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Comparing Google Scholar and Conventional Databases in Supporting Research on Academic Women's Experiences of Bullying

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ABSTRACT

The search engine effectiveness of Google Scholar retrieval was compared with a cluster of well-known academic databases in conducting a scoping review for a project about women being bullied and harassed by academic colleagues. The literature research found broad similarities between the number of relevant articles retrieved from the group of academic databases and the results retrieved by Google Scholar. There were, however, three qualitative differences in how results were achieved that reduced the benefits of using Google's free and single search engine: mixed relevance of results, the necessity for filtering non-relevant returned items, and the need for additional search practices. Learning how to achieve these results suggests a combined approach may still be the most convenient option for thorough literature searching at present. Even before Google Scholar's limitations are addressed, however, its reach, speed, and accessibility outside paywalls open new possibilities as a primary search engine to gather scholarly material for marginalized communities, voluntary human service groups, and educational institutions with limited financial resources in both developed and developing societies. The present article provides one contribution to debates about the relative practical value of academic search engine options for gathering research literature compared with Google Scholar.

INTRODUCTION

This article evaluates the effectiveness of Google Scholar compared to a selection of academic databases. In all countries, women in universities are vulnerable to traditional sexist and patriarchal attitudes. These gendered expectations and norms reinforce career and organizational unfairness that penalizes women's ability to contribute to the well-being of their society. Developing countries such as Pakistan face their cultural versions of bullying and harassment in their workplaces. Conduct by administrators or senior staff that belittles, demeans, ostracizes, or denies promotion based on merit negatively impacts the well-being of women academics and disadvantages their university, notwithstanding official Muslim values (Prasong & Eko, 2025).

Implicit in our evaluation of Google Scholar relative to conventional academic databases is what search technology can contribute to research on this toxic but under-discussed social and educational problem. Our rationale in comparing Google Scholar is our consciousness of multiple marginalities that search technologies might address: collecting the evidence of existing research on the specific issue of bullying conduct by colleagues and seniors; chronicling gendered inequality in higher education institutions that should be citadels of modern social progress; and concern that search engines might not reach the frontiers of Pakistani society, the focus of our study, given its marginalized status economically and militarily (Abdullah & Ullah, 2022; Abdullah & Malik, 2025) and for women globally (Tsouroufli, 2022; Shorey et al. 2025; Green & Black, 2025). Current search potential for bias will have to be re-examined as AI grows in the search space

(Maouche, 2019) and the risk of fake search results (Khlaif et al., 2023).

Google is currently the pre-eminent internet search company among technology companies offering search engines (Paperpile, 2024; Van Noorden, 2014), competing with the database search engines of the world's major academic publishers (Gusenbauer, 2019; Kumar, 2024). Its availability has changed expectations among university students and staff (Alfonzo, 2016; López-Fitzsimmons & Nagra, 2019; Borteye et al., 2024; Hu et al., 2024). Within Google's search of the entire World Wide Web (WWW), Google Scholar is focused on academic literature, grey literature, and similar formal documents and reports (Haddaway et al., 2015; Pranckutė, 2021). Universities and other teaching and research institutions have traditionally made use of academic databases for staff and students to access scholarly materials such as articles, chapters, and books. The inception of the WWW in 1989 and its being made public in 1993 (Gillies & Cailliau, 2000) was followed by the development of Google search in 1996, and the arrival of Google Scholar in late 2004 (Redding, 2018; Cohen-Almagor, 2013).

The presence and reach capabilities of Google Scholar have maintained researchers' continuing interest in exploring not simply the internet but Google Scholar's utility and functionality as a tool for tracking citations and retrieving academic publications (Falagas et al., 2008; Martín-Martín et al., 2018). Over the same time, academic databases used by individual universities and research institutions have also expanded enormously (Thomas, 2021). Today, library databases constitute a substantial expense item, in marked contrast to Google Scholar's free search engine. Words such as 'small fortune' or 'exorbitant' appear in cost arguments calling for a paradigm shift in academic search and publishing activities (Abizadehm, 2024). The present study's comparison of Google Scholar relative to mainstream academic databases is a continuation of academic interest in updating the relative benefits and constraints of these digital tools for research as these tools evolve. Various studies have assessed the coverage and accuracy of Google Scholar. The absence of an up-front cost to individuals or institutions contrasts Google Scholar with well-known databases such as Web of Science (WoS), Scopus, and others (Azizah et al., 2021).

