

Prevalence, Characteristics, and Trends in Retracted Spine Literature

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INTRODUCTION: While scientific misconduct and retracted publications are of great importance, they are often overlooked, and little work has been done to elucidate their significance in the spine literature. In order to better inform journals, authors, and readers, the present study provides a close look into the rates and reasons for retraction of Spine research, with a consideration for journal impact factor and subspecialty. Our hypothesis is that there is a rise in the prevalence and trends in retracted spine literature. The goal of this study is to understand and characterize the causes of retraction in spine literature over the past 24 years.

METHODS:

Multiple databases (PubMed; MEDLINE; EMBASE; CINAHL) were queried for retracted papers within the field of spine surgery, between January 2000 and May 2023. The initial search yielded 112,668 results, which were analyzed by two independent reviewers. All original studies available in English that mentioned spine surgery, spine conditions, spine procedure outcomes were initially included. Studies that did not provide full-text or those of cadaveric studies were excluded. Two independent reviewers reviewed each article and disagreements were settled via a third reviewer. In the end, 125 studies were jointly identified as retracted spine research papers and the following data was collected: reasons for retraction, date of publication, date of retraction, impact factor of journal, countries of research origin, and study design.

RESULTS:

In total, 125 articles met the inclusion criteria and were included in this study. The most common reasons for retractions of paper were fraud (n=58), plagiarism (n=22), peer review process manipulation (n=16), intrinsic errors of the paper (n=13), duplicate (n=9), no ethics approval (n=5), data ownership/copyright issue (n=5), author's choice (n=3), no reason given (n=3), and other (n=1). All 125 retracted articles were clinical studies; no basic science articles retracted over the study time span. Papers that were retracted also led to further retractions of meta-analysis reviews, which used the invalid literature. Impact factors ranged from 0.3 to 11.1 with a median of 3.78. Average months from publication to retraction across all studies was 36.82 months. Further, the higher the journal impact factor the shorter the amount of time between publication and retraction date ($p < 0.001$). The countries where retracted research originated were as follows: China (n=63), Japan (n=28), United States of America (n=8), Korea (n=6), Germany (n=4), Australia (n=3), India (n=2), Italy (n=2), Greece (n=2), Egypt (n=2), Canada (n=1), Poland (n=1), South Africa (n=1), Romania (n=1), and Iran (n=1). Since 2000, the number of retracted publications in spine literature has gradually increased, peaking at 19 retracted publications in 2017.

DISCUSSION AND CONCLUSION:

While retractions are not particularly prevalent in the spine literature, our results demonstrate that the rate of retractions has been increasing over time. Furthermore, the most frequently cited reasons for retraction were fraud, plagiarism, and peer review process manipulation. These trends are especially concerning given that many retracted publications are cited in the literature both prior to and after their retraction. Increased awareness of this issue is needed to prevent this trend from continuing and to limit the citation of retracted publications in the future.