ALL THAT GLITTERS IS NOT GOLD: CAN WE TRUST INTERNATIONAL SCIENTIFIC JOURNALS?

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How to cite: Imran F, Shafique U. All That Glitters is not Gold: Can we Trust International Scientific Journals?. JAIMC. 2025; 23(3): 72-73

Scientific journals are the cornerstone of evidence-based practice, shaping clinical decisions, policy development, and future research directions. The integrity of published research heavily relies on robust editorial oversight and a rigorous peer-review process. These systems are intended to act as quality filters, ensuring methodological rigor, ethical compliance, and scientific accuracy before findings reach a global audience. When these standards are not met, flawed studies can mislead practitioners, misinform public health initiatives, and erode trust in academic publishing.

Among the common problems in published reports is a misdescription of study design, especially in observational studies. As noted by Sedgwick and colleagues, failure to distinguish cross-sectional from case-control studies can severely distort interpretation.[1] A common example is labeling studies as "case-control" without genuine features; no odds ratios, no risk factor analysis, and no proper selection of cases and controls. These are actually cross-sectional studies with incorrect titles, leading to confusion among readers and practitioners. As Sedgwick explains, proper case-control studies compare exposures between cases and controls, not just report disease prevalence.[2] This is not a trivial error — it can mislead clinicians about associations or risks. The issue is not limited to one specialty; a systematic review of observational studies in Traditional Persian Medicine found widespread non-adherence to key STROBE checklist elements, especially in methods and results.[1]

This widespread confusion is not merely an editorial oversight. As Pérez-Guerrero et al. (2024) discuss, each observational study design, whether cross-sectional, case-control, or cohort, has specific methodological implications, and mislabeling them can significantly distort interpretation, bias control, and statistical inference.[3] Their review emphasizes how these errors persist even in high-impact journals and contribute to flawed conclusions in clinical literature.

To give an example, misclassified case-control studies more often emphasize disease prevalence than risk factors, presenting simple proportions in place of odds ratios. Confounders are not adjusted for, or confidence intervals reported. Matching is sometimes referred to but the technique is vague or poorly done. All these are core deviations from the norms that constitute a correct case-control study. Kicielinski et al. (2022) specifically critiqued how neurosurgical journals often misclassify cross-sectional surveys as case-control studies, reflecting a systemic lack of epidemiologic scrutiny. Misapplication of case-control methodology is not confined to general research; even in specialty-specific domains like neurosurgery, concerns have been raised about frequent mislabeling and misuse of study design principles.[4]

This ongoing problem questions not only the authors, but also the journals themselves. Why are these errors passing through peer review? Are editors and reviewers capable of evaluating epidemiological accuracy? Do submission checklists contain adequate labeling of study type and reporting guidelines such as STROBE?

In a world of publishing where quality is sometimes sacrificed for quantity, peer review has become more superficial than substantial in many journals. As Paul emphasizes, the decline in peer review participation among senior researchers creates an imbalance in academic publishing, challenging the very norm of mutual academic responsibility.[5] Despite widespread agreement on the value of peer review, increasing difficulty in securing reviewers threatens both the timeliness and rigor of the review process.[5]

Without subject-specific reviewers, especially reviewers who are trained in statistics and study design, the problem is only worsened. While the publication might maintain formal integrity, the scientific content is lacking. Peer review remains central to scientific quality control, but its implementation is heterogeneous, subjective, and often inconsistently applied.[6] London

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Submission Date: 26-08-2025
1st Revision Date: 10-09-2025
Acceptance Date: 21-09-2025

notes that interventions such as reviewer blinding, checklist use, and editor prescreening can improve peer review outcomes, though modestly, and often at the cost of increased review time.[5,6]

There's increasing evidence that many published observational studies are overstated, poorly designed, or fail to follow proper reporting guidelines, ultimately weakening the scientific process and affecting patient care. It's not enough to simply report an association between exposure and outcome—the quality of the methodology behind that link is crucial. To improve scientific communication, editorial boards must adopt clearer and stricter practices: involving reviewers trained in study design, using structured tools like the STROBE checklist, making peer review comments public, and encouraging post-publication review for added accountability. Restoring trust in medical publishing requires collective responsibility and consistent effort from researchers, reviewers, editors, and publishers alike.

Keywords: Peer Review, Research, Research Design, Case-Control Studies, Publishing, Scientific Misconduct, Reproducibility of Results, Editorial Policies

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