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Review articles (systematic or scoping)

Academic Procrastination Among University Students: A Scoping Review

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Abstract

Academic procrastination (AP) refers to the tendency to delay starting or completing tasks, such as readings or exams. Although research on this phenomenon spans several fields, the literature lacks studies that clearly define its specificities. This study aimed to conduct a scoping review to map the main characteristics of empirical research on AP among university students published in the last five years. The review followed the PRISMA-ScR guidelines for scoping reviews. Data were collected from the *Biblioteca Virtual de Saúde* (BVS, Virtual Health Library), Scientific Electronic Library Online (SciELO), Education Resources Information Center (ERIC), SciVerse Scopus, CAPES Theses and Dissertations Catalog, and the *Biblioteca Digital Brasileira de Teses e Dissertações* (BDTD, Brazilian Digital Library of Theses and Dissertations). In total, 91 studies (88 articles and 3 dissertations) were included. The results indicated a predominance of descriptive or exploratory studies with convenience sampling, with most studies conducted in Asian countries. Thematic analysis identified four major categories: (i) assessment and intervention, (ii) cognitive, behavioral, and physiological aspects, (iii) affective and personal aspects, and (iv) institutional and contextual aspects. AP is a widespread phenomenon across different countries and has significant consequences for students' quality of life, academic performance, and future professional development. Future studies should prioritize experimental and longitudinal designs that explore intervention strategies and contextual factors to deepen the understanding of this phenomenon.

Keywords: procrastination, university students, universities, scoping review, time management

PROCRASTINAÇÃO ACADÊMICA EM ESTUDANTES UNIVERSITÁRIOS: UMA REVISÃO DE ESCOPO

Resumo

A procrastinação acadêmica (PA) descreve a tendência ao atraso em iniciar ou concluir tarefas, tais como leituras e exames. As pesquisas abarcam áreas diversas, entretanto a literatura carece de estudos que delimitem suas especificidades. O presente estudo teve por objetivo conduzir uma revisão de escopo para mapear as principais características das pesquisas empíricas acerca da PA em estudantes universitários nos últimos 5 anos. A revisão foi conduzida seguindo as diretrizes do protocolo PRISMA adaptado para revisões de escopo (PRISMA-ScR). O levantamento de dados ocorreu via Biblioteca Virtual de Saúde (BVS), *Scientific Electronic Library Online* (SCIELO), *Education Resources Information Center* (ERIC), *SciVerse Scopus*, Catálogo de Teses e dissertações da CAPES e Biblioteca Digital Brasileira de Teses e Dissertações (BDTD). Ao final, 91 estudos (88 artigos e 3 dissertações) foram incluídos. Os resultados indicaram predominância de pesquisas descritivas ou exploratórias, com amostragem por conveniência, com maior concentração no continente asiático. A análise temática evidenciou os principais temas de estudo: (i) Avaliação e intervenção, (ii) Aspectos cognitivos, comportamentais e fisiológicos, (iii) Aspectos afetivos e pessoais, (iv) Aspectos institucionais e contextuais. A PA ocorre em diferentes países e traz consequências significativas para a qualidade de vida, desempenho acadêmico e futuro profissional dos estudantes. Para direcionamentos futuros, estudos experimentais e longitudinais que investigam estratégias de intervenção e aspectos contextuais podem ser realizados para melhor compreensão do fenômeno.

Palavras-chave: procrastinação, universitários, universidades, revisão de escopo, gestão de tempo

PROCRASTINACIÓN ACADÉMICA EN ESTUDIANTES UNIVERSITARIOS: UNA REVISIÓN DE ALCANCE

Resumen

La procrastinación académica (PA) describe la tendencia a posponer el inicio o la finalización de tareas, como lecturas o exámenes. Las investigaciones sobre este fenómeno abarcan diversas áreas del conocimiento; sin embargo, la literatura carece de estudios que delimiten claramente sus especificidades. El presente estudio tuvo como objetivo realizar una revisión de alcance para mapear las principales características de las investigaciones empíricas sobre la PA en estudiantes universitarios durante los últimos cinco años. La revisión se llevó a cabo siguiendo las directrices del protocolo PRISMA adaptado para revisiones de alcance (PRISMA-ScR). La búsqueda de datos se realizó en la Biblioteca Virtual de Saúde (BVS, Biblioteca Virtual en Salud), Scientific Electronic Library Online (SCIELO), Education Resources Information Center

(ERIC), SciVerse Scopus, el Catálogo de Tesis y Disertaciones de CAPES y la Biblioteca Digital Brasileira de Teses e Dissertações (BDTD, Biblioteca Digital Brasileña de Tesis y Disertaciones). Como resultado, se incluyeron 91 estudios (88 artículos y 3 disertaciones). Los resultados indicaron una predominancia de estudios descriptivos o exploratorios, con muestreo por conveniencia, y una mayor concentración de investigaciones en el continente asiático. El análisis temático permitió identificar los principales temas de estudio: (i) Evaluación e intervención, (ii) Aspectos cognitivos, conductuales y fisiológicos, (iii) Aspectos afectivos y personales, y (iv) Aspectos institucionales y contextuales. La PA está presente en diferentes países y conlleva consecuencias significativas para la calidad de vida, el rendimiento académico y el futuro profesional de los estudiantes. Como proyección para futuras investigaciones, se recomienda la realización de estudios experimentales y longitudinales que analicen estrategias de intervención y factores contextuales con el fin de comprender mejor este fenómeno.

