

ANESTHESIOLOGY

Inappropriate Citation of Retracted Articles in Anesthesiology and Intensive Care Medicine Publications

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EDITOR'S PERSPECTIVE

What We Already Know about This Topic

- Research articles may be retracted for reasons ranging from honest errors to intentional misconduct
- Retracted articles are occasionally cited in articles published subsequent to the retraction, although they should not be

What This Article Tells Us That Is New

- The Retraction Watch database was used to identify 478 retracted anesthesiology and critical care medicine articles, 220 (46%) of which were cited at least once after retraction
- A survey was sent to 417 of the corresponding authors of the articles citing retracted articles (30% of 1,402 such articles) who could be contacted and agreed to participate in a survey designed to determine reasons for citation of retracted articles
- Most of the corresponding authors ($n = 372$, 89%) were unaware that they had cited a retracted article largely because of missed identification of the retraction status in the journals or search database ($n = 229$, 62%) and use of a stored copy of the article ($n = 42$, 11%)

ABSTRACT

Background: Retracted articles represent research withdrawn from the existing body of literature after publication. Research articles may be retracted for several reasons ranging from honest errors to intentional misconduct. They should not be used as reliable sources, and it is unclear why they are cited occasionally by other articles. This study hypothesized that several mechanisms may contribute to citing retracted literature and aimed to analyze the characteristics of articles citing retracted literature in anesthesiology and critical care.

Methods: Using the Retraction Watch database, we retrieved retracted articles on anesthesiology and intensive care medicine up to August 16, 2021, and identified the papers citing these retracted articles. A survey designed to investigate the reasons for citing these articles was sent to the corresponding authors of the citing papers.

Results: We identified 478 retracted articles, 220 (46%) of which were cited at least once. We contacted 1297 corresponding authors of the papers that cited these articles, 417 (30%) of whom responded to our survey and were included in the final analysis. The median number of authors in the analyzed articles was five, and the median elapsed time from retraction to citation was 3 yr. Most of the corresponding authors (372, 89%) were unaware of the retracted status of the cited article, mainly because of inadequate notification of the retraction status in journals and/or databases and the use of stored copies.

Conclusions: The corresponding authors were generally unaware of the retraction of the cited article, usually because of inadequate identification of the retracted status in journals and/or web databases and the use of stored copies. Awareness of this phenomenon and rigorous control of the cited references before submitting a paper are of fundamental importance in research.

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Retracted articles represent research works withdrawn from the existing body of accepted literature after publication. Research articles may be retracted for several reasons ranging from intentional misconduct to honest errors in data. Literature on anesthesiology and intensive care medicine, as in other fields of science, is not immune to retracted literature, with intentional misconduct being the main cause of retraction.¹ Regardless of the reason, retracted articles should not be used as a source of information because intentional misconduct or honest error renders the results and conclusions unreliable and potentially misleading.

This article is featured in "This Month in Anesthesiology," page A1. This article is accompanied by an editorial on p. 280. Supplemental Digital Content is available for this article. Direct URL citations appear in the printed text and are available in both the HTML and PDF versions of this article. Links to the digital files are provided in the HTML text of this article on the Journal's Web site (www.anesthesiology.org). This article has a visual abstract available in the online version.

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Citing retracted literature is a common problem, wherein articles retracted decades ago continue to be cited.² This practice could substantially affect the authors' metrics and ongoing research. Continued citation of retracted articles may result in citations of the retracted author and perpetuate flawed scientific data. Indeed, the retracted literature may be used to provide the rationale for sample size calculation or as an element of discussion, thus creating issues in the integrity and longevity of the published manuscript.^{3,4}

Although Fanelli *et al.*⁵ have recently shown that the epistemic cost due to retracted articles does not seem to be of paramount impact, the probability of citing and including them into evidence-based analyses needs careful evaluation.

Our study aimed to evaluate the citations of retracted articles in anesthesiology and intensive care medicine and understand the reasons for this. We hypothesized that several mechanisms (*e.g.*, failure to double-check references before submission, retraction status not clearly labeled in the literature database or website, and not considering retraction as a serious concern) contribute to the citation of retracted articles.

We analyzed articles citing retracted literature in anesthesiology and intensive care medicine and performed a cross-sectional study investigating the reasons for the citation of retracted literature.

Materials and Methods

Analysis of Citations of Retracted Publications

Retracted Literature Search. The Retraction Watch database (<http://retractiondatabase.org/RetractionSearch.aspx?>),⁶ maintained by Retraction Watch (New York, New York), was used to identify the retracted articles on anesthesiology and critical care.⁷ Retraction Watch is a nonprofit news outlet, founded in 2010, that covers retractions and related issues in scholarly literature.

