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The Cultural Context of Plagiarism and Research Misconduct in the Asian Region

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ABSTRACT

Plagiarism is one of the most frequent forms of research misconduct in South and East Asian countries. This narrative review examines the factors contributing to research misconduct, emphasizing plagiarism, particularly in South, East and Southeast Asian countries. We conducted a PubMed and Scopus search using the terms plagiarism, Asia, South Asia, East Asia, Southeast Asia, research misconduct and retractions in January of 2022. Articles with missing abstracts, incomplete information about plagiarism, publication dates before 2010, and those unrelated to South, East, and Southeast Asian countries were excluded. The retraction watch database was searched for articles retracted between 9th January 2020 to 9th January 2022. A total of 159 articles were identified, of which 21 were included in the study using the database search criteria mentioned above. The review of articles identified a lack of training in scientific writing and research ethics, publication pressure, permissive attitudes, and inadequate regulatory measures as the primary reasons behind research misconduct in scientific publications. Plagiarism remains a common cause of unethical publications and retractions in regions of Asia (namely South, East and Southeast). Researchers lack training in scientific writing, and substantial gaps exist in understanding various forms of plagiarism, which heavily contribute to the problem. There is an urgent need to foster high research ethics standards and adhere to journal policies. Providing appropriate training in scientific writing among researchers may help improve the knowledge of different types of plagiarism and promote the use of antiplagiarism software, leading to a substantial reduction in the problem.

Keywords: Research Misconduct; Plagiarism; Publication Ethics; Retraction; South Asia; East Asia; Southeast Asia

Author Contributions

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INTRODUCTION

In this era of science and technology, the scientific literature is expanding exponentially with the advent of newer means of information collection and collation. Better science databases offer the growing academic and lay audience the opportunity to access and absorb information more efficiently. Plagiarism is a form of research misconduct that often finds home in the alleys of novice and unaware researchers, and there may be more factors behind these than meet the eye. Unfortunately, redundancy makes it rather challenging for the naive reader to steer through seams of online information. Even more challenging can be curating information from existing data and resources to lend meaning to novel, scientific and relevant research questions.

The word “plagiarism” refers to using others’ ideas without giving credit to the source.¹ Plagiarism is one of the most prevalent acts of research and publication misconduct.² It threatens the integrity of scientific contributions and can have downstream ethical and legal consequences. Addressing this evil requires a detailed understanding of its origins. Plagiarism can occur at any step, right from the conceptualization of an idea to the publication of a manuscript.³ The regional predominance of plagiarism suggests a potential undercurrent of other contributory factors. Conventionally plagiarism is attributed to poor ethics and ill-intention questioning the scientific intent and merit of the research. However, surmising that these assumptions may barely be scraping the surface is reasonable.

The United States Office of Research Integrity defines research misconduct as fabrication, falsification, and plagiarism in proposing, performing, reviewing, or reporting.⁴ Although falsification and fabrication have precise definitions, the definition of plagiarism is not uniform, and this lack of clarity often leads to its propagation.⁵ Moreover, many different forms of plagiarism have been identified, and the terminology can be confusing. The predominant types of plagiarism are verbatim plagiarism, mosaic plagiarism, loose plagiarism, duplicate publication, augmented publication, salami-sliced publication, image plagiarism, accidental plagiarism, and self-plagiarism.⁵⁻⁹ Misappropriating others’ conceptual ideas, including but not limited to scholarly texts, research methods, graphics, images, and ideas, is plagiarism. The central element of this misappropriation is the researcher’s failure to obtain permission to duplicate previously published material and to acknowledge primary sources in the manuscript.¹⁰

In Asian countries, the etiologic basis of the prevalent form of plagiarism might be complex. Students are encouraged to memorize and reproduce written and published material in countries like China and India. Some studies have also established that students in these countries are unable to detect or recognize acts of plagiarism or at least some forms of plagiarism while unintentionally engaging in them.¹¹ An analysis conducted by Fang et al.¹² using 2045 research articles revealed that 67% of the total retractions were due to research misconduct, out of which 9.8% of all publication retractions were due to plagiarism, which is a frequent form of research misconduct since 2005. Asian countries like Japan, China, and India seem to have a relatively higher prevalence of plagiarism. Similarly, another analysis of 835 retracted papers between 2008 and 2012 demonstrated high rates of plagiarism-related retraction among authors from India (18 out of 49, 36.7%), China (24 out of 143, 16.8%), and Italy (16 out of 24 retractions, 66.7%).¹³ Retractions due to plagiarism were significantly (odds ratio, 15.4) associated with the first author belonging to a lower-income country.¹⁴