Palabras clave: procrastinación, estudiante universitário, universidades, revisión de alcance, gestión del tempo

Academic procrastination (AP) refers to the tendency to delay starting or completing tasks such as assignments, readings, or exam preparation (Steel, 2007). This behavior is common among students at all educational levels, but it is particularly prevalent among university students (Rozental et al., 2022; Svartdal et al., 2020). Unlike occasional or intentional delays, AP is characterized by students being aware of the potential negative consequences of postponing tasks (Steel & Ferrari, 2013; Svartdal et al., 2020). Over the past four decades, the scientific literature has increasingly examined AP to better understand its causes, prevalence, and consequences (Fentaw et al., 2022; Pereira & Ramos, 2021; Steel, 2007).

It is a dynamic and complex phenomenon involving cognitive, behavioral, affective, personal, institutional, and environmental factors (Dominguez-Lara et al., 2014; Mohammadi Bytamar et al., 2020; Sampaio & Bariani, 2011; Svartdal et al., 2020). It has been linked to negative impacts on students' mental health and academic performance (Rozental et al., 2022; Tao et al., 2021), including poor time management (Košíková et al., 2020), problematic internet and smartphone use (Akinci, 2021; Nwosu et al., 2020; Ramírez-Gil et al., 2022), anxiety symptoms (Altamiriano Chérrez & Rodríguez Pérez, 2021), stress (Orco León et al., 2022; Ramírez-Gil et al., 2022), and depression (Gómez-Romero et al., 2020), among others.

Student characteristics such as gender and age also play a role in AP. Research suggests that male students and those younger than 25 years old tend to report higher levels of procrastination (Chávez-Ortiz et al., 2020; Dominguez-Lara et al., 2019; Mastrantonio et al., 2023; Ramírez-Gil et al., 2022). Svartdal et al. (2020) identified nine factors that may contribute to AP among university students: high levels of autonomy in academic tasks, long deadlines, task aversiveness, temptations and distractions, limited information for adequate self-monitoring, lack of focus on study skills training, limited opportunities to build self-efficacy, ineffective group work, and peer influence.

AP is a global phenomenon, with studies conducted in countries such as China (Khalid et al., 2019; Wang et al., 2023), Ethiopia (Fentaw et al., 2022), Iran (Hayat et al., 2020), Mexico (Ramírez-Gil et al., 2022), and Peru (Vivar-Bravo et al., 2021), among others. A study with Turkish university students found that those with higher motivation levels were less likely to procrastinate and reported higher life satisfaction (Güdül et al., 2021). In Brazil, it is estimated that four out of five university students procrastinate, and more than half do so at least once a week (Geara & Teixeira, 2017).

The field of AP research intersects with disciplines such as neuroscience, psychology, and education (Svartdal et al., 2020; Tao et al., 2021). Studies have examined AP in relation to a wide range of factors; however, the literature still lacks clarity regarding the phenomenon's specificities (Pereira & Ramos, 2021; Tao et al., 2021). Addressing this gap, Tao et al. (2021) conducted a bibliometric analysis of the literature. Although their study included a significant number of articles, one limitation they noted was the use of only a single database, highlighting the need for further review studies.

Scoping reviews are designed to map and synthesize existing evidence, particularly for broad research topics (Munn et al., 2018). Considering the gaps in the literature, the negative impacts of AP on students' quality of life (Pereira & Ramos, 2021), and the growing interest in this subject (Tao et al., 2021), this study aimed to conduct a scoping review to map the main characteristics of empirical research on AP among university students published over the past five years in journal articles, theses, and dissertations. This time frame was defined based on the feasibility of the research.

Method

This is a scoping review, a data collection method that integrates different methodological perspectives to map the scientific literature and identify key concepts or topics within a given field (Munn et al., 2018). The review was conducted in accordance with the PRISMA guidelines adapted for scoping reviews (PRISMA-ScR; Tricco et al., 2018). Of the 22 PRISMA-ScR items, three were not reported (items 12 and 16), as they pertain to the assessment of methodological quality, which is considered optional in scoping reviews. Supplementary materials, including the full protocol and a table summarizing all included studies, are publicly available on the Open Science Framework (OSF) (Fonseca, 2025).

