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Research Article

Retracted Publications from Saudi Arabian Institutions: An Analysis of 2006-2025

Mir Sadat-Ali[1,*], Haifa A Al-Turki[2]

[1]Dallah Hospital, Al-Khobar, SAUDI ARABIA.
[2]Art-Haifa Fertility Clinics, Al-Khobar, SAUDI ARABIA.

ABSTRACT

The objective of this study was to scrutinize the retracted publications from Saudi Arabian institutions. From four search engines-www.pubmed.gov, https://www.scopus.com, Web of Science, and the Retraction Watch Database (https://retractiondatabase.org)-retracted publications from Saudi Arabia between 2006 and 2025 were downloaded. Saudi Arabia ranks fourth in terms of retracted publications (1541) as per the extracted data, the first three being China (18848), India (2621), USA (1552). During 2006-2025, Saudi Arabian institutions published 590,529 articles with 2,155 retractions. The top three universities with retracted publications were King Saud University (367), Taif University (172), and King Khalid University (123). This study demonstrates that articles continue to be retracted due to insincerity, data falsification and fabrication, and errors in data analysis, leading to unreliable results. All stakeholders in the field must collaborate to strengthen integrity among researchers, institutional review boards, and in-house monitoring, ensuring vigilance and timely intervention.

Keywords: Fabrication, Fraud, Plagiarism, Research Ethics, Retracted, Scientific Misconduct.

Correspondence:
Mir Sadat-Ali
Dallah Hospitals, Al-Khobar-34227, SAUDI ARABIA
Email: drsadat@hotmail.com

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INTRODUCTION

Research, discovery, and publications are important in the advancement of science and management of diseases by disseminating the findings so that researchers far away could rely on the reported findings. By 2022, the global output of publications reached 3.3 million as per the database of Scopus (National Center for Science and Engineering Statistics, 2026), among which the output of China grew by 173%. This sudden escalation of publications brought with it low-quality publications, including plagiarism, duplication, fraudulent paper mills, and unreliable data. This made editors and publishers scrutinize publications and start retracting doubtful data (Graña Possamai *et al*., 2025). It was reported that most of the retracted articles were considered capricious, either due to intentional wrongdoing and delinquency on the part of the authors (Fang and Casadevall, 2011). Academic research publications are essential for providing recognition to authors, thereby facilitating their career advancement and enhancing the prestige of their institutions. Moreover, a higher volume of publications can increase a university's standing, which is often viewed as a broader measure of prestige and reputation, influenced by both accreditation and external rankings (Richardson *et al*., 2025; Saudi Electronic University, 2026). This has led institutions to mandate publications by faculty staff, giving incentives, prompting researchers to publish more frequently, sometimes with manipulated or flawed data, while institutions overlook these issues. Such practices have drawn the attention of the scientific community, resulting in the retraction of numerous publications (QS Top Universities, 2026). A retraction occurs when a published manuscript is withdrawn by editors or authors from the scientific citation records due to data falsification, misconduct, or serious flaws rendering their results and conclusions unreliable (Fang *et al*., 2012; The Science of Retraction, 2002; Stroebe *et al*., 2012).

Retractions are not a new phenomenon; the first known retraction occurred in 1756 when Mr. Benjamin Wilson published in the Philosophical Transactions of the Royal Society (Oransky, 2012). As early as 2008, concerns were raised about the increasing number of fraudulent articles, and this practice has continued without significant repercussions (Cokol *et al*., 2008; Nath *et al*., 2006; Steen *et al*., 2013; Grieneisen and Zhang, 2012). In 2023, over 10,000 articles had been retracted for various reasons (Van Noorden, 2023). Many developed and developing countries are affected by this issue, Saudi Arabia being no exception. In the past decade, the number of Saudi Arabian publications has grown by an unprecedented 320%, with a yearly increase of 16% (University World News, 2026; Chogthu *et al*., 2025). This shift has made the

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country vulnerable to a rise in retractions due to incidents of malpractice, fabricated data, and questionable publication ethics.

Limited research has been published on this subject in Saudi Arabia, and our primary objective was to meticulously analyze the data on retractions of publications originating from Saudi Arabia and its collaborating institutions, and to suggest preventive strategies to limit future publication retractions.

