

Journalism as Science's Watchdog: The Vibrancy and Vulnerability of an Increasingly Diverse Ecosystem

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Abstract

Watchdog science journalism, broadly understood, investigates, exposes, and warns society of the misuses and abuses of science methods, processes, outcomes, and authority by those practicing, funding, and/or using science in the public domain. Amid rising threats to research integrity, this thematic issue provides a first comprehensive set of empirical and conceptual insights into how this type of journalism is becoming both vibrant and vulnerable. It reveals that watchdog science journalism is recognized as essential by members of the public and by journalists alike and is empowered by an increasingly diverse set of actors, both within and beyond traditional journalism. Yet, ongoing challenges within and beyond the news industry are putting pressure on this role, undermining journalists' capacity to effectively scrutinize and sound the alarm about research integrity problems that put the public interest at risk.

Keywords

investigative journalism; research fraud; research integrity; science journalism; watchdog journalism

1. Introduction

Science is one of the best systems we have for understanding an increasingly messy world. Guided by norms such as disinterestedness and organized skepticism (Merton, 1973), science strives to provide evidence that is as unbiased, reliable, and accurate as possible. For good reasons, scientists remain one of the most trusted groups of people worldwide (Ipsos, 2025), despite growing anti-science sentiment and “post-truth” thinking. Science journalists frequently lean on scientists, often by default, to provide expert context, critique, and

verification for their stories. This provides a much-needed evidence-based perspective that can help audiences make informed decisions amid a wealth of conflicting perspectives, vested interests, misinformation, and polarizing claims.

Yet simply “trusting the science” can also be damaging. In an increasingly competitive, metrics-driven academic research culture, and with the intensification of political and corporate interests in the science enterprise, plagiarism, fabrication, falsification, citation cartels, and questionable research practices have become more noticeable. This list of threats to research integrity seems to only be growing as new developments—such as LLM-driven peer review, papermills, and predatory publishing—add pressure to an already overstressed scholarly ecosystem. Every year, thousands of papers are deemed so problematic that they are retracted from the scientific record (Van Noorden, 2023), while many more linger on, their flaws undetected and uncorrected.

Although problematic research represents a very small proportion of the literature (Van Noorden, 2023), its impacts can be far-reaching. Faulty science often makes headlines (Bolland et al., 2022) and leads to misleading news coverage that is seldom corrected, even after a paper is retracted (Valinciute & Halfman, 2025). Such coverage can lead audiences to misevaluate science-related risks and benefits (Sarathchandra & McCright, 2017), make decisions on inaccurate evidence, and potentially lose trust in science (Ophir & Jamieson, 2021). Flawed science can also shape public policy (Malkov et al., 2023) and professional practices (Candal-Pedreira & Ruano-Ravina, 2025), sometimes with disastrous consequences. In one high-profile case, an estimated 800,000 deaths could have been avoided had medical guidelines not been grounded in fabricated research (Piper, 2024).

Clearly, if the primary duty of journalism is to protect the public interest, the above threats call on science journalists to make holding science accountable a core professional responsibility. Just as political reporters scrutinize powerful actors, science journalists have a duty to keep a critical eye on science, acting as “watchdogs” of harmful practices in the science sphere. However, research suggests that although science journalists see criticality as essential, many continue to act predominantly as uncritical translators or “cheerleaders” of science (Blum, 2021; Nguyen & Tran, 2019). This suggests fundamental differences in how science and non-science journalists relate to the powerful institutions they cover and, more broadly, conceptualize and perform their roles.

Yet, because the watchdog role of science journalists has been largely overlooked in the literature, the reasons behind these divergences and how they manifest in journalistic practice remain unclear. What motivates journalists to act as watchdogs of science? How do they understand this role and to what extent do they see it as one of their core duties? How do they perform their investigations and frame their stories? What factors support or hinder this crucial work? And how do audiences respond? The nine contributions in this thematic issue start to address these questions, providing rich empirical and conceptual insights into a journalistic role that is expanding and evolving alongside changes in the journalistic and scholarly ecosystems. They provide nuance to its various meanings to different stakeholders and highlight its context-specific nature in diverse geographic, institutional, and societal settings. Together, they underscore the ambivalent position of watchdog science journalism (WSJ) in our hybrid media landscape, revealing a set of journalistic practices, functions, actors, and outputs that are both increasingly diverse and vibrant, but also increasingly vulnerable due to formidable challenges.

