WHERE DO YOU FALL ON AUTHOR SPECTRUM?

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Research publications are the currency to buy promotion for medical doctors and ranking for medical institutions. To win the race, healthcare professionals often fall into unethical practices including buying ready-made articles, using fake data, getting their name in co-workers' publications without making actual contributions, by merely offering to pay their journal fee or using other coercive or manipulative approaches, and offering gift authorship to favor colleagues in the hope of other benefits[1]. The trend of unethical practices in publication is rising as the world continues to increase its race of publications[2]. An analysis of the Public Library of Science (PLOS) journals showed an increase in publications from 200 in 2006 to 30,000 per year now[3]. In Pakistan also the gain in research output is significant, according to a report by Web of Science data analytics in 2018, which showed a 300% growth in the number of publications in Pakistan[4]. However, it is important to assess if this gain is not achieved at the cost of compromising ethics and quality in publications.

A survey published in 2018 showed that many authors in Scopus had as many as 72 publications in a year, most commonly from United States (US), Germany, Japan, Malaysia, and Saudi Arabia. Some of these authors were inquired about how often they fulfilled the International Committee of Medical Journal Editors (ICMJE) criteria for authorship, and most of the respondents said they did not fulfill it in more than 25% of the publications[1].

Some entities that run paper mills for selling ready-made papers to professionals have further made this easy for researchers to earn undeserved credits. These paper mills offer authorship on sale, for soon-to-be-published papers, demanding a fee ranging from hundreds of dollars to around five thousand US dollars[5].

Figure 1A&B show Google trends for the search related to use of such offers by paper mills. It was observed that this trend is higher in some specific countries as shown in the figures, with highest intensity in the US.

Such trends even in developed countries suggest an overall unregulated and unfair environment in research, raising questions on the authenticity of scientific literature being produced. An estimate suggests scientific fraud to be as common as 20% of the medical literature, with falsified data[2]. Another study of the published clinical trials reported that one quarter of the data seemed to be fake or fatally flawed upon examination of raw data[6].

The badge of high number of publications, the doctors earn, is becoming more unreliable, yet it remains as one of the most important criteria for rewards and promotions[7]. Employers offer promotion to professionals by merely seeing their authorship in an article, where the employer cannot assess what type of authorship was gained in that publication, which may range from original author, to gift author, guest author, ghost author,

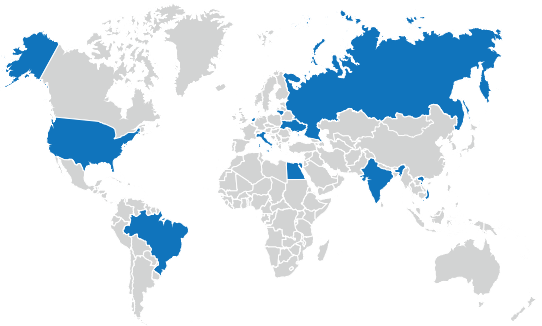

Figure 1A: Global trend for search term "Buy research papers": This term suggests buying ready made articles for publication (unethical)/ buying published articles for reading (ethical)

Figure 1B: Global trend for search term "Buy research papers no plagiarism cheap": This term suggests only buying ready made articles online for publication (unethical)

Figure 1A&B : Regional Trends for Google Search for buying research papers online in last 10 years (2/11/14 to 2/11/23); For a term in Google Trends, you see a map showing areas where your term is popular. Darker shades indicate where your term has a higher probability of being searched.

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Conflict of Interest: None
Financial Disclosure: None

Received: 06-02-2024
Accepted: 06-02-2024

coercive author, and mutual support authors, collectively forming what we refer to as 'Author Spectrum'. The dilemma arises from the inability to ascertain where an author stands on the Author Spectrum, leading to unverified benefits. This trend of unfair acknowledgment of original authors undermines the motivation and spoils the research culture, developing an unreliable environment in the field of science.

Also, there is no appreciation for other roles in research besides authorship. Though intellectual contributions are mostly made by the main research team (authors), but there's also some intellectual role of reviewers such as Institutional Review Board (IRBs) and journal reviewers. However, their role is under-appreciated, and non-compensated, which may result in low quality reviews. As research has no monetary incentives, we suggest some practices for developing a fair system that encourages support of every role in research for enhancing their motivation and incentivize honest contributions:

Valuing non-author contribution:

1. Apart from authorship, other significant roles such as reviewers (IRB, journal reviewers), and data collectors (those not fulfilling authorship criteria) should also be valued and counted in CV for research positions, whenever the contribution is significant. Currently only author role is appreciated and hence there's a race for getting a name as an author sometimes by data collectors or IRB reviewers, who may find a space in paper through coercion or manipulation of research team.

2. The names of main reviewers in IRB, and journal reviewer may be acknowledged in the paper, not as authors, but as reviewers. An alternative of intellectual appreciation is the monetary appreciation of these roles. Journals and IRBs can offer monetary incentives to well trained and qualified reviewers. Such incentives may encourage reviewers for quality reviews, especially for the reviewers who are well trained and have invested their time and money in research ethics and review training.

Verifying author contribution:

1. Journals should verify the authorship to avoid the chance of gift authorship, ghost authorship and other unethical authorships on spectrum. For this purpose, journals can perform audits and check any official records of research collaboration and activity, such as emails/ any official workspace communication records. Such policies will encourage researchers to communicate officially for research work, using emails and other official modes of communication and documentation. Such policies will encourage researchers to communicate officially for research work, using emails and other official modes of communication and documentation. In such a transparent environment, there are very low chances of any misconduct, or undeserved credits, and the researchers can easily accept journal audits.

2. For the journal to afford audits, it should be charging some amount of article processing fee to offer incentive to the auditors. Adding this step will raise the journal credibility as well as the credibility of authors publishing in it.

3. In case of low budget, journal can perform audit of a random sample from the submitted publications. As the data suggests the estimated prevalence of scientific misconduct to be around 20-25% in various studies,[1,2,6] a goal of screening up to 25% papers can be set in limited resources. Employers looking to authenticate authorship credentials for hiring or promotion can also leverage this figure. They can verify a random sample of 25% of the publications listed in the Curriculum vitae (CV) by interviewing the person or reviewing records.

4. Journals can use some red flags also to select manuscripts for audits, e.g., Sabel's tool can be used which has two criteria: authors with private, noninstitutional email addresses and authors affiliated with hospitals. This criterion is effective in identifying fraudulent papers with 90% accuracy; however, it also has a high false positive rate of 44%, often misclassifying real papers as fake[8].

5. Journals can also make use of honor pledges which are used by some universities as a moral barrier to misconduct. The author, submitting work, affirms the integrity in work and this helps reduce chances of fake work to some extent[9].

CAPSULE SUMMARY

- The trend of unethical practices in publication is rising with increasing publications, which remain one of the most important criteria for rewards and promotions.
- Type of authorship may range from original author to gift author, guest author, ghost author, coercive author, and mutual support authors, collectively denoting the Author Spectrum.
- Moreover, reviewers' role is under-appreciated and non-compensated which results in low quality reviews.
- Some practices are suggested here for developing a fair system that encourages support of every role in research for enhancing their motivation and incentivize honest contributions.

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