Eligibility Criteria

The included studies were empirical, peer-reviewed publications focused on AP in higher education, involving undergraduate students, published between 2019 and 2023, and written in Portuguese, English, or Spanish. The five-year time frame was selected based on considerations of feasibility and scientific relevance, given the volume of publications and the manageability of the analysis. Moreover, as scoping reviews are designed to identify gaps and emerging trends, prioritizing recent publications is methodologically recommended to capture the current state of knowledge on the phenomenon (Tricco et al., 2018). Accordingly, this time frame ensured an analysis that is both current and methodologically appropriate.

Regarding the types of studies, primary sources were selected, including journal articles, theses, and dissertations, regardless of methodological design. Exclusion criteria included letters to the editor, conference abstracts, incomplete articles, study protocols or research projects without results, and studies that did not specifically address procrastination in the context of higher education.

Data Collection Procedures

The searches were conducted at the end of June 2023. Journal articles were retrieved from the following databases: *Biblioteca Virtual de Saúde* (BVS, Virtual Health Library), Scientific Electronic Library Online (SciELO), Education Resources Information Center (ERIC), and SciVerse Scopus. Theses and dissertations were retrieved from the CAPES Theses and Dissertations Catalog and the *Biblioteca Digital Brasileira de Teses e Dissertações* (BDTD, Brazilian Digital Library of

Theses and Dissertations). These databases were selected based on thematic relevance, interdisciplinary scope, and institutional accessibility, ensuring comprehensive coverage of recent literature on the topic.

The search process followed five stages: extraction, conversion, combination, construction, and implementation (Araújo, 2020). In the extraction stage, indexed terms were retrieved from the Medical Subject Headings (MeSH) via the Health Sciences Descriptors (DeCS) and the ERIC Thesaurus. In the conversion stage, terms in Portuguese were accurately translated into English. In the combination stage, synonyms and semantic variations were combined. The construction stage involved building the final search strings. Lastly, in the implementation stage, the search strings were tested in the selected databases.

Boolean operators AND and OR were used in the searches, along with the following indexed descriptors: in Portuguese, "*procrastinação acadêmica*" AND "*universitários*" OR "*estudantes universitários*"; and in English, "academic procrastination" AND "university students" OR "undergraduate students." After testing, the Portuguese-language search string was applied to retrieve theses and dissertations from the CAPES Catalog and the BDTD, while the English-language string was used to retrieve journal articles from BVS, SciELO, ERIC, and Scopus.

Data analysis procedures

The articles retrieved from the databases were exported to the reference manager Rayyan®, developed by the Qatar Computing Research Institute (QCRI), to organize and optimize the source selection process in review studies. The software automatically identified and flagged duplicates, which were subsequently removed. The selection process was carried out by two independent reviewers who conducted a blinded screening of titles and abstracts based on predefined inclusion and exclusion criteria. Any disagreements were automatically flagged by the platform and resolved by a third reviewer, who assessed the disputed studies and made the final decision regarding inclusion or exclusion in accordance with the established criteria. This procedure enhanced methodological rigor and reduced the risk of selection bias.

The same procedures were applied to theses and dissertations; however, the analysis was conducted manually using Microsoft Excel spreadsheets. The screening process first involved reviewing titles and abstracts, followed by a full-text review of selected studies in the second phase. No disagreements occurred regarding the inclusion or exclusion criteria at this stage. All exclusion reasons were recorded at both stages, following the PRISMA-ScR flowchart model (Tricco et al., 2018).

The selected studies were analyzed based on authorship, publication source, country of origin, year of publication, study objectives, methodological design, participant sample and degree programs, and main findings related to AP among university students. These data were extracted and organized using Microsoft Excel spreadsheets and summarized in Microsoft Word. The synthesis of results is presented descriptively in tables. Qualitative data were analyzed using thematic analysis, which aims to identify, analyze, and report patterns within the data (Braun &

Clarke, 2006). For this analysis, two reviewers independently read the full texts of all included studies to become familiar with the content. Manual coding was performed based on the studies' objectives, variables, and main findings related to AP. This process led to the development of initial categories, which were discussed and refined by the reviewers and subsequently organized into four main themes: (i) assessment and intervention, (ii) cognitive, behavioral, and physiological aspects, (iii) affective and personal aspects, and (iv) institutional and contextual aspects.

