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White Paper

Rising tide of plagiarism and misconduct in medical research

Plagiarism and other forms of misconduct are a growing problem in research. When factored for the increase in articles published, there has been a 10 fold increase in the rate of article retraction over the past 20 years. A quarter of those retractions are due to plagiarism and duplication, often referred to as self-plagiarism, and a larger portion of retractions are fraudulent or fabricated work.

Unfortunately, this rise in unethical research is having severe consequences on the medical profession. Not only is money and time being wasted trying to replicate questionable research, precious publication space is also wasted on duplicative papers. More importantly, the ethical issues are beginning to increasingly impact the level of trust that the public puts into the medical profession. Even worse, patients sometimes receive ineffective or harmful treatments based on poor or unethical research.

Although there are many potential solutions, there is no single floodgate to restraining misconduct in medical research. Stemming the tide of bad research will require a concerted effort at all levels and roles in the field of medical research—from the researchers that pen new papers to the journals themselves and even the doctors who receive the final publications. Without addressing the issue directly and broadly, the issue and its consequences are only likely to grow.

Contents

Introduction: The rise of plagiarism

In December 2010 issue of the journal Anesthesia and Analgesia, the editor of the publication posted a notice of retraction, stating that they had become aware that a recently published manuscript entitled "The effect of celiac plexus block in critically ill patients intolerant of enteral nutrition: a randomized, placebo controlled study" had portions of it found to be plagiarized from five other manuscripts. The retraction would have been fairly mundane, if still somewhat disappointing, if it had not been for a separate request for retraction in the same issue. In that request for retraction, an Indian physician requested that a manuscript he had contributed be retracted due to the discovery of plagiarized material inside it. That, too, would be uninteresting if it weren't for the fact that the Indian paper was one of the five papers cited in the retraction for the first. Meaning that the first paper was retracted, in part, for plagiarizing from a paper that was retracted for plagiarism.[1]

However, such is the nature of medical research as plagiarism continues to grow as a problem. Increasingly questionable research is being built upon other faulty research. While this creates a serious problem for journal editors, it can create bigger problems for doctors working in the field and patients who may be receiving faulty treatment.

Retractions: Solution to a growing problem?

A 2009 analysis of the Thomson Scientific Web of Science database for the Times Higher Education revealed that, when adjusted for the increase in published papers, the rate of retractions has increased 10 fold in the past 20 years.[2]

And while the number of retractions is still fairly low—95 out of more than 1.4 million published papers— many experts have expressed concern that this represents only a small fraction of the problem. James Parry, the chief executive of UK Research Integrity Office said in an interview with the Times Higher Education that, *"Even on a conservative estimate of one percent misconduct, we might expect 15,000 retractions a year, but we have a lot less."*

These findings are mirrored closely by Grant Steen, the author of a 2010 paper in the Journal of Medical Ethics that looked at the number of retractions in the PubMed database from 2000 to 2010.[3]

In an interview with Retraction Watch, Steen said that *"the rate of retraction definitely increased year-by-year over the period I evaluated."* Steen also noted that the rise in retractions could be caused by a variety of factors, including increased use of plagiarism detection tools and publishers retracting farther and farther back to purge their databases of *"false science."* [4]

However, retractions only tell a part of the story, as only published posts are retracted. According to Kim Mitchell, the Journal Publications Director at Landes Bioscience, a firm that publishes over 40 journals, just one of the company's journals, *"Cancer Biology & Therapy"*, rejected 221 article submissions for plagiarism in 2012.

Mitchell stated that among those articles rejected, 43 had more than 40 percent of the content similar to another paper. Half of those cases were matters of self-plagiarism, and the other half involved more traditional plagiarism.

However, the journal has not yet had to retract any submitted articles due to plagiarism because of its diligent filtering, which prevents plagiarized papers from running in the company's publications. "*We haven't had to retract anything since we started using iThenticate and CrossCheck,"* Mitchell said.

Mitchell isn't the only one working to filter out plagiarized submissions before publication. The problem became so serious for the Singapore Medical Journal and the Medical Journal of Malaysia that the two publications released a joint statement in 2008 reminding researchers of the ethical issues surrounding plagiarism and reminding them not to use unattributed works in their papers.[5]

Finally, and most seriously, there's the issue of known plagiarism appearing in a work, but it not being retracted. Retraction Watch cited a recent report for the Serbian science ministry by the Center for Evaluation in Education and Science (CEON/CEES) which found that, across all fields including medicine, 11 percent of scientific journal articles published in English in Serbian journals contained plagiarism.[6] However, there were only six retractions despite over 123,000 articles published since 2000.

