Ghost Authorship in Scholarly Publications

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1 Introduction: Authorship Issues in Scholarly Publishing

Authorship in academic publishing represents a critical aspect of scholarly integrity, establishing who deserves credit and bears responsibility for research contributions. However, the scholarly publishing ecosystem faces numerous ethical challenges related to authorship practices. These include ghost authorship (where contributors are omitted from author lists), honorary or gift authorship (where individuals who made minimal or no contributions are included as authors), and other forms of authorship manipulation. Such practices exist across various disciplines including medicine, science, social sciences, and humanities, though prevalence varies by field. Authorship issues significantly impact research credibility, career advancement, institutional reputation, and public trust in science. These problems have become more pronounced with increasing pressure to publish, complex collaborative research structures, and commercial interests in research outcomes. Most reputable journals and academic institutions have established guidelines defining appropriate authorship criteria, though enforcement remains challenging.

> Scholarly publishing faces several ethical challenges related to authorship, including who gets credit for academic work. These issues range from ghost authorship to honorary authorship and can undermine scientific integrity and trust in research.

2 Definition of Ghost Authorship

Ghost authorship refers to a situation where individuals who have made substantial contributions to research, data analysis, or manuscript writing are not named or disclosed in the author byline or acknowledgments [26]. This practice stands in contrast to ”honorary” or ”guest” authorship, where individuals who made minimal or no contributions are included as authors [16] [34] [12].

Several forms of ghost authorship have been identified in academic publishing. These include cases where professional writers are hired to draft manuscripts

based on data provided by researchers [10], instances where junior personnel or trainees who contribute significantly to the work are excluded from authorship [17], and scenarios where individuals decline authorship or are not offered it despite meeting authorship criteria [30].

Ghost authorship is particularly prevalent in biomedical and pharmaceutical research, where commercial writers may produce manuscripts that are subsequently attributed solely to academic researchers [39] [17]. The practice is widely condemned as unethical by the academic community [36] and constitutes a form of research misconduct from both ethical and professional perspectives [31]. Formally, ghost authorship has been defined as "failure to name, as an author, an individual who has made substantial contributions to the research or writing of the article" [33] [37].

In educational contexts, ghost authorship can also manifest when students submit assignments, theses, or dissertations written by others without proper acknowledgment [2] [1]. This practice undermines the integrity of the authorship system and violates established ethical standards in scholarly communication.

> Ghost authorship occurs when individuals who substantively contribute to a manuscript are omitted from the author byline. This unethical practice manifests in various forms, including hired writers, unrecognized junior researchers, or contributors who are deliberately excluded.

3 Ghost Authorship vs. Other Authorship Misconduct

Ghost authorship represents just one form of authorship misconduct within a broader spectrum of questionable practices that undermine research integrity. The scientific literature describes several types of inappropriate authorship, including guest authorship, honorary/gift authorship, ghost authorship, and anonymous authorship [26]. While ghost authorship involves individuals who contribute substantially to research but are omitted from authorship credit, other forms of misconduct involve the opposite problem.

Honorary or gift authorship occurs when individuals who have not met authorship criteria are included as authors [34] [12]. This practice is often based on someone's position as the head of a department in which research took place [26]. Guest authorship similarly involves including individuals who make no discernible contributions to the study [26] [16]. A related form is coerced authorship, where senior researchers pressure junior researchers to include non-contributing individuals as authors [14] [3].

These practices frequently coexist. Ghost authorship may occur alongside gift authorship, particularly in industry-sponsored research where company employees actually write papers but academic "gift authors" appear as the only authors to confer prestige and minimize perception of sponsor bias [20] [44] [18].

The prevalence of both ghost and honorary authorship is concerning. A landmark study found that 19% of articles in major medical journals showed

evidence of honorary authors, 11% had ghost authors, and 2% exhibited both problems [12]. A more recent survey indicates that around 17.4% and 15.0% of researchers reported guest or ghost authoring in at least one of their projects [5].

All these authorship problems fall under broader categories of academic misconduct alongside plagiarism, fabrication, and falsification of data [35]. While these practices may not always meet legal definitions of research misconduct, they remain detrimental to research trustworthiness, fair competition among researchers, and individual careers [14]. Consequently, there is broad consensus in condemning all these forms of authorship misconduct [36] [9] [40] [24].

Ghost authorship is one of several forms of authorship misconduct in academic publishing, alongside practices like honorary/guest, gift, and coerced authorship. While ghost authorship involves omitting contributors who deserve credit, honorary and guest authorship involve including individuals who made minimal or no contributions.

4 Contexts and Prevalence of Ghost Authorship

Ghost authorship manifests in different academic contexts, with particularly high prevalence in specific fields and research environments. In biomedical sciences and pharmaceutical research, this practice is especially common in clinical trials and studies involving new technologies where commercial interests are prominent [4]. In these settings, industry representatives may write and submit manuscripts under physicians' names without appropriate attribution or oversight, undermining research integrity [4]. The biomedical literature appears particularly susceptible to this problem, with ghost authorship identified as the most common authorship misconduct in recent analyses [43] [17].