Early on Levine-Clark and Kraus (2007) made a comparison of Google Scholar with Chemical Abstract Services (CAS) search tools and found Google Scholar performed better on some aspects and CAS on others. More recently, similar mixed findings in comparing Google Scholar and academic search engines were made by Oh and Colón-Aguirre (2019), surveying 975 academic users. Stirbu et al. (2015) for geography compared Google Scholar with three databases (WoS, FRANCIS (multidisciplinary databases), and GeoRef (specialized in geosciences), finding a broad equivalence but more unique hits of potential use in Google Scholar.

In addition to conscious reflection on the relative merits of Google Scholar, many studies simply use it as part of their inquiries. For example, Tsoi et al. (2015) in a dementia scoping review, Cawley and Warning (2016) reviewing obstructive sleep studies, Covolo et al. (2015) reviewing direct-to-consumer genetic tests, Wagenaar et al. (2025) about tinnitus management, or Shi et al. (2025) managing stroke patients. Other investigations have led scholars such as Halevi et al. (2017) to assert that Google Scholar is the most reliable and extensive database for social science. In addition to universities' standardly purchasing a suite of academic databases, some university libraries today place a Google Scholar search button on their website or integrate Google Scholar search in other ways. While academic databases can only be accessed through institutional portals, Google Scholar is accessible anywhere the Western internet is available.

Varoufakis (2024) argues we have entered a society controlled by technology platforms, which utilize our search practices at every level, from personal to scholarly. AI and analytics are the most recent disruptive entries to search developments (Cox & Mazumdar, 2024; Texas A&M University, 2024). These technologies and their growing search capabilities today are appearing in both academic databases and Google Scholar searches. Such a critical assessment is also being applied to Google search (Mager et al, 2023; Muchmore, 2024).

Time, effort, convenience, availability, and cost are recurrent factors of interest to academics comparing Google Scholar and conventional academic databases.

First, the promise or hope in using Google Scholar is to reduce time and effort in academic search activity by offering a 'one-stop shop' approach. That some university libraries now include Google Scholar in their suite of search tools reflects these changing imperatives in the academic landscape. The potential of Google Scholar to challenge the primacy of the conventional academic search engines continues to be controversial. Kim (2014) is an example of comparing Google Scholar and WoS to evaluate whether Google Scholar could be a substitute for researchers without access to subscription-based search tools. That study reported higher data returned from Google Scholar, but feedback of poor user experience.

Second, the substantial institutional cost of conventional academic search engines to universities is another reason for continued attention to features of relative benefit and alternative search methods, such as Google Scholar, in support of academic work. While cost is not usually of direct concern to front-line researchers, hefty institutional overhead charges on research projects are. It is also, however, a significant focus for library and university managers in the face of competing budget demands, as academic research and publishing activities have become digital and online. Goldenfein and Griffin (2022) are less sanguine about Google Scholar's supposed 'free' search tool, explaining that there are different kinds of costs imposed both on individual researchers and their academic communities.

Goldenfein and Griffin (2022) argue that Google Scholar has developed on the back of Google's generic internet search technologies that have created a digital platform with huge and dominant power, what Varoufakis (2024) calls platform feudalism. Goldenfein and Griffin (2022) identified the two search drivers of usability and cost and the impact of these on higher education and research institutions. These authors challenge any simple reading of 'free' and objective information from either academic databases publishers, or Google Scholar. For them, the platformizing of search undermines cardinal academic values of autonomy, transparency, and ethics. A key part of their analysis is the shift between the earlier development of journal impact factors (JIFs) in academic databases and Google Scholar's more recent ranking algorithms now formative for academic careers and universities' global ranking.

