**Title: Do authorship disputes deter Indian medical students in their research pursuits?**

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**ABSTRACT**

In this world of evidence-based medicine, it is imperative for young doctors to acquire research skills to scientifically and critically evaluate, and implement clinical practices. However, in India, the response from medical students in adopting this has been slow, probably due to inflexibility of time where students do not have the liberty to take time to explore other fields by experience or research amidst their extensive medical academic curriculum. An inadequately discussed barrier is the disputes over credits in research. While the guidelines by ICMJE are utopian, they are not strictly adhered. The rampant practice of ‘gift’ and ‘ghost’ authorship discourages students from investing time on research. We propose potential solutions to encourage aspiring physician-scientists to actively involve themselves in research and continue devoting time to meaningful projects.

**MANUSCRIPT**

Research can facilitate rational ideas in medical students and trainees alike, who stand to develop critical thinking in addition to textbook knowledge(1). Medicine, being an ever-expanding field, makes it crucial for doctors-in-training to understand research, its methodology and translate this acquired knowledge into their clinical practice(2). However, in India, the response from medical trainees, including undergraduate students and residents in adopting this has been sluggish, owing to high levels of stress attributed to the extensive academic curriculum, hectic duty hours, the lack of scheduled weekly breaks, and shortage of manpower that leads to an unacceptably high patient: clinician ratio(3,4). Barriers such as lack of funding, mentorship programs, difficulty in data collection or analysis and no additional credits awarded to the students for the time invested are known to dissuade students from taking up research projects(5). A highly relevant barrier, left out from the discussion, are the disputes regarding credits in research on a publication.

If authorship is the coin of the academic realm, it has two equally important sides: credit and responsibility(6). The Medical Council of India (MCI) in 2017, issued a circular amending its requirements concerning research publications for eligibility for promotion of faculty in medical colleges, as an amendment to the Minimum Qualifications for Teachers in Medical Institutions Regulations, 1998(7). The reform limits credits for authorship only to the first and corresponding author. This inhibits recognition of collaborative research and shifts the focus on quantity over research quality(8). Although it was presumed for this reform to decrease the practice of ‘gift authorship’ (when a faculty member is short of the required quota of papers, he/she requests a research team to include his/her name in the list of authors)(9,10), in reality, it has had the opposite effect. In postgraduate courses, students are required to undertake a dissertation with a faculty as the guide and few co-guides from same or related disciplines(9). The need to comply to the MCI guidelines for periodic promotion leads to the coercion of students to add several co-authors who have not contributed significantly and also encourages the practice of denying the first authorship, and credit, to junior researchers whose contribution is often the maximum(9).

Amidst the ‘publish or perish’ academic culture, the guidelines by ICMJE, although utopian, are infrequently adhered to(10). The practice of ‘ghost authorship’, defined as the failure to identify someone as an author, who made substantial contributions to the research or writing of a manuscript that merited authorship, is condemned upon(11). While ghostwriting is unethical, professional medical writing assistance is an ethical and legitimate practice that is permitted when appropriately acknowledged(12,13). Employing a technical writing expert enhances the quality of the manuscript and speeds up the publication process(14). However, ‘non-experts’ such as medical students are subjected to being ghost authors after working on research projects, with no compensation of the students’ time and efforts. Such instances of lack of recognition dissuade students. Given the small cadre of physician-scientists in India (15), efforts must be made to foster a new generation of enthusiastic clinician-scientists to combat this negative trend through solutions to ensure appropriate recognition and research credits.

*Inclusion of credits and mentorship for research in Indian medical curriculum*

At the undergraduate level, student research grants such as the short-term studentship by the Indian Council of Medical Research (ICMR) are the most sought after throughout the country. These projects require an extensive time commitment from the mentor as often this is a medical students’ first research project. This serves as an excellent mentoring opportunity for faculty to enhance students’ interest in research by imparting knowledge and expertise every step of the way, provided there is equal and active participation from the mentee.

Medical trainees with mentors are “twice as likely to state that they received excellent career preparation” (17) Inclusion of credits for research in the medical curriculum to encourage student participation in projects along with formal mentorship pairing in medical schools can serve towards yielding future research-based clinicians in India.

*Credit matrix for research*

The International Students Surgical Network (InciSioN) designed complementary authorship guidelines that use a point-based system and a research contribution tracking spreadsheet to quantify each contributor’s involvement (10). This tracker can maintain transparency and accountability amongst all contributors on a project to avoid authorship disputes. Expectations and outcomes of a student’s involvement in a project should be laid out on a project initiation document. Normalizing authorship discussions early-on by faculty mentors in research projects is beneficial for students and junior faculty, who may lack the ability to raise these issues themselves(16).

*Collaborative multidisciplinary research*

An unexplored avenue amongst Indian medical students is collaborative research networks. These models facilitate students participation in good quality research led by experts with different skill sets, thus widening the spectrum of learning(18). This also inculcates team-work and ensures students are guided at every step of the way from experienced mentors(19). Student and trainee-led research collaborative networks can provide medical students with an applied academic training experience as substantiated by the first student-led collaborative research study by U.K. medical students by ‘STAR SURG’ which included 1513 patients from 109 centres(20). India’s first student-led research collaborative, SOCH-India; ‘Student’s Orbit for Collaborative Healthcare-India’ will be launched this year by members of the Medicos’ Education and Research Society of Asian Medical Students’ Association-India.

