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# Publication anxiety in academia: Development and psychometric validation of a three-dimensional scale

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## Abstract

In contemporary academia, the publish or perish culture has intensified psychological pressure on researchers, making scientific publication a key source of evaluation and symbolic validation. However, Publication Anxiety remains a poorly operationalized and insufficiently measured phenomenon in empirical research. This study aimed to design and psychometrically validate the Publication Anxiety Scale-PAS to assess publication-related anxiety among university faculty, based on a three-dimensional model comprising Manuscript Preparation, Author's Editorial Management, and Scientific Impact. A quantitative, instrumental, and cross-sectional design was applied. The sample consisted of 171 university faculty members. The PAS, composed of 12 items with a Likert-type response format, was administered online. Psychometric analyses included descriptive statistics, internal consistency, exploratory and confirmatory factor analyses, and multigroup invariance testing by sex. The results supported a robust three-factor structure with adequate goodness-of-fit indices. The scale showed satisfactory internal consistency and factorial validity. Multigroup analyses indicated general measurement invariance, with some differences in factor intensity between men and women. The PAS is a valid and reliable instrument for university faculty. Its application provides relevant evidence for understanding academic well-being and offers a valuable tool for informing institutional policies on research evaluation, mental health promotion, and sustainable scientific productivity within higher education systems.

**Keywords:** Academic anxiety; anxiety; stress; mental health; “Publish or Perish”.

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# Ansiedad ante publicaciones en el ámbito académico: desarrollo y validación psicométrica de una escala tridimensional

## Resumen

En el ámbito académico contemporáneo, la cultura de “publicar o morir” ha intensificado la presión psicológica sobre los investigadores, convirtiendo la publicación científica en una fuente clave de evaluación y validación simbólica. Sin embargo, la ansiedad ante la publicación sigue siendo un fenómeno poco operacionalizado e insuficientemente medido en la investigación empírica. Este estudio tuvo como objetivo diseñar y validar psicométricamente la Escala de Ansiedad ante la Publicación-PAS para evaluar la ansiedad relacionada con la publicación en el profesorado universitario, basándose en un modelo tridimensional que abarca la preparación del manuscrito, la gestión editorial del autor y el impacto científico. Se aplicó un diseño cuantitativo, instrumental y transversal. La muestra estuvo compuesta por 171 profesores universitarios. La PAS, compuesta por 12 ítems con formato de respuesta tipo Likert, se administró en línea. Los análisis psicométricos incluyeron estadística descriptiva, consistencia interna, análisis factorial exploratorio y confirmatorio, y pruebas de invariancia multigrupo por sexo. Los resultados respaldaron una robusta estructura trifactorial con adecuados índices de bondad de ajuste. La escala mostró consistencia interna y validez factorial satisfactorias. Los análisis multigrupos indicaron una invariancia general de la medición, con algunas diferencias en la intensidad factorial entre hombres y mujeres. El PAS es un instrumento válido y fiable para el profesorado universitario. Su aplicación proporciona evidencia relevante para comprender el bienestar académico y constituye una herramienta valiosa para fundamentar las políticas institucionales sobre evaluación de la investigación, promoción de la salud mental y productividad científica sostenible en los sistemas de educación superior.

**Palabras clave:** Ansiedad académica; ansiedad; estrés; salud mental; “Publicar o perecer”.

## Introduction

In recent decades, academic work has undergone profound changes in the way it is organized, evaluated, and recognized, redefining the traditional meanings of scientific production and the role of the researcher in contemporary universities. In this context, many authors warn that academic life is increasingly affected by dynamics of pressure, competition, and institutional control. “As higher education undergoes a process of marketisation, and the teaching and research activities of academics are increasingly measured and scrutinised, the contemporary academy appears to be suffused with anxiety” (Loveday, 2018, p. 1).

Globally, the contemporary scientific system is strongly influenced by the logic of “publish or perish”, understood as the

structural pressure faced by academics to publish constantly as the main criterion for recognition, evaluation, and institutional permanence. This paradigm has intensified in the context of international university rankings, which prioritize quantitative indicators such as number of publications, impact factor, and citations, thus redefining the meanings of academic excellence and scientific productivity (Bayanbayeva, 2026). Various studies have shown that this culture not only shapes research practices but also transforms professional identities, shifting the formative, reflective, and social meaning of science toward an instrumental logic centered on metrics (De Rond & Miller, 2005; Rawat & Meena, 2014).

Although “publish or perish” was initially conceived as a mechanism to stimulate scientific production and academic

competitiveness, accumulated evidence suggests that its effects are ambivalent. On the one hand, multiple institutional interventions have been developed—such as writing programs, tutoring, and editorial support—aimed at increasing publication rates (McGrail et al., 2006). However, on the other hand, this pressure has led to unintended consequences, including fragmentation of research, prioritization of quantity over quality, an increase in questionable practices, and a progressive deterioration in the psychological well-being of researchers (De Rond & Miller, 2005; Rawat & Meena, 2014).

In this context, the so-called “publish or perish” syndrome emerges with particular relevance, particularly visible in young researchers and those in the early stages of their academic careers, who experience high levels of stress, emotional exhaustion, and anxiety linked to scientific performance (Estrada-Araoz, 2025). Anxiety about publishing is thus a complex psychosocial phenomenon associated with fear of editorial rejection, excessive self-imposed demands, evaluative uncertainty, and dependence on external metrics as a source of professional validation.

Rather than an individual problem, this specific form of anxiety should be understood as a systemic product of contemporary academic culture, which raises the need for comprehensive approaches that integrate organizational, ethical, and mental health dimensions into the management of scientific research (Estrada-Araoz, 2025; Bayanbayeva, 2026).

A particularly interesting study analyzes the phenomenon of “publish or perish” from a psychological perspective, proposing that the pressure to publish constitutes a specific form of “status anxiety” in academia, characterized by the constant need for visibility, recognition, and social comparison through indicators such as number of publications, impact factor, and h-index. The authors argue that the culture of scientific productivity has displaced the formative meaning of academia toward a competitive logic that generates stress, fear of failure, feelings of deprivation, and

deterioration of psychological well-being, especially in a context amplified by university rankings, global access to information, and the use of academic social networks, concluding that publication anxiety is a systemic and emerging problem that needs to be addressed through institutional policies and specific psychological approaches (Eftekhari et al., 2021).

Accumulated empirical evidence consistently shows that pressure to publish not only shapes academic trajectories but is also directly associated with a wide range of negative consequences for researchers’ mental health. Pioneering studies have already warned that increased scientific competition, in contexts of limited resources, generates high levels of stress, emotional exhaustion, and risk of burnout, affecting creativity, motivation, and the choice of a scientific career (De Meis et al., 2003). More recent research confirms that the “publish or perish” culture is linked to persistent anxiety, feelings of impostor syndrome, emotional fatigue, frustration, and depressive symptoms, especially among researchers in training and in the early stages of their academic careers (Cardwell et al., 2025; Estrada-Araoz, 2025; Raksithaa, 2025).

Likewise, it has been documented that perceived editorial pressure significantly predicts academic burnout and psychological distress, while factors such as self-efficacy in publishing and institutional support act as protective variables (Cardwell et al., 2025; Haven et al., 2019). From a broader perspective, the literature also associates publish or perish with chronic stress, anxiety about academic writing, deterioration of subjective well-being, dysfunctional behaviors, and questionable scientific practices, demonstrating that this is a systemic problem with direct implications for mental health, scientific integrity, and the sustainability of academic work (Miller et al., 2011; Lee, 2014; Goyanes & Rodríguez-Gómez, 2018; Cabanac & Labbé, 2021; Nurkamto et al., 2024; Uludag, 2024).

In the field of doctoral supervision, Duncan (2024) points out that demands for productivity and publication generate

emotional overload, sustained stress, and risk of deteriorating well-being, which requires more sustainable support models to prevent negative effects on mental health. For its part, Cabanac & Labbé (2021) document that extreme pressure to publish encourages dysfunctional and pathological behaviors in the scientific system, such as the production of meaningless or algorithmically manipulated articles, reflecting dynamics of systemic stress, motivational distortion, and ethical deterioration. In the same year,

Heron et al. (2021) show that, although academic writing can be a source of development and creativity, in contexts dominated by performance metrics, it is predominantly experienced as an activity involving high emotional tension, anxiety, and identity conflict, especially among early-stage researchers.

Other studies contribute to the debate by demonstrating that the pressure to publish not only has psychological effects, but also epistemological, behavioral, and ethical consequences on scientific production. In particular, there is empirical evidence that highly competitive academic environments increase scientific bias by favoring the publication of positive results and reducing the dissemination of negative findings, which distorts the objectivity of knowledge (Fanelli, 2010).

In addition, Van Dalen & Henkens (2012) show, based on an international study, that the “publish or perish” culture redirects scientific motivations toward extrinsic rewards, weakening the vocation for research with social impact and the exchange of knowledge. Finally, Gopalakrishna et al. (2022) provide robust evidence that editorial pressure is directly associated with a higher prevalence of questionable practices and scientific misconduct, especially among young researchers, revealing that the “publish or perish” culture generates stress and anxiety, but also acts as a structural risk factor for scientific integrity.

Recent studies allow to anchor the construct of Publication Anxiety in a multilevel

theoretical framework that integrates psychological, psychometric, and institutional dimensions. From a psychological perspective, Eftekhari et al. (2021) introduce the notion of academic status anxiety, understood as anxiety derived from the fear of losing status, legitimacy, and recognition under the logic of publish or perish, which connects with the conceptualization of publication as a mechanism of symbolic validation, in line with the anxiety of influence (Britton, 1994).

On a psychometric level, authors demonstrate that academic anxiety is a measurable construct with varying levels of severity (Finch et al., 2024). This allows Publication Anxiety to be conceptualized as a specific and contextualized form of academic anxiety, justifying the development of specialized instruments such as the Publication Anxiety Scale (PAS). At the institutional level, evidence is provided that the perceived pressure to publish modifies researchers’ strategies toward instrumental behaviors oriented toward prestige and rankings, increasing stress, burnout, and psychological distress (Suart et al., 2022; Johann et al., 2024).

At the same time, Kubátová (2019) shows that, although publication can generate satisfaction and recognition, in contemporary academic systems stress and anxiety tend to predominate over well-being, allowing Publication Anxiety to be conceptualized as a specific form of academic and status anxiety that is psychologically measurable, institutionally induced, and predominantly associated with job dissatisfaction.

## **1. Theoretical foundation**

### **1.1. Publication Anxiety**

Spurling (2016) analyzes different forms of “publication anxiety” from a psychodynamic perspective, delving into the various ways in which authors experience anxiety when writing and publishing, especially the fear of criticism, rejection, and delegitimization by figures of academic

authority; examines, through autoethnographic reflection, how publication involves symbolic exposure, comparisons with disciplinary references, and an anxiety of influence, which can lead to inhibition, distortion of discourse, compulsive rewriting, and fear of loss of status or belonging within the scientific community.

Publication anxiety is conceptualized as a structural psychological phenomenon inherent to the academic experience, arising from the internal conflict between the need to communicate knowledge and the desire to achieve affiliation, legitimacy, and recognition within a given scientific community (Britton, 1994). From this perspective, anxiety about publishing is not an individual pathological trait, but rather a condition intrinsic to the act of intellectual production in contexts where symbolic visibility and academic status operate as central sources of professional identity. The author argues that this anxiety can manifest itself as inhibition, defensive distortion of discourse, or fear of exposure, creating a permanent tension between creativity, authenticity, and external validation.

In the contemporary context, this psychological dynamic is intensified by institutional evaluation systems based on rankings, bibliometric metrics, and editorial hierarchies, which transform publication into a device for controlling and measuring academic performance (Coulthard & Keller, 2016). In this sense, Publication Anxiety takes on a systemic dimension, in that it not only responds to intrapsychic processes, but is also structurally induced by university environments that prioritize quantifiable productivity, visibility in indexed journals, and competition for scientific prestige.

Sullivan (2012) provides a procedural-emotional approach, conceptualizing publication anxiety as a dynamic phenomenon that unfolds throughout the different stages of the publishing cycle—writing, submission, evaluation, revision, and post-publication—integrating emotions such as insecurity, fear of rejection, frustration, relief, or subsequent vigilance. This perspective allows us to understand Publication Anxiety as a

continuous and multiphase process, which justifies its empirical modeling in terms of temporal dimensions: before, during, and after the publication process. As a result, three major stages of Publication Anxiety have been identified: Manuscript Preparation, Author's Editorial Management, and Scientific Impact.

## **1.2. Anxiety during manuscript preparation (Manuscript Preparation)**

The Manuscript Preparation dimension refers to the anxiety experienced during the initial phase of writing and structuring the manuscript, characterized by cognitive insecurity, doubts about the quality of the content, fear of error, and constant self-evaluation of one's own academic skills. Sullivan (2012) identifies this stage as a critical moment in the editorial process, dominated by emotions associated with uncertainty, self-imposed pressure, and fear of not meeting the scientific community's discursive and methodological standards.

From a deeper perspective, Davids (2022) conceptualizes academic writing as a complex intrapsychic experience, fraught with internal dilemmas related to subjective exposure, symbolic consent, and feelings of intrusion, especially when the text involves revealing intellectual or professional processes that will be subject to public evaluation. This emotional burden is intensified by the high technical and regulatory complexity that characterizes contemporary scientific writing.

Studies of novice researchers show that the writing process involves a high cognitive load, difficulties in articulating structure and content, and a constant feeling of inadequacy in relation to expected standards, which generates anxiety, writer's block, and dependence on external support (Shah et al., 2009). Added to this is the pressure derived from the multiple formal and ethical guidelines required by scientific journals, such as reporting criteria (O'Brien et al., 2014) and international publishing requirements (Case et al., 1997), which transform the preparation

of the manuscript into a highly regulated task, likely to generate anticipatory stress and fear of non-compliance.

In this scenario, the emergence of artificial intelligence tools has introduced new ambivalent dynamics into the writing experience. On the one hand, chatbots can facilitate the organization of ideas, the generation of drafts, and linguistic correction, acting as support devices that partially reduce initial anxiety (Salvagno et al., 2023). However, new sources of tension are also emerging, linked to the risk of plagiarism, inaccuracy, and misuse, as well as the threat of loss of symbolic authorship and epistemological control (Májovský et al., 2023).

Finally, awareness of the criteria by which manuscripts will be evaluated by expert reviewers—including methodological consistency, clarity of argument, and scientific relevance—reinforces self-discipline and cognitive vigilance during writing (Provenzale & Stanley, 2005), consolidating Manuscript Preparation as a phase where cognitive, emotional, normative, and technological anxiety converge.

### **1.3. Anxiety in the Editorial Process (Author's Editorial Management)**

The Author's Editorial Management dimension encompasses the anxiety associated with direct interaction with the editorial system, including choosing a journal, the submission process, peer review, waiting for responses, and managing comments or rejections. This phase is characterized by a high degree of uncertainty regarding the many reasons why a scientific article may be rejected (Pierson, 2004), dependence on external judgments, and perception of loss of control over the fate of the manuscript, making it one of the most emotionally intense moments in the scientific publication cycle (Sullivan, 2012).

The selection of the journal, compliance with formal and ethical requirements, and the possibility of rejection in preliminary evaluations or after peer review make for an

experience marked by anticipatory tension and fear of academic failure (García & Fernández, 2021). From an institutional perspective, this anxiety is amplified by ranking systems, metrics, and impact indicators, which transform editorial management into a strategy of symbolic and professional positioning.

The decision of where to publish is not based solely on scientific criteria, but also on calculations of prestige, visibility, and recognition, which intensifies the psychological pressure on authors (Coulthard & Keller, 2016). Furthermore, the opacity, complexity, and overload of the peer review system—including the shortage of reviewers, editorial fatigue, and variability of criteria—reinforce the perception of arbitrariness and vulnerability of researchers in the face of a process that conditions their academic trajectory (Bohannon, 2013; Candal-Pedreira et al., 2023; Terry, 2026).

Finally, in the current context of open science, publishing anxiety is reinforced by the economic dimension of the process, particularly by Article Processing Charges (APCs), which introduce an additional source of financial stress and structural inequality. The hyperinflation of APCs, their weak relationship to actual scientific quality, and their function as prestige goods reinforce the competitive logic of the publishing system (Björk & Solomon, 2015; Khoo, 2019). Added to this is the perception among researchers that the costs are high, lack transparency, and, in many cases, are borne by limited personal or institutional resources, making pay-to-publish a psychological and material barrier to scientific production (Halevi & Walsh, 2021; Jain et al., 2021). Taken together, these factors consolidate Author's Editorial Management as a dimension where emotional anxiety, institutional pressure, evaluative uncertainty, and economic stress converge.

### **1.4. Anxiety in Post-Publication Impact (Scientific Impact)**

The Scientific Impact dimension

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refers to the anxiety that arises once the article has been published, linked to the constant monitoring of visibility indicators, such as indexing, citations, downloads, and impact metrics. This stage takes the form of a continuous symbolic evaluation process, in which the author repeatedly monitors the social reception of their work, oscillating between satisfaction, frustration, expectation, and dependence on external recognition (Sullivan, 2012). Currently, this monitoring is facilitated and amplified by the multiplicity of databases and bibliometric platforms—such as Google Scholar, Scopus, and Web of Science—whose differences in coverage, metrics, and results reinforce constant comparison among researchers and uncertainty regarding the real value of their own work (Jacso, 2005; Harzing & Alakangas, 2016).

From a psychoanalytic perspective, this phenomenon can be interpreted as a form of anxiety of influence, that is, the fear of not existing symbolically within the scientific field if one fails to achieve impact, visibility, or recognition (Britton, 1994). This anxiety is linked to comparative, narcissistic, and status-related processes, in which academic identity becomes progressively subordinated to external metrics of validation. In this sense, the relationship between downloads, readings, and citations reinforces the quantifying logic of scientific performance, even though empirical evidence shows that these indicators do not always correspond directly or consistently, and that their association is partial, contingent, and dependent on time and disciplinary context (Moed, 2005; Chen et al., 2020).

Likewise, the expansion of open access has intensified the public exposure of knowledge and, with it, the anxiety associated with social scrutiny. Although open-access articles tend to receive more downloads and reach wider audiences, this does not necessarily guarantee greater impact in terms of citations, which reinforces uncertainty and frustration regarding the relationship between visibility and academic recognition (Davis et al., 2008; Davis, 2011).

Added to this is the emergence of post-

publication review platforms, such as PubPeer, which prolong the evaluation of scientific work indefinitely and expose the author to continuous public criticism, increasing the feeling of permanent surveillance, hyper-demandingness, and symbolic vulnerability even after having passed the formal editorial process (Tsatsakis et al., 2026). Together, these factors consolidate Scientific Impact as a dimension where anxiety is structured around the need to be seen, cited, and validated, in an environment characterized by unstable metrics, permanent exposure, and symbolic competition.

Thus, the patterns of use, citation, and dissemination (Pan et al., 2018); Scientometric Indicators (Vinkler, 2010); and traditional aspects of bibliometrics, scientometrics, and informetrics (Hood & Wilson, 2001) altmetric indicators are combined (Costas et al., 2015; Trueger et al., 2015) which measure alternative forms of academic impact based on the presence and circulation of articles in digital environments and social networks, such as mentions on Twitter/X, scientific blogs, news, reference managers (Mendeley), academic platforms, and web repositories.

Unlike traditional citations, these indicators capture dimensions of social visibility, public attention, and early dissemination of knowledge, although not necessarily their consolidated scientific impact. Thus, the altmetric score is configured as a complementary indicator of dissemination at the article level, which broadens the scientific evaluation ecosystem, but also intensifies the researcher's public exposure and reinforces the logic of permanent monitoring of the digital reception of their production.

The objective of this study was to design and psychometrically validate the Publication Anxiety Scale (PAS) to reliably and validly assess the levels of anxiety associated with the scientific publication process in university professors, based on a three-dimensional theoretical model that integrates the phases of Manuscript Preparation, Author's Editorial Management, and Scientific Impact. It also sought to analyze the factorial structure

of the instrument, its internal consistency, factorial invariance by gender, and to establish normative scales that facilitate its interpretation in academic and research contexts.

## 2. Methodology

This study was conducted using a quantitative approach, with a non-experimental, cross-sectional, and instrumental design, aimed at the construction and psychometric validation of the Publication Anxiety Scale (PAS). This type of design is appropriate when the main objective is to analyze the metric properties of a measurement instrument, evaluate its factorial structure, and estimate its reliability and validity in a specific

population. In this sense, the study follows the tradition of psychometric research, whose purpose is to develop standardized tools that allow for the valid and reliable measurement of complex psychological constructs, in this case, anxiety associated with the scientific publication process.

### 2.1. Variable

The main variable studied is Publication Anxiety (general construct), comprising three dimensions. Dimension 1: Manuscript Preparation. Dimension 2: Author's Editorial Management. Dimension 3: Scientific Impact (see Table 1).

**Table 1**  
**Variable and Dimensions**

Construct/ Dimension	Concept	Authors
Publication Anxiety (general construct)	Publication anxiety is a psychological phenomenon inherent to the academic experience, arising from the conflict between communicating knowledge and obtaining scientific legitimacy and recognition. This construct is conceived as a multiphase process that unfolds before, during, and after publication, articulated in three dimensions: Manuscript Preparation, Author's Editorial Management, and Scientific Impact.	Britton (1994); Sullivan (2012); Spurling (2016); Coulthard & Keller (2016).
Dimension 1: Manuscript Preparation	Anxiety during the writing and structuring phase of the manuscript is characterized by cognitive insecurity, doubts about the quality of the content, fear of error, subjective exposure, and the normative and technological burden associated with scientific writing standards.	Case et al. (1997); Provenzale & Stanley (2005); Shah et al. (2009); Sullivan (2012); O'Brien et al. (2014); Davids (2022); Salvagno et al. (2023); Májovský et al. (2023).
Dimension 2: Author's Editorial Management	Anxiety linked to interaction with the publishing system: journal selection, submission, peer review, rejection, ethical compliance, peer review, pressure from rankings, and financial stress resulting from APCs.	Pierson (2004); Sullivan (2012); Bohannon (2013); Björk & Solomon (2015); Coulthard & Keller (2016); Khoo (2019); García & Fernández (2021); Halevi & Walsh (2021); Jain et al. (2021); Candal-Pedreira et al. (2023); Terry (2026).
Dimension 3: Scientific Impact	Post-publication anxiety is associated with monitoring impact metrics (citations, downloads, indexing, altmetrics), social comparison, symbolic recognition, and public visibility.	Britton (1994); Hood & Wilson (2001); Jacso (2005); Moed (2005); Davis et al. (2008); Vinkler (2010); Davis (2011); Sullivan (2012); Costas et al. (2015); Trueger et al. (2015); Harzing & Alakangas (2016); Pan et al. (2018); Chen et al. (2020); Tsatsakis et al. (2026).

Source: Own elaboration, 2026.

Intentional non-probabilistic sampling was used; the final sample consisted of 171 university teachers aged between 25 and 72, with a mean age of 45.36 and a standard deviation of 9.75, indicating a predominantly middle-aged group with moderate variability. Table 2 on the sociodemographic and

academic characteristics of the sample shows that females predominated (67.8%), with a higher representation of teachers with master's degrees (51.5%) and doctorates (34.5%); most reported less than 3 years of research experience (50.9%), and a mainly intermediate level of scientific writing (42.1%).

**Table 2**  
**Sociodemographic and academic characteristics of the sample**

Variable	Category	Frequency
Sex	Female	116
	Male	55
Academic background	Bachelor's degree	24
	Master's degree	88
	Doctorate	59
Research experience	Between 3 and 5 years	29
	More than 5 years	55
	Less than 3 years	87
Level in scientific writing	Advanced	41
	Intermediate	72
	Basic	45
	No level	13

**Source:** Own elaboration, 2026.

All participants provided written informed consent prior to their inclusion in the study, agreeing voluntarily to participate and to allow the use and publication of their data for scientific purposes. Anonymity, confidentiality, and data privacy were guaranteed at all stages of the research process, in accordance with ethical principles for research involving human participants. The study was institutionally registered under the code EDUSIL-2026-L4-ODS4-OR-01. The datasets generated and analyzed during the current study are available from the corresponding author upon reasonable request.

Data collection was carried out using the Publication Anxiety Scale (PAS), a psychometric instrument designed and validated in this study to measure Publication Anxiety in university professors. The scale consists of 12 items, organized into three theoretical dimensions: Manuscript

Preparation, Author's Editorial Management, and Scientific Impact. It was developed based on a theoretical review of academic anxiety and pressure to publish, ensuring the conceptual relevance of the items and their consistency with the temporal dimensions of the editorial process.

Each item describes situations related to the scientific publication process, and participants were asked to indicate how often they experience such situations. The PAS uses a five-point Likert-type response format, with the following categories: 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Almost always, 5 = Always, where higher scores indicate higher levels of publication anxiety.

Before the final application of the instrument, a face-to-face pilot study was conducted with a sample of 35 university professors, with the aim of evaluating the clarity, comprehensibility, and relevance of the

items on the Publication Anxiety Scale (PAS). Based on the results of the pilot study, two review sessions were held with five experts in psychometrics and research methodology, who provided feedback on the wording, semantic coherence, and theoretical adequacy of the items, allowing minor adjustments to be made to the final formulation of the instrument.

The study adhered to the ethical principles of research involving human subjects. All participants were informed of the study objectives and signed an informed consent form, always ensuring that participation was voluntary, anonymous, confidential, and protected by privacy laws. No data allowing for the personal identification of participants was collected, and participants were able to withdraw from the study at any time without consequences.

Data collection took place over a period of approximately six months, using an exclusively virtual application. To this end, informational meetings were organized via the Zoom platform, during which the researcher explained the objectives of the study, the ethical conditions of participation, and the instructions for responding. Subsequently, the link to the online questionnaire was shared with the participants, who completed it independently, maintaining the criteria of voluntariness, anonymity, and confidentiality of the information always.

Data analysis was performed using a sequential statistical strategy aimed at psychometric validation of the Publication Anxiety Scale (PAS). First, descriptive analyses of the items and the sample were carried out, calculating means, standard deviations, asymmetry, and kurtosis, to examine the distributional behavior of the observed variables and detect possible outliers. Subsequently, univariate normality was evaluated using the asymmetry and kurtosis coefficients, as well as multivariate normality using the Mardia coefficient, with the aim of determining the suitability of the estimation methods used in the factor analyses.

Next, an Exploratory Factor Analysis (EFA) was performed using the principal

component extraction method and a Promax oblique rotation with Kaiser normalization, under the assumption of correlation between factors. Sample adequacy was checked using the Kaiser-Meyer-Olkin (KMO) index and Bartlett's sphericity test. Once the factorial structure was established, the internal reliability of the instrument was examined using three complementary coefficients: Cronbach's alpha, Armor's theta, and McDonald's omega, with values above 0.70 considered indicators of adequate internal consistency.

Subsequently, a Confirmatory Factor Analysis (CFA) was carried out using structural equation models to empirically test the three-dimensional structure proposed by the EFA. The goodness of fit of the model was evaluated using multiple indices:  $\chi^2/df$ , CFI, TLI, RMSEA, and SRMR, considering CFI and TLI values  $\geq 0.90$  and RMSEA and SRMR  $\leq 0.08$  as acceptable fit criteria.

Once the factorial structure was validated, factorial invariance by gender was examined using multigroup analysis, progressively evaluating the configurational, metric, scalar, and strict models. The comparison between models was made through the differences in the CFI and RMSEA indices, considering changes of less than 0.01 as a criterion for invariance. Finally, multigroup analyses were performed to compare latent means between men and women. As the final phase of the analysis, normative scales for the PAS were developed by transforming raw scores into standardized scores (percentiles and T scores) to facilitate the clinical and applied interpretation of the results. All statistical analyses were performed using IBM SPSS (version 25) and AMOS (version 31.0) software, adopting a statistical significance level of  $p < 0.05$ .

### 3. Results and discussion

Table 3 presents the descriptive statistics and univariate normality tests for the general variable, its dimensions, and items, showing that all variables differ significantly

from normality according to the Kolmogorov-Smirnov test ( $p < 0.001$ ), which justifies the use of robust estimation methods in subsequent analyses.

**Tabla 3**  
**Normalidad Univariante**

Variable / Dimension / Items	Mean	Standard Deviation	Kolmogorov-Smirnov	
			Statistic	p-value
<b>Publication Anxiety</b>	<b>2.85</b>	<b>0.69</b>	<b>0.071</b>	<b>&lt; 0,001</b>
<b>Manuscript Preparation</b>	<b>2.78</b>	<b>0.87</b>	<b>0.028</b>	<b>&lt; 0,001</b>
Doubts about data robustness	3.13	1.02	0.23	< 0,001
Doubts about writing ability	2.32	1.13	0.19	< 0,001
Doubts about manuscript writing	2.89	1.13	0.22	< 0,001
<b>Author's Editorial Management</b>	<b>2.92</b>	<b>0.78</b>	<b>0.063</b>	<b>&lt; 0,001</b>
Anxiety about journal selection	2.88	1.26	0.18	< 0,001
Anxiety about editorial requirements	2.94	1.20	0.21	< 0,001
Anxiety about rejection	2.34	1.19	0.20	< 0,001
Anxiety about the lack of response	2.85	1.29	0.18	< 0,001
Anxiety about reviewer comments	2.22	1.17	0.24	< 0,001
Anxiety about APC costs	4.32	0.89	0.38	< 0,001
<b>Scientific Impact</b>	<b>2.78</b>	<b>1.07</b>	<b>0.028</b>	<b>&lt; 0,001</b>
Checking online publication	2.90	1.23	0.18	< 0,001
Checking indexing status	2.71	1.31	0.16	< 0,001
Checking article impact	2.73	1.25	0.18	< 0,001

Source: Own elaboration, 2026.

Table 4 shows the results of the multivariate normality tests for the Publication Anxiety variable, revealing significant deviations from normality in all the statistics evaluated (Mardia, Royston, Henze-Zirkler, and Energy;  $p < 0.001$ ), indicating that the joint distribution of the data does not meet the assumption of multivariate normality.

**Table 4**  
**Multivariate Normality**

Test	Publication Anxiety	
	Statistic	p-value
Mardia	Skewness	756.470
	Kurtosis	7.205
Royston	477.098	< 0,001
Henze-Zirkler	1.191	< 0,001
Energy	2.647	< 0,001

Source: Own elaboration, 2026.

Exploratory factor analysis (EFA), performed using principal component extraction and Promax oblique rotation with Kaiser normalization, identified a three-dimensional structure of the Publication Anxiety Scale (PAS) as shown in Table 5.

**Table 5**  
**Exploratory Factor Analysis**

Items	Component		
	1	2	3
I am concerned that the data I have collected is not solid enough to publish.			0,772
I doubt my ability to structure a high-quality scientific manuscript.			0,775
I repeatedly rewrite the outline of the manuscript before submitting it.			0,761
I feel anxious about choosing the right journal to submit my manuscript to.	0,706		
I feel stressed about meeting all the journal's editorial requirements.	0,758		
I am afraid that my manuscript will be rejected when I submit it to the journal.	0,557		
I feel anxious when I do not hear back from the journal.	0,734		
I feel overwhelmed when responding to comments from the journal's reviewers.	0,849		
I am concerned about the APC cost required by the journal.	-0,828		
I repeatedly check whether the manuscript has already been published online.		0,837	
I constantly check whether my manuscript has been indexed in international databases.		0,775	
I frequently check whether my manuscript has received views, downloads, or citations.		0,837	

Source: Own elaboration, 2026.

These factor loadings, all moderate-high ( $\geq 0.70$ ), provide robust evidence of construct validity, supporting the relevance of a scale composed of three factors representing the key phases of publication anxiety: before, during, and after the editorial process.

Subsequently, the internal consistency of the Publication Anxiety Scale (PAS) was evaluated using three reliability coefficients:

Cronbach's alpha, Armor's theta, and McDonald's omega. As shown in Table 6, the overall scale presented adequate levels of reliability ( $\alpha = 0.825$ ;  $\theta = 0.870$ ;  $\omega = 0.736$ ), as did its three dimensions, whose values exceeded the minimum recommended criterion of 0.70, demonstrating satisfactory internal consistency of the instrument.

**Table 6**  
**Instrument Reliability**

Variable / Dimension	Number of items	Cronbach's Alpha	Coefficient	
			Theta	Omega
<b>Publication Anxiety</b>	<b>12</b>	<b>0.825</b>	<b>0.870</b>	<b>0.736</b>
Manuscript Preparation	3	0.703	0.704	0.835
Author's Editorial Management	6	0.750	0.876	0.841
Scientific Impact	3	0.795	0.795	0.880

Source: Own elaboration, 2026.

Subsequently, a Confirmatory Factor Analysis (CFA) was conducted to empirically test the proposed three-dimensional structure of the Publication Anxiety Scale (PAS). The results, presented in Table 7, show that all items loaded significantly on their corresponding

theoretical factors ( $p < 0.001$ ), with moderate to high standardized regression weights, confirming the adequacy of the three-factor model composed of Manuscript Preparation, Author's Editorial Management, and Scientific Impact.

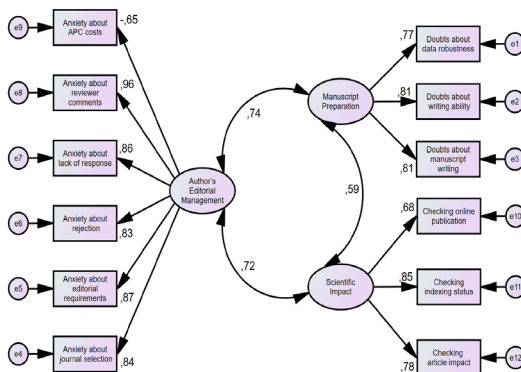
**Table 7**  
**Confirmatory Factor Analysis**

Relation (←)		Regression Weights / Covariances	Standardized Regression Weights / Correlation	Standard error	Critical Ratio	p-value
Doubts about data robustness	← Manuscript Preparation	1.000	0.771			
Doubts about writing ability	← Manuscript Preparation	1.094	0.812	0.095	11.530	***
Doubts about manuscript writing	← Manuscript Preparation	1.186	0.809	0.104	11.450	***
Anxiety about journal selection	← Author's Editorial Management	1.000	0.839			
Anxiety about editorial requirements	← Author's Editorial Management	1.038	0.868	0.035	30.093	***
Anxiety about rejection	← Author's Editorial Management	0.902	0.829	0.045	19.874	***
Anxiety about the lack of response	← Author's Editorial Management	1.067	0.862	0.042	25.619	***
Anxiety about reviewer comments	← Author's Editorial Management	1.036	0.962	0.047	22.009	***
Anxiety about APC costs	← Author's Editorial Management	-0.542	-0.647	0.047	-11.562	***
Checking online publication	← Scientific Impact	1.000	0.679			
Checking indexing status	← Scientific Impact	1.361	0.845	0.115	11.872	***
Checking article impact	← Scientific Impact	1.140	0.776	0.106	10.751	***

Source: Own elaboration, 2026.

In line with the above, Figure I shows the three-factor model of the Publication Anxiety Scale, with its respective standardized factor loadings. It can be seen that all items have moderate to high loadings on their theoretical

dimensions, as well as significant correlations between latent factors, which empirically support the three-dimensional structure of the construct (Manuscript Preparation, Author's Editorial Management, and Scientific Impact).



Source: Own elaboration, 2026.

**Figure I: Final Model**

Table 8 presents the goodness-of-fit indices for the confirmatory factor model of the Publication Anxiety Scale (PAS). The results show an adequate overall fit of the model, with satisfactory values for most incremental and absolute indices, such as GFI, AGFI, CFI, NFI, TLI, and IFI, which exceed the recommended

cut-off points. Likewise, the  $\chi^2/df$  ratio remains within the acceptable range, supporting the adequacy of the proposed model. Although some error indices (RMSEA and RMR) are slightly higher than conventional criteria, overall, the results support the structural validity of the three-dimensional model.

**Table 8**  
**Fit indices**

Name	Fit index	Value	Acceptable threshold	Result
Chi-square	$p$ -valor	0.000	> 0,05	Not acceptable
Chi-square/ df	$\chi^2/df$	2.541	< 3	Acceptable
Goodness of fit index	GFI	0.964	$\geq 0,90$	Acceptable
Adjusted goodness of fit index	AGFI	0.943	$\geq 0,85$	Acceptable
Parsimony goodness of fit index	PGFI	0.606	> 0,50	Acceptable
Comparative fit index	CFI	0.947	$\geq 0,90$	Acceptable
Parsimony adjustment to the CFI	PCFI	0.703	> 0,50	Acceptable
Normed fit index	NFI	0.917	$\geq 0,90$	Acceptable
Parsimony adjustment to the NFI	PNFI	0.681	> 0,50	Acceptable
Tucker-Lewis coefficient	TLI	0.929	$\geq 0,90$	Acceptable
Incremental fit index	IFI	0.948	$\geq 0,90$	Acceptable
Relative fit index	RFI	0.888	$\geq 0,90$	Not acceptable
Root mean square error of approximation	RMSEA	0.095	$\leq 0,08$	Not acceptable
Root mean square residual	RMR	0.218	$\leq 0,08$	Not acceptable

Source: Own elaboration, 2026.

Factor invariance by gender was also evaluated. The  $\chi^2$  statistic is not recommended for evaluating invariance due to its high sensitivity to sample size, which is why the analysis focuses on the CFI and RMSEA fit metrics. The results in Table X show that, in all sequential comparisons between models (M2 vs. M1, M3 vs. M2, and M4 vs. M3) for males and females, the changes in CFI ( $\Delta$ CFI

$\leq 0.01$ ) and RMSEA ( $\Delta$ RMSEA  $\leq 0.015$ ) were minimal, remaining within acceptable ranges (CFI = 0.919–0.928; RMSEA = 0.059–0.064). These findings confirm the configurational, metric, scalar, and strict invariance of the model, which supports factorial equivalence and ensures the validity of comparisons of latent relationships and means between men and women (see Table 9).

**Table 9**  
**Factorial invariance by gender**

Model	Chi-square		RMSEA (IC90%)				Compa- $\Delta X^2$			ACFI		ARMSEA
	Value	g.l.	X <sup>2</sup> /g.l	CFI	Value	Lower	Upper	rison	Value	g.l.	Sig.	
M1. Configural invariance (baseline model)	162,802	96	1,696	0,928	0,064	0,047	0,081		Criteria	p>,05	≤0,01	≤0,015
M2. Metric invariance or weak invariance ( $\lambda$ restricted)	171,925	105	1,637	0,928	0,061	0,044	0,078	M2 vs M1	9,123	9	< 0,001	0,000 -0,003
M3. Scalar or strong invariance ( $\lambda$ y $\theta$ restricted)	173,701	106	1,639	0,927	0,061	0,044	0,078	M3 vs M2	1,776	1	< 0,001	-0,001 0,000
M4. Strict invariance ( $\lambda$ , $\theta$ , $\tau$ restricted)	200,809	126	1,594	0,919	0,059	0,043	0,074	M4 vs M3	27,108	20	< 0,001	-0,008 -0,002

Source: Own elaboration, 2026.

Table 10 presents the standardized factor loadings of the confirmatory model of the Publication Anxiety Scale (PAS), showing the contribution of each item to its respective dimensions in men and women, which demonstrates the adequate construct validity of the instrument.

Table 11 shows the correlations between the latent dimensions of the model, revealing moderate and significant associations between the factors, which confirms the internal consistency of the proposed three-dimensional structure.

**Table 10**  
**Standardized Factor Loadings**

Relation	Model: Male						Model: Female				
	Regression Weights						Regression Weights				
	Estimate	Standardized	S.E.	C.R.	p-value	Estimate	Standardized	S.E.	C.R.	p-value	
Doubts about data robustness ← Manuscript Preparation	1.000	0.655				1.000	0.607				
Doubts about writing ability ← Manuscript Preparation	0.532	0.337	0.209	2.540	0.011	0.951	0.502	0.254	3.739	***	
Doubts about manuscript writing ← Manuscript Preparation	1.351	0.853	0.331	4.077	***	1.340	0.710	0.296	4.529	***	
Anxiety about journal selection ← Author's Editorial Management	1.000	0.869				1.000	0.795				
Anxiety about editorial requirements ← Author's Editorial Management	1.003	0.880	0.115	8.719	***	0.916	0.781	0.110	8.351	***	
Anxiety about rejection ← Author's Editorial Management	0.835	0.773	0.119	6.996	***	0.830	0.702	0.111	7.471	***	
Anxiety about the lack of response ← Author's Editorial Management	1.073	0.871	0.125	8.564	***	0.901	0.719	0.118	7.659	***	
Anxiety about reviewer comments ← Author's Editorial Management	0.868	0.779	0.142	6.089	***	0.860	0.765	0.106	8.141	***	
Anxiety about APC costs ← Author's Editorial Management	-0.250	-0.352	0.096	-2.596	0.009	-0.433	-0.474	0.090	-4.831	***	
Checking online publication ← Scientific Impact	1.000	0.809				1.000	0.631				
Checking indexing status ← Scientific Impact	1.040	0.889	0.155	6.707	***	1.577	0.867	0.276	5.710	***	

Cont... Table 10

Checking article impact	←	Scientific Impact	0.843	0.688	0.161	5.241	***	1.112	0.678	0.195	5.700	***
Doubts about writing ability	←	Anxiety about rejection	0.488	0.528	0.100	4.857	***	0.228	0.237	0.088	2.603	0.009

Source: Own elaboration, 2026.

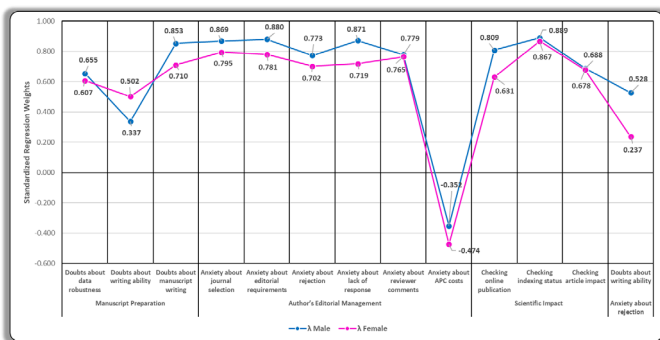
Table 11  
 Correlations between the latent dimensions of the model

Covariability		Model: Male					Model: Female					
		Covariances					Covariances					
		Estimate	Correlation	S.E.	C.R.	p-value	Estimate	Correlation	S.E.	C.R.	p-value	
Author's Editorial Management	↔	Scientific Impact	0.755	0.623	0.229	3.297	***	0.211	0.291	0.089	2.383	0.017
Manuscript Preparation	↔	Author's Editorial Management	0.421	0.549	0.159	2.639	0.008	0.323	0.539	0.095	3.393	***
Manuscript Preparation	↔	Scientific Impact	0.515	0.673	0.181	2.841	0.004	0.190	0.436	0.069	2.756	0.006
e8	↔	e9	-0.213	-0.377	0.090	-2.366	0.018	-0.334	-0.575	0.074	-4.505	***
e4	↔	e8	-0.180	-0.371	0.078	-2.296	0.022	-0.036	-0.065	0.060	-0.599	0.549

Source: Own elaboration, 2026.

To complement the above, a multigroup analysis of standardized regression weights was performed, revealing that, although men and women share a general pattern of publication anxiety, there are significant differences in the intensity of some factors. Men show higher levels of anxiety in manuscript preparation, editorial management, and monitoring

scientific impact, while women show greater sensitivity to APC costs, with an inverse relationship to overall anxiety. Likewise, fear of rejection is more strongly associated with doubts about writing competence in men, suggesting a more intense pattern of editorial anxiety in men and a greater economic focus in women (see Graphic I).



Source: Own elaboration, 2026.

Graphic I: Multigroup Analysis

Finally, the cut-off points established for interpreting PAS scores and their dimensions are presented, classified into three levels: low, medium, and high (see Table 12). These scales allow for the interpretation of the degree of publication anxiety both globally

and in each of its dimensions (Manuscript Preparation, Author's Editorial Management, and Scientific Impact), facilitating their use for diagnostic, comparative, and applied purposes in academic and institutional contexts.

**Table 12**  
**Normative scales of the Publication Anxiety Scale (PAS)**

Variable / Dimension / Ítems	Level		
	Low	Medium	High
<b>Publication Anxiety</b>	<b>12 a 30</b>	<b>31 to 36</b>	<b>37 a 60</b>
Manuscript Preparation	3 a 7	8 a 9	10 to 15
Author's Editorial Management	6 a 15	16 a 19	20 to 30
Scientific Impact	3 a 6	7 a 9	10 to 15

Source: Own elaboration, 2026.

The results of this study provide solid empirical evidence on publication anxiety as a multidimensional construct, confirming the relevance of the theoretical model composed of Manuscript Preparation, Author's Editorial Management, and Scientific Impact. This structure is consistent with process-oriented approaches to academic anxiety, which conceive stress as a dynamic phenomenon that unfolds throughout different phases of the evaluative experience (Folkman, 2008; Loucas et al., 2025).

First, the Manuscript Preparation dimension is linked to processes of self-concept and self-efficacy, which is consistent with studies showing that doubts about one's own cognitive and academic abilities are a central core of anxiety (Montoya et al., 2019; Grimaldo et al., 2021; Pulido et al., 2022). In this vein, the strong association between fear of rejection and doubts about writing suggests that editorial anxiety operates as a threat to academic identity, especially in highly competitive contexts.

Second, the Author's Editorial Management dimension reflects patterns similar to those described in the literature on generalized anxiety and academic stress, where uncertainty, lack of control, and dependence on external evaluations increase emotional

arousal (Padrós et al., 2019; Chávez & Peralta, 2019; Cancino & Terán-Mendoza, 2023; Echeverría-Caicedo et al., 2025; Jarrín-García et al., 2026). Likewise, the differential weight of APC costs highlights the structural and economic dimension of the anxiety associated with the scientific publication process.

Finally, the Scientific Impact dimension connects with processes of social comparison and the search for symbolic validation, in line with models of social anxiety and academic status (Wang et al., 2026). The constant monitoring of impact metrics can be interpreted as a contemporary form of performance anxiety, reinforced by the publish-or-perish culture (O'Meara & Lovett, 2026).

Taken together, these findings confirm that publication anxiety is not an isolated individual phenomenon, but rather a complex psychosocial process linked to cognitive, emotional, and institutional factors, reinforcing the need for comprehensive interventions aimed at academic well-being and mental health in university settings (Rojas-Torres et al., 2022; Loucas et al., 2025).

The results of this study open up an important avenue for the design of psychoeducational interventions aimed at managing publication anxiety. In this regard, recent research shows that interventions based

on the “stress mindset” can significantly improve psychosocial health, reduce symptoms of anxiety and depression, and strengthen the perception of coping skills in the face of academic stressors (Loucas et al., 2025). These approaches could be adapted to the context of scientific publishing, promoting a reinterpretation of editorial stress as a potentially manageable and formative challenge, rather than a permanent threat.

Another interesting point is revealed by the stress and coping model, showing that positive emotions coexist with negative emotions during highly stressful situations and play a restorative role in the individual’s psychological, cognitive, and social resources (Folkman, 2008). Incorporating strategies that foster positive emotions—such as a sense of achievement, personal meaning in research, or appreciation of learning—could help mitigate the dysfunctional effects of publication anxiety and promote a healthier, more sustainable, and more motivating relationship with scientific activity.

## **Conclusions**

This study provides solid empirical evidence on the validity and reliability of the Publication Anxiety Scale (PAS), confirming a three-dimensional structure composed of the dimensions Manuscript Preparation, Author’s Editorial Management, and Scientific Impact. The results of the confirmatory factor analysis support the adequacy of the proposed model, as well as high internal consistency, positioning the PAS as a psychometrically robust instrument for assessing publication anxiety in university teachers.

From a theoretical perspective, the findings allow us to conceptualize Publication Anxiety as a specific form of academic and status anxiety, as it is linked to processes of symbolic validation, social comparison, and dependence on external recognition. Likewise, the empirical differentiation of the three dimensions confirms the procedural nature of the phenomenon, showing that anxiety

unfolds differently before, during, and after the editorial process.

At the applied level, the results show that highly evaluative academic contexts intensify stress, burnout, and psychological distress, reinforcing the need to incorporate publication anxiety as a relevant variable in studies on faculty well-being and mental health in higher education.

Among the main limitations of the study is, first, the use of a cross-sectional design, which prevents establishing causal relationships or analyzing the temporal evolution of publication anxiety throughout the academic career. Secondly, although the sample is adequate for factorial analysis, it is limited to university teachers in a specific context, which limits the generalizability of the results to other countries, disciplines, or levels of the scientific system. Furthermore, the data are based on self-reports, which may involve social desirability or subjective perception biases, especially in a sensitive area such as academic anxiety. Finally, although invariance by gender was explored, other relevant variables such as disciplinary area, type of institution, objective scientific productivity, or contractual conditions, which could significantly modulate the experience of publication anxiety, were not incorporated.

Future lines of research open a particularly fertile field, both scientifically and institutionally. First, it is recommended that longitudinal studies be developed to analyze the evolution of publication anxiety throughout the different stages of an academic career, as well as its relationship with indicators of performance, psychological well-being, and abandonment of research activity.

Second, it is pertinent to explore psychological interventions aimed at regulating academic stress. In this regard, interventions based on stress mindset show potential for improving coping processes, reducing anxiety symptoms, and promoting more adaptive interpretations of stress, which opens up the possibility of designing specific programs for researchers. Complementarily, approaches focused on positive emotions

highlight their restorative function in highly demanding contexts, which would allow for the development of strategies aimed at strengthening meaning, self-efficacy, and reframing the scientific publication process.

Finally, from a macro perspective, PAS can be a useful tool for formulating scientific policies aimed at academic well-being. The systematic measurement of publication anxiety would enable universities and research agencies to identify areas of psychosocial risk, redesign overly competitive evaluation systems, and promote more sustainable, ethical, and humanized publishing practices. In this sense, the scientific impact of the instrument transcends the psychometric level, projecting itself toward the improvement of institutional practices, the mental health of academic staff, and the sustainability of the contemporary scientific system.

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