This review aims to examine the factors that contribute to research misconduct with an emphasis on plagiarism in regions of Asia. In this paper, the authors have focussed on the South and East regions of Asia, excluding central and northern Asia, due to vast culture differences and potential publication biases. For the unaware, details on regions covered are further outlined as **Supplementary Table 1**. The authors hope this scoping review will provide invaluable insights into the true origins of plagiarism and pave the way to find logical and meaningful solutions to other ethical academia in the region.

SEARCH STRATEGY

The authors identified the two largest medical databases, namely MEDLINE and Scopus databases. The search strategy is summarized in **Fig. 1**. Search conducted on 20th January 2022 using the keywords “Plagiarism” AND “Asia”, “Plagiarism” AND “South Asia”, “Plagiarism” AND “East Asia”, “Plagiarism” AND “Southeast Asia”, “research misconduct” AND “South Asia”, “research misconduct” AND “East Asia”, “retraction” AND “Asia” retrieved 159 articles. Sixty-six articles were excluded as they lacked abstracts, and a further 50 articles excluded as being out of region of study. A further 18 were excluded due to incomplete information or being published before 2010. Eventually 21 articles of the 159 identified on the subject were analysed. Since Web of Science is rich in older literature and information in regional languages, these were deemed beyond the scope of authors’ current work.

The authors further searched retraction watch¹⁵ to understand current trends in retractions from the region and triangulated the available information for analysis. Retractionwatch.com was searched on 29th January 2022 to examine the number of retracted articles from 2020–2022 in the identified study region, as summarized in **Fig. 2**.

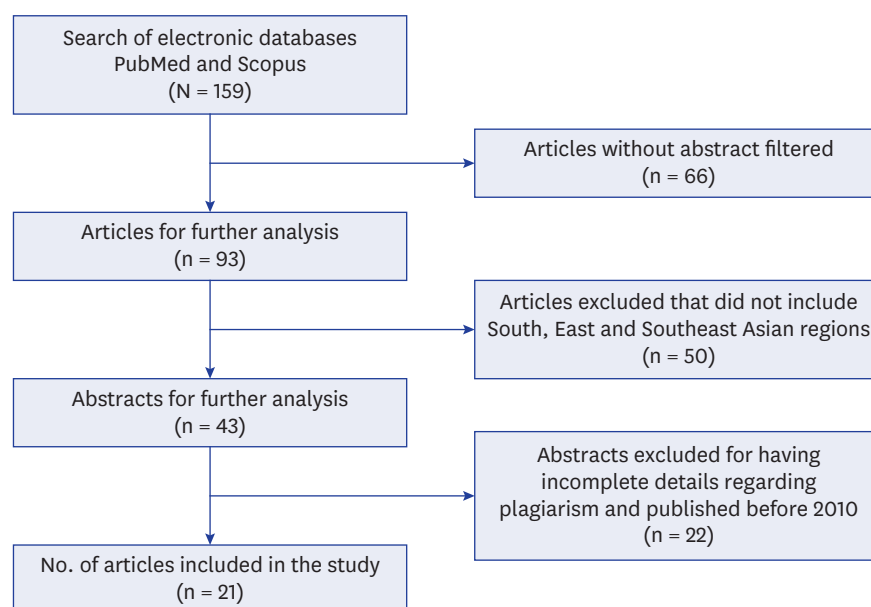


Fig. 1. Search strategy utilized for PubMed and Scopus databases. Flowchart representing the search strategy utilized to search PubMed and Scopus databases.



Fig. 2. Number of retracted articles in various South, East and Southeast Asian countries. Fig. 2 shows the number of retracted articles from countries in South, East and Southeast Asia between 2020–2022 according to the retraction watch database.