This fundamental re-shaping of society, knowledge production, and the academic world are much bigger than the focus of the present study—the utility of search to assist in addressing human problems and the delivery of human services such as education. Usability and cost described in the present study nevertheless speak to these bigger issues and are better understood within this larger framing. Worldwide, the annual quantum of academic research outputs has exploded in recent decades. One current estimate is that globally, "Each year over 2 million new research articles are published in more than 30,000 peer-reviewed journals across all fields of study" (PublishingState.com, 2024).

This proliferation of academic research outputs might be expected to be matched by the ability to electronically locate relevant items of refereed and non-refereed research (Orduna-Malea et al., 2015). Digital search options become a necessity in researchers' ability to identify and retrieve relevant materials. This is a very different world from previous generations of academic investigation. Academic search engines have become the primary tools to find research papers and other scholarly resources (Paperfile, 2024).

Today, academic libraries at universities and research institutions rely on their ability to search databases that provide these curated repositories of academic and sometimes other outputs. Academic databases are controlled by corporate publishing houses, contributing systematically collected and categorized resources within or across fields. For example, Medline Central is focused on multiple health- and medical-related subject areas; Psych Info* contains systematically organized psychological and psychiatric research; these databases also include a broad penumbra of wider literature around these fields. Searches and filtering can be made using many variables such as year, author, title, and topic keywords. It is the systematic coverage and quality assurance that give such academic databases their value for research communities, though at a cost.

Where research topics need to explore diverse literatures, however, this can mean repeating searches across multiple academic databases. For instance, in the project we conducted, the topic of bullying of women academics is interdisciplinary, sitting within/across education, gender studies, employment relations, psychology, organization theory, social media, and health fields. It is at this point that Google Scholar's wide reach comes to the fore. Since Google Scholar's first release, it has undergone significant expansion, emerging as a formidable resource, locating an enormous wealth of scholarly literature (Halevi et al., 2017; Harzing, 2014; Harzing & Alakangas, 2016; López-Cózar et al., 2019; Martín-Martín, 2021). Today, Google Scholar is often positioned as a 'go-to' resource for researchers seeking access to a diverse range of academic resources across fields. It has become well-established not simply in personal, general, and commercial research, but also in academic research (Hillis et al., 2013; Houshyar & Sotudeh, 2018). Today, Google Scholar covers approximately 200 million articles, with by far the widest reach of any search engine (Paperfile, 2024).

From the perspective of scholars looking to 'chart the territory' or field of relevant literature for the research project on which they are embarking, they will adopt a literature search strategy that includes using one and often more than one of the academic search engines available to them. Arksey and O'Malley's (2005) foundational article nearly two decades ago, for example, outlined a social science scoping review methodology that was different from the science, technology, engineering, and medicine (STEM) systematic review procedures. Both scoping and systematic review strategies are predicated on sources gathered by search engines; researchers face similar methodological questions: what are the options for gathering literature, and what is the most effective way to map the literature in their chosen field of inquiry?

In researchers' need to know they have exhaustively and accurately identified relevant data, Google Scholar's use for systematic reviews has been seen as problematic. Piasceki et al. (2017), for example, spoke to concerns raised about their earlier systematic review, where Google Scholar was used and the possible 'bubble effect' from its personalization bias. In their article, they described steps to control Google's bias effect, including advice not to use Google Scholar as the only source for systematic reviews. The present article does not presume any particular literature review methodology but instead focuses on search effectiveness in retrieving relevant information for a given study.

The research question addressed is the relative effectiveness of Google Scholar compared to a selection of formal academic databases. The evaluation made uses a focus on the substantive topic of academic women being bullied by colleagues.