METHODOLOGY

Using four search engines-PubMed, Scopus, Web of Science, and the Retraction Watch Database-retracted publications from Saudi Arabia between 2006 and 2025 with keywords such as Retraction, Paper Mills, Publication Incentives, Fraud, Research Misconduct, and Saudi Arabia were searched. From each database, searches included full-record dates of the publications, principal and collaborator authors, institutional affiliation, funding agencies, and collaborator countries. Any publication linked to a Saudi Arabian institution and author, irrespective of nationality, was included. The data were meticulously analyzed for the year of publication, the number of publications retracted, institutions involved, funded studies, specialization, and fields of study.

In the medical field, different sub-specializations were categorized separately. Every effort was made to remove duplicate citations using EndNote 2025 citation software, with duplicates identified based on title, authors, and year of publication. The authors chose not to investigate the reasons for retraction, as a retraction is a retraction, irrespective of the ascribed cause-whether due to compromised or duplicated data, falsified data, paper mills, or compromised peer review. Lastly, we analyzed misconduct specifically in the medical field, as this group deals with the lives and well-being of individuals. The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flowchart was used to analyze the retrieved articles (Figure 1) (Moher *et al*., 2009).

Data Extraction and Assessment

Once all the articles to be reviewed were collected, the authors (MSA and HAT) screened the articles independently to determine which articles would be included for the analysis. As duplicate articles were removed, each article and the data in it were recorded by an individual author and later compared by both authors. If there was any discrepancy, it was resolved by discussion and consensus. Articles that met the inclusion criteria had appropriate data extracted.

RESULTS

From 2006 to 2025, Saudi Arabian institutions published 590,529 articles in various journals worldwide, and during this period, there were 2155 retractions, equating to 3.64 retractions per thousand publications. Figure 2 illustrates the various countries with retracted publications, with Saudi Arabia standing in the fourth place. China, with over 18848 retractions, was the highest retraction in the world, and with 1541 retractions, Saudi Arabia stood in the fourth place. The break-up of the retractions relating to the top 5 institutions was as follows: 367 publications from King Saud University, 172 from Taif University, 123 from King Khalid University, 98 from Princess Nourah Bint Abdulrahman University, and 79 from King Abdulaziz University. Figure 3 the reasons were primarily data falsification, ethical issues, and included fraudulent data, untrue authorship claims, and general misconduct related to professional codes of ethics. The percentages of these reasons were not analyzed. Figure 4 includes all authors, including collaborative authors from 57 countries. India, Pakistan, Egypt, and China were the top four collaborators, making them 93% of all retractions with collaborative countries. Figure 5 presents the funding institutions associated with the retracted publications. Among these agencies, King Saud University stood out. Among the medical fraternity, 710 publications were retracted, with the top five disciplines being Biochemistry, Genetics and Molecular Biology (289, 40.7%), Immunology and Microbiology (124, 17.5%), Neurosciences (85, 11.9%), Pharmacology, Pharmaceutics and Toxicology (68, 9.7%), and Internal Medicine (56, 8%) (Figure 6). The number of retracted articles began to rise significantly from 2019, with 44 retractions, increasing threefold in 2020 to 121, and further steeply to 799 in 2022, culminating in a total of 2,155 retractions by 2025 (Figure 7).

DISCUSSION

Our review indicates that cumulative published articles from Saudi Arabia that were retracted reached a staggering all-time high of 2,155 by 2025. Notably, staff from the oldest university in the country, King Saud University, based in Riyadh, was responsible for the highest number of retracted articles, with the same institution funding these research studies. Reportedly, Saudi Arabia has approximately 64 universities, including 29 governmental and 15 private universities, along with technical colleges and academies. Why articles of researchers from King Saud University stand out in retractions is probably due to a combination of factors, including administrative pressure to improve global rankings, incentive-driven publications, and reliance on compromised international collaborations. It was highlighted as early as 2011 that foreign researchers were paid to list King Saud University as their primary employer, and some of these publications ended in retractions (Bhattacharjee, 2011). Faculty members are mandated to conduct research and publish for promotions and to ensure continued employment, often receiving ad hoc payments per publication. This has led to an explosion of scientific publications, not only globally but also within Saudi Arabia, where there was a 20% increase in publications between 2018 and 2022, with a 146% increase in publications (KAUST, 2026; Babour and Alzamzami, 2022). Sebo and Sebo (2025) reported that Saudi Arabia ranks seventh

in the world for overall retractions, following China, the USA, India, Russia, Iran, and Japan. Surprisingly, in the medical field, Saudi Arabia is positioned ninth globally, raising serious concerns given the number of medical colleges in the country. Koo and Lin (2024) reported that the top five specializations with retracted articles were Oncology, Biochemistry and Molecular Biology, Cell Biology, Medicine, Research and Experimental, and Pharmacology and Pharmacy. In our analysis, we found that the top five departments from which articles were retracted included Biochemistry, Genetics and Molecular Biology, Immunology and Microbiology, Neurosciences, Pharmacology, Toxicology and Pharmaceutics, and Internal Medicine, indicating that Biochemistry, Pharmacology, and Internal Medicine are common specializations both locally and internationally.