We collected a dataset of retracted articles published up to August 16, 2021. The database categorizes retracted articles by subject matter. We extracted the subgroup of interest

labeled in the dataset as "(HSC) Medicine - Anesthesia/Anesthesia," comprising both intensive care- and anesthesia-related articles. Each identified article was manually checked to confirm that the articles had actually been retracted.

The following data were extracted from the retrieved articles: title, authors, publication date, retraction date, and journal name.

Articles Citing Retracted Literature

For each retracted article, a complete list of the citing articles published since the year of retraction was retrieved from Scopus. After the initial screening, two members of the research team (A.D.C. and S.D.P.) independently performed a second screening, using the full publication date as a reference, to identify erroneously included articles. Our analysis included both articles and book chapters, and we excluded scientometric articles discussing retraction practices.

We collected the following information for each retrieved paper: corresponding authors' mailing details and country, number of authors, article type, and publication date.

For both the retracted articles and citing articles, the Scimago Journal Rank was retrieved using the publication year of the citing article as a reference. Scimago is a publicly available portal that includes the journal and country scientific indicators developed from the information contained in the Scopus database and utilizes the Scimago Journal Rank as a metric to evaluate journal impact based on the citations, references, and number of articles in the journals indexed in Scopus.⁸ Scimago assigns journals to one or more subject categories, of which "Anesthesiology and Pain Medicine" and "Critical Care" are two separate categories of 313 categories. For each category, the journals are divided into quartiles (1, 2, 3, and 4) based on the Scimago Journal Rank, with quartile 1 comprising journals with the top 25% highest Scimago Journal Rank and quartile 4 comprising those with the lowest 25% Scimago Journal Rank, without a prespecified minimum or maximum Scimago Journal Rank for each quartile.

Survey of Reasons for Citations of Retracted Publications

Survey Design. An online survey was also conducted. The survey protocol was examined by the Institutional Review Board of the University Hospital of Padua, Italy, and a waiver for formal approval was granted considering the nature of the study (protocol reference: 65681).

We followed the existing recommendations for designing high-quality surveys.^{9,10} After a preliminary bibliographic search in order to identify existing and validated surveys, the survey items were designed following Peterson's brief, relevant, unambiguous, specific, and objective (BRUSO) model,¹⁰ followed by a two-phase process of pretesting. We referred to the checklist for

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reporting results of Internet E-Surveys (CHERRIES)¹² to enhance the quality of our study.

The bibliographic search of PubMed, Scopus, Embase, and World of Science was conducted by a member of the team (A.D.C.) using a combination of the following terms: (“scientometric” OR “retraction” OR “retracted” OR “citation”) AND (“survey” OR “cross-sectional”).

Since no existing surveys or survey questions related to this topic were found, we developed a survey comprising seven single-choice and multiple-choice questions to investigate the awareness and motivations for citing a retracted article. The number of questions was intentionally low to decrease the rate of both nonresponders and partial responders, but we did not randomize the order of the questions. The complete list of survey questions is available in Supplemental Digital Content 1 (<http://links.lww.com/ALN/C873>).

Preliminary test

To enhance the effectiveness of the survey, a pretest was conducted in two phases.

In the first phase, the survey team reviewed the whole survey with particular attention to the order of the questions to avoid “skip” or “branch” logic mistakes in the survey flow. “Skip” and “branch” are logic tools used in survey design. The “skip” mechanism permits respondents to skip questions based on users’ responses, while the “branch” mechanism creates two or more survey branches based on respondents’ answers. In the second phase, the survey was sent to 20 residents of the University Hospital of Padua, Padua, Italy, to identify any problems in the order or clarity of the questions. Moreover, testers were asked to record the time required to complete the survey, which was confirmed to be less than 5 min.

Population of Interest and Survey Distribution Plan

The population of interest in this survey was identified as the authors of articles citing retracted literature. The corresponding author of each article was contacted by email and asked to respond by email. For articles citing more than one retracted article, the corresponding authors were contacted *via* a single email, requesting a response for all citations. To minimize the rate of nonresponders, five reminders were sent since the initial contact, with at least 7 days between each reminder. No incentives were offered to participate in this survey.

If the retrieved email address was not functional or there was no email address mentioned in the article, further corresponding author contacts were searched in more recently published articles and institutional websites.

The corresponding authors were asked to respond to the email by attaching the completed electronic version of the survey, and the responses were collected for 3 months from October 11, 2021, to January 13, 2022.

Data Protection

Each of the corresponding authors of articles citing retracted articles was assigned a consecutive integer number to store the information in an Excel (Microsoft Corporation, USA) file protected by a password known to only one of the authors (A.D.C.). The same author stored the file in a system other than where the database was stored, and without access to a third party. A consecutive integer was used to assign survey responses to the corresponding database data. After this, emails containing the survey response were deleted. Moreover, at the end of the survey, the file storing the emails of the corresponding authors was deleted. The collected data regarding retracted articles will be available upon reasonable request from the Retraction Watch and the Center for Scientific Integrity (New York, New York) to researchers, subject to the Retraction Watch data use agreement, while the deidentified survey data generated and analyzed in this study are available upon reasonable request.

