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A serious threat to publishing ethics and research integrity:
Citations to hijacked journals

Academia is faced with growing unethical challenges including fake papers (Dadkhah et al., 2023a), bogus metrics (Dadkhah et al., 2022a; Jalalian, 2015), peer review manipulation (Dadkhah et al., 2018), predatory journals (Beall, 2021; Chen et al., 2023; da Silva, 2022; Kendall & Linacre, 2022; Oermann et al., 2018, 2019), and recommending questionable journals by ChatGPT (Dadkhah et al., 2023b), among others. Many of these challenges
are known to researchers and professors. However, there is a less discussed phenomenon entitled "hijacked journals", which has a negative effect on science integrity and researchers themselves who submit papers to these journals, assuming they are legitimate ones. Dr. Mehrdad Jalalian coined this term to describe the fraudulent websites that mimic original reputable journals by hijacking their names and ISSN (Jalalian & Mahboobi, 2014). Journal hijacking is the process of creating a website(s) for reputable indexed journals without having permission from the original journal (Andoohgin Shahri et al., 2018; Dadkhah et al., 2021). In this fraudulent activity, hackers publish papers by charging authors. Hackers usually search for web domain addresses that are similar to the original journal domain address to launch hijacked version(s) (Jalalian, 2015).

In a new advanced journal hijacking process, hackers monitor the domain address of the original journal, and when it has expired, they register that domain and gain control of the original domain. This advanced type of journal hijacking was detected for the first time by Dr Mehdi Dadkhah and was described as a special case in 2015 (Bohannon, 2015). Hijacked journals are different from predatory journals that have their websites and ISSN but do not meet editorial and publishing standards (Abalkina, 2021; Dadkhah et al., 2022b; Grudniewicz et al., 2019; Oermann et al., 2018, 2019, 2023).

Dealing with the phenomenon

There is a lack of awareness among researchers about hijacked journals. Researchers may submit their manuscripts to hijacked journals without realizing these are not reputable indexed journals. The number of authors who publish in these journals is increasing day by day (Dadkhah & Maliszewski, 2015; Menon & Khosravi, 2019). The detection of hijacked journals is possible by checking the URL of journals in Web of Science (WoS), the registrant information of the journal domain, and journal information in Scopus (Abid & Yousif, 2022; Asadi et al., 2017; Jalalian & Dadkhah, 2015; Moussa, 2021b). There are also some features of hijacked journals, such as the web structure of the journal website, number of published papers per issue, and rank of the journal website in search engines that can be used to detect hijacked journals through the use of classification algorithms (Andoohgin Shahri et al., 2018). There are difficulties in using these methods, especially for novice researchers, as they require technical
knowledge. An easier method is to check a list of detected hijacked journals. There is an updated list of known hijacked journals maintained by Retraction Watch (The Retraction Watch Hijacked Journal Checker, 2022). Researchers can use this list to check each journal’s website before submitting papers.

The negative impact of hijacked journals

Hijacked journals also have negative effects in terms of decreasing the rankings of universities, research centers, and countries, propagating fake science (since hijacked journal articles are not peer-reviewed), and wasting research budgets (Dadkhah et al., 2021; Dadkhah & Maliszewski, 2015). Citations to published papers in hijacked journals disseminate information that is not peer-reviewed beyond the original article in the hijacked journal, spreading it throughout the literature. The problem is even more critical when citation-based indexes, such as WoS and Scopus, publish articles in hijacked journals by mistake (Bohannon, 2015; Dadkhah et al., 2017). Research by Salim Moussa indicated that questionable versions of marketing journals received 25 citations from 13 reputable SSCI-indexed marketing journals from 2013 to 2019 (Moussa, 2021a). There are many innovation potentials in the tourism sector (Chen et al., 2022; Dávid & Dadkhah, 2023; Priatmoko et al., 2021; Lengyel et al., 2019), and hijacked journals can hurt this by publishing related papers.

Diagnosis of the citations to published papers in hijacked journals

To shed light on the current status of citations to published papers in hijacked journals, the WoS database was selected as the source of citation data. WoS is a highly credible and popular citation database with a rigorous journal selection process (Dabbagh et al., 2019). The list of known hijacked journals by Retraction Watch was used as the source of hijacked journals. The name of each hijacked journal was then searched in WoS as the cited work. The cited year was limited to 2022.

The returned results by WoS were analyzed to identify which cited articles had been published in the hijacked versions of the authentic journals. It should be noted that by searching the title of each hijacked journal in WoS,
the citations to published papers in both the authentic and hijacked versions were identified. In the next step, we checked the titles of the cited papers to determine which of those were published in the hijacked versions of the journals. In some cases, it was difficult to confirm the hijacked version of a journal, so we excluded those cases from the results.

There were 53 citations to 48 published papers in hijacked journals. These citations come from 47 papers in WoS (articles and reviews) that were written by a total of 202 authors. The SPECIAL USIS UGDYMAS (9 papers with 9 citations), Multicultural Education (8 papers with 12 citations), TELEMATIQUE (5 papers with 5 citations), YMER (4 papers with 4 citations), and Journal of Optoelectronics Laser (3 papers with 3 citations) were top cited hijacked journals.