Another issue identified in this review is that the increase in global research collaborations and funding has also been responsible for the reporting of dubious and fabricated data, which caused the retraction of articles from Saudi Arabian publications. Our analysis does not support the findings of other reports indicating that collaborative work tends to have lower rates of retraction (Tang *et al*., 2020; Zhang *et al*., 2020), as the majority of the retracted articles originated from studies and publications involving collaborators. Saudi Arabian researchers must exercise caution when selecting foreign collaborators before conducting studies and reporting results.

In response to the rapid rise in retracted articles from 2015 onwards, the Ministry of Health in Saudi Arabia acknowledged the escalating issue of publications with spurious, manipulated data. The Guidelines on Ethical Conduct and Publication of Health Research were published in 2022, and the General Directorate of Research and Studies (GDRS), Ministry of Health, Saudi Arabia, published guidelines and made recommendations regarding the responsibilities of researchers and their duties (Ministry of Health Saudi Arabia, 2025). This intervention resulted in a reduction of retracted articles to less than 50% in 2022, a trend that continued into 2024. However, the average time from publication to retraction is approximately 32.91 months, and the next 30 months will perhaps reveal the true impact of these

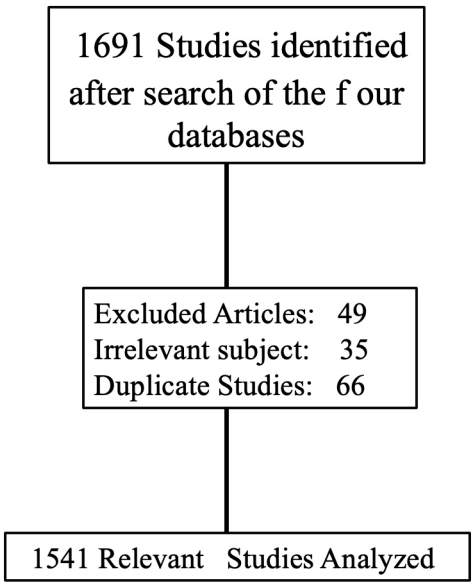

Figure 1: PRISMA flowchart Showing the Search and Analysis.

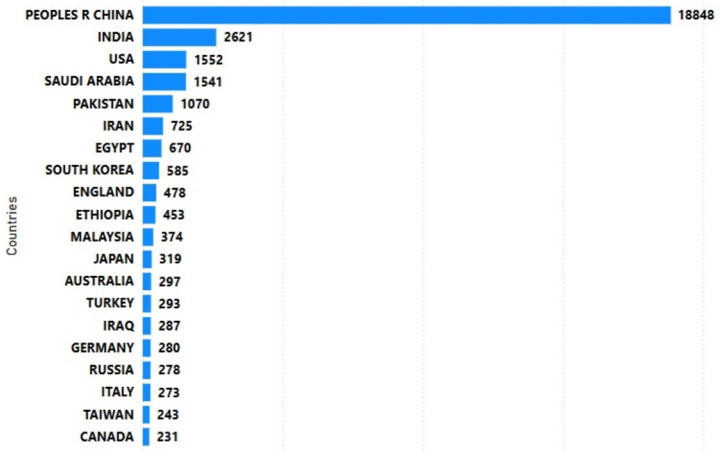

Figure 2: Retracted Publications from various Countries of the World.