Statistical Analysis

No *a priori* power calculation was used to guide the sample size. The normality of the distribution of quantitative characteristics was verified using the Shapiro–Wilk test. Nonnormally distributed variables are presented as median (first and third quartiles), while categorical variables are presented as numbers and percentages.

Nonnormally distributed variables were compared using the Mann–Whitney U test. Categorical variables were compared between the two groups using the chi-square test or Fisher exact test when appropriate. All tests were two-tailed; *P* values less than 0.05 were considered statistically significant.

Nonresponse bias was evaluated by comparing the following variables, using the appropriate tests described above, between the respondent and nonrespondent groups: country of the corresponding authors, number of authors per article, publication year, type of journal publishing the article, and article type. Nonresponse bias occurs when the characteristics of nonresponders from a sample differ significantly from those of responders; its assessment is vital in cross-sectional studies, as this type of bias could limit the generalizability of the results. All statistical analyses were conducted using R, version 3.4.0 (2017-04-21).

Results

Literature Citing Retracted Articles

The flowchart of the study is shown in figure 1A. From the Retraction Watch database, we identified 478 retracted articles on anesthesiology and intensive care medicine. Among these, 220 retracted articles (46.0%) were cited at least once.

The initial citation search yielded 2,277 potential articles citing a retracted article. Considering that 554 articles were published before retraction occurred and 155 were

scientometric articles discussing article retraction, 1,568 articles were included in the qualitative analysis.

Of these 1,568 included articles, 166 were considered duplicates, as some cited more than one retracted article; thus, 1,402 articles were included in the survey analysis.

Of the included articles, there were 415 (30%) review articles (91 of 415 meta-analyses), 397 (28%) randomized controlled trials, 258 (18%) cohort studies, 132 (9%) animal or laboratory research, 96 (7%) book chapters, 42 (3%) case

report/case series, 26 (2%) editorial/comments, 14 (1%) guidelines/expert opinions, 2 (<1%) surveys, and 20 (1%) articles classified as “others.”

The median number of authors of the articles was 5 (3 to 6), and the elapsed time from retraction to citation was 3 (1 to 5) yr, with a maximum of 28 yr.

According to the Scimago classification of journals, 394 (28%) articles were published in anesthesiology or critical care journals, 862 (61%) were published in