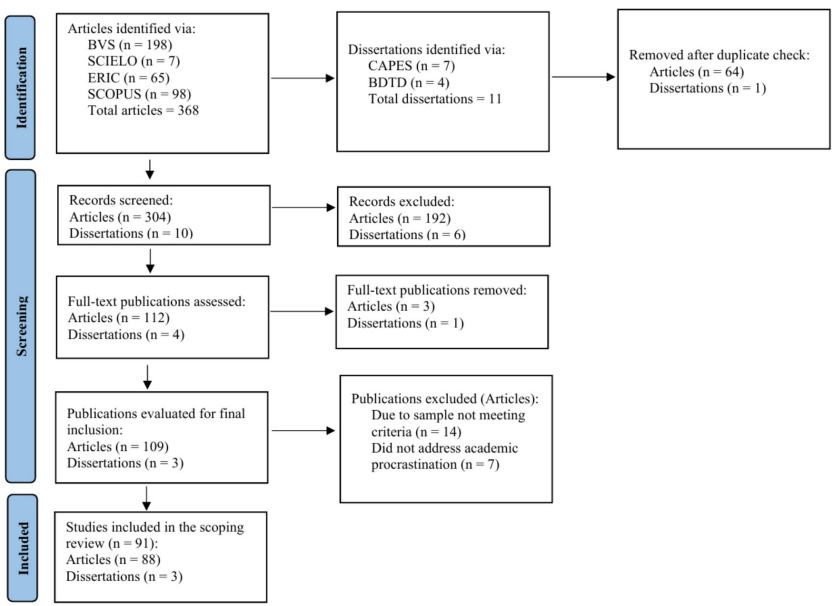
Results

As shown in the flowchart (Figure 1), a total of 368 journal articles and 11 dissertations were identified from the aforementioned databases (BVS = 198; SciELO = 7; ERIC = 65; Scopus = 98; CAPES = 7; BDTD = 4). After removing duplicates and conducting screening procedures—first by reading titles and abstracts, followed by full-text review—91 studies were included in this scoping review (88 articles and 3 dissertations). The search retrieved only dissertations; no doctoral theses related to AP were found in the selected databases. A table summarizing all included studies is publicly available on OSF (Fonseca, 2025).

A total of 21 articles were excluded after full-text review. The primary reasons for exclusion were studies whose samples consisted of teachers, high school students, or graduate students. Studies that did not specifically address AP but instead focused on general procrastination were also excluded. No dissertations were excluded after the full-text review.

Figure 1

Flowchart of the study selection process (PRISMA-ScR)



Study Characteristics

The included studies on AP were published within a five-year period (2019–2023), with the highest number of articles published in 2022 (n = 41). The selected dissertations were published in 2020, 2021, and 2023. Most articles appeared in psychology journals (n = 28), followed by journals in education (n = 25), multidisciplinary journals (n = 22), and medical and nursing journals (n = 13). The journals with the highest number of publications were Frontiers in Psychology (n = 8) and Psychology Research and Behavior Management (n = 4). All dissertations originated from graduate programs in psychology, including one from a professional master's program.

Regarding the language of publication, most articles were published in English (n = 75), followed by Spanish (n = 9) and Portuguese (n = 4). All dissertations were written in Portuguese and conducted with Brazilian university students. In terms of country of origin, most articles came from China (n = 15), followed by Turkey (n = 13), Peru (n = 12), Spain (n = 8), and Brazil (n = 7). The continents with the highest number of studies were Asia (n = 43) and South America (n = 21).

More than 90% of the included articles were quantitative, cross-sectional studies (n = 82). Additionally, there were two mixed-method studies, one qualitative study, two experimental studies, and one longitudinal study. Among the dissertations, two were mixed-method and one was qualitative. All studies were approved by institutional ethics committees at the universities to which the researchers were affiliated.

Most studies employed in-person data collection (n = 68). Online data collection (n = 20) was carried out using digital survey platforms. In-person data collection typically took place in classrooms with permission from instructors who allocated class time for this purpose. Among the dissertations, two conducted data collection entirely online via digital platforms, and one offered participants the choice of participating in interviews either in person or via video call.

Among the articles, 98.8% (n = 87) used self-report instruments to assess AP. However, some studies employed instruments that measure general procrastination rather than specifically AP (n = 24). The most commonly used general instruments were the Tuckman Procrastination Scale (TPS; n = 8) (Tuckman, 1991) and the Aitken Procrastination Inventory (API; n = 8) (Aitken, 1982). Among the instruments specifically designed to assess AP, the most frequently used were the Procrastination Assessment Scale–Students (PASS; n = 17) (Solomon & Rothblum, 1984) and the Academic Procrastination Scale (APS; n = 16) (Busko, 1998). Additionally, some authors developed their own AP scales for their studies (n = 6). Among the dissertations, self-report scales and interviews were used to assess AP. The frequency and main characteristics of the instruments used to assess AP are presented in Table 1.