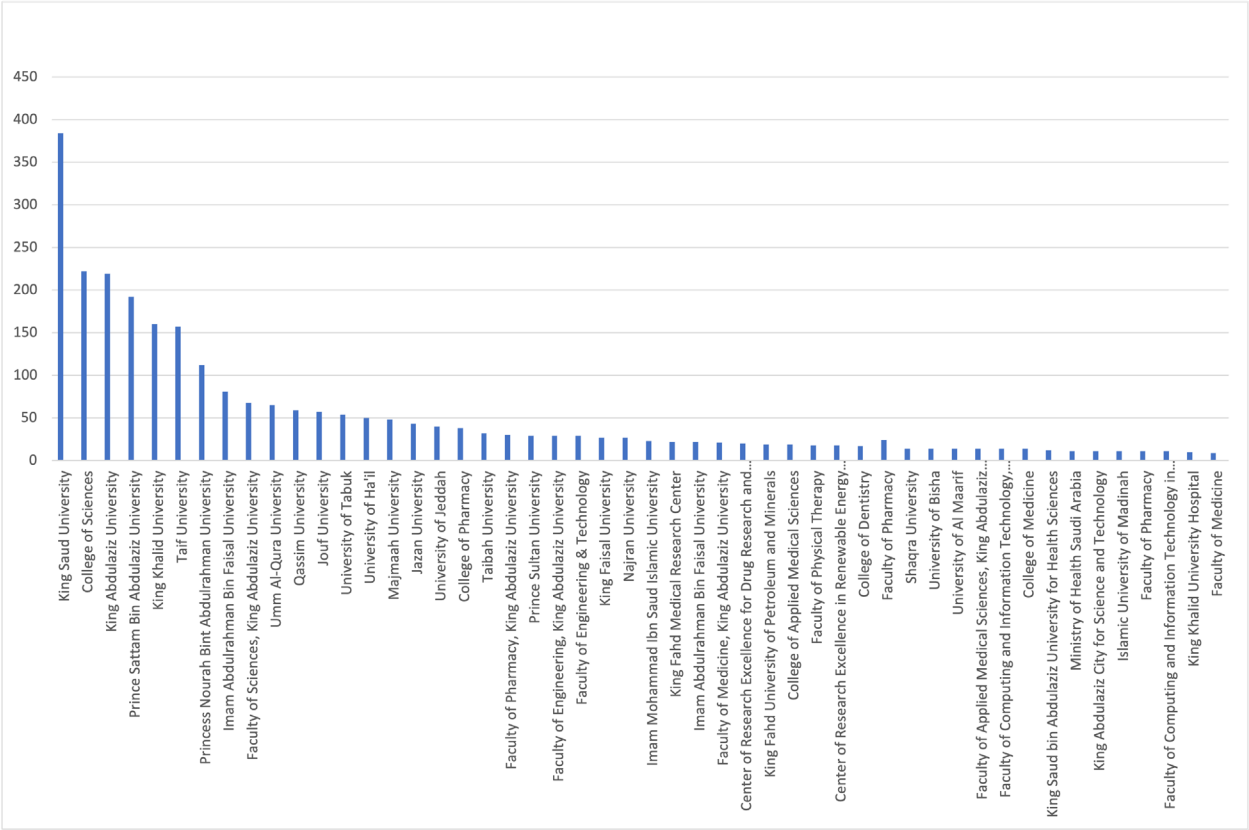

Figure 3: Retracted Publications of Saudi Arabian Institutions and Collaborators 2006-2025.