RESULTS

Literature from China

Among the 21 selected articles, 12 studies were selected from China.^{13,16-25} Five of the 12 were comparative studies comparing the prevalence of research misconduct in China to other countries.^{13,17,19-21} Out of the 143 retractions from China, 24 were due to plagiarism (17.6%), while 42 were due to duplicate publications (28.2%).¹³ Shen and Hu²⁴ conducted a mixed methods survey-based study among 196 Chinese graduates to gather that women interviewees seemed more aware of plagiarism than men. Notably, 90% of these participants condemned plagiarism.

A systematic review by Yi et al.¹⁸ investigated the awareness, attitude, practices, and perceptions of research misconduct among medical postgraduates and nurses. Reassuringly most of the participants in the 21 selected research studies analysed perceived research misconduct as objectionable. It was concerning to note that despite some awareness, participants' impression of research integrity and misconduct was distorted in the majority of the 21 articles. Similar findings were noted in a study conducted on 217 researchers in three tertiary hospitals in China. The researcher's understanding of scientific misconduct and integrity was inadequate in these hospitals. Familiarity with the policies on plagiarism, scientific integrity, and research misconduct was found in only 40% out of the 217 participants. Individual morality and the pressure of publication for promotion were among the most vital influencing factors in the study. It reported inappropriate authorship as the most frequent form of scientific misconduct.²⁵

Research misconduct and integrity are interpreted differently in different regions and nations. A person's perception of research practices could be colored by their knowledge,

training environment, worldly views, experience, and cultural context. A comparative study of biomedical researchers from China and Europe revealed that the overall perception of plagiarism was substantially similar among both groups. Nevertheless, few practices like ghost writing and copying from an online source without giving due credit were less likely to be considered plagiarism by the Chinese participants.¹⁹ Interestingly, 93.6% researchers in China considered copying text without crediting the source as plagiarism, while only 66% perceived copying ideas without giving due credit as plagiarism. Rephrasing and summarizing the work of other researchers without providing appropriate credit was perceived as plagiarism by around 80% of the researchers. Almost all participants regarded republishing another researcher's work published in a different language without providing credit to the source as plagiarism. However, less than two-thirds considered republishing one's work in another language plagiarism.

Other practices like paid or unpaid 'Ghost-writing' were perceived as unethical by more respondents in China than in Europe.¹⁹ Another comparative study between the Chinese and Flanders revealed that the Chinese researchers followed the 'bad apple' theory of publication, which implies that the scientific community would work impeccably if it was not disrupted by unreliable people and mostly identified plagiarism and inappropriate authorship as research misconduct. While for the Flemish researchers, research misconduct mainly included falsification and fabrication, with the 'Publish or Perish' pressure identified as a significant contributing factor. Fang et al.¹² reported developing nations had more retractions due to plagiarism, while the countries with a long history of research had more retractions due to falsifications and fabrications.

Plagiarism, forged authorships, inaccurate text, and statistics contributed to most of the retractions from China. This is partly due to the confounding effect of the more significant number of publications from China. Subsequently, another study found that 835 papers were retracted from 2008 through 2012. The maximum retractions were made in the United States (199), followed by China (193). The significant reasons for retractions from China included plagiarism (24 out of 143) and duplicate publications (42 out of 143). At the same time, only 17 papers were retracted due to plagiarism and 24 papers were retracted for duplicate publication in the United States.¹³

Cultural practices across the world also influence the understanding of plagiarism. Yang et al.¹⁶ conducted a study that included children between four to six years of age from Mexico, the United States, and China. Although, children from all age groups in all the countries rated the copied image negatively (pointing out their ability to identify plagiarism). The study found that the Chinese six-year-olds struggled to distinguish between similar and identical designs, while the Mexican and American six-year-olds rated the similar design negatively, suggesting a cultural influence. Cultural influence, the pressure of publishing, an academic assessment system that promotes rote learning, and insufficient surveillance by the concerned authorities of academic misconduct were reported as major contributing factors for potential research misconduct.¹⁷

Literature from India

We included six articles studying research misconduct in India.^{21,26-30} The most common form of research misconduct was gift authorship.²⁷ India has the second-highest number of retracted papers after China.¹³ A study on retracted articles in India and China accounted for plagiarism as the primary cause of the retraction of papers. With the rising trend of

multiple authorships on research articles, the publication pressure has manifested itself as 'gift authorship' wherein authorship is extended to an individual who has not contributed significantly to the paper. 'Guest authorship' refers to the situation where senior authors are included in the article to increase the chances of publication, and 'Ghost authorship' refers to the case where authorship is denied to the contributor. Palla et al.,¹⁹ in a comparative study between India and China reported higher scientific peer review malpractices among the Chinese authors.