In short, plagiarism, as well as misconduct in general, is a growing problem for the medical field and it's one that jeopardizes both the reputation of the field and, ultimately, the health of patients.

Reputations marred across medical research

The impact of plagiarism and misconduct is significant and broadly felt. Unethical behavior, for example, slows the pace of new research and innovation by causing researchers to duplicate efforts and attempt to replicate flawed studies.

According to Kim Mitchell, these delays have been felt sharply at her journals. Though Landes Bioscience makes a great deal of effort to quickly reach decisions on submitted papers, the delay caused by dealing with plagiarism and other ethical issues has doubled the time it takes to reach a decision on a manuscript.

"Initially, from submission to first decision was 30-35 days. Now, after the influx of plagiarized papers, it takes a month just to go through the papers and send them back for review. It now takes about 60 days to first decision," Mitchell said.

This delay keeps critical research out of the hands of colleagues and practitioners that may need the information to help patients or advance their research.

Further, misconduct creates an issue of trust, especially with the general public. Patients need to feel certain that their doctors have both the correct information to treat them and that they are being cared for by people with their best interest at heart. Scientific misconduct, however, can make this very difficult.

Brain research

For example, in 2010 the UK medical journal, The Lancet, retracted a controversial 1998 report by Dr. Andrew Wakefield that seemingly showed a link between the MMR vaccine and autism. The move came after an article by reporter Brian Deer identified undisclosed financial conflicts of interest in the work, prompting the British General Medical Council to investigate Wakefield and find 36 counts of proven misconduct.

However, largely because of Wakefield, many members of the public grew to distrust the MMR vaccine and, as recently as 2009, one study found that as many as a quarter of parents believed vaccines can cause autism.[7]

Cancer research

Earlier this year, an editorial by French cancer researchers was retracted from the Journal of Clinical Oncology over allegations of plagiarism.[8] According to the retraction, the editorial contained uncited material from six other works, including content published between 2007-2011.

The retraction would have been unremarkable except one of the physicians who had signed the editorial was Dr. David Khayat, a prominent French oncologist who has routinely been involved in his country's policies on cancer research, including convincing the government to increase spending on research and treatment.

According to the authors of the paper, the work was a commentary piece and the first author did not properly cite materials in lines over two pages of commentary. Though it seems likely to have been a simple but avoidable mistake, it cast a black mark on the reputation of a physician who has been crucial in advocating for government investment to advance cancer research.

Medical psychology

The field of psychology, an area already struggling to build a positive image with the public, has been hit hard by allegations of plagiarism and misconduct.

In 2008, one of the UK's best-known psychiatrists, Dr. Raj Persaud, was suspended from practice for three months by the nation's General Medical Council after he admitted to nine counts of plagiarism. Dr. Persaud, who was a media celebrity in the country, blamed the plagiarism, in part, on his hectic schedule and said that he never intended to deceive.[8]

However, the GMC disagreed saying that they were, *"in no doubt that your (Dr. Persaud's) dishonest conduct and plagiarising other people's work on multiple occasions represents a serious breach of the principles that are central to good medical practice."*

Dr. Persaud not only lost many of his media positions after the scandal but also resigned as a consultant for a London hospital, South London and Maudsley NHS Foundation Trust.[9]

Unfortunately, that would not be the only ethics scandal psychiatry and psychology would face.

In 2011, Danish social psychologist Diederik Alexander Stapel was found to have fabricated data in some 30 papers, all of which were retracted,[10] and soon thereafter, another social psychologist, Dirk Smeesters, was found to have fabricated data in two papers, both of which were retracted.[11]

The result of these scandals was not just research time and money wasted on flimsy and fraudulent results, but the harm to the public's trust and perception. This mistrust is summarized in a 2009 paper published in World Psychology that found perceptions of psychiatry in the news media are largely negative and quoted an earlier study focusing on the media's coverage of the John Hinckley trial by saying that psychiatry is seen as "a discipline without true scholarship, scientific methods, or effective treatment techniques." [12]

While clearly the mistrust of the field began well before the recent scandals, the Drs. Persaud, Stapel and Smeesters scandals certainly haven't helped. The authors of the World Psychiatry paper recommend that psychiatrists "*strictly observe ethical rules in the practice of psychiatry and to maintain professional competence"* as a means to prevent the stigmatization of the field.

Growing need for prevention

Practitioners in the medical field involved with medical research and students looking to enter the medical field are directly impacted by these issues. Ethical issues, such as the ones listed above, not only waste time and money that could be spent on quality research, but also harm the reputations of their fields and destroy careers of potentially promising physicians and researchers. Maintaining high integrity standards and ethical research practices is key to the success of the medical research community.

Medical researchers

For medical researchers, maintaining good ethical practices is paramount. This means, among other things, not fabricating or altering data, not deliberately plagiarizing work and checking work thoroughly.

Also, although medical writers are often touted as a means of preventing plagiarism[13], there have been incidents of misconduct.[14] This makes it crucial for researchers to check papers rigorously, especially if additional writers were involved.

Doctors, physicians and healthcare practitioners

Doctors, as the users of the research others produce, are on the front lines when bad information is published. It's important for doctors to be critical of the work they read and raise suspicions when they feel something is amiss.

For example, the inconsistencies in Smeesters' work were first noticed by an associate professor at the University of Pennsylvania, Uri Simonsoh, who, in turn, alerted Smeesters' university.[15]

With the tools for checking for ethical violations, and for plagiarism in particular, so broadly available, those who are reading the published data can often catch issues that are overlooked during the peer review process.

Medical professors and students

It is the responsibility of educators at medical institutions and departments to teach their students about writing ethics and best practices. In turn, medical students need to abide by their instructors' and institutions' integrity policies, and ensure that both their coursework and any research they assist in is up to the highest standards. As with researchers, students need to work to avoid both intentional ethical issues and mistakes.

Being involved in unethical research, especially at a graduate level, can severely harm career prospects, so students are urged to ensure that everything they author or contribute to is of the highest quality and standards.

Medical journals

Unfortunately for medical journals, not only are the number of retractions on the rise, but the vast majority of those retractions are caused by fraud, including 25 percent of which are due to plagiarism or duplication.[16]

To reduce retractions and improve the quality of research, it's critical for publishing organizations to strengthen the review process, and thoroughly examine submitted works prior to publication. Editors may decide to check submissions at different points during the review process, but nearly all agree to do it before publication. According to a survey of 129 editors conducted by iThenticate in December 2012, 97 percent believe that it is best to check work for plagiarism before publication.[17]

iThenticate, leading plagiarism detection software for researchers, and CrossRef, a not-for-profit membership association of scholarly publishers, encourage their members to publicize their use of the service in their submission systems and in their author instructions communications to actively deter authors from submitting plagiarized or duplicate work as early in the process as possible.

Other publishers, like the British Medical Journals (BMJ), have come out publicly to let authors know they will screen papers at the point of acceptance.

Kim Mitchell has found that the best time to check a work for plagiarism is shortly after it's submitted and before it is sent out for peer review. This way, the reviewers' time is not wasted examining manuscripts that will ultimately be pulled from consideration and potential issues with a paper can be resolved quickly.

Mitchell has also determined that technology can help with this process greatly: *"If you're not using a plagiarism detection system, put one in place."* Though Mitchell said her company doesn't check every paper, they do run a plagiarism scan on the discussion section of original research papers and, "*if we get a high result on the discussion we run the entire paper,"* she said.

A recent survey by CrossRef suggests that Similarity Check members are taking a variety of approaches to plagiarism screening such as ones that screen all manuscripts on submission (like Anesthesia & Analgesia[18]) and those who do so for all accepted papers, like the BMJ Group. *"Many take Landes Bioscience's approach and do some triage based on sections of text or a subsection of papers, which can be useful, depending on the volume of submissions and available resources,"* stated Rachael Lammey at CrossRef.

Detecting flawed research early, using a system like Landes Bioscience, not only helps prevent retractions, maintain the reputation of the journal and make room for better research to be published, but it also enables researchers to edit minor errors to be edited from otherwise solid work and resubmit the paper for publication.

Conclusion

The importance of dealing with misconduct in medical research cannot be understated. Poor quality and unethical research not only wastes time and money that could be spent on more significant and impactful projects, but faulty research also helps foster a distrust of the medical field, an area where trust is especially important, and can even result in patients receiving harmful treatments.

In order to reduce the amount of poor quality research that is published, including both retracted and un-retracted articles, there needs to be a concerted effort from all involved in the medical field, including researchers, journals and healthcare practitioners.

"The problem of plagiarism is a growing one. The only way that it's going to be solved, as an ethical problem, is to have a lot more retraining both here and abroad,"

Kim Mitchell said. It is only through a broad, concerted effort to reduce unethical research that the pace and quality of good research be increased and the public's trust in the profession and its advancements be restored. Such efforts will only serve to improve the quality of care for patients and the general health of the public.

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