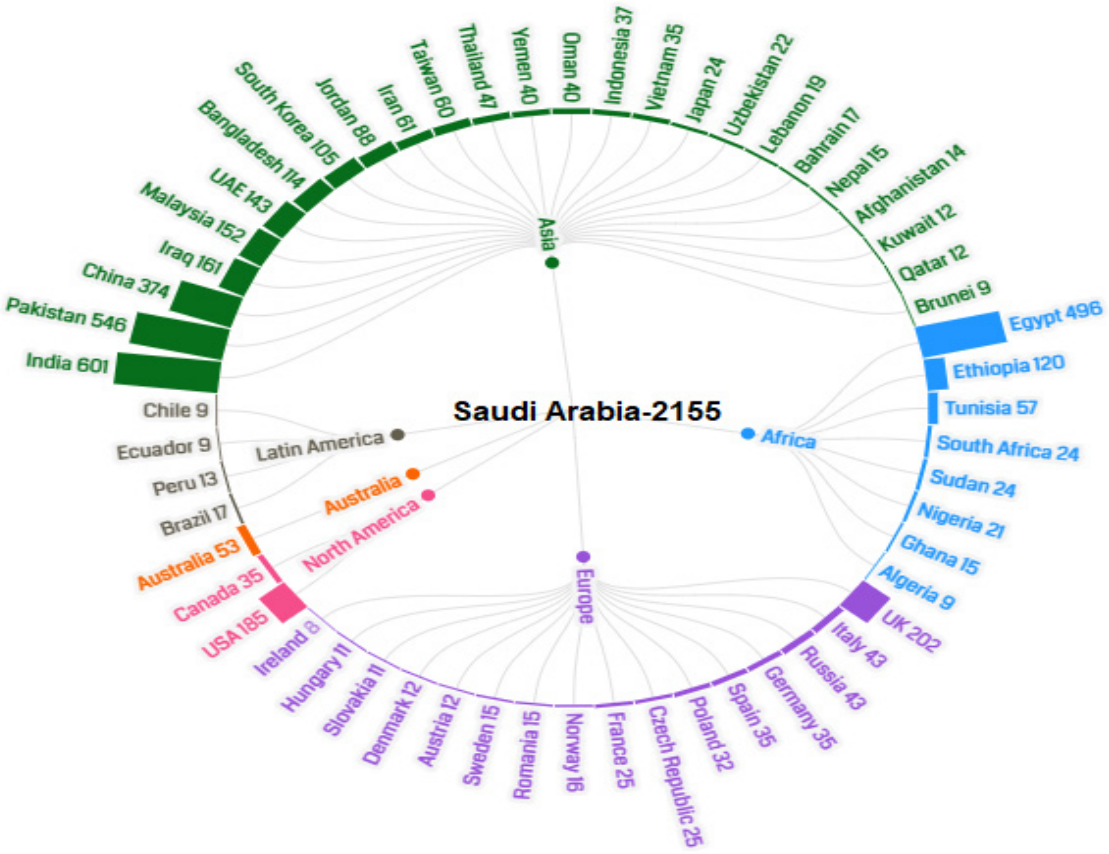

Figure 4: Retracted Publications from Saudi Arabian Collaborator Countries.

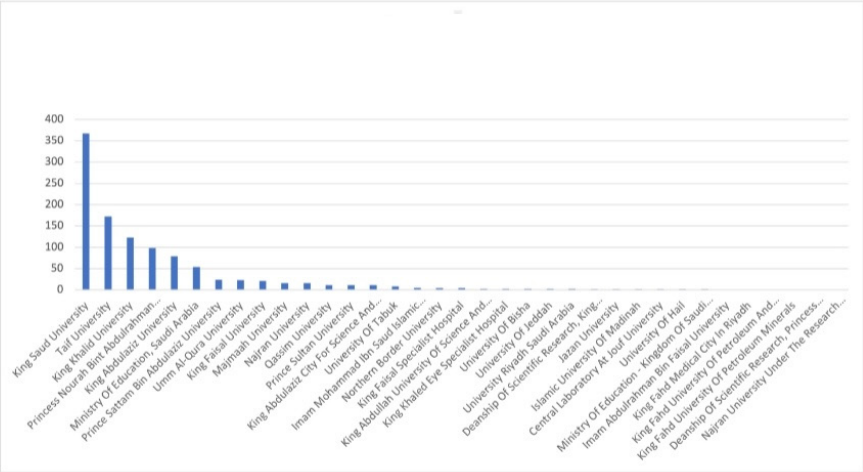

Figure 5: Saudi Arabian Funding Institutions of the Retracted Publications.

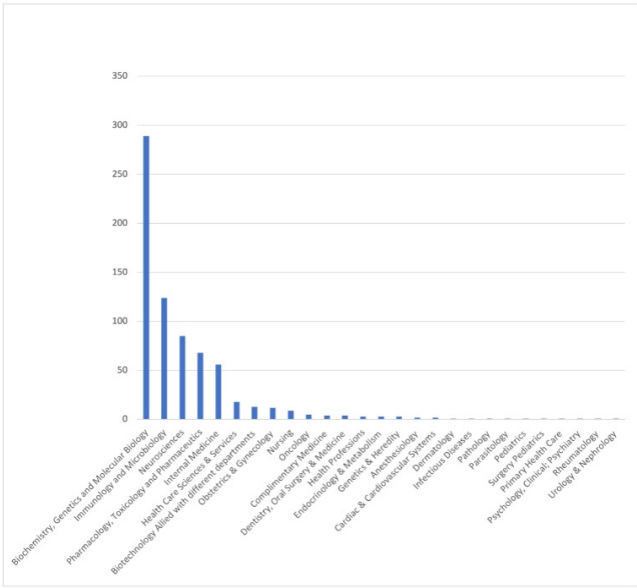

Figure 6: Retracted Publications from Saudi Arabia related to Medical Field.

interventions on retracted articles from Saudi Arabia (Singh *et al*., 2014; AlRyalat *et al*., 2020).