Dhingra and Mishra²⁶ reported similar findings where gift authorship comprised 55.4% of research misconduct among medical professionals. Nearly 70% of the 755 researchers admitted inadequate knowledge of publication ethics in this study. Among 164 postgraduates, including medical and dental professionals in Bhopal, India, both streams showed inadequate knowledge, while dental students favoured plagiarism more than medical students.²⁹ Raj et al.²⁷ noted that among the postgraduate resident doctors and junior medical faculty members in India, less than 50% participants had adequate knowledge of plagiarism. In contrast, only 2.6% had sufficient knowledge. Moreover, about 5% of the participants had a favourable attitude toward plagiarism.

The above findings point to the fact that there is a severe deficit in understanding research misconduct and how to avoid it.²⁷ Intense professional competition, inadequate funds, publication pressure, lack of statutory control and policies to deal with scientific misconduct, lack of knowledge regarding publication guidelines and limited opportunities for formal training in research and scientific writing contributed majorly to research misconduct in India.³⁰ Many factors, like the number of years in the profession, the number of previous publications, and the type of institution (public/ private), appear to play a critical role in understanding research misconduct.²⁷ Gender also plays a vital role, as males have more permissive attitudes toward plagiarism than females.²⁸

Literature from Pakistan

We included three studies based in Pakistan for this review.³¹⁻³³ One survey-based study compared the understanding of plagiarism among 114 fourth-year medical students to that of 82 medical faculty members. The results showed that the medical faculty had a better understanding of the concept of self-plagiarism, although there was no significant difference in using appropriate source quotations.³¹ A study on 465 medical students in Pakistan from private and public medical colleges revealed differences in attitudes towards plagiarism among junior vs. senior year students and male vs. female students. Students in their first two years of medical college were more likely to identify plagiarism and less likely to have committed it. Females were better at identifying acts of plagiarism and avoiding academic misconduct.³²

Literature from Malaysia

Studies conducted in Malaysia suggested that plagiarism was the most frequently mentioned form of scientific misconduct by the respondents. Olesen et al.,³⁴ in a study based on in-depth interviews with 21 researchers of different disciplines, attributed plagiarism in Malaysia to the cultural differences influencing the researcher's citing and referencing styles. We included two studies from Malaysia in this review.^{34,35} In both studies, the authors interviewed researchers and lecturers from different universities in Malaysia. The primary conclusion reported in both studies was that the most common reasons for scientific misconduct were plagiarism and authorship disputes. While work environment, organizational and structural factors played a notable role in scientific misconduct, the

individuals' character is the most crucial factor which contributes to the occurrence of misconduct according to Olesen et al.³⁵ Table 1 summarizes the selected 21 studies and presents the essential findings of each study.

Table 1. Summary of the selected articles highlighting the significant findings of each study