Surveys of authorship practices reveal concerning rates of ghost authorship across scientific disciplines. Approximately 15% of researchers report participating in ghost authorship in at least one of their projects [5]. More focused studies of medical journals found evidence of ghost authors in approximately 11% of published articles [5]. Even more troubling, some institutional assessments indicate that ghost authorship may occur in more than 40% of research institutions [11].

Ghost authorship extends beyond traditional publication contexts. In peer review processes, early career researchers (ECRs) often perform reviews on behalf of invited senior reviewers without proper acknowledgment, effectively serving as "ghost reviewers" [27]. More than half of surveyed ECRs, including 37% of graduate students, reported reviewing manuscripts without guidance from their advisors, raising questions about transparency in the peer review system [27].

The practice has financial implications for academic publishing. Ghost-authored articles may benefit journals through increased citations and reprint sales [6]. Industry-funded trials are more likely to be cited than non-industry

research, and companies may strategically employ ghost-authored reviews that cite their studies to increase awareness [6] [25]. This creates a complex ecosystem where journals, researchers, and commercial entities may all benefit from ghost authorship despite its ethical problems.

Recent bibliometric analyses have identified suspicious patterns in institutional research outputs that suggest widespread authorship manipulation. Between 2019 and 2023, some universities increased their research output by over fifteen times the global average, accompanied by decreased first authorship rates, increases in hyperprolific authors, and more authors per publication—patterns consistent with questionable authorship practices including ghost authorship [28].

Ghost authorship raises particular concerns in industry-academic collaborations where conflicts of interest may be obscured [42]. When industry partners with vested interests in research outcomes influence how results are presented without disclosing their involvement, readers cannot properly assess potential bias [42] [41].

Ghost authorship occurs across various academic disciplines but is particularly prevalent in biomedical sciences, pharmaceutical research, and clinical trials. Studies indicate that approximately 11-15% of academic publications involve ghost authors, with even higher rates in industry-sponsored research.

5 Examples of Ghost Authorship Practices

Industry-produced manuscripts under academic names: Pharmaceutical and medical device companies may write and submit manuscripts in physicians' names without appropriate attribution or editorial oversight. This practice is particularly common in clinical trials and research involving new technologies where commercial interests are prominent. [4]

Hired anonymous specialists: Some researchers pay professional "ghostwriters" to create manuscripts based on legitimately collected data. The ghostwriter applies sophisticated statistical procedures and prepares publication-ready articles that meet journal standards, while only the commissioning party appears as the author. [10]

Academic promotion through purchased papers: In academic settings, faculty seeking promotions may purchase ghostwritten research publications and claim them as their own work. These articles may not even be based on authentic data or actual laboratory work, violating ethical publication standards. [21]

Supervisor appropriation of student work: Academic supervisors may claim authorship on their students' research while also adding colleagues who have made no contribution to the work, creating a double problem of ghost and guest authorship. [15] [7]

Non-disclosure of industry collaboration: Ghost authorship sometimes occurs when industry partners with vested interests in research outcomes contribute to

publications but are deliberately omitted from author lists to obscure conflicts of interest. This undermines readers' ability to assess potential bias in the research. [42] [41]

Exclusion of trainees and subordinates: Junior researchers or subordinates who make substantial contributions to research or write significant portions of manuscripts may be excluded from authorship credits. This can happen either when they voluntarily decline authorship or are not offered it despite meeting authorship criteria. [30]

Disciplinary exclusion in interdisciplinary research: In interdisciplinary studies, particularly in interprofessional education research, students or contributors from specific disciplines may be included in the study without corresponding authorship representation from those disciplines. This "ghost authorship at the level of a discipline" potentially limits interpretation and impact. [32]

Ghost reviewing: Early career researchers (ECRs), including graduate students, may conduct peer reviews on behalf of invited senior reviewers without acknowledgment. In some cases, more than half of surveyed ECRs reported reviewing manuscripts without guidance from their advisors, creating a "ghost reviewer" phenomenon that undermines transparency in peer review. [27]

AI-generated content: A recent development is the use of artificial intelligence to generate academic writing without declaration of such use, potentially representing a new form of ghost authorship that creates unequal opportunities among researchers. [22]

Authorship for sale in predatory journals: There are indications that authorship positions may be available for purchase in predatory open-access journals, a commodification of authorship that further erodes scholarly integrity. [19]

Ghost authorship manifests in various forms across academic disciplines, from pharmaceutical companies employing writers to produce manuscripts under researchers' names to advisors taking credit for students' work. Recent developments include AI-generated content without attribution and the phenomenon of "ghost reviewing" where early career researchers conduct peer reviews without acknowledgment.

6 Ethical Implications and Impact

Ghost authorship represents a serious ethical breach that compromises academic integrity across multiple dimensions. While often discussed alongside other authorship misconduct like guest or honorary authorship, ghost authorship is increasingly recognized as misconduct from both ethical and professional standpoints [31]. The impact extends beyond individual careers to affect the broader research ecosystem and public trust in science.