2. The Watchdog Concept in Context

The lack of scholarly attention to the watchdog role of science journalists raises questions about how often journalists perform this crucial work. This thematic issue clearly shows that WSJ is, indeed, taking place all around us: across diverse countries and regions, via diverse platforms and formats, and by an increasingly diverse cast of individuals and institutions. Its importance is widely recognized by the public (Schug, 2026), the scholarly community (Fahy, 2026), and, most crucially, by journalists themselves (Catanzaro & Peres-Neto, 2026; Ometa, 2026; Peters et al., 2026).

Yet, what counts as WSJ and who is responsible for performing this role is not as straightforward as it might sound. While our original call for papers adopted a broad definition of WSJ (see above), the nine contributed articles display distinct conceptualizations of this role. In her study of mental health and safety challenges, for instance, Ometa (2026) describes how investigative journalists—rather than science reporters—drive WSJ in Romania, one of many countries where specialized science journalism is scarce. The journalists she interviewed are thus watchdogs at heart, with science as just one of many powerful institutions they hold accountable. In contrast, Catanzaro and Peres-Neto (2026) explain that science journalism has deep historical roots in Ibero-America, whereas investigative journalism has been constrained by ongoing challenges. The majority of their participants thus specialize in science or health, with only a few identifying as investigative journalists. Here, the watchdog role may be just one of several roles journalists perform. This raises questions about how a journalist's professional identity—as an investigative journalist, science journalist, or something in between—might shape their conceptualization of the WSJ role, as well as their practices, motivations, and challenges. It also begs the question of whether definitions of WSJ developed in one geographic context can be uncritically applied to other media systems that are shaped by distinct histories, cultures, traditions, or infrastructures.

The public, too, might have different understandings of WSJ than journalists and scholars. Through interviews and focus groups with German citizens on their expectations of science journalists who cover controversial fields, Schug (2026) reveals how nuanced and situation-specific these public expectations are. On the one hand, audiences emphasize the value of independent, critical WSJ that challenges the scientific consensus, ensures “bad” science does not inform policy or decision making, and provides a more accurate picture of how science really works (and why it sometimes doesn't). On the other hand, participants emphasized that not every situation calls for WSJ and that amplifying “good” science can be equally or more important for guiding society through science-related crises, such as pandemics or climate change. Moreover, audiences urge science journalists to carefully weigh the benefits of WSJ against the potential negative consequences (e.g., ruining academics' careers, contributing to distrust in science or journalism). This context-aware evaluation suggests more reflection and nuance may be needed when critiquing science “cheerleading” or calling for more critical, investigative science journalism.

3. Vibrancy: A Diverse and Expanding Ecosystem

The boundaries and scope of the watchdog role are further complicated by ongoing changes in both science and journalism that are reshaping who has the capacity and responsibility to hold science accountable. Key here is the hybrid nature of the digital media environment, with an expanding number of platforms and interfaces that enable scientists, journalists, politicians, citizens, AI agents, and others to interact, contribute, and respond to WSJ in real time (Mede et al., 2025). In this expanding ecosystem,

science journalists do not act as watchdogs in isolation. Instead, their work is supported, extended, recontextualized, complemented, amplified, and challenged by an interconnected web of individuals, organizations, platforms, and infrastructures.

This diversifying web is the focus of Schapals et al.'s (2026) contribution. Through an inductive mapping approach, the authors identify a diverse constellation of actors who exist outside the traditional boundaries of both science and journalism but perform essential watchdog work, including fact-checking organizations, advocacy groups, community peer review infrastructures, and science sleuths. They analyze these actors to propose five distinct but interconnected science watchdog functions: primary investigative watchdogs, infrastructural watchdog platforms, translational intermediaries, corrective verification organizations, and attention-based watchdogs.

Joubert et al. (2026) embody this wider, relational perspective in their conceptual study of the changing relationships between science journalists and institutional science communicators. While well-documented tensions between two types of communicators come with clear risks for the sustainability of independent WSJ, the authors argue that more productive relationships are possible. To protect science journalism's critical autonomy amid the growing power of science public relations (Weingart, 2022), they propose a novel constructive framework grounded in principles of normative clarity, structural transparency, reciprocal respect, and ecosystem-level investment in independent journalism.

The hybridity of the WSJ ecosystem is also central to Fahy's (2026) case study of Retraction Watch, which promotes accountability journalism by investigating and raising awareness of retracted research. Particularly noteworthy is the development of the Retraction Watch Database, a publicly accessible resource providing information on retractions. Originally created out of a journalistic need for more transparent information about the reasons behind retractions, the database eventually grew into one of the most comprehensive sources of retraction information available. Retraction Watch thus fulfils at least two of the functions proposed by Schapals et al. (2026), serving as both a primary investigative watchdog that scrutinizes science and an infrastructural watchdog that provides resources that others—including the scholarly community itself—use to keep science accountable. Fahy (2026) describes this dual identity as “a journalistic hybrid institution, combining science journalism with the scientific infrastructure of its database” (p. 13).