Study No.	First author's name	Country	Study design	No. of participants or papers	Year of publication	Study outcome
1	Amos ¹³	China, USA, Finland, Italy, and others	Original article	835 papers	2014	The United States retracted the most papers; China retracted the most papers for plagiarism and duplicate publication. Italy and Finland accounted for the highest rates of plagiarism and duplicate publication, respectively.
2	Yang et al. ¹⁶	USA, China, Mexico	Comparative study	126 participants	2014	This study investigated the influence of culture on children's evaluations of plagiarism in the United States, Mexico, and China, and found that Chinese children had difficulty in identifying plagiarism due to cultural reasons.
3	Liao et al. ¹⁷	China	Comparative study	1,263 participants	2018	Inappropriate authorship and plagiarism were the most common forms of academic misconduct. The most important underlying factor was the lack of an academic assessment system.
4	Yi et al. ¹⁸	China	Systematic review	21 papers	2019	Although most of the participants reported that research integrity is of great importance misbehaviours, such as fabrication, falsification, plagiarism, improper authorship, and duplicate submission, were still reported.
5	Yi et al. ¹⁹	China and Europe	Comparative study	1,030 (204 from China, 826 from Europe)	2020	Although all the respondents understood the most prominent forms of plagiarism, about 1/3rd were unsure whether they had been plagiarizing, and it was seen more commonly among China-based respondents than among Europe-based respondents.
6	Li and Cornelis ²⁰	China and Flanders	Comparative study	45 (21 Chinese participants, 24 Flemish participants)	2021	The Chinese participants mentioned plagiarism and inappropriate authorship more frequently while Flemish respondents brought up fabrication and falsification as the primary forms of research misconduct.
7	Palla et al. ²¹	China and India	Comparative study	318 retracted papers	2020	Several factors were found to be associated with the retraction of papers including unreliable results, duplication, plagiarism, forged authorship and error in the text or data with higher rates of retractions in China.
8	Li ²²	China	Interview-based study (survey)	14 participants	2013	Senior authors can play an important role in educating new researchers against text-based plagiarism.
9	Bi et al. ²³	China	Review	-	2011	Academic misconduct exists because of the problems in the graduate education system. Colleges and universities should place greater emphasis on constructing a healthy academic atmosphere for failure tolerance using modern techniques.
10	Shen and Hu ²⁴	China	(Mixed method study)	196 participants	2021	The mixed methods analyses revealed disciplinary and gender-based differences in knowledge of and stance on plagiarism caused by inadequate academic ability, perceived low risks, and higher tolerance towards plagiarism.
11	Yu et al. ²⁵	China	Survey	217 participants	2021	The most common form of misconduct was inappropriate authorship. Approximately 40% of researchers reported having committed at least one of the nine forms of scientific misconduct, with 17% having committed fabrication, falsification, or plagiarism.
12	Dhingra and Mishra ²⁶	India	Questionnaire-based study	755 participants	2014	The 97% of the respondents had some knowledge of publication ethics, but only 29% believed it was adequate. The most frequently observed misconduct was offering gift authorship and alteration of data.
13	Raj et al. ²⁷	India	Questionnaire-based study (survey)	786 participants	2021	Participants lacked adequate knowledge of how to avoid plagiarism.
14	Varghese and Jacob ²⁸	India	Questionnaire-based cross-sectional study	423 participants	2015	The knowledge of medical students regarding plagiarism was limited and was associated with permissive attitudes toward plagiarism. Formal instruction about plagiarism in the medical curriculum is needed to tackle this practice.

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Table 1. (Continued) Summary of the selected articles highlighting the significant findings of each study

Study No.	First author's name	Country	Study design	No. of participants or papers	Year of publication	Study outcome
15	Jain et al. ²⁹	India	Cross-sectional study	164 (80 medical postgraduates, 84 dental postgraduates)	2015	Although plagiarism was favored more by dental students there was an inadequate level of knowledge and awareness about the practice among students in both streams.
16	Singh et al. ³⁰	India	Online discussion	72 participants	2018	The 46 out of 50 educators who participated in the discussion, had one or more experiences of publication misconduct. Lack of knowledge among teachers and students, personal gains, pressure for professional advancement, and lack of monitoring were identified as underlying reasons for such misconduct. The most commonly proposed solution was a formal training program with stringent monitoring and enforcement mechanisms at the institutional level.
17	Shirazi et al. ³¹	Pakistan	Comparative study	196 (114 medical students, 84 faculty members)	2010	There was a lack of clarity about copyright rules among medical students. The faculty members showed a better understanding of self-plagiarism (90%) as compared to medical students (60%).
18	Ghias et al. ³²	Pakistan	Cross-sectional study	465 participants	2014	There were significant differences in medical students' attitudes and behaviours toward plagiarism, by gender, seniority status, and type of institution.
19	Mubeen et al. ³³	Pakistan	Cross-sectional study	592 participants	2017	The knowledge about scientific misconduct in publication was statistically significant ($P < 0.05$) among males compared to female students. Statistically significant differences were observed between public and private medical students related to knowledge of salami slicing, ghost authorship, fabrication, photo manipulation and plagiarism.
20	Olesen et al. ³⁴	Malaysia	Interview-based study (survey)	21 participants	2018	This study depicts that the most common forms of research misconduct observed in Malaysian universities include plagiarism and authorship disputes due to publication pressure, permissive attitudes, and poor enforcement of policies to punish research misconduct.
21	Olesen et al. ³⁵	Malaysia	Interview based study	21 participants	2018	Research misconduct such as manipulating data, misrepresentation of outcomes, plagiarism, authorship disputes and breach of research protocols were observed due to a lack of knowledge and poor enforcement of institutional policies against such practices.