The prevalence of ghost authorship is concerning, with studies indicating approximately 11% of articles in medical journals show evidence of ghost authors, while about 15% of researchers report participating in ghost authorship in at least one project [5]. This widespread practice undermines the foundational

principle that "science and healthcare practice must be based on honesty and trust" [5].

Financial incentives and citation advantages further complicate the ethical landscape. Medical journals potentially derive substantial income from industry-funded trials, which are more likely to be cited than non-industry trials [6] [25]. Companies may strategically employ ghost-authored reviews that cite their studies to increase awareness of their products, creating a commercial benefit from what is ostensibly an ethical violation [6].

Ghost authorship in industry collaborations poses particular ethical concerns. When industry partners with vested interests in research outcomes influence how results are presented without disclosure, readers cannot properly assess potential bias [42] [41]. In clinical trials or research involving new technology, ghost authorship may obscure important conflicts of interest [4].

The consequences of ghost authorship extend to the quality and reliability of the scientific literature. Ghostwritten articles that are not based on authentic data or bench work adversely influence both the scientific community and public health [21]. This is particularly problematic when papers are produced solely to help faculty secure promotions without having conducted legitimate research [21].

Ghost authorship also creates tensions between individual contributions and collaborative knowledge production. The blurred boundaries of who contributes what to research work challenge traditional authorship models, though surprisingly only 31% of sampled journals explicitly prohibit gift, guest, or ghost authorship [29] [38].

In fields requiring interdisciplinary collaboration, ghost authorship can manifest at the disciplinary level when students from a specific discipline are included in a study without corresponding authorship representation from that discipline. This lack of disciplinary representation can limit interpretation and subsequent impact of the research [32].

Though questionable authorship practices may fall short of legal definitions of research misconduct (which typically include only falsification, fabrication, and plagiarism), they remain detrimental to research trustworthiness, fair competition among researchers for funding and positions, and individual careers [14]. Researchers may feel exploited when they don't receive the authorship they deserve or when seeing authorships granted for much less than what was required of them [14].

The ethical implications of ghost authorship also extend to institutional policies and cultures that may inadvertently encourage such practices. Academic environments that value only certain authorship positions (like first or senior author) can drive unethical authorship practices [45] [16].

Ghost authorship undermines research integrity by obscuring contributions, distorting credit allocation, and potentially concealing conflicts of interest. This practice has far-reaching consequences for scientific trustworthiness, professional development, public perception of science, and healthcare de-

cisions.

7 Detection and Prevention Measures

The prevention of ghost authorship demands comprehensive approaches involving multiple stakeholders in the research ecosystem. One fundamental strategy is the development and enforcement of explicit authorship policies by academic journals. However, current implementation appears inadequate, with only 31% of sampled journals explicitly prohibiting gift, guest, or ghost authorship, despite many having general authorship policies [29] [38].

Standardized authorship criteria represent an important prevention mechanism. Contributor lists that clearly delineate individual responsibilities can lead to more transparent author consideration and help prevent questionable practices such as ghost authorship [8]. These standardized approaches clarify expectations and provide objective benchmarks for determining rightful authorship.

Alternative authorship models offer additional solutions. The collaborative model of authorship—particularly useful for large clinical trials, systematic reviews, and meta-analyses—can discourage guest and honorary authorship while encouraging honest listing of all contributors, including those who might otherwise remain unacknowledged ghost writers [13]. This approach addresses the tension between individual attribution and the collective nature of knowledge production that characterizes modern research [29].

At the institutional level, clear policies and guidelines can help prevent ghost authorship. Organizations conducting clinical trials should adopt internationally recognized standards such as those defined by the International Committee of Medical Journal Editors (ICMJE) [23]. Such policies should explicitly state that ghost or guest authorship is unacceptable and require full disclosure of each author's role in both conducting studies and preparing manuscripts [23].

Publication structures themselves may influence authorship practices. While sole authorship models can help prevent guest and nominal authorship by requiring substantive contributions from all listed authors, co-authorship models—despite encouraging collaboration and complementary expertise—may inadvertently facilitate "fabrication authorship" where researchers invite nominal authors or exclude real contributors [45]. Awareness of these structural influences is important when designing prevention strategies.

For effective implementation, prevention measures should be embedded at multiple levels: journal submission requirements, institutional policies, professional standards, and academic culture. Particularly when industry involvement exists, manuscripts should accurately disclose each author's role in conducting the study and preparing the manuscript, with this information also included in public presentations of results [23]. These transparency requirements increase accountability and make ghost authorship more difficult to sustain.

Detecting and preventing ghost authorship requires coordinated efforts from journals, institutions, and researchers. Prevention strategies include implementing standardized authorship criteria, requiring detailed contribution disclosures, promoting transparency through collaborative models, and establishing clear institutional policies.

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