METHODS

The present comparison of academic databases with Google Scholar arose from a research project concerned with academic staff bullying in the Pakistani context of higher education (Kamran & Burns, 2023). Because we had questions about whether English language/Western-based academic databases would identify research articles on this topic, we added Google Scholar to our search engine tools (Cai, 2025). The content of our original study is not our focus here. However, the literature search undertaken in that study has enabled a contemporary evaluation of the research effectiveness of these alternatives as a contribution to the ongoing discussions around academic literature search and retrieval.

Our literature search gathered data from six electronic databases. Five of these were academic search engines that commonly appear in university libraries:

1. EBSCO Academic
2. Scopus
3. Web of Science (WoS) Core
4. ProQuest Central
5. Psych Info*

We added Google Scholar to these five academic databases to maximize the retrieval of potentially useful research items, with the understanding of its long reach in internet search described earlier. In our original study, these six electronic search tools were used to retrieve relevant articles. For instance, Psych Info* adds research items about well-being and mental health that may not be included in other databases.

Inclusion criteria for articles were:

1. Full-text English-language articles published in the years 2000-2022
2. Research articles published in academic peer-reviewed journals

3. The articles reported empirical studies in Pakistan
4. Studies focused on staff bullying against academics in higher education

Our review excluded newspapers, conference papers, blogs, books, and dissertations.

The research started with testing appropriate search terms and Boolean operators (AND, OR, NOT, *, “ ”) to identify a range of the most relevant material. The selected terms were applied in searching each of the five academic databases (Table 1, second column). For this cluster of academic databases, the final tallies for each are given at the bottom of Table 1. We expected to apply the same search terms and Boolean operators to Google Scholar. When we did this, however, a large quantity of irrelevant and unfiltered material was produced that was unhelpful in identifying relevant material. We needed, therefore, to modify this step of our search method. We iteratively tested the effectiveness of search terms and Boolean operators against known relevant articles to check that these articles were also being retrieved in Google Scholar results. The Google Scholar search terms selected are seen in Table 2, second column, and were iterated to correspond to the filtering effects of the academic databases. The final tally in Table 2 corresponds to the final tallies in Table 1. Providing the details of search terms and returned items at a specific point in time enables other scholars to independently reproduce and assess these results. Inter-rater reliability in assessing returned items in all databases and Google Scholar was achieved by flagging and discussing the relevance of specific items.

To compare academic databases and Google Scholar results, the standard literature methodology step was modified. Instead of combining the literature found across all databases, the next filtering steps were separately applied to compare the collective academic database results against the Google Scholar results. These manual processes included the removal of duplicates when combining the academic databases, and a final eligibility screening that reviewed titles and abstracts across the results of the two groups of final articles. The results of these steps can be seen in Table 3. Our commentary on the relative efforts involved in these steps and the importance of the qualitative differences in each search pathway follows in the discussion section.

RESULTS AND DISCUSSION

The quantitative results of the comparative test between the cluster of academic search databases relative to Google Scholar are presented in Tables 1 to 3. Tables 1 and 2 show the numerical results of the initial search steps for each of the six databases using the chosen search terms. Table 1 shows the individual results of the five academic databases. The initial screening results across these quite different databases ranged from 23 to 91 articles. The combined total number of articles is presented in Table 3.

Table 1. Initial screening to identify relevant literature in five academic databases

Search line	Search terms	EBSCO Academic	Scopus	WoS Core	Proquest Central	Psych Info*
1 AND	‘bullying’ OR ‘bullied’ OR ‘ostraci*’	26,462	24,245	18,566	414,876	12,877
2 AND	‘academia’ OR ‘higher education’ OR ‘university*’	13, 074	547	10,753	32,282	10,522
3 AND	‘Pakistan’	91	23	80	97	63
	Totals	91	23	80	97	63

In Table 2, the results of the initial screening using Google Scholar produced a total of 486 articles for further inspection and reduction.