CAUSES OF PLAGIARISM IN SOUTH, EAST, AND SOUTHEAST ASIA

The problem of research misconduct is universal and pervasive. However, the nature of the misconduct and the underlying factors differ in different parts of the world. Ironically, easy electronic access to many scientific articles via international databases enriches knowledge about the latest research and makes it easy to copy ideas presented by other researchers.³⁶ In resource-poor settings, lack of awareness, poor command of the English language, poor research environment, scarcity of resources, lack of training in scientific writing, lack of understanding of intellectual property rights, and educational practices like rote learning are the major causes of plagiarism.^{10,37,38} A vast majority of the journal editors and scholars in a survey on plagiarism in non-Anglophone countries believed plagiarism is rooted in outdated pre- and post-graduate education.³⁹ Inability to use or lack of access to referencing software, plagiarism detection software, and institutional pressure to generate scientific publications have emerged as significant contributors to plagiarism in a qualitative Iranian research paper.⁴⁰

In the worst-case scenario, a lack of moral integrity in the plagiarizing author may lead them to stoop to plagiarism to inflate the number of citations.³⁶ In many resource-poor countries, there is an environment of tolerance towards plagiarism, which is accepted with impunity.⁸ Lack of uniformity in the definition of plagiarism and code of research conduct contributes to its propagation.¹⁴ Findings from various studies from South, East, and Southeast Asian

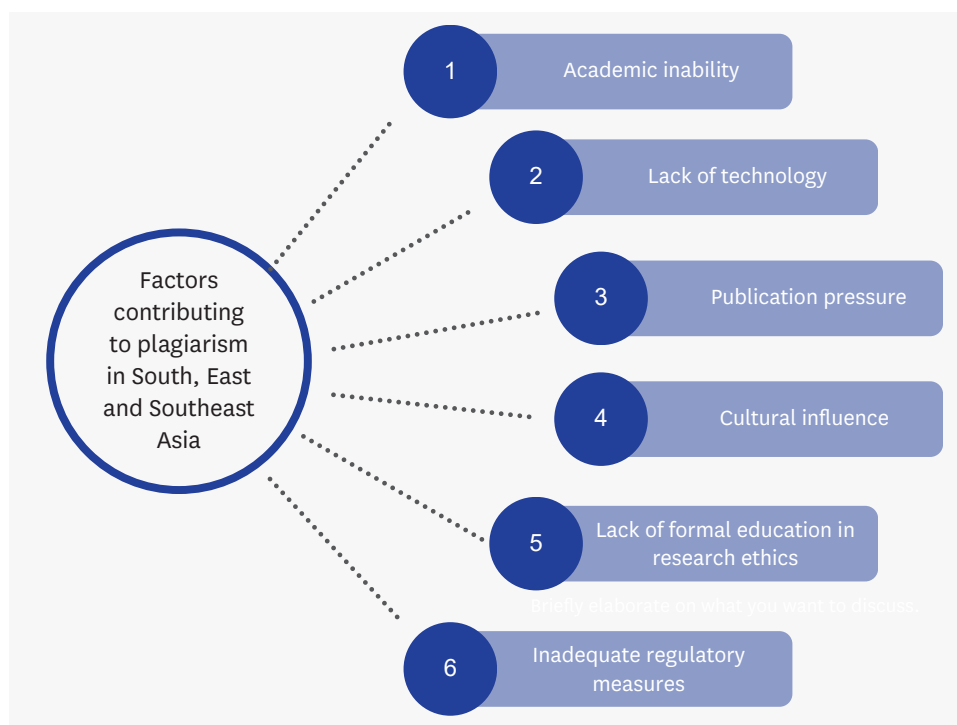


Fig. 3. Common factors contributing to plagiarism in South, East and Southeast Asia.

countries point to the fact that medical researchers lack knowledge of plagiarism and its subtle forms leading to more retractions. The “Publish or Perish” attitude has shifted the scale towards quantity, and the quality of research gets severely compromised.¹⁰ Fig. 3 below summarizes the common reasons for plagiarism in the region.

