EDITORIAL

PAPER MILLS, COBRA EFFECT, CITATION CARTELS, FISHING EXPEDITIONS, PARASITES, ZOMBIE SCIENCE, AND ACADEMIC TOURISM - METAPHORS THAT DESCRIBE RESEARCH MISCONDUCT

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As the number of research journals and the capacity of medical students, faculty, and organizations to conduct and publish research grow, so does the risk of spreading false scientific ideas. Additionally, the availability of electronic search databases, artificial intelligence tools, and various online and offline research support services increases the chances of producing falsified, fabricated, or plagiarized papers. While organizations such as the Committee on Publication Ethics (COPE) and the International Committee of Medical Journal Editors (ICMJE) have established guidelines to prevent these issues, authors still find ways to circumvent them. [1] Moreover, the rise of predatory journals and the pressure to publish have led many researchers into these traps, pushing them toward misconduct and unethical practices to get their work published. The following paragraphs describe some of these unethical practices in metaphorical terms.

Just as a paper mill produces a mass quantity of paper, research paper mills produce content that is fabricated, manipulated, and written using copy-and-paste methods to create research papers in bulk. [2] This could lead to the dissemination of false scientific concepts, especially in the context of healthcare.

The Cobra, a type of snake, was once a threat when the British invaded the Subcontinent. To manage the snake population, the Britishers devised a plan to pay locals in exchange for killing Cobras by collecting their carcasses. Meanwhile, the residents in that area began breeding Cobras to gain more financial benefits. This effort is similar to the 'publish or perish' phenomenon in healthcare research. Instead of producing high-quality research, researchers have begun publishing abundant fake, falsified, and plagiarized data to inflate their publication counts. [3]

Like cartels in a market that coordinate, communicate, and cooperate to raise the prices of goods, research cartels try to boost the value of an article, journal, or organization by increasing citations of each other. This can distort scientific facts, mislead readers, and undermine trust in bibliometric measures (H-Index, Scopus matrix, and impact factor). These citations are often conducted among author groups, journals, universities, and other academic organizations to falsely inflate their research productivity. [4]

Just as a person goes fishing in the sea and catches other creatures that are not just fish, some research practices involve exploring data in quantitative research without clear hypothesis testing, which results in identifying concepts that are unrelated to the original study, yet unscientific and interesting. This may mislead the scientific community by identifying the chance findings. [5]

As a parasite, which feeds on another animal and harms it at the same time, research parasitism includes authors who benefit from research without contributing (authorship parasitism, also known as gifted authorship). Other forms of parasitism include data theft (data parasitism) and idea theft (idea parasitism). [6] All these research misconducts lead to the demotivation of genuine researchers, distort academic records, and undermine trust in data sharing and authorship.

The role of Hormone Replacement Therapy (HRT) in preventing cardiovascular diseases and dementia has already been shown to be ineffective by credible scientific evidence; instead, it clearly increases the risk of breast and endometrial cancers. [7] However, some groups still promote it for this purpose, much like zombies—dead but portrayed as if they are alive. [8]

The term "academic tourism," when used negatively in research settings, refers to engaging in superficial and opportunistic leisure activities abroad under the guise of research, academic conferences, paper presentations, collaborative projects, and exchanges. [9] These days, especially in our country, a common example is pharmaceutical sponsorships of clinicians, which provide opportuni-

ties for photo sessions, certificates, CME hours, and paper or abstract presentations. Such activities are primarily aimed at leisure in specific locations and countries, with the primary goal of promoting pharmaceutical products by sponsors.

CONCLUSION

These metaphors appear in different contexts, especially in research misconduct, and are common in the healthcare sector. The main causes are related to promotion pressures, onboarding, job requirements, competition for awards, funding, and more. These misconducts lead to irrelevant research publications, fake data, gifted authorships, inaccurate statistics, and using dead or irrelevant topics in research. They also contribute to organizing low-quality conferences and meetings, often with excursion trips.

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