Table 2. Initial screening to identify relevant literature in Google Scholar

Search line	Search terms	Google Scholar result
1	'Bullying' OR 'Bullied' OR 'Pakistan' OR 'Higher education'	16,400
2	'Bullying' OR 'Ostracism' OR 'Pakistan' OR 'Higher education'	6,940
3	'Bullied' OR 'Ostracized' OR 'Higher education' OR 'Pakistan'	1,430
4	'Bullied' OR 'Ostracized' OR 'Faculty' OR 'Pakistan university'	486
	Total	486

At this point of the search process, Google Scholar's results clearly show it was returning a considerably larger number of potential articles for inclusion. The standard final eligibility screening practice of manually assessing the potential articles in Tables 1 and 2 was then applied to both the academic cluster and Google Scholar results. These final steps narrowed this difference significantly, as seen in Table 3, between the combined academic databases (*n*=35) and Google Scholar (*n*=46).

Table 3. Comparative screening results - academic databases vs Google Scholar

Screening phase	Academic databases	Google Scholar
Initial screening	354	486
Duplicate removal	115	NA
Eligibility screening	46	35
Final Total	46	35

The key finding for our research project was that searching for academic literature relevant to our topic using these two search routes produced, after sorting and sifting, a broadly similar tranche of relevant literature items. Thus, for our project, either search route was in general terms equally useful. A corollary of this finding was that our concern about whether academic databases would retrieve international items was allayed by this broad equivalence of returned items.

The similarity in results of the final article counts achieved from the two research database groups—a selection of five academic databases and Google Scholar—is a useful finding for researchers without access to one or other of the recognized academic databases or wishing to expedite the literature search process. How researchers arrive at that near equivalence is less straightforward. For some researchers, the primary need is getting access to identify potentially relevant research, but there are trade-offs in the manual effort needed. Three qualitative differences in conducting our literature search process contra-indicate any simple 'better or worse' scenario. These are: search reach and relevance; ease of use; and search practices required.

Search Reach and Relevance

Academics' ongoing interest in Google Scholar is particularly focused on its ability to comprehensively track academic outputs from across the internet from all possible sources. This contrasts with the more delimited scope of academic databases, which may focus on citation counts and journal ranking, such as WoS or Scopus; or a field or domain of research literature, such as Medline Central or Psych Info* referred to earlier. Google Scholar indexes every type of scholarly output, including research reports, presentations, white papers, blogs, theses (PhD or masters), grey literature, and conference proceedings. As such, it typically captures more items than databases which have more stringent coverage guidelines. Some investigators have indicated that Google Scholar covers approximately 100 million English scientific articles and reports, tripling WoS document count and surpassing other databases significantly (Halevi et al., 2017).

The use of Google Scholar brought us a wider range of potential literature (Tables 2 and 3), showing this single search engine could retrieve a similar number of relevant articles when filtered as was achieved using the five individual academic databases. Google Scholar seamlessly reached across multiple fields where the topic of bullying might be found without needing a re-set in another database. We note here that other researchers in their studies made different findings. For example, some scholars reported that Google Scholar was found to have better coverage, both for subject-specific queries and for multidisciplinary social science fields (Halevi et al., 2017; Rovira et al., 2019). Haddaway et al. (2015). However, when they compared Google Scholar with WoS in areas such as grey literature search, they found "moderate/poor overlap" and advised that Google Scholar be treated as "a powerful addition to other traditional search methods," rather than being used on its own.

Ease of Use for Searching

The academic databases all showed well-developed user interfaces that allowed specification of many variables as search terms. Further, we found the ability to successively add search terms or exclude categories in the filtering steps relatively straightforward across all five academic databases. This was the case both in early iterations refining what were the most useful search terms, and then when these were settled, in running parallel searches across the different academic databases. The Google Scholar search button, however, can best be described as roughly equivalent to the basic search function of academic databases. With its search interface webpage layout much less well-developed, we found this made multi-term searching difficult.