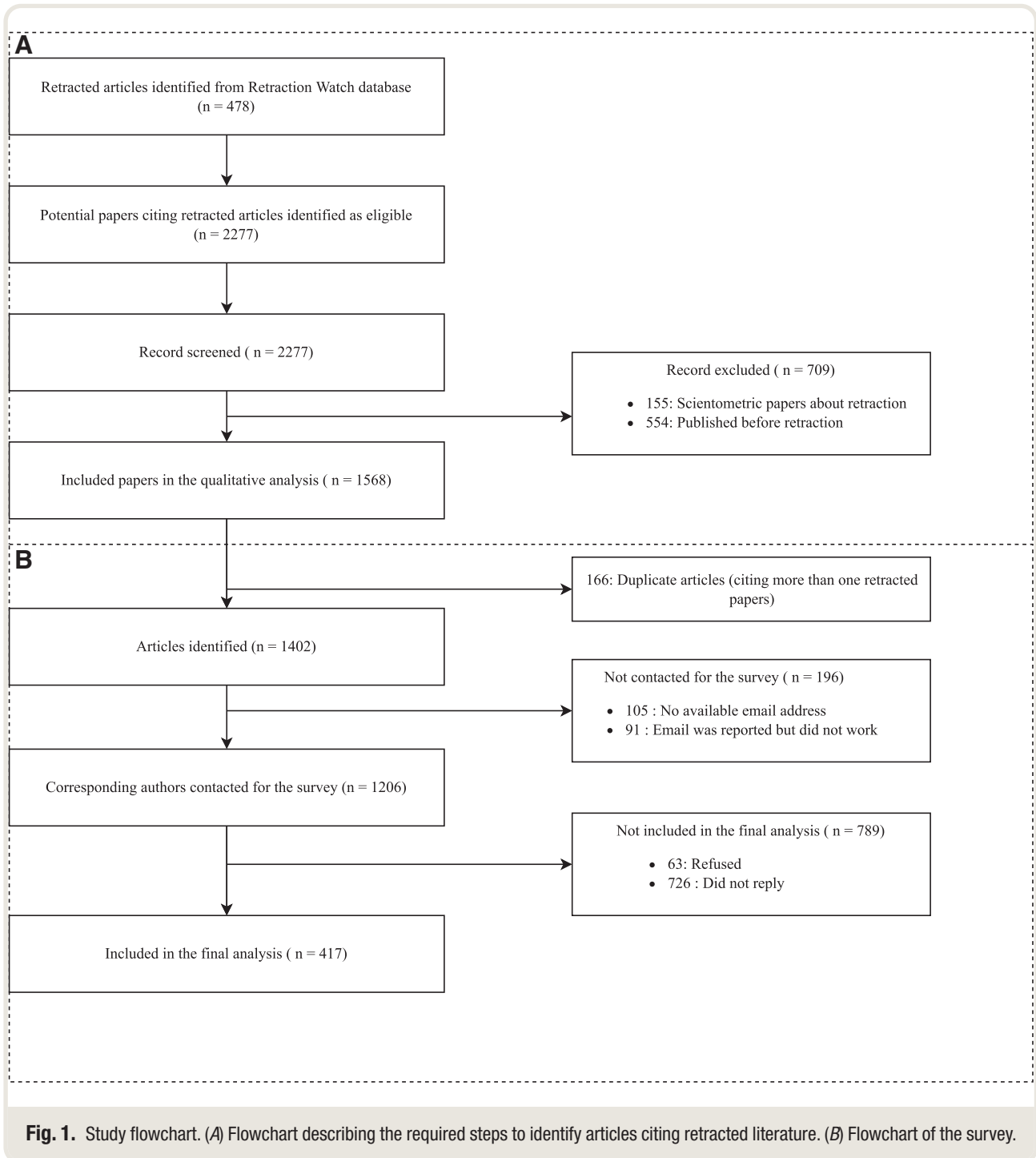


Fig. 1. Study flowchart. (A) Flowchart describing the required steps to identify articles citing retracted literature. (B) Flowchart of the survey.

journals of other fields, 50 (4%) were not categorized, and the remaining 96 (7%) were book chapters. Anesthesia and intensive care journals with the corresponding number of articles with retracted citations and the number of published articles in the time period studied are available as Supplementary Digital Content 2 (<http://links.lww.com/ALN/C874>).

Most of the cited retracted articles were published in anesthesiology or intensive care journals (1,069, 76%), with the majority of articles published in high-ranking journals (993 in quartile 1 journals, 58 in quartile 2, 13 in quartile 3, and 5 in quartile 4). Regarding the citing articles, only 394 (28%) were published in anesthesiology or critical care journals; there were 134 articles published in quartile 1 journals, 140 in quartile 2, 77 in quartile 3, and 41 in quartile 4, while the remaining two were not ranked.

Survey

A flowchart of the survey is shown in figure 1B, with 1,402 potential corresponding authors contacted for inclusion in the survey analysis. The corresponding author's email address was not reported or recoverable elsewhere in 105 articles. In total, 1,297 emails were sent, 91 (7.0%) of which were not delivered because the mailboxes were full or no longer existed.

After the last reminder, we had 480 (34%) responses to our survey, with 63 (4%) respondents refusing to participate. Finally, 417 (30%) respondents were included in the analysis.

Most respondents were unaware of having cited a retracted article ($n = 372$, 89%). This occurred despite a strategy to check for the presence of retracted articles ($n = 182$, 49%) and at least one author checking the reference before submission ($n = 262$, 70%). The main reasons for this were missed identification of the retraction status in the journals and/or search database ($n = 229$, 61.6%) and the use of a stored copy of the article ($n = 42$, 11%). Notably, the majority of respondents, 249 (67%), did not believe that the retracted article played a role in the study design or discussion of the results.

Some respondents ($n = 45$, 11%) were aware of the retraction status. Most researchers knowingly citing retracted articles used them as an example of a retracted article ($n = 35$, 78%).

Responses to the survey are summarized in table 1.

Assessment of Nonrespondents

The analysis of the nonresponders is shown in table 2. Responders' and nonresponders' characteristics did not differ based on the country (fig. 2), number of authors per article, publication year, and type of journal publishing the article. Nevertheless, there may have been bias regarding the type of articles published ($P = 0.009$).

Discussion

The main result of our study was that most authors citing a retracted article in their research were unaware of the retracted status, mainly because of inadequate notification of the retraction status in journals and/or databases and the use of stored copies.