Other instruments were identified but lacked sufficient information on their validity and reliability in the literature. These included the *Escala de Motivos para Procrastinação Acadêmica em Relação a Matemática* (EMOP-MAT, Academic Procrastination Reasons Scale – Mathematics; n = 1), cited in the study by Santos (2021); Ocak and Bulut's Academic Procrastination

Questionnaire (n = 1), cited by Aldalham (2022); and the Academic Procrastination Questionnaire for College Students (APC) (n = 1), cited by Ren et al. (2023).

Table 1

Frequency of Instruments Used to Assess Academic Procrastination (AP)

Authors	Instrument	N	AP Model	Reliability (Original Study)	Reliability (Brazilian Validation)	Authors – Brazilian Validation
(Solomon & Rothblum, 1984)	Procrastination Assessment Scale-Students (PASS)	17	Bidimensional – Fear of Failure and Task Aversion	Not reported	-	-
(Busko, 1998)	Academic Procrastination Scale (APS)	16	Unidimensional (Original) / Bidimensional – Task Delay and Academic Self-Regulation	α = 0.86	Factor 1: α = 0.70; Factor 2: α = 0.79.	(Moura et al., 2021)
(Çakıcı, 2003)	Academic Procrastination Scale (APS)	7	Unidimensional	α = 0.92	-	-
(Yockey, 2016)	Academic Procrastination Scale –Short Form	5	Unidimensional	α = 0.87	-	-
(McCloskey, 2011)	Academic Procrastination Scale (APS)	4	Unidimensional	α = 0.96	α = 0.76	(Soares et al., 2022)
(Costa, 2007)	Academic Procrastination Scale (APS)	2	Bidimensional – AP in Daily Study and AP in Test Preparation	Factor 1: α = 0.73; Factor 2: α = 0.74	Factor 1: α = 0.75; Factor 2: α = 0.75.	(Fior, Polydoro, et al., 2022)
(Corrales-Reyes et al., 2022)	*Escala de procrastinación académica en estudiantes cubanos de Estomatología*	1	Bidimensional – Task Procrastination and Academic Self-Regulation	Factor 1: α = 0.71; Factor 2: α = 0.78.	-	-
(Geara & Teixeira, 2017)	*Escala Motivos da Procrastinação Acadêmica – EMPA*	1	Bidimensional – Lack of Motivation and Anxiety in AP	Factor 1: α = 0.61; Factor 2: α = 0.76	Brazilian Scale	-

Most of the included studies used convenience sampling across different undergraduate programs (n = 48). Other studies collected data specifically from certain programs or fields of knowledge, such as psychology (n = 8), medicine (n = 7), nursing (n = 6), dentistry (n = 4), education (n = 6), humanities (n = 3), among others. Regarding sample size, the study with the smallest number of participants had a sample of n = 10, which was a qualitative study, while the largest sample consisted of n = 3,614 university students.

Summary of Findings

Most studies aimed to investigate the relationship between AP and other variables. Thus, based on thematic analysis, the studies were categorized into four main themes: (i) assessment and intervention, (ii) cognitive, behavioral, and physiological aspects, (iii) affective and personal aspects, and (iv) institutional and contextual aspects. In this thematic classification, different variables associated with AP were analyzed, meaning some studies appeared in more than one theme as they investigated variables from different domains.

Assessment and Intervention

This theme included studies focused on developing and/or cross-culturally validating instruments specifically designed to assess AP in university students, as well as studies that assessed intervention models for this phenomenon.

Among the psychometric studies, three aimed to develop new scales to assess AP among university students, while the others focused on the cross-cultural validation of pre-existing instruments. All scales reported satisfactory reliability indices for the studied population, with Cronbach's alpha equal to or greater than .70, considered acceptable according to Dancey and Reidy (2021).

Two intervention studies were included in this theme. The first aimed to develop a self-management intervention program for university experiences as a coping strategy (Paula et al., 2022). The intervention involved discussion groups addressing the constructs of self-regulated learning and self-efficacy based on Albert Bandura's Social Cognitive Theory (1925–2021). The authors concluded that group interventions can be promising since participants reported feeling more comfortable sharing their experiences with peers.

The second study assessed the effectiveness of Cognitive Behavioral Therapy (CBT) in reducing AP among university students. A randomized clinical trial was conducted with 64 participants. The results demonstrated the effectiveness of this therapeutic model in reducing procrastination behaviors among university students (Ugwuanyi et al., 2020).

Cognitive, Behavioral, and Physiological Aspects

This theme included studies that investigated the relationship between AP and variables such as executive functions, attention, learning, study habits, physical activity, salivary enzyme levels, and problematic use of the internet, social media, and smartphones—referred to as problematic use of information and communication technologies (ICTs)—among others.

This theme was the most prominent in this review, with 26 constructs related to cognitive, behavioral, and physiological aspects. The most frequently studied were problematic use of ICTs (n = 13), self-efficacy (n = 10), motivation (n = 7), self-control/self-regulation (n = 6), and self-esteem (n = 6).

