysis.

Table 1: Distribution of the means of the MPS items in the three clusters as identified by the Ward method

Items	Cluster		
	1	2	3
1. I leave most of my responsibilities until the last minute, even if it affects my emotional well-being.	2.577	4.216	3.806
2. When I start a task, I do everything I can to complete it.	3.568	1.588	4.350
3. I try to start my tasks shortly after they are assigned.	3.185	1.554	3.702
4. I believe that people who procrastinate do not have clear goals.	3.316	1.574	3.285
5. I find it difficult to start my tasks well before the deadline.	2.405	4.412	3.346
6. When I set my mind to it, I can finish my tasks on time.	3.922	1.507	4.366
7. I delay my tasks because of poor prior planning.	2.401	4.385	3.531
8. I prefer to start a task and receive feedback rather than postpone it.	3.372	1.568	3.780
9. I believe that people who procrastinate are lazy.	3.207	1.574	3.010
10. I believe that determination is necessary to avoid procrastination.	3.742	1.541	3.909
11. I can only complete my tasks when I am running out of time.	2.739	4.311	3.650
12. I try to complete my tasks early, even when I do not like them.	3.425	1.527	3.735
13. I believe that people who procrastinate tend to be unpunctual in various aspects of life.	3.341	1.615	3.178
14. I do not care whether or not I finish my tasks on the due date.	3.207	4.236	4.259
15. I feel that it is difficult for me to stop procrastinating.	2.465	4.358	3.618
16. I like to finish my tasks well ahead of time.	3.383	1.520	4.136
17. I organize my tasks in advance.	3.287	1.655	4.023
18. I believe that people who procrastinate do not know their strengths and weaknesses very well.	3.372	1.527	3.285
19. I am aware of the conditions under which I perform my tasks best.	3.666	1.527	4.113
20. I manage my time effectively to complete most of my daily tasks.	3.352	1.601	4.087

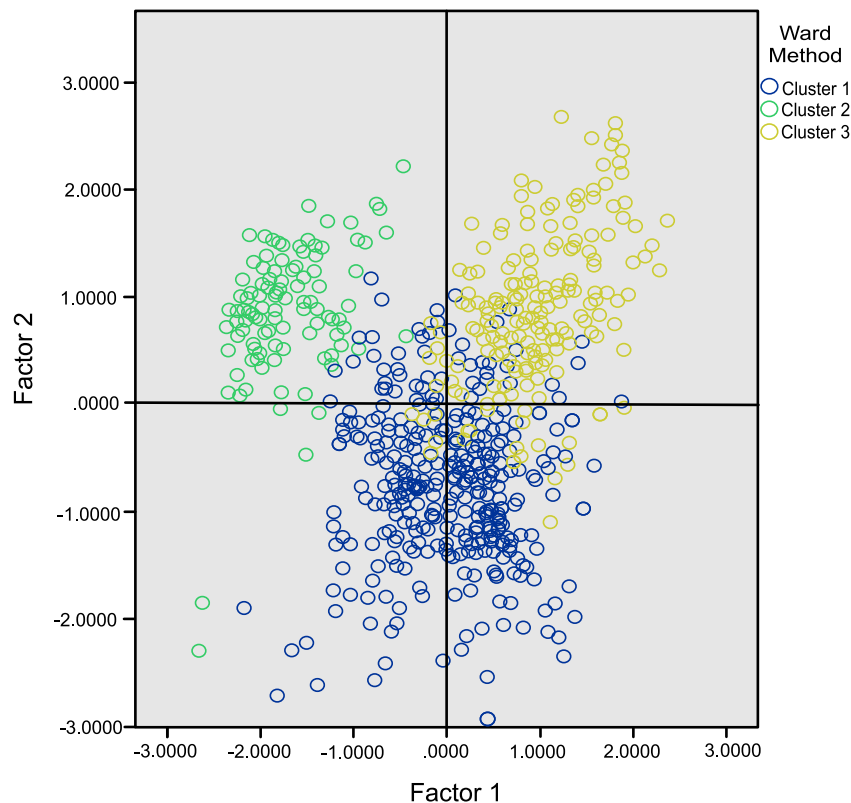


Fig. 1: Clustering of university students according to MPS factorial scores

3.2. Analysis of variance (ANOVA)

To determine whether the levels of academic procrastination varied according to sociodemographic and academic variables, a one-way ANOVA was performed for each variable, and effect sizes were estimated using eta-squared (η^2) (Table 2).

The results revealed significant differences according to sex, $F(2, 903) = 3.53$, $p = 0.030$, $\eta^2 = 0.008$, although the effect size was small. Significant differences were also observed as a function of age,

$F(2, 903) = 8.649$, $p = 0.000$, $\eta^2 = 0.018$, thus indicating that younger students tend to have higher levels of procrastination.

There were also significant differences based on the study program, $F(2, 903) = 5.48$, $p = 0.004$, $\eta^2 = 0.012$, thus suggesting that the formative characteristics of each major can influence the patterns of academic procrastination. The academic semester was associated with the most robust effect, $F(2, 903) = 14.262$, $p < 0.001$, $\eta^2 = 0.031$, thus indicating a tendency for procrastination to decrease as students advanced in their professional training.

In contrast, no significant differences were observed based on employment status, $F(2, 903) = 1.296$, $p = 0.274$, $\eta^2 = 0.003$, thus indicating that the student's employment status did not have a potentially relevant effect on academic

procrastination levels. Overall, these results reveal that variables such as sex, age, study program, and academic semester significantly influence the levels of procrastination exhibited by students, whereas employment status does not have a significant effect.

Table 2: ANOVA results for sociodemographic and academic variables across academic procrastination profiles

Variable	Source	SOS	df	MS	F	p	η^2	Interpretation
Sex	Between groups	1.758	2	0.879	3.533	0.030*	0.008	Small effect
	Within groups	224.688	903	0.249				
	Total	226.446	905					
Age	Between groups	151.953	2	75.976	8.649	0.000**	0.018	Small effect
	Within groups	8101.182	903	8.971				
	Total	8253.135	905					
Study program	Between groups	15.613	2	7.766	5.480	0.004**	0.012	Small effect
	Within groups	1,280.639	903	1.417				
	Total	1,296.252	905					
Academic semester	Between groups	189.582	2	94.791	14.262	< 0.001***	0.031	Largest effect
	Within groups	6,001.703	903	6.646				
	Total	6,191.285	905					
Employment status	Between groups	0.644	2	0.322	1.296	0.274	0.003	Trivial effect
	Within groups	224.504	903	0.249				
	Total	225.148	905					

SOS: Sum of squares; MS: Mean square; df: Degrees of freedom; *: $p < .05$; **: $p < .01$; ***: $p < .001$

Post hoc comparisons were conducted to identify specific differences between procrastination profiles. For sex, significant differences were found only between Cluster 1 and Cluster 3, with Cluster 1 showing a higher mean score than Cluster 3 ($p = 0.028$, Cohen's $d = 0.19$), although the effect size was small. Regarding age, Tukey's test indicated significant differences between Cluster 1 and Cluster 3 ($p = 0.001$, $d = 0.24$), and between Cluster 2 and Cluster 3 ($p = 0.021$, $d = 0.21$), suggesting that Cluster 3 differed from the other profiles in age

distribution, with small effect sizes. For study program, significant differences were observed only between Cluster 2 and Cluster 3 ($p = 0.003$, $d = 0.33$), also with a small effect size. In terms of academic semester, significant differences were found between Cluster 1 and Cluster 3 ($p < 0.001$, $d = 0.39$), and between Cluster 2 and Cluster 3 ($p = 0.007$, $d = 0.30$), indicating small-to-moderate differences. Finally, no significant pairwise differences were observed for employment status (Table 3).

Table 3: Post hoc pairwise comparisons of academic procrastination profiles across sociodemographic and academic variables

Variable	Significant comparison	Mean difference (I-J)	SE	p	95% CI	Cohen's d
Sex	Cluster 1 – Cluster 3	0.095	0.037	0.028	[0.008, 0.181]	0.19
Age	Cluster 1 – Cluster 3	0.882	0.221	0.001	[0.363, 1.402]	0.24
Age	Cluster 2 – Cluster 3	0.799	0.299	0.021	[0.096, 1.502]	0.21
Study program	Cluster 2 – Cluster 3	0.391	0.119	0.003	[0.112, 0.671]	0.33
Academic semester	Cluster 1 – Cluster 3	1.006	0.191	< 0.001	[0.559, 1.453]	0.39
Academic semester	Cluster 2 – Cluster 3	0.784	0.258	0.007	[0.179, 1.389]	0.30

Only statistically significant pairwise comparisons obtained using Tukey's Honestly Significant Difference (HSD) test are presented; Cluster 1: Moderate academic procrastination; Cluster 2: Low academic procrastination; Cluster 3: High academic procrastination; SE: Standard error; CI: Confidence interval; Cohen's d was calculated using the pooled within-group mean square error from the corresponding ANOVA; Statistical significance was established at $p < 0.05$

3.3. Discussion

In this study, various profiles of academic procrastination among university students were identified and characterized via a cluster analysis. The results reveal the existence of three clearly differentiated profiles: A group that exhibits low levels of procrastination, a group that exhibits moderate levels of procrastination, and a group that exhibits high levels of procrastination or chronic procrastination. Furthermore, procrastination levels vary significantly according to sex, age, study program, and academic semester, whereas employment status does not significantly affect procrastination levels. Taken together, these findings confirm the heterogeneous and multidimensional nature of academic procrastination and partially support the implicit hypothesis that not all students procrastinate in the same way or for the same reasons.

First, the identification of a high procrastination group coincides with the findings of recent studies that have described this group as characterized by low self-regulation, high emotional avoidance, and the presence of maladaptive beliefs (Trelles et al., 2024). These results are in agreement with the findings that students who experience higher levels of procrastination experience higher levels of academic anxiety and have lower time management skills (Albursan et al., 2022; Brambila-Tapia et al., 2025). One possible explanation for this is that these students experience a dysfunctional interaction between cognitive processes (negative beliefs) and emotional processes (anxiety and avoidance) (Fentaw et al., 2022). This interaction makes it difficult for them to start tasks in a timely manner. Together, these results reinforce the claim that chronic procrastination is a complex phenomenon that should be addressed from a comprehensive psychological perspective.

Second, the moderate or situational procrastination group comprises students who postpone tasks under specific conditions of overload, but who do not present a chronic pattern of procrastination. These findings are in agreement with those of studies that have reported this group as comprising functional students who implement basic study strategies but who find it difficult to manage high demands. This pattern suggests that procrastination in this group does not correspond to structural deficits of self-regulation but rather to contextual factors such as academic pressure, the accumulation of tasks, or inefficient time management (Marie-Amélie and Shankland, 2023). In this context, situational procrastination can be reversed through interventions focused on academic planning and effort regulation.

Third, the low procrastination group comprises students who exhibit high levels of planning, responsibility, and determination, along with a few negative beliefs. These results are in agreement with those of recent studies that have reported the association between low levels of procrastination and academic self-efficacy (Marie-Amélie and Shankland, 2023), personal discipline (Ahmed et al., 2023) and efficient metacognitive strategies (Tao et al., 2025). One possible explanation for this is that these students have developed strong self-regulation skills that allow them to anticipate demands, organize their time, and persist through tasks. Together, these results confirm that self-regulation plays a protective role against procrastination.

Regarding the sociodemographic variables considered in this context, the results reveal that procrastination varies according to age and academic semester; thus, higher levels of procrastination are observed among younger students and those in the first semester (Mastrantonio et al., 2023). These findings are consistent with those of studies that have reported that academic maturity and university experience progressively strengthen self-regulation capabilities.

Younger university students tend to exhibit higher levels of academic procrastination, primarily due to greater impulsivity and the fact that their planning and emotional regulation skills are still developing (Önder et al., 2025). During the transition to higher education, they often face a sudden increase in autonomy and a demanding academic environment that may be perceived as overwhelming, leading them to prioritize the avoidance of immediate discomfort associated with challenging tasks over the pursuit of long-term academic goals (Fuentes Chavez et al., 2025; Nadarajan et al., 2023; Trelles et al., 2024).

In contrast, older students tend to have strengthened their self-regulation and time-management skills through accumulated academic experience. Conversely, students under the age of 25 are more likely to lack well-established study habits and are more vulnerable to distractions, particularly those associated with social media use (Fuentes Chavez et al., 2025). Furthermore, during emerging

adulthood, uncertainty about future career prospects and the incomplete development of self-control processes may contribute to the deliberate postponement of academic responsibilities (Nadarajan et al., 2023; Trelles et al., 2024). As students mature, their perception of time evolves, and their emotional regulation capacities improve, enabling them to approach academic tasks more efficiently and with fewer avoidance behaviors.

Similarly, the differences observed according to sex coincide with the findings of studies that have reported a greater tendency toward procrastination among men, albeit with small effect sizes (Vilca, 2022). In contrast, the absence of differences according to employment status suggests that working does not necessarily constitute a risk factor for procrastination, which could be because of the progressive adaptation of students to the dual demands of academia and work.

One of the main strengths of the study is its large sample size, which increases the stability of the identified profiles, and the use of multivariate analysis (cluster and factorial), which offers a deeper understanding of the structure of procrastination. In addition, the use of a multidimensional instrument such as the MPS facilitates a comprehensive analysis of the phenomenon under investigation. However, the study has some limitations, including its use of a cross-sectional design, which prevents the establishment of causal relationships, and its use of self-reports, which may be influenced by social desirability biases. Nevertheless, attempts were made to mitigate these effects through the anonymity of the responses and the statistical control of sociodemographic variables.

In summary, the findings of this study provide solid empirical evidence of the existence of differentiated profiles of academic procrastination among university students, thus contributing to the ongoing debate concerning the self-regulation of learning in the context of higher education. The results of this research have relevant implications for the design of intervention programs that are differentiated by profile, which can focus on strengthening planning, responsibility, and academic determination. Future research should incorporate longitudinal designs, predictive models, and emotional and motivational variables to elucidate the mechanisms that explain the transitions among different procrastination profiles.

4. Conclusions

The findings of the present study reveal that academic procrastination among university students is not a homogeneous phenomenon but is associated with clearly differentiated profiles identified by cluster analysis, based on which the students were divided into three groups: Low procrastination, moderate procrastination, and high procrastination. These profiles reflect different levels of planning, responsibility, and determination, as well as the presence of negative beliefs, thus confirming the

multidimensional and dynamic nature of procrastination.

Similarly, academic procrastination varies significantly according to sex, age, study program, and academic semester, thus indicating that younger students and those who are in the first semester tend to experience higher levels of procrastination. In contrast, employment status did not show a statistically significant association with the different academic procrastination profiles, thus suggesting that employment status does not necessarily imply greater difficulty in terms of academic self-regulation.

From an application perspective, the results of this research allow us to affirm that the identification of procrastination profiles is a key tool for educational interventions since it allows differentiated strategies to be designed in accordance with the characteristics of each group. In particular, students who exhibit high levels of procrastination require interventions that focus on strengthening their self-regulation, emotional management, and academic planning, as well as the restructuring of their negative beliefs.

Finally, this study provides relevant empirical evidence regarding procrastination in the university context and reinforces the need to address this phenomenon from preventive and formative perspectives, it also has some limitations. Its cross-sectional design does not allow causal inferences. In addition, the use of self-report measures may involve social desirability or response biases. Finally, the absence of external validation sources, such as teacher reports or academic records, limits the interpretation of the profiles. Future research should incorporate a longitudinal analysis of the identified profiles, as well as emotional, motivational, and contextual variables that can provide a more precise understanding of the mechanisms that explain whether the patterns of academic procrastination are permanent or can be changed.

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Compliance with ethical standards

Ethical considerations

This study was conducted in accordance with the ethical principles applicable to research involving human participants. The research project was selected and approved through a competitive process administered by the FEDU 2025 Research Project Evaluation Committee of the Research Institute of the National University of the Altiplano. This approval corresponded to the scientific and

institutional evaluation of the project and did not constitute approval by an institutional ethics committee. The participants were university students who met the established eligibility criteria, including enrollment in the first or second academic semester. Consequently, the sample included students aged 17 years and older. All participants received information about the purpose and procedures of the study and voluntarily agreed to participate. Confidentiality and anonymity were ensured throughout the research process, and the collected data were used exclusively for research purposes.

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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