*Institutional policy for credits in research*

To provide a pathway for students to address the authorship issues with their faculty mentors, a formal institutional policy for credits in research should be advocated for. As the need for local data-driven solutions rises exponentially, the medical students need to have ample research exposure to inspire them to become future physician-scientists of our country.

In conclusion, research and clinical practice go hand in hand and efforts should be focused at an inclusive approach aimed at training medical students and trainees towards becoming early-career researchers who are equally adept at their clinical acumen and the nuances of clinical research.

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**REFERENCES**

1. Ávila, M.J., Rodríguez-Restrepo, A. The importance of research in undergraduate medical education. Medwave. 2014 Nov 24;14(10):e6032. English, Spanish. doi: 10.5867/medwave.2014.10.6032. PMID: 25587714.

2. Wallmann, H. W., & Hoover, D. L. (2012). Research and Critical Thinking: An Important Link for Exercise Science Students Transitioning to Physical Therapy. International journal of exercise science, 5(2), 93–96.

3. Anuradha, R., Dutta, R., Raja, J. D., Sivaprakasam, P., & Patil, A. B. (2017). Stress and Stressors among Medical Undergraduate Students: A Cross-sectional Study in a Private Medical College in Tamil Nadu. Indian journal of community medicine: official publication of Indian Association of Preventive & Social Medicine, 42(4), 222–225.

4. Chandan N, Sherkhane MS. Assessment of Stress and Burnout among Postgraduate Medical Students. Natl J Community Med 2017; 8(4):178-182

5. Garg R, Goyal S, Singh K. Lack of Research Amongst Undergraduate Medical

Students in India: It’s time to Act and Act Now. Indian Pediatr. 2017 May 15;54(5):357-360. doi: 10.1007/s13312-017-1104-4. Epub 2017 Mar 29. PMID: 28368270.

6. Rennie D, Flanagin A. Authorship! Authorship! Guests, ghosts, grafters, and the two-sided coin. JAMA. 1994 Feb 9; 271(6):469-71.

7. Medical Council of India. Amendment Notification. New Delhi, 5 June 2017. Available at www.mciindia.org/Rules- and-Regulation/Gazette%20Notifications%20-%20Amendments/TEQ-08.06.2017.pdf (accessed on 13 Jan 2021).

8. Bandewar SV, Pai SA. Regressive trend: MCI’s approach to assessment of medical teachers’ performance. Indian J Med Ethics. 2015;12:192–5.

9. Aggarwal Rakesh ; Gogtay, Nithya ; Kumar, Rajeev ; Sahni, Peush. The revised guidelines of the Medical Council of India for academic promotions: need for a rethink. Indian Journal of Medical Ethics, [S.l.], v. 1, n. 1 (N.S.), p. 2, nov. 2016. ISSN 0975-5691. Avaialble at: <https://ijme.in/articles/the-revised-guidelines-of-the-medical-council-of-india-for-academic-promotions-need-for-a-rethink/>. Date accessed: 05 Feb. 2021.

10. Avula J, Avula H. Authors, authorship order, the moving finger writes. J Indian Soc Periodontol. 2015;19(3):258-262. doi:10.4103/0972-124X.145782

11. Washington: University in St Louis; 2009. [Last accessed on 2021 Jan 05]. Policy for Authorship on Scientific and Scholarly Publications. Available from: [http://www.wustl.edu/policies/authorship.html](about:blank).

12. Karen Woolley on Behalf of Fellow GAPP Members. [Last accessed on 2021 Jan 04]. Available from: [http://www.gappteam.org/Files/UNC.Ghostwriting%20ban.2012.02.03.pdf](about:blank)

13. Recommendations on Publication Ethics Policies for Medical Journals. [Last accessed on 2018 Mar 16]. Available from: [http://www.wame.org/about/recommendations-on-publication-ethics-policie#Authorship](http://www.wame.org/about/recommendations-on-publication-ethics-policie%22%20%5Cl%20%22Authorship).

14. Sharma S. Professional medical writing support: The need of the day. *Perspect Clin Res*. 2018;9(3):111-112. doi:10.4103/picr.PICR\_47\_18

15. Kaushik, K. Defining the path of a physician–scientist. *Nat Med* **25,**867 (2019). https://doi.org/10.1038/s41591-019-0466-7

16. InciSioN authorship guidelines 2020. *InciSioN research resources.* <https://incisionetwork.org/resources/>

17.Rasmussen LM, Williams CE, Hausfeld MM, Banks GC, Davis BC. Authorship Policies at U.S. Doctoral Universities: A Review and Recommendations for Future Policies. Sci Eng Ethics. 2020;26(6):3393-3413. doi:10.1007/s11948-020-00273-7

18. Dehon E, Cruse MH, Dawson B, Jackson-Williams L. Mentoring during Medical School and Match Outcome among Emergency Medicine Residents. West J Emerg Med. 2015 Nov; 16(6):927-30.

19. Bhangu A, Fitzgerald JE, Kolias AG. Trainee-led research collaboratives: a novel model for delivering multi-centre studies. ANZ J Surg. 2014;84(12):902-903. doi:10.1111/ans.12797

20. STARSurg Collaborative. [Impact of post-operative non-steroidal anti-inflammatory drugs on adverse events after gastrointestinal surgery](http://dx.doi.org/10.1002/bjs.9614%22%20%5Ct%20%22_blank)*.* BJS. 2014; 101 (11): 1413-23. PMID: 25091299. DOI: <http://dx.doi.org/10.1002/bjs.9614>.