We believe that several recommendations are warranted, including a resolute focus on ethical training at all levels of education, careful vetting of collaborators for any previous indiscretions, and the establishment of research monitoring departments in major institutions to ensure rigorous oversight. Further, authors of retracted publications should face some disciplinary action, reprimands, and warnings of serious consequences for repeat offenses as first authors or part of the research team. Lastly there should be repeated continuous medical education lectures, reminders and dialogues about ethical importance when performing trials, writing up the articles and double checking the data before submission of publications. This approach will

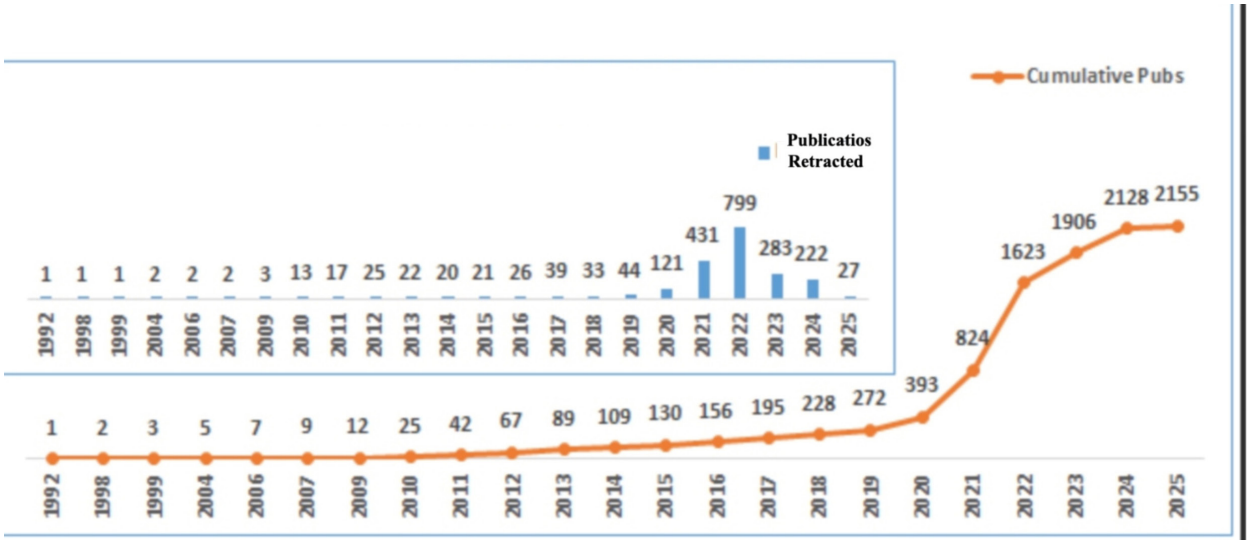

Figure 7: Yearly Retracted Articles from Saudi Arabia.

encourage researchers to form ethical teams committed to honest work, thereby producing reliable results without data fabrication.

While this study has limitations, including the potential for missing articles or inadvertently repeating retracted articles, secondly, we could not label each retraction and its cause or causes and its strength lies in the comprehensive analysis of retracted data from Scopus, Web of Science, PubMed, and the Retraction Watch database, with careful categorization by subject. Another positive feature of our article is that we scrutinized all the publications and individually separated them subject-wise, including the various departments of the field of medicine.

CONCLUSION

In conclusion, this study highlights that articles continue to be retracted due to spurious data fabrication, falsification, and errors in data analysis, leading to unreliable results. Many retracted articles are cited as genuine work, potentially misleading other honest researchers. Although early and timely interventions by the Ministry of Health through guidelines have reduced the number of retracted articles, we cannot afford to be complacent. All stakeholders in the field must collaborate to strengthen integrity among researchers, institutional review boards, funding agencies, and in-house monitoring departments, ensuring vigilance and timely intervention.

ABBREVIATIONS

BDA: Big Data Analytics; **GDRS:** General Directorate of Research and Studies; **KAUST:** King Abdullah University of Science and Technology; **MOH:** Ministry of Health; **PRISMA:** Preferred Reporting Items for Systematic Reviews and Meta-Analyses; **QS:** Quacquarelli Symonds.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

AUTHOR CONTRIBUTION STATEMENT

Both authors have worked equally from the beginning until the writing of the manuscript, and both have agreed the final manuscript.

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