Regarding the problematic use of ICTs, a positive association was identified between AP and this variable, suggesting that excessive internet use is a predictor of AP. Activities involving

high levels of distraction, such as short videos, are commonly associated with AP (Akinci, 2021; Nwosu et al., 2020; Rodrigues, 2020; Vieira-Santos & Malaquias, 2022).

Self-efficacy is defined as an individual's belief or assessment of their cognitive, affective, or motor abilities to plan and execute intended actions (Bandura, 1997). Studies investigating this construct demonstrated a negative relationship with AP (Arias-Chávez et al., 2020; Brando-Garrido et al., 2020; Fior, Sampaio, et al., 2022; Uma et al., 2020).

Self-esteem is conceptually related to self-efficacy, as both involve self-assessment. While self-esteem refers to the assessment of one's own characteristics and self-concept, self-efficacy reflects beliefs about one's ability to achieve goals (Arias-Chávez et al., 2020). Studies have reported negative correlations between AP and self-esteem (Arias-Chávez et al., 2020). Additionally, self-esteem partially mediates the relationship between depression and AP and serves as a predictor of higher AP levels (Kınık & Odacı, 2020).

Motivation was examined from various theoretical perspectives, including extrinsic and intrinsic motivation, achievement goals, and academic motivation. Overall, studies indicated a positive relationship between motivation and AP, with motivation playing a mediating role between AP and other factors (Güdül et al., 2021; Martinie et al., 2023).

Some authors consider AP a failure in the self-regulation process, characterized by a gap between planning and action in academic tasks (Dominguez-Lara et al., 2014; Geara & Teixeira, 2017; Pereira & Ramos, 2021). In the included studies, self-control was described as a component of self-regulation. The findings indicated that self-regulation is a significant negative predictor of AP (Akinci, 2021; Nwosu et al., 2020).

Affective and Personal Aspects

This theme encompassed studies examining the relationship between AP and emotional variables such as anxiety, depression, and stress, as well as personality traits, perfectionism, and other individual factors. It also included studies aimed at characterizing AP in relation to sample demographics, including gender and age.

A total of 23 constructs were identified in this theme, with the most frequently studied being sample characteristics such as gender, age, and reasons for procrastination (n = 8), perfectionism (n = 7), anxiety (n = 6), stress (n = 5), and personality traits (n = 5). The findings showed that AP is more prevalent among male students, younger students (up to 20 years old), and those living in university residence halls (Chávez-Ortiz et al., 2020; Hayat et al., 2020). It is estimated that 81% of students procrastinate, and at least 39% procrastinate daily (Fentaw et al., 2022). Students reported that AP significantly impacts their academic performance and identified three main reasons for procrastination: distractions from videos and social media content, interruptions from family members while studying, and lack of self-discipline (Duda-Macera & Gallardo-Echenique, 2022).

Perfectionism involves extremely high personal standards and can be categorized as adaptive or maladaptive (Closson & Boutilier, 2017). In the academic context, maladaptive

perfectionism is positively and significantly related to AP, predicting this behavior, whereas adaptive perfectionism has an inverse relationship (Akbay & Delibalta, 2020; Soares et al., 2021).

Anxiety was examined both generally and in specific forms, such as test anxiety and math anxiety. Overall, anxiety was positively correlated with AP (Altamiriano Chérrez & Rodríguez Pérez, 2021; Vivar-Bravo et al., 2021). Interestingly, test anxiety was negatively related to AP, suggesting that concern about exams may increase readiness to complete study tasks (Bolbolian et al., 2021). In contrast, while a negative correlation exists between AP and math tasks in general, math anxiety positively correlates with AP. This is because math anxiety reflects cognitive discomfort and perceived difficulty in performing complex mathematical tasks (Santos, 2021).

Stress was analyzed in terms of academic stress and perceived stress. In general, stress variables were positively correlated with AP (Orco León et al., 2022; Ramírez-Gil et al., 2022). Notably, academic stress was more prevalent among female students, despite AP being more frequent among male students (Ramírez-Gil et al., 2022).

Personality traits were assessed using the Big Five Factor Model. Conscientiousness was found to be a negative predictor of AP (Ljubin-Golub et al., 2019; Soares et al., 2021). Furthermore, conscientiousness, agreeableness, and openness were identified as mediators in reducing AP through motivation, with personality traits explaining approximately 21% of the individual variance in AP (Ljubin-Golub et al., 2019). Studies examining gender differences found that conscientiousness and neuroticism were positively associated with procrastination behaviors among female students (Dominguez-Lara et al., 2019).

Institutional and Contextual Aspects

This theme included studies that examined the relationship between AP and variables such as student-teacher relationships, peer pressure, study environments, parenting styles, and other contextual factors. This was the least frequently explored theme, with only four studies and five constructs identified. Therefore, in this review, these findings are considered preliminary, and further research is needed to generate more robust data on these aspects.