Although several analyses have been conducted on the topic of retracted articles in anesthesiology and critical care,^{1,13} no study has evaluated the retraction issue using a combination of comprehensive analysis and a survey-based approach. This phenomenon includes many problems that should be addressed through multicomponent research strategies. For example, an important aspect to be evaluated is the citation of articles many years after retraction. In their longitudinal analysis (from 1960 to 2020), Hsiao and Schneider¹⁴ highlighted that retracted papers continue to be cited, but their citation trend progressively decreases. Notably, in our study, we found that citations often occurred within 10 yr after the publication of the retracted article; however, there were sporadic cases of citations of articles occurring up to three decades after their retraction. In this period, the inclusion of data from retracted studies in evidence-based medicine analyses can occur easily¹⁵ and potentially affect the reliability of scientific evidence.¹⁶

The link between journal ranking (quartile 1 to quartile 4), retracted articles, and their citations is another aspect that requires careful evaluation. Notably, although Fiore *et al.*¹ demonstrated that there is no difference in the quartile 1 to quartile 4 distribution of retracted articles, the retracted articles published in high-ranking journals (quartile 1) were cited most frequently. This is not surprising, as authors tend to cite articles from prestigious and high-impact journals. In an investigation of approximately 4,000 articles, the average impact factor of the cited journals at the time of publication was 3.262.¹⁷ Furthermore, in our investigation, most citations were found in journals of different scientific areas, and only approximately one fourth of these were in anesthesia- and critical care-related journals. Thus, these findings suggest that approaches useful for abating retracted investigations, such as replication strategies involving reproduction of the same study project in another setting,¹⁸ are needed. These approaches should be combined with more rigorous publication processes and substantial mentorship programs for the authors, editors, and reviewers. According to Nato *et al.*,¹⁹ multicomponent approaches should be encouraged to strengthen the "pact of trust" between authors, journals, and readers. Interestingly, the Reducing the Inadvertent Spread of Retracted Science project is an ambitious program aimed at reducing the unintended spread of retracted literature. It provides information on the research institutions, scientific societies, government agencies, funding companies, publishers, and other stakeholders involved. The research agenda includes the development of guidelines to recognize and prevent the dissemination of retracted manuscripts.²⁰

Table 1. Survey Responses

Were you aware that the article was retracted when you initially cited it?		
	No (N: 372)	Yes (N: 45)
1. References were double-checked before the submission?		
Yes, by an author	148 (40%)	11 (24%)
Yes, by two or more authors	112 (30%)	21 (47%)
Yes, by a librarian	2 (< 1%)	0 (0%)
No	92 (25%)	5 (11%)
No answer	18 (5%)	8 (18%)
2. When developing the publication, which strategy did you use to check whether any of your references have been retracted?		
Manually searched for the article on the journal website	73 (20%)	19(42%)
Used an automated tool	29 (8%)	2 (4%)
Manually searched using a tool, database, or website	80 (21%)	12 (27%)
None	172 (46%)	4 (9%)
No answer	18 (5%)	8 (18%)
3. Did any editor or reviewers raise any issue regarding the retracted reference?		
Editor	0 (0%)	0 (0%)
Reviewers	2 (< 1%)	0 (0%)
Both	4 (1%)	0 (0%)
None	349 (94%)	42 (93%)
No answer	17 (5%)	3 (7%)
4. If you were aware of the article being retracted, why did you cite it?		
Paper findings were too relevant	—	7 (16%)
Minor issue caused retraction, not influencing the paper validity	—	3 (7%)
I/my group wrote the cited article and I was confident in the paper's validity.	—	0 (0%)
As example of retracted literature	—	35 (78%)
5. If you were not aware of the article being retracted, what is the main reason?		
Not adequately highlighted in the journal	56 (15%)	—
Not adequately highlighted in the search database	143 (38%)	—
Not adequately highlighted in both journal and search database	30 (8%)	—
Poor coordination in our team	41 (11%)	—
Poor coordination in our team and not adequately highlighted	4 (1%)	—
Retraction is/was not considered as an issue	8 (2%)	—
Use of a stored copy of the article	42 (11%)	—
No answer	48 (13%)	—
6. Was the retracted reference substantially important for your paper or for any part of it?		
For all the paper	16 (4%)	0 (0%)
Introduction	2 (< 1%)	0 (0%)
Power size calculation or statistical analysis	8 (2%)	0 (0%)
Discussion	74 (20%)	9 (20%)
Conclusion	2 (0%)	0 (0%)
I think it had no impact on our paper	249 (67%)	26 (58%)
No answer	21 (6%)	10 (22%)

Careful analysis of the causes of retraction is crucial for promoting required improvements. Therefore, in the second step of this study, the mechanisms underlying citations of retracted articles were investigated using a survey.

Identification of retracted articles is indispensable. In their editorial, Pfeil and Goldhammer highlighted that many manuscripts had been retracted on the publisher's website but not on PubMed or other directories. Furthermore, a lack of retraction notification is common. They suggested sending quarterly or annual reports containing lists of retracted articles to authors of scientific articles included in journal databases (e.g., corresponding authors), perhaps divided by specialty.²¹ In our investigation, most authors (89%) were unaware of the retraction status of the article they cited, and there are probably

multiple reasons for this lack of knowledge. For example, some authors commonly use printed or stored copies, and they may fail to verify whether the article they are citing has been retracted. Nonetheless, several software programs (e.g., EndNote 20, Clarivate, London, United Kingdom) have been recently developed and implemented to detect retractions. Their routine use could be advantageous in the resolution of this potentially serious problem.

Authors must exclude retraction when checking references, and it is important to follow precise strategies. Interestingly, in the survey responses, approximately 70% of the respondents reported that citations were checked by one or more authors. This finding was comparable with that of the authors who were aware of having cited a retracted article (71%) and those who were not (70%; table 1).

Table 2. Assessment of Nonrespondents Bias

	Nonrespondents (N: 985)	Respondents (N: 417)	P Value
Country			0.445
Article type			0.009
Book chapter	74 (7%)	22 (5%)	
Case report/series	32 (3%)	10 (2%)	
Cohort	185 (18%)	73 (17%)	
Editorial/comments	19 (2%)	7 (2%)	
Guidelines/expert opinion	8 (1%)	6 (1%)	
Meta-analysis	62 (6%)	29 (7%)	
Animal or laboratory research	109 (11%)	23 (5%)	
Review	214 (22%)	110 (26%)	
Randomized controlled trial	269 (27%)	128 (31%)	
Survey	0 (0%)	2 (< 1%)	
Other	13 (1%)	7 (2%)	
Number of authors	4 (3–6)	5 (3–7)	0.051
Journal classification			0.392
Anesthesiology or critical care journal	271	123	
Book chapter	74	22	
No classification	33	17	
Other journal	607	255	
Publication year	2015 (2013–2018)	2015 (2012–2017)	0.181

To explore the nonrespondents bias, relevant characteristics among respondents and nonrespondents were compared using the Mann–Whitney U test for nonnormally distributed variables and the chi-square test for categorical variables. The chosen variables were country, article type, number of authors, journal classification, and publication year. The comparison for the variable country is depicted in figure 2 (B and C as reference).

Nonetheless, in the latter group, approximately half of the respondents failed to adopt a retraction-checking strategy.

Almost all respondents (94%) declared that editors or reviewers did not raise issues regarding retracted references. Retraction-checking strategies vary among the journals. These approaches should be a routine part of the reporting guidelines, especially for systematic reviews and meta-analyses. For example, some journals recommend using an *ad hoc* string that includes the term “retraction” and the author’s name. Nevertheless, according to the International Committee of Medical Journal Editors, authors are responsible for checking that none of the references cite retracted articles.²²

The identification of a retracted article is a key step in avoiding citation. In our investigation, the responders of the group of authors who were not aware of the article being retracted affirmed that neither was the retraction note adequately highlighted by the journal (15%) nor was it clearly indicated in the search database (39%). Although most retracted articles contain a retraction note, according to Nair *et al.*,¹³ the quality of these watermarks varies among journals. Evidently, the absence of pre-established labels on retracted articles complicates the recognition process. Hence, these labels should be clearly applied to library databases. Moreover, as suggested by Rong *et al.*,²³ standardizing the processes after retraction is warranted to draw attention to controversial articles.

Remarkably, up to one in five of those who recognized that the citation was retracted affirmed that they quoted it

because of its relevant findings (16%) or assumed that the retraction did not influence research validity (7%). However, most authors (78%) used citations as examples of retracted literature. The latter seems to be a legitimate use of retracted citations, but it is recommended that authors include the retraction notice.

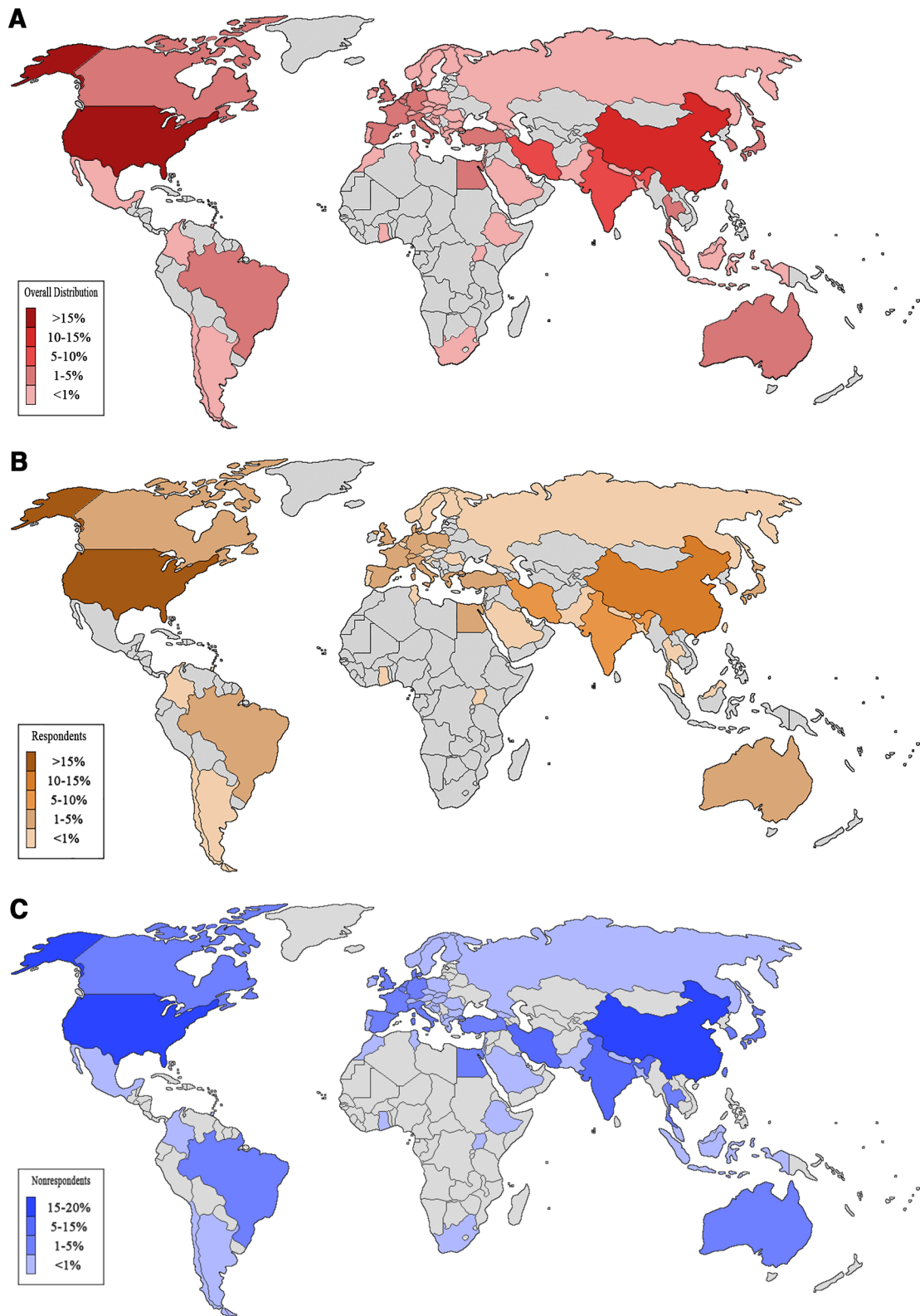
Finally, we evaluated whether citing retracted articles affects the quality of the articles that cited them. Two thirds of the authors stated that the retracted reference was not substantially important for their paper. Consequently, the reasons for citation of these articles remain unclear.

Limitations

First, a single-source-based search strategy, the Retraction Watch database, may not have allowed the identification of all retracted articles. Nevertheless, we have previously reported that Retraction Watch summarizes elements from different datasets, even those not commonly used for systematic research.¹

Second, the survey results do not allow for generalization given the presence of a possible nonrespondent bias for the article type characteristics ($P = 0.009$). Despite this limitation, the bias analysis of the respondents was satisfactory for all the other variables assessed (table 2).

Third, we included all papers citing retracted literature, regardless of the elapsed time since retraction. We recognize that papers published shortly after the retraction may not be able to identify the retraction status regardless of the efforts of the authors, reviewers, and editors.



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Fig. 2. Comparison among overall, respondent, and nonrespondent populations. (A) Graphical representation of the overall geographical distribution of the population of interest for the survey. (B) Geographical distribution of survey respondents. (C) Geographical distribution of survey nonrespondents.

Conclusions

Although citation of retracted literature in the anesthesiology and intensive care medicine fields occurred in approximately 1,000 articles, which could be considered uncommon, it is still a significant phenomenon. Moreover, citations occurred up to three decades after retraction. Articles published in high-impact journals accounted for most of the citations. Most of the corresponding authors (89%) were unaware of the retraction of the cited article, mainly because of inadequate notification of the retraction status in the journals and/or web databases and the use of stored copies.

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Competing Interests

Dr. Navalesi's research laboratory received grants/research equipment from Draeger (Lubeck, Germany), Intersurgical SPA (Mirandola, Italy), and Gilead (Foster City, California). Dr. Navalesi receives royalties from Intersurgical SPA for the Helmet Next invention. He also received speaking fees from Getinge (Gothenburg, Sweden), Intersurgical SPA, Gilead, MSD (Rahway, New Jersey), Draeger, and Medicaire (Vigonza, Italy). Dr. Navalesi has no conflict of interest to declare in relation to this manuscript. The other authors declare no competing interests.