Going to the advanced Google Scholar search page showed a technologically immature assembly of visually small search boxes that were not easy to use in building searches. It did not have the smooth 'rinse and repeat' search functions of academic databases that allowed cumulative refinement of searches. It required a lot of manual input and repetition in testing search inquiries. The present authors contacted one Google Scholar chat group about the problem of the poor interface not being user-friendly and found these issues were raised by many individuals and discussed online. One response we received was that Google Scholar has noted this as a problem, but that Google Scholar appears to be giving little energy to improve these usability concerns. This seems odd, given the commercial opportunities Google/Alphabet might exploit in challenging publishing house database supremacy (Rahardja et al., 2019). Other scholars such as Gusenbauer and Haddaway (2020) confirm that these significant presentation limitations of Google search's webpage interface must be acknowledged when comparing it with academic literature database retrieval tools.

Database Search Practices

Even granting the expansive coverage Google Scholar offers, there were problems we found such as poor precision in distinguishing items for inclusion, and a dearth of sophisticated search options, relative to what the academic databases provide. At both the earlier and later stages of our search process, we needed to undertake extra checking and sorting processes with Google Scholar. For the earlier search filtering phase, the inbuilt Boolean distinctions in the academic databases allowed efficient retrieval of the literature. In contrast, because of Google Scholar's much less developed search design of the webpage user interface, we needed to set up equivalent search terms that involved greater trial and error testing compared to the standard databases.

The point might also be made that, in contrast to the learning curve for using the advanced searching in the academic databases, a different level of sophistication was required in learning to filter the very mixed results that Google Scholar found in its broad sweep. As we noted in the method section, we found we needed to develop and apply other processes such as the use of known articles as a marker of progress in the comparative development of these two research routes. This relied on experience and understanding of how to use Boolean operators to run queries. Performing early search test runs required multiple Boolean operators (Gusenbauer & Haddaway, 2020).

In the later, final, eligibility/relevance screening phase, this also involved more manual effort and inter-rater consultation to determine what material should be included or excluded. For example, partial references without dates, authors or other key terms were included in the Google sweep that needed further investigation to determine their status. This included the work of eliminating duplicates of items that were incomplete and took time to identify as the same. In summary, while we achieved broad parity numerically between the two groups, there was a marked difference in our study in the time and manual effort involved with Google Scholar compared with the academic databases in the search refining steps.

Although Google Scholar stood out as a broad bibliographic data source in this study, its search capabilities came with caveats. Our study illustrated that its level of search query functionality meant more work for users to create Boolean searches and build filtering capabilities. A less apparent caveat raised is its use of opaque algorithms to process such queries and rank documents (Beel & Gipp, 2009; Goldenfein & Griffin, 2022). A student seeking a few relevant articles will likely not meet this as a problem. It is, however, a challenge for researchers to consider if they are seeking to generate more complex systematic and tailored search equations that are reproducible over time. Because of this, scholars like Martín-Martín et al. (2021) have criticized Google Scholar as inadequate for query-based searches.

A further constraint identified in using Google Scholar was found at the end of the screening process when we examined the content of the relevant articles and found some missing metadata (López-Cózar, 2019). Google Scholar does not consistently return an item's Digital Object Identifier (DOI), a core element today for effectively matching documents across various data sources in searches (Liu, 2021). DOIs increasingly serve as unique and persistent identifiers for scholarly documents, providing a standardized means of referencing and distinguishing research outputs. Inconsistent DOI retrieval by Google Scholar meant another manual step in the later search stage, adding to efforts to ensure consistency and accuracy in bibliographic data retrieval and integration.

Study Limitations

In this study, the search criteria we used, such as specifying one developing country, may play differently in other studies where researchers have a different focus—a different country, multiple countries, or globally investigating their different research topic. Projects with different parameters than we used could potentially see different results. Other factors such as searching between science–non-science fields, western countries' journals versus non-western journals, journal recency and ranking, as well as a host of other factors, may also alter the relative effectiveness of research identification and retrieval for these two options.