The results indicated that AP is negatively correlated with peer pressure and a positive learning environment (Wang et al., 2023) and with positive parenting styles, while negative parenting styles are positively associated with AP (Khalid et al., 2019). Regarding teacher behavior, a negative correlation was found between AP and undesirable teacher behaviors (Samawi et al., 2021). A cross-cultural study comparing Ukrainian and Slovakian students revealed significant differences: Slovakian students exhibited higher AP levels but were also more likely to complete academic tasks than Ukrainian students (Košíková et al., 2020).

Discussion

This scoping review identified and synthesized findings from 91 empirical studies—journal articles and dissertations—published over the past five years on AP among university students. The results indicate that AP continues to attract multidisciplinary interest (Tao et al.,

2021), with most studies authored by researchers in psychology and published in psychology journals.

Research on AP has grown significantly in the international literature since the 1990s (Svartdal et al., 2020; Tao et al., 2021), and the present review confirms this trend, showing a consistent increase in publications between 2019 and 2023. Although previous studies indicate that the largest volume of publications on AP originates from the United States and Latin American countries (Tao et al., 2021; Pereira & Ramos, 2021), the present review identified a predominance of studies from Asian countries, particularly China. This trend suggests the need for further research exploring how educational systems, academic demands, and cultural factors shape procrastination behaviors. Such efforts may contribute to the development of culturally responsive models of AP. It is also plausible that this distribution reflects the characteristics of the databases consulted. For instance, BVS, SciELO, and ERIC offer greater coverage of Latin American and education-related publications, while Scopus—despite its comprehensive scope—applies indexing criteria that may limit the inclusion of certain North American and European journals, particularly those not open access or those with less emphasis on education. Additionally, studies from other regions may have examined AP in broader populations or non-university contexts, resulting in their exclusion based on this review's eligibility criteria. These considerations may partially account for the geographical distribution observed.

Consistent with previous reviews (Costa et al., 2022; Zacks & Hen, 2018), over 90% of the included studies employed quantitative, cross-sectional designs, with most aiming to investigate the prevalence and consequences of AP. Regarding data collection, convenience sampling was predominant, with participants drawn from diverse academic programs. Data were frequently collected in group settings, in person, and often during class time with instructors' permission—practices commonly reported in the literature (Svartdal et al., 2020; Vieira-Santos & Malaquias, 2022).

In terms of measurement, self-report instruments were the primary method for assessing AP, which aligns with prior findings (Svartdal et al., 2020). Notably, some studies employed general procrastination scales rather than instruments specifically designed for academic settings. This limitation is frequently noted in the literature, which emphasizes the need for context-specific measures to ensure greater accuracy and validity in assessing AP among university students (Dominguez-Lara, 2018; Geara & Teixeira, 2017; Soares et al., 2022).

Thematic analysis (Braun & Clarke, 2006) revealed four primary research domains: (a) assessment and intervention, (b) cognitive, behavioral, and physiological aspects, (c) affective and personal aspects, and (d) institutional and contextual aspects. These categories reflect established conceptualizations of AP within the literature (Dominguez-Lara et al., 2014; Mohammadi Bytamar et al., 2020; Sampaio & Bariani, 2011; Svartdal et al., 2020).

The first domain comprised studies focused on cross-cultural validation or the development of instruments tailored to the countries where the research was conducted. A significant proportion of these studies originated in Brazil, addressing the need for psychometrically

sound tools to assess AP within the Brazilian context (Geara & Teixeira, 2017; Pereira & Ramos, 2021; Soares et al., 2021). Intervention studies were less frequent than psychometric investigations, mirroring patterns identified in previous reviews (Tao et al., 2021).

The second domain, which addressed AP and cognitive, behavioral, and physiological factors, was the most prominent. Findings in this domain were particularly relevant to self-efficacy beliefs and problematic use of ICTs. Consistent with Vieira-Santos and Malaquias (2022), the literature distinguishes between descriptive definitions of AP (e.g., task delay) and explanatory models that emphasize the cognitive processes underpinning procrastination. The evidence suggests that students with stronger self-efficacy beliefs are less prone to procrastination and exhibit better academic performance (Arias-Chávez et al., 2020; Brando-Garrido et al., 2020; Fior, Sampaio, et al., 2022). Additionally, problematic use of the internet, smartphones, and social media is frequently linked to procrastinatory behaviors, indicating that managing ICT use may be an important strategy for reducing AP (Akinci, 2021; Nwosu et al., 2020; Rodrigues, 2020; Vieira-Santos & Malaquias, 2022).