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Survey, <http://links.lww.com/ALN/C873>
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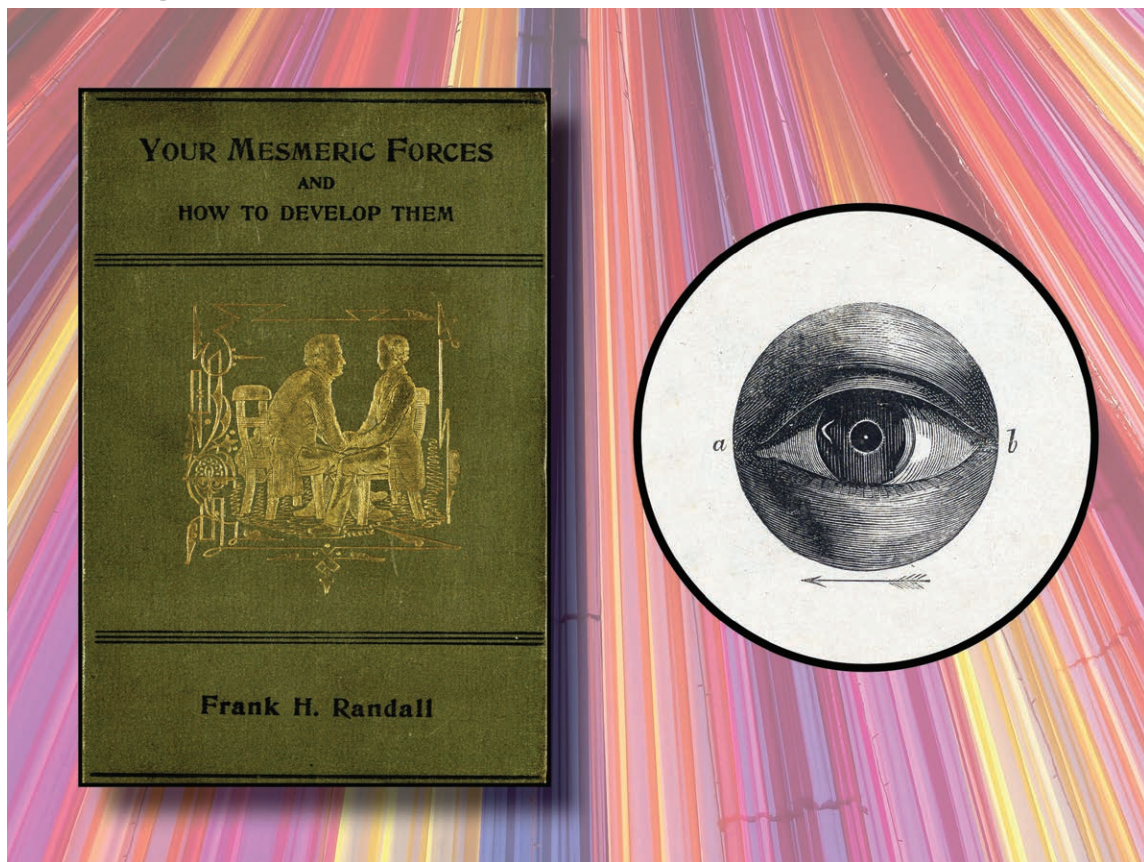
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ANESTHESIOLOGY REFLECTIONS FROM THE WOOD LIBRARY-MUSEUM

Painless Surgery Did Not Mesmerize Robert Liston until Ether Caught His Eye



After he demonstrated ether anesthesia in December 1846, famed London surgeon Robert Liston (1794 to 1847) exclaimed, “This Yankee dodge, gentlemen, beats mesmerism hollow.” Mesmerism was popularized by German physician Franz Anton Mesmer (1734 to 1815), who posited that the magnetic force streaming through the heavens, earth, and “animated” bodies (including people) was *the* medical panacea ensuring overall health. This force could be controlled by magnets, ocular engagement, or body maneuvers wielded by trained operators. Facing broad and enduring academic opposition, mesmerism prospered somehow for over a century, thanks to popular books like *Your Mesmeric Forces and How to Develop Them* (1901, left) by Frank H. Randall. Mesmerism inspired the practice of hypnotism and influenced modern psychology’s early concepts of the subconscious. Psychology and anesthesia crossed paths for this brief time in Lister’s mid-19th-century London. Though surgical mesmerism was ultimately discredited, it sparked cultural interest in pain relief, which set the stage for accepting surgical anesthesia. (Copyright © the American Society of Anesthesiologists’ Wood Library-Museum of Anesthesiology. www.woodlibrarymuseum.org)

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