Limitations about the content of material retrieved by Google Scholar that were not identified by us in this study, but which could influence results, have been identified by other researchers. Halevi et al. (2017), for example, expressed concern about Google Scholar's limited ability to distinguish spam or fraudulent publications from authentic scientific literature. Scholars such as Harzing (2014) were optimistic about its improving coverage in traditionally underrepresented fields like chemistry and physics, but noted that challenges persisted in the inclusion of non-peer-reviewed sources, stray citations, and retrieval of duplicate documents. Ortega and Aguillo (2014) criticized Google Scholar's lack of transparency and inconsistent indexing practices and argued that this hindered its potential as a replacement for databases like Scopus and WOS. While there is agreement that Google Scholar's coverage has improved, issues with its data accuracy remain a possible concern for researchers choosing a search engine (Boeker et al., 2013; Gusenbauer & Haddaway, 2020).

The absence of stringent quality control processes and clear indexing guidelines in Google Scholar underscores the need for cautious interpretation and is another reason to combine its use with other authoritative sources for scholarly inquiry. In addition to the earlier noted issues of its efficacy when intricate, advanced searches are necessary, other limitations become apparent in Google Scholar's capacity to support data downloads, rendering it sometimes impractical as a sole literature gathering resource. Finding articles or alternative sources that are relevant and useful is a different issue than being able to rely on Google Scholar as a robust system with a known and consistent basis for getting hold of such material Gusenbauer, 2022). This is effectively the current issue of criterion or credential difference in these two search approaches (Bragazzi et al., 2016).

Finally. It is important to note the continuing emergence and evolution of alternative search tools like AI and databases beyond those considered here that will change the present balance of search advantages and constraints available to researchers (Gusenbauer, 2024). One specific area of comparative importances is the growing utility of

Baidu Scholar serving academic needs in Chinese as well as English language communities (Abdur et al., 2019; Xie et al., 2024) and interfacing with AI and chatbot alternatives (Kim et al., 2023; Chalyi, 2024; Wangsa et al., 2024). This shift is likely to accelerate.

CONCLUSION

This study found that in our search for refereed articles relevant to our research topic, Google Scholar retrieved, after sorting and sifting, a broadly similar tranche of relevant literature items. It is useful to know that within the limits described above, this result was functionally equivalent to the cluster of established academic database search engines. This was important to us in gathering information about a marginalized topic (bullying and harassment, delivery of higher education, developing countries, including widely differing ranked global journals). There were considerable differences, however, in how these results were achieved that go to issues of usability, access, and convenience. In our discussion, we have noted a variety of factors that mean caution in generalizing this finding to searches more widely, or in their application to other studies. After two decades, Google Scholar's challenges in our study include shortcomings in ease of use, a lack of indexing policy, returning duplicates, and sometimes difficulties in retrieving items identified. In this, our current reporting is like other scholars who have seen benefits and disadvantages in both conventional databases and Google Scholar.

A key issue around the question of search practice that we found to be largely implicit but needs emphasis, is the difference between searching in general and having confidence in the completeness in what has been retrieved. It is this need for search rigor that has given rise to the explosion of systematic and scoping reviews and protocols in recent decades. Our study was predicated on the principle of obtaining a full set of extant relevant material. Some of the enthusiasm for Google Scholar's ability to search appeared in the literature to focus more on the reach it could achieve, rather than verified completeness and accuracy demanded of literature search strategies. Like other scholars, we found the Holy Grail of simplification of academic search in practice required additional effort.

The cost pressures involved in both options of academic search lie outside this study's findings, though we recognize they are key drivers. While flagging some other concerns about academic databases, Goldenfein and Griffin (2022) is a reminder that Google Scholar's 'free' digital platform has long-term consequences for researchers and their academic communities. Digital platforming of academic search is a key part of the larger reshaping of the academic enterprise, accompanied by other next-generation products such as AI and analytics (e.g., SciSpace). Google's Gemini and Microsoft's ChatGPT are already extending the reach and accuracