

**Addressing predatory publishing: impacts and challenges****Enfrentando las publicaciones depredadoras: impactos y desafíos**

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**Abstract:** The high growth rate of academic publishing has been accompanied by the rise of predatory journals and deceptive conferences, which threaten research integrity by prioritizing profit over rigorous peer review and editorial standards. Our study examines the characteristics and impacts of predatory publishing, highlighting the challenges in defining and identifying such journals due to their overlapping features with legitimate journals. It explores the influence of open-access models and researchers' vulnerability to predatory practices. The analysis addresses operational features, such as editorial board composition, peer review discrepancies, solicitation tactics, misleading metrics, technological dimensions, including the exploitation of artificial intelligence for manuscript generation and automated editorial decisions. The limitations of blacklists and whitelists are critically evaluated, along with emerging solutions involving blockchain technology and artificial intelligence-driven detection tools. This work presents a critical overview which aims to inform rather than stigmatize, by integrating perspectives and current evidence.

**Keywords:** *academic publishing, peer review, artificial intelligence, predatory journals, ethics.*

**Resumen:** El alto ritmo de crecimiento de las publicaciones académicas ha estado acompañado por el auge de revistas depredadoras y conferencias engañosas, las cuales amenazan la integridad de la investigación al priorizar el lucro sobre la revisión por pares rigurosa y los estándares editoriales. Nuestro estudio examina las características e impactos de las publicaciones depredadoras, destacando los desafíos en la definición e identificación de este tipo de publicaciones debido a sus similitudes con publicaciones legítimas. Se explora la influencia de los modelos de acceso abierto y la vulnerabilidad de los investigadores ante prácticas depredadoras. El análisis aborda aspectos operativos como la composición del comité editorial, las discrepancias en la revisión por pares, las tácticas de captación y los indicadores engañosos, así como dimensiones tecnológicas, incluyendo el uso de inteligencia artificial para la generación de manuscritos y decisiones editoriales automatizadas. Se evalúan críticamente las limitaciones de las listas negras y blancas, junto con soluciones emergentes que involucran tecnología blockchain y herramientas de detección basadas en inteligencia artificial. Este trabajo presenta una visión crítica que busca informar más que estigmatizar, integrando perspectivas y evidencia actual.

**Palabras clave:** *publicación académica, revision por pares, inteligencia artificial, revistas depredadoras, ética.*

**Introduction**

The rapid expansion of academic publishing has introduced both opportunities and challenges for researchers. One of the most pressing concerns is the proliferation of predatory journals and conferences, which undermines the integrity of scholarly communication by prioritizing profit over rigorous peer review and editorial standards (Oladokun *et al.*, 2025). These journals often

exploit the open-access (OA) model, charging authors publication fees while providing little to no quality control, thereby threatening the credibility of scientific literature (Forero *et al.*, 2018; Rice *et al.*, 2021).

The consequences are particularly acute in disciplines where research outcomes can directly influence policy and public trust (Brandts-Longtin *et al.*, 2022; De & Mondal, 2025; Yeo-Teh &

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Tang, 2021). Predatory publishing is characterized by practices including inadequate or nonexistent peer review and aggressive solicitation of manuscripts. Such journals frequently target early-career researchers or those facing institutional pressures to publish rapidly, offering a seemingly straightforward path to publication, but at the expense of academic rigor (Mercier *et al.*, 2018; Oladokun *et al.*, 2025).

The motivations driving authors toward these journals are multifaceted (Frandsen, 2019; Mills & Inouye, 2021). Financial barriers to reputable journals, limited awareness of predatory practices, and the pervasive “publish or perish” culture all contribute to researchers’ vulnerability (Eshchanov *et al.*, 2021). Scholars may also encounter institutional constraints that limit their ability to publish in high-impact venues, further increasing their susceptibility to predatory publishers. The impact of these practices extends beyond individual careers (De & Mondal, 2025).

The dissemination of erroneous findings can distort scientific consensus and erode public confidence in research output (Singh Chawla, 2021). In fields where evidence-based decision-making is crucial, misinformation propagated through predatory channels poses risks not only to academic progress but also to societal well-being (De & Mondal, 2025).

## **Emergence and Definitions of Predatory Publishing**

### **Origins of the Term and Early Recognition**

The term “predatory publishing” was coined by an academic librarian who used it to refer to a list of publishers and journals exhibiting questionable or exploitative behaviors (Kakamad *et al.*, 2024; Moussa, 2021). Researchers expanded upon this initial framework by developing additional indicators, such as a lack of institutional affiliation information and an absence from reputable indexing databases (Akça & Akbulut, 2021; Buitrago Ciro & Hernández Pérez, 2024; Dadkhah & Bianciardi, 2016). These efforts highlighted the

need for criteria to assess journal legitimacy, a need that remains pressing as deceptive practices continue to evolve.

The proliferation of predatory journals has been closely linked to an increase in OA publishing models. While OA aims to democratize knowledge dissemination by removing paywalls, it creates opportunities for unscrupulous actors to exploit inexperienced or underresourced researchers (Kakamad *et al.*, 2024). Early warnings emphasized that these publishers often targeted scholars unfamiliar with scholarly communication norms or those facing intense pressure to publish for career advancement (Godskesen *et al.*, 2022). Consequently, the academic community has begun advocating for increased education on publication ethics and more robust mechanisms for evaluating journal quality.

Some critics argued that the initial criteria to consider publications predatory were inconsistently applied, while others noted that it could stigmatize emerging journals from non-Western countries unfairly (Moussa, 2021). Nevertheless, it catalyzed a movement toward transparency in scholarly publishing. It has inspired blacklists (or whitelists) and databases that highlight reputable journals to guide researchers’ publication decisions (Buitrago Ciro & Hernández Pérez, 2024; Sahni, 2023).

Predatory conferences share many characteristics with pseudo-journals (Table 1). They often solicit submissions aggressively via email invitations lacking verifiable contact details or institutional affiliation. Such conferences may promise rapid publication opportunities but typically fail to provide meaningful peer review or academic value (Cobey *et al.*, 2018).

### **Open Access Models and Their Impact**

Biomedical sciences were among the first disciplines to recognize concerns about predatory practices, but similar patterns have emerged across all disciplines as OA adoption has grown (Johnson & Malcolmson, 2024). When revenue is directly tied to the volume of published articles, there is a risk that publishers prioritize quantity

**Table 1.** Definitions of Key Terms Related to Predatory Publishing.

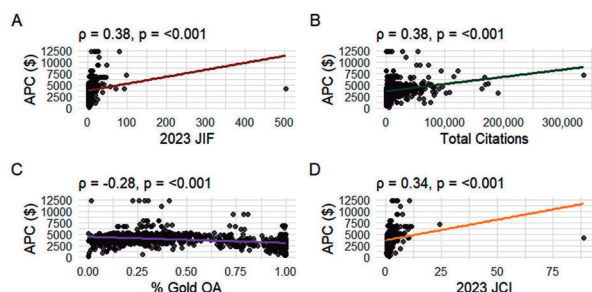
| Key Term                        | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Article processing charge (APC) | Fees levied by scholarly journals, particularly in the OA model, to cover the costs associated with publication of an article. This charge is typically paid by the author, their institution, or a funding agency at the point of acceptance of the manuscript (Jain <i>et al.</i> , 2021). According to the journals, APC is intended to offset costs related to editorial processes, typesetting, and maintaining the journal's online presence, thereby enabling it to provide immediate free access to published work.                                                                                                                                                                                                                                                                                                                                                                                       |
| Journal impact factor (JIF)     | A quantitative measure of the frequency with which a journal's articles are cited over a given period. Provides a ratio calculated by dividing the number of citations received in a particular year by the number of articles published in the two preceding years (Garfield, 2006; Moed, 2010).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Open-access model (OA)          | A publishing model that permits unrestricted access to scholarly content, enabling readers to freely download and share research articles without financial, legal, or technical barriers. This model is underpinned by the principles of openness and accessibility, aimed at maximizing the dissemination and impact of scholarly work (Grygoruk, 2018). There are several types of OA models. The gold model requires that authors pay for APCs to publish their work in journals that provide immediate and unrestricted online access to published articles. This often leads to broader visibility and potentially increased citation rates (Björk & Solomon, 2012). Conversely, the green model allows authors to self-archive their work in institutional repositories or personal websites, making their articles accessible without charge, typically following an embargo period set by the publisher. |
| Peer-review                     | A systematic process employed in scholarly publishing to evaluate the quality and significance of a submitted manuscript before it is published. Review typically involves experts in the relevant field (known as peer reviewers) who assess the manuscript (Abdoul <i>et al.</i> , 2012).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Predatory journal               | Publications that usually exploit the open-access publishing model and prioritize profits over scholarly integrity. These journals lack proper peer review processes and adherence to academic publishing standards. The characteristics of predatory journals include aggressive solicitation of manuscripts, little to no editorial oversight, and misleading claims regarding impact factors or indexing status (Bhagat, 2021; Richtig <i>et al.</i> , 2019).                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Predatory publisher             | Entities that exploit the academic publishing model, particularly in an open-access format, thereby compromising the quality and integrity of published research (Frandsen, 2019; Sureda-Negre <i>et al.</i> , 2022).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Pseudo journal                  | Publications that mimic legitimate academic journals. The terminology overlaps with that of ‘predatory journals’ (Choi, 2018; Laine & Winker, 2017).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Scholarly publishing            | Process of disseminating academic research results. Serves as an avenue for scholars to contribute to their fields and engage the academic community (Fenlon <i>et al.</i> , 2016).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

over quality. This dynamic can erode peer-review standards and facilitate the dissemination of low-quality research (Oviedo-García, 2021).

OA articles are easier to access and tend to be cited more than non-OA articles (Vadhera *et al.*, 2022; Wang *et al.*, 2019). This encourages researchers to choose OA publishing. Many journals are becoming fully OA through a model

called “Transformative Journals”. These are “hybrid” journals which plan to publish more OA articles over time (Springer Nature, 2023).

This transition was initially motivated by the desire to democratize access to scientific knowledge, thus making research output more transparent (Ibrahim *et al.*, 2022). However, previous studies have raised concerns



**Figure 1.** Spearman correlation of APC and journal metrics. Spearman  $\rho$  and associated  $p$ -value are shown for each metric. Each point represents a single journal. A) Correlation between APC and 2023 JIF. B) Correlation between APC and the total number of citations. C) Correlation between APC and percent of gold open access (gold OA) articles within a journal. D) Correlation between APC and 2023 JCI. From Tocco *et al.* (2025), licensed under Creative Commons Attribution [https://creativecommons.org/licenses/by/4.0/].

regarding the role of OA APCs in the academic publishing landscape. It is estimated that eight major publishers collectively generated around \$5.42 billion in revenue from OA fees between 2015 and 2023, a figure that may be underestimated. Scholars have argued for greater transparency and accountability by urging publishers to disclose article-level information regarding the fees paid. Another critique questions whether the current OA model offers optimal value for public investment. It has been suggested that the substantial resources allocated to publication fees could be redirected to other academic priorities, such as creating professorships or providing student support (Kendall, 2024).

Beyond these financial critiques of the OA model, attention has also turned to the role of journal prestige, commonly measured through bibliometric indicators, in shaping both publication practices and APC pricing. For instance, the Journal Impact Factor (JIF) is a widely recognized metric that represents the average number of citations received by an article in a journal over a specific period. The Journal Citation Indicator (JCI) offers a normalized measure of citation impact across disciplines. Additionally, citation counts, which tally the total number of citations a

journal receives, serve as another indicator of its influence (Tocco *et al.*, 2025).

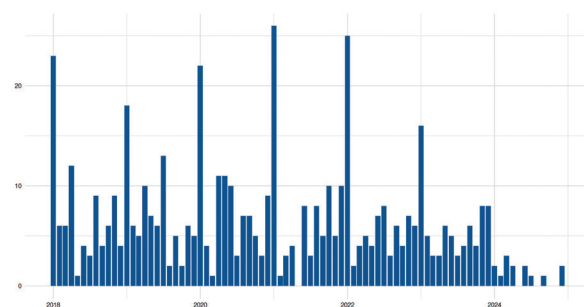
Previous research has shown that APCs tend to increase with journal prestige, as measured by bibliometric indicators. Positive correlations were reported between APCs and JIF, citation counts, and JCI. In contrast, APCs showed a negative correlation with the proportion of open-access publications in each journal (Figure 1).

## Defining Predatory Publishing

### Existing Definitions and Their Limitations

The concept of predatory publishing has been widely discussed; however, a universally accepted definition remains elusive (Figure 2, Table 1). This term is often used to describe journals and publishers charging publication fees without providing legitimate editorial and peer review services. However, the boundaries of what constitutes predatory behavior are not always clear-cut.

While certain characteristics are commonly associated with predatory publishers, these features can be present in varying degrees across different journals (Tomlinson, 2024). One challenge in defining predatory publishing is the overlap between legitimate but poorly managed journals and those that



**Figure 2.** Trends in the number of publications containing keywords related to predatory publications (2018–2024). The figure shows the monthly number of articles indexed mentioning the terms “predatory,” “pseudo,” “fake,” and “deceptive” in combination with “journal,” “publication,” “publishing,” and “scholarly” in titles or abstracts. Query performed on PubMed with R packages easyPubMed and litsearchr (Damiano Fantini, 2016; Grames *et al.*, 2019).

are intentionally deceptive. Although these practices raise concerns, they do not always indicate a fraudulent intent. Criteria such as offering unusually quick peer-review can be interpreted both as a sign of efficiency or as evidence of inadequate editorial scrutiny (Teixeira Da Silva *et al.*, 2021).

Efforts to formalize definitions have led to the development of blacklists and whitelists (Anonymous, 2020). Cabell's blacklist service, for example, employs over 60 criteria to evaluate suspected journals (Dony *et al.*, 2020). These criteria intend to provide transparency and granularity at the journal level. However, critiques have emerged regarding their specificity and reliability. Some argue that they are too broad or subjectively applied, potentially resulting in false-positive or false-negative results (Teixeira Da Silva *et al.*, 2021). Furthermore, the dynamic nature of scholarly publishing implies that a journal's status can change over time. Improvements in editorial practices or inclusion in reputable indexes may warrant reevaluation (De & Mondal, 2025; Dony, 2025).

Although these lists aim to protect researchers, their methodologies often lack transparency and may not keep pace with evolving publication standards (Siebert *et al.*, 2025). Some organizations which compile such lists choose anonymity because of the legal risks posed by aggressive publishers, which can undermine perceived authority and accountability (Kakamad *et al.*, 2024). Predatory journals may fabricate JIFs or falsely claim associations with respected organizations. They may also obscure their geographic locations or provide unverifiable information about their editorial boards (Shen & Shah, 2023).

Attempts to create quantitative metrics for identifying predatory journals have included scoring systems (Dadkhah & Bianciardi, 2016). While such approaches offer structured assessment tools, they still rely on arbitrary judgments about what constitutes acceptable practices within scholarly communication.

### ***International Perspectives and Stakeholder Views***

Targeted educational interventions have been implemented to address the specific needs of researchers in communication, education, psychology, and information sciences. Workshops can emphasize both theoretical understanding and practical skills in identifying predatory journals. These sessions not only introduce participants to the nuances of scholarly communication models but also provide hands-on techniques for detecting deceptive practices (Buitrago Ciro & Hernández Pérez, 2024).

Stakeholder views are influenced by institutional frameworks and the degree of support provided by universities and research organizations. In some contexts, there is a strong call for regular training on journal indexing databases, such as Scimago, Web of Science, and Scopus. Such initiatives aim to equip scholars with the ability to distinguish reputable journals from predatory ones through practical exercises. Furthermore, institutions are encouraged to explore funding mechanisms or subsidies that lower financial barriers to publishing in legitimate journals. By allocating research grants specifically for publication in high-index journals, institutions can reduce the appeal of predatory venues and reinforce academic integrity (Oladokun *et al.*, 2025).

The guidance of librarians during the journal selection process further enhances institutional resilience to predatory threats (Kratochvíl *et al.*, 2020). Technological tools designed to educate researchers on predatory publishing empower users to make informed decisions while acknowledging the inherent complexity and controversy involved in identifying deceptive journals (Dony, 2025). Such educational resources are particularly valuable in environments where formal training opportunities may be limited.

The perspectives of early-career researchers differ from those of established scientists due to variations in experience and vulnerability to reputational risks. Systems which flag “high-

risk” journals serve as alerts for all career stages but may be especially beneficial for early-career researchers. The evolution of scholarly communication, potentially moving beyond traditional journal structures, requires adaptive alert systems that remain relevant even as conventional metrics lose significance (Teixeira Da Silva *et al.*, 2021).

### Transparency and Peer Review Integrity

Lack of transparency is a hallmark of predatory publishing practices (Cook *et al.*, 2023). These journals often misrepresent their review procedures, sometimes claiming rigorous peer-review, while in reality providing little or none.

A recurring indicator of predatory journals is the absence of clear information on editorial boards and peer reviewers (Dony *et al.*, 2020). In some cases, journals list individuals as editors or reviewers without their consent, making it difficult for scholars to disassociate themselves from these publications (Sousa *et al.*, 2021). Such practices not only compromise transparency but also exploit the reputation of unwitting academics.

Traditional indexing systems have attempted to provide a layer of quality assurance by curating lists of reputable journals. However, these systems are managed by centralized entities that do not always disclose their inclusion criteria or update procedures transparently (Mastorakis *et al.*, 2025).

Technological innovations, such as blockchain-based validation layers, can enhance transparency and accountability by recording every stage of the publication process. Any fraudulent alteration of metadata after publication would be detectable owing to mismatches between live data and original blockchain hashes (Mastorakis *et al.*, 2025). Integrating such verification mechanisms with existing centralized indexes could bridge the current gaps in trust and oversight. Despite these advances, formal criteria alone are insufficient to reliably identify predatory journals. Even established publishers may fail certain benchmarks, while some previously blacklisted publishers have improved their practices over time. Subjective

judgment remains an unavoidable component in evaluating journal quality (Kratochvíl *et al.*, 2020).

A recurring operational feature of predatory journals is the simulation or outright fabrication of peer reviews. Journals may assert that submissions undergo thorough evaluation by qualified experts, but evidence frequently points to minimal scrutiny or even automatic acceptance of manuscripts. In some cases, manuscripts are accepted within days of submission, which is a timeline incompatible with genuine peer assessment. Furthermore, these journals typically lack robust archiving policies and are rarely indexed in reputable scientific databases (Talari & Ravindran, 2023).

The proliferation of predatory publishing could also reflect a broader reluctance among some authors to engage in rigorous peer review processes. By circumventing established standards, these authors contribute to a cycle that weakens scientific integrity across disciplines. It threatens the integrity of not only individual disciplines but also interdisciplinary collaboration, where trust in shared standards is paramount (Chandra & Dasgupta, 2024; Lalu *et al.*, 2022).

Another problematic practice involves appointing editorial board members who have not been contacted since their initial appointment or who are not actively involved in journal activities. This passive or nominal involvement can result in inadequate oversight of submissions and peer review. In some cases, only a single reader reviews submissions, or reviewers are assigned papers outside their field of expertise (Shen & Shah, 2023).

Incomplete affiliation data complicate efforts to distinguish between individuals and institutions with similar names and diminish accountability (Kratochvíl *et al.*, 2020). While some provide detailed information about board members' academic positions and institutional ties, others list publishing company executives as editors-in-chief rather than independent scholars (Walters, 2023).

Reputable publishers typically counter these

issues by clearly listing editor-in-chief and board members along with full names, academic degrees, institutional affiliations, and contact details, such as institutional email addresses. These individuals are usually active researchers from recognized universities worldwide (Mastorakis *et al.*, 2025). However, even seemingly robust editorial boards do not guarantee rigorous peer review or ethical practices. Some studies have found that journals with apparently qualified boards still engage in questionable behaviors, such as unusually rapid peer review or lack of correction policies (Walters, 2023). The mere presence of prominent academics does not preclude predatory practices if they are not actively engaged in editorial decision-making.

### Solicitation Practices

The frequency and persistence of these solicitations distinguish predatory journals from legitimate ones, which rarely engage in mass indiscriminate outreach toward potential authors (Sousa *et al.*, 2021). The content of solicitation messages from predatory publishers is often generic and lacks specificity regarding the recipient's research expertise or previous work. This nonselective approach aims to maximize the number of submissions by targeting a broad audience (Oladokun *et al.*, 2025).

Predatory publishers frequently update their tactics in response to increased awareness among scholars. For example, they may mimic the language and visual identity of reputable journals or conferences to create legitimacy (Cukier *et al.*, 2020). While ethical journals rely on rigorous peer review and selective editorial processes to attract quality submissions, predatory publishers invert this model by actively pursuing authors through persistent outreach campaigns (Ungerfeld, 2024). This distinction highlights why solicitation practices remain central to understanding and ultimately countering the threats posed by predatory publishing.

A recurring pattern among predatory publishers is the use of poorly constructed websites, which often display unprofessional or broken languages,

contain numerous broken links, and may contain empty or inaccessible pages. Such deficiencies hinder access to previously published articles, making it difficult for researchers to verify the legitimacy and scholarly value of journals (Boulos *et al.*, 2022).

Many predatory journals do not provide clear retraction policies, copyright guidelines, or details regarding their peer-review process. This omission leaves authors without recourse in cases of ethical breaches or disputes over intellectual property. Furthermore, technical shortcomings such as missing International Standard Serial Numbers (ISSN) or Digital Object Identifiers (DOI) are prevalent among these journals (Boulos *et al.*, 2022; Kakamad *et al.*, 2024).

### Artificial Intelligence and Predatory Publishers Synthetic Manuscript Generation

Synthetic manuscript generation has emerged as a significant concern in the context of predatory publishing, particularly with the rapid advancement and accessibility of artificial intelligence (AI) tools (Masters, 2025). The ability of large language models (LLMs) to produce coherent, plausible academic texts on demand has fundamentally altered the scholarly communication landscape (Gray, 2024; Shaw, 2025; Zheng, 2025). These technologies enable the automated creation of manuscripts that can mimic legitimate scientific writing, often bypassing traditional markers of quality and originality (Naddaf, 2025; Thelwall & Yaghi, 2024; Van Noorden, 2024).

AI-generated manuscripts can be tailored to meet superficial editorial requirements, making it increasingly difficult for reviewers and editors to distinguish between authentic submissions and synthetic content. By leveraging AI-driven text generation, predatory publishers can rapidly populate their journals with articles which appear scientifically sound but lack rigor (Van Noorden, 2024).

Consequently, these journals have become repositories for content that may be entirely fabricated or plagiarized. As the criteria for

identifying predatory behavior becomes widely known, unscrupulous publishers may adjust their practices, potentially using AI tools to superficially comply with expected norms while continuing deceptive operations beneath the surface (Gibney, 2025; Teixeira Da Silva *et al.*, 2025; Ye *et al.*, 2024).

### Automated Detection

Integrity tools developed by major publishers now incorporate AI-based screening methods aimed at detecting red flags in submitted manuscripts. However, these systems pose several significant obstacles. For instance, an AI screener might have trouble distinguishing synthetic output from a LLM capable of producing text of a more refined quality than the screener was trained to search for (Van Noorden, 2024; Anonymous, 2025).

One of the primary concerns is the lack of concrete evidence or transparent criteria underpinning many AI-based detection tools. For instance, when an AI system is deployed without robust validation or clear standards for what constitutes “predatory” behavior, it becomes difficult to hold developers accountable for misclassifications. This can result in unfair labeling of legitimate journals and potentially expose tool creators to legal challenges from publishers who feel that they have been unjustly targeted.

Without stakeholder involvement, there is a risk that these tools will reflect narrow perspectives or biases. Even theoretically robust models that assign scores to journals based on positive and negative indicators are susceptible to type I and type II errors (Yamada & Teixeira Da Silva, 2023).

When background methodologies are not disclosed or are irreproducible, as observed in some studies which fail to specify which blacklists or whitelists were referenced or how criteria were applied, it becomes impossible for independent researchers to verify the results or improve existing systems (Teixeira Da Silva, 2025; Teixeira Da Silva *et al.*, 2025). Additionally, over-reliance on these tools could discourage critical engagement

by researchers, shifting responsibility away from human judgment toward algorithmic authority, a trend that may ultimately weaken scholarly resilience against deceptive practices (Shen & Shah, 2023).

### Conclusions

The ongoing expansion of scholarly publishing presents both remarkable opportunities and challenges. Among these challenges, predatory publishing emerged as a critical threat to the integrity and credibility of scientific communication. The complexity of identifying predatory journals is compounded by the absence of universally accepted definitions and limitations in existing blacklists and whitelists. Moreover, regional and institutional disparities, coupled with knowledge gaps and insufficient training among researchers, exacerbate vulnerability to exploitative practices.

Institutional policies must be developed and enforced with transparency and adaptability, emphasizing quality over quantity in research assessment and providing clear guidelines to discourage engagement with questionable journals. Collaborative efforts are vital for sharing resources and building capacity across diverse contexts.

Technological advancements offer promising tools to enhance detection and verification processes. However, these technologies must be implemented with caution, ensuring human oversight to mitigate the risks of bias and misuse.

Sustaining the credibility of scholarly communication also depends on strengthening peer review systems, encouraging community engagement in reporting, and addressing unethical behaviors. The transition toward more holistic evaluation frameworks that value diverse scholarly contributions beyond traditional metrics is crucial for realigning incentives and reducing the pressure that could drive researchers toward predatory journals. Ultimately, building trustworthy publication systems demands continuous adaptation to emerging challenges.

### Contribution of the authors

Conceptualization: JIM, EZH, FMG, DFR; Data curation: MCC, NBC, AAA, DFR; Formal Analysis: JIM, DFR; Funding acquisition: AAA, DFR; Investigation: MCC, JIM, DFR; Methodology: JIM, EZH, FMG, ACA, AAA, DFR; Project administration: AAA, DFR; Resources: AAA, DFR; Software: MCC, JIM, AAA, DFR; Supervision: DFR; Validation: JIM, EZH, FMG, ACA, DFR; Visualization: JIM, DFR; Writing – original draft: MCC, DFR; Writing – review & editing: NBC, JIM, EZH, FMG, ACA, AAA, DFR.

### Conflicts of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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