The profile of citing journals

The analysis of citing journals (authentic journals) based on Scimago (scimagojr.com) indicates that nearly 80% of them are Q1 and Q2 journals, mainly non-open access (about 65%). Dissemination of this information published in hijacked journals that were not peer-reviewed is occurring through WoS in mainly high-quality indexed journals. The lack of awareness of both authors and reviewers is the main reason for citations to hijacked journals. Authors and reviewers were not able to identify hijacked journals in the reference lists, and as indicated earlier, many researchers are unaware of this issue. The subject areas of citing journals were mainly Medicine, Engineering, Computer Science, Social Sciences, and Biochemistry. The citations to articles published in hijacked journals are widespread in terms of subject areas.

The diagnosis of citing papers

Based on a bibliometric analysis (Aria & Cuccurullo, 2017), most of the citing papers were from China, India, and Israel. However, the citations are not limited to certain countries and are widespread. This suggests that the lack of awareness about the problem is global.
The most frequent words of citing papers were identified. The terms such as COVID-19, artificial intelligence, deep learning, systematic review, academic stress, adaptiveness, and anxiety were the most frequently used words and can help to identify the topics of the citing papers. While the citing papers were on various topics, the main categories included digital transformation, smart environment, smart healthcare, artificial intelligence-based sentiment analysis, analysis effect of materials in pharmacology, COVID-19, and sociological and psychological analysis, among others.

There are some bibliometric, systematic reviews, and narrative reviews among the citing papers. This indicates that the authors could not detect hijacked journals during the selection of candidate papers for their reviews, and these non-peer review papers could be embedded in the results of the reviews. The papers in hijacked journals that are included in reviews used for evidence-based practice, clinical practice guidelines, and treatment decisions, have the potential to impact the results of reviews. There is a similar warning for the use of published papers in predatory journals in systematic reviews (Oermann et al., 2019, 2020; Rice et al., 2021). Lists of predatory journals are available, and their detection is easier than hijacked journals. However, there are unknown hijacked journals, and the difficulties in their detection pose a risk to all types of review.

Discussion

The analysis of the citations to hijacked journals indicates that these journals have received citations from reputable indexed journals. Even though the number of citations is limited, the citations are in articles published in top journals. The limited number of citations does not mean that the number of hijacked journal "victims" is also limited. The available literature suggests that a growing number of authors publish in hijacked journals due to unawareness of this problem. The increasing number of published papers can influence the number of citations to hijacked journals. The problem will be more critical when hijacked journals are indexed in citation databases such as WoS and Scopus by mistake as the authenticated version of the journal.

There is evidence that "victims" of hijacked journals are often early career researchers (Memon, 2019), but the citing papers likely include both experienced and novice researchers. Thus, the problem is not limited to
novice researchers, but experienced researchers and professors also need to be educated about this issue.

The 53 citations to articles in hijacked journals were in WoS-indexed journals, which have been selected through Clarivate’s rigorous journal selection process. In Google Scholar, however, the hijacked journals discussed earlier gained more than 13500 citations (without limitations on citing time). This means that non-peer-reviewed science has a very high dissemination rate in Google Scholar compared to WoS.

To protect scientific integrity, authors should carefully check journals before citing papers from those journals (Moussa, 2021a). Journals found in Google Scholar should be examined carefully if not published by reputable and known publishers. The current research indicates citations to hijacked journals in Google Scholar were significantly higher than WoS. WoS, Scopus, and in the health fields, PubMed/MEDLINE and the Cumulative Index to Nursing and Allied Health Literature should be used for searching the literature (Oermann et al., 2022), then researchers (and clinicians) can use Google Scholar as the supplementary source after examining the journals. At the moment, Google Scholar indexes the content of hijacked journals and does not have a rigorous journal selection process such as WoS (Dadkhah et al., 2016, 2017; Moussa, 2021a).

The publishers should develop software tools that are integrated into their submission systems to check reference lists of manuscripts against possible hijacked journal versions. The current studies whose main theoretical foundation has been developed based on findings of hijacked journals should be reviewed, and possible corrections should be published.

**Conclusions**

The current editorial examined the citations to hijacked journals in WoS and then compared the results with citations in Google Scholar. The findings indicate that citations to hijacked journals in rigorous citation databases are limited but may be prevalent in free open databases (i.e., Google Scholar). The main findings of this study shed light on the reliability of citation databases in terms of citations to non-peer-reviewed articles in hijacked journals. It is recommended that publishers provide services in the submission systems to detect questionable journals and prevent their citations. Limitations of this research were using only WoS and limiting the
analysis of citations to 2022, analyzing the set of hijacked journals by use of free tools, and possible tolerances in the values. The full analysis of all detected hijacked journals in citation databases and a comparison of the results should be a part of future works.

References


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