Cognitive and behavioral competencies can be enhanced through targeted interventions (Bandura, 1997; Steel, 2007), including individual and group psychotherapy. Cognitive-behavioral therapy (CBT) has demonstrated effectiveness in reducing AP (Costa et al., 2022; Ugwuanyi et al., 2020), although further research is warranted to clarify the mechanisms and efficacy of various intervention approaches.

The third domain focused on affective and personal factors, representing the second most frequent theme in this review. As widely discussed in the literature (Steel, 2007; Vieira-Santos & Malaquias, 2022), AP is strongly associated with negative emotional states, particularly guilt, which adversely affects students' mental health (Zacks & Hen, 2018). Prominent findings include positive correlations between AP and anxiety symptoms (Altamiriano Chérrez & Rodríguez Pérez, 2021; Vivar-Bravo et al., 2021) and maladaptive perfectionism, as well as negative correlations with adaptive perfectionism (Akbay & Delibalta, 2020; Huang et al., 2022; Soares et al., 2021). Sociodemographic factors were also relevant; higher AP levels were more frequently reported among male and younger students (Chávez-Ortiz et al., 2020; Dominguez-Lara et al., 2019; Mastrantonio et al., 2023; Ramírez-Gil et al., 2022).

The fourth domain provided preliminary insights into institutional and contextual factors influencing AP, which is widely recognized as a multidimensional phenomenon shaped by the interaction of cognitive, behavioral, and affective processes (Mohammadi Bytamar et al., 2020; Solomon & Rothblum, 1984; Steel, 2007). However, only recently has the literature begun to examine environmental and institutional determinants (Dominguez-Lara et al., 2014; Sampaio & Bariani, 2011; Svartdal et al., 2020). Findings indicate that the academic environment plays a critical role, with factors such as faculty-student relationships, peer interactions, cultural norms, and institutional structures influencing AP (Khalid et al., 2019; Samawi et al., 2021; Svartdal et al., 2020). According to Wang et al. (2023), AP extends beyond academic performance, potentially affecting learning dynamics—for example, students who procrastinate may impede

their peers' progress—as well as teaching quality, faculty satisfaction, and broader educational outcomes. Svartdal et al. (2020) therefore recommend that future research prioritize the investigation of social, cultural, organizational, and contextual factors to understand AP.

Given the review period (2019–2023), it is noteworthy that five studies examined the impact of the COVID-19 pandemic. These studies explored how the pandemic influenced AP levels among university students, particularly in the context of the abrupt shift to remote learning. The findings suggest that increased AP was associated with stress, depressive symptoms, and disruptions to academic routines and emotional well-being (Ramírez-Gil et al., 2022; Yang et al., 2022). The literature indicates that the absence of structured, in-person learning environments and diminished peer and faculty interactions contributed to the exacerbation of procrastinatory behaviors (Albursan et al., 2022; Wang et al., 2023). These findings underscore the pandemic's role as a situational factor that may have intensified preexisting emotional and behavioral vulnerabilities among students.

Final Considerations

AP affects students across diverse contexts and leads to negative outcomes for well-being, quality of life, academic performance, and future professional development. The literature reviewed predominantly comprises descriptive and exploratory studies with convenience sampling, with a notable concentration of research conducted in Asian countries. Most investigations focus on characterizing AP by addressing cognitive, behavioral, affective, and personal factors. However, there is a relative scarcity of studies examining institutional, contextual, and physiological factors, as well as targeted interventions.

Future research should adopt experimental and longitudinal designs to enable a deeper and more causal understanding of AP across different cultural and educational contexts. Moreover, it is essential that future studies explore intervention strategies and support mechanisms aimed at students, faculty, and educational institutions, while also expanding the examination of contextual variables and their influence on procrastinatory behavior.

This review has some limitations. The search strategy precluded the inclusion of dissertations and theses from countries outside those indexed in the selected databases. Additionally, other forms of gray literature and international databases could have been incorporated. The decision to limit the search to studies published between 2019 and 2023 was deliberate, aiming to ensure that the review reflected the most recent developments and trends in the field of AP. This time frame was also essential for ensuring the feasibility of the study, considering the substantial volume of publications and the availability of relevant literature within this period. Despite these limitations, this scoping review successfully mapped the main research themes related to AP in the literature, offering valuable insights and directions for future studies.

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Laimara Oliveira da Fonseca: Master's student whose research inspired the scope review; served as the third reviewer in the selection of articles, theses, and dissertations; conducted full readings of selected works; synthesized information; and contributed to the writing of the manuscript.

Mylena Muniz dos Santos: Undergraduate student who developed her final course project (TCC) on academic procrastination; served as the first reviewer; read titles, abstracts, and full texts; and contributed to the writing of the manuscript.

Gisele Cristina Resende: Advisor for both the master's and undergraduate research projects; served as the second reviewer in the selection of studies; read titles and abstracts; guided data analysis, writing, and final editing of the manuscript.

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