PROPOSED MEASURES TO REDUCE PLAGIARISM

The problem of plagiarism and other research misconduct is complex, multi-layered, and multifaceted. The solution to this problem should also be multipronged and addressed at different levels. To decrease the prevalence of research misconduct in South, East and Southeast Asian countries, there should be greater awareness of plagiarism and its negative consequences. It is crucial to create awareness among young researchers about what constitutes academic misconduct and plagiarism.¹⁷ Senior researchers should be involved in guiding novices against textual plagiarism.²²

Scientists and researchers in non-English-speaking, South, East, and Southeast Asian countries may often struggle to put their ideas forward in publication-worthy English. They may eventually resign to verbatim plagiarism, knowingly or unknowingly. Therefore, training in academic writing, language editing, biomedical writing, and ethics is urgently needed.⁸ Training writers to conduct a thorough literature search using international or national databases may be beneficial. They should understand and familiarize themselves with presenting their ideas or thoughts of manuscripts suitable for publication in high-quality scientific journals.^{1,3}

Core practices of the Committee on Publication Ethics recommend that journals have clear definitions of plagiarism and precise instructions on how to cite their published articles.^{2,41}

Journals should have clear policies on the possible repercussions in the event of detection of plagiarism so that authors are aware that acts of plagiarism can have consequences.² Khadilkar,³⁶ in her paper, puts out simple steps that authors can take to minimize the chances of plagiarism. Researchers should conceptualize original ideas, design the study meticulously with author roles defined, utilize institutional research board reviewer's feedback, do a thorough literature search, obtain permissions from authors whose work needs to be cited, give appropriate citations, and run the final document through plagiarism check software as per recommendations.

Fostering a healthy and ethical work environment in educational and research institutes with tolerance for failure may help reduce publication pressure. Establishing a regulatory system with stricter laws and punishments may help curb research misconduct.¹⁷ Further, Luther⁴² has suggested many solutions to the problem, including a contributor's statement, developing a regulatory body at an institutional level that checks for any misconduct before submitting a manuscript to the journal for review, and educating new researchers about plagiarism. 'iThenticate' is an example of a commonly utilized anti-plagiarism software which is now being used internationally to detect the percentage of plagiarism in a manuscript. The consistent use of such technological tools for scientific publication can help to reduce this problem substantially.⁴³

LIMITATIONS AND FUTURE PROSPECTS

This review only involves literature from some South, East, and Southeast Asia countries. The search strategy was limited to only two databases. Moreover, we only included manuscripts in the English language in this review. A more profound understanding of this complex problem can be devised by expanding the search parameters to include more databases. Additionally, each country's situation can be examined in detail to develop a deeper understanding of the prevailing patterns of research misconduct and how they can be resolved. Such efforts are of utmost importance to maintain the scientific method's sanctity and authenticity and ensure humanity's unhindered progress.

CONCLUSION

Research misconduct is ubiquitous, but its causes differ in different parts of the world. The underlying factors vary from lack of training in scientific writing, inadequate regulatory measures, scarcity of resources, and publication pressure in China and India to a lack of clear understanding of plagiarism in Pakistan and cultural acceptance of unethical behaviour in many South, East, and Southeast Asian countries. The scientific community must come together to acknowledge, understand and solve this problem using a multipronged approach adapted to the unique factors contributing to this problem in different countries. Such efforts should include enhanced training in research ethics and scientific writing combined with the creation and enforcement of stringent laws to combat this problem.

SUPPLEMENTARY MATERIAL

Supplementary Table 1

List of countries in different regions of Asia

[Click here to view](#)

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