Yang et al. (2026) provide yet another perspective on the hybrid and expanding nature of WSJ, showing how journalists in mainland China are leveraging the growing availability of open-source information and digital infrastructure to investigate biomedical research-integrity controversies with high public relevance. These digital innovations create opportunities at every stage of the WSJ pipeline, from initial idea generation through in-depth investigation to eventual impact on scientific accountability. Yet, relying on open-source information also brings risks, requiring difficult tradeoffs between careful verification and timely response. The findings thus underscore the new relations between journalists, platforms, technologies, and publics but also raise questions about the challenges that might arise when actors with divergent norms, verification practices, ethical principles, and values converge to hold science accountable.

4. Vulnerability: Challenges and Barriers

However one defines WSJ, this thematic issue highlights its challenging and increasingly vulnerable nature, with almost every article describing barriers that make it difficult for science journalists to perform this essential work.

These barriers include fundamental epistemic challenges at the nexus of science and journalism, such as the inherent difficulty of verifying scientific findings, which requires expertise and data access many journalists (and even scientists) simply do not have (Catanzaro & Peres-Neto, 2026; Rueda, 2026; Yang et al., 2026). Here, the not-so-easy task of identifying “conflicts of interest” that Peters et al. (2026) dissect warrants attention. For them, this task is crucial for high-quality WSJ, but conflicts of interest disclosure within academic papers is often opaque, incomplete, or missing altogether. Moreover, the boundaries of what counts as a true “conflict” are often fuzzy and context specific, further complicating journalists’ work. This puts journalists in a difficult position: While ignoring conflicts of interest in reporting could risk amplifying deeply flawed science, overemphasizing conflicts that may have little influence on study findings could undermine public trust in unwarranted or disproportionate ways.

Alongside such epistemic tensions are multiple, intersecting practical barriers that further constrain science journalists’ ability to act as watchdogs. In line with recent research (Fleerackers et al., 2026), several articles (Catanzaro & Peres-Neto, 2026; Fahy, 2026; Ometa, 2026; Rueda, 2026) highlight a range of challenges in accessing essential information, navigating hostile institutions and reluctant sources, staving off legal threats and personal attacks, and managing unreasonable workloads within fast-paced work environments. These overlapping pressures are compounded by deep, structural weaknesses plaguing the media sector in many countries, such as financial precarity, resource scarcity, and an overall lack of institutional investment in high-quality, independent, in-depth science journalism (Joubert et al., 2026; Rueda, 2026). Catanzaro and Peres-Neto (2026) also point to threats posed by authoritative and autocratic regimes that surveil communication and restrict independent journalism. Journalists are thus left to perform watchdog work in what Ometa (2026) describes as “a constant state of pressure characterized by anxiety, exhaustion, cognitive overload, and moral stress” (p. 10). Finding ways to persevere despite these overlapping challenges too often falls on the shoulders of individual journalists, rather than institutions, compromising their personal wellbeing and threatening the long-term sustainability of WSJ.

Rueda (2026), drawing on relevant literature, real-world examples, and her 20+ years of experience as a professional science journalist, adds other distinct constraints faced by journalists in Latin America. These include “implicit and explicit links” between science and journalism and the risk that exposing flawed science will fuel conspiratorial or pseudo-scientific thinking. She calls for a broader conceptualization of WSJ that she sees as both more relevant and more feasible for Latin American journalists: monitoring the (mis)use of science in society to ensure policy, healthcare, and public decisions are based on appropriate, trustworthy evidence. Embracing this broader watchdog role, Rueda (2026) argues, would “significantly increase the relevance of science journalists” by shifting them away from being mere translators of scientific studies to “key actors who create conditions for active citizen participation” (p. 3). Her commentary, again, raises important conceptual questions about the scope of the watchdog role in different reporting contexts. In holding science to account, how narrowly or broadly should journalists define “science”—and what does this mean for the relevance, impact, and feasibility of their work?

5. Conclusion

Both science and journalism have been under pressure for decades, compromising the quality and trustworthiness of the research that makes its way into the public sphere. The contributions in this thematic issue make this abundantly clear, revealing the importance of the WSJ role and the expanding possibilities for fulfilling it, but also the growing precarity that threatens to undermine its long-term sustainability. They highlight the need for further research, more recognition, and, most importantly, immediate, structural intervention to ensure journalists have the support they need to keep science in check. Without widespread investment in independent, in-depth, and critical science journalism, the wellbeing of society—and of science itself—is at risk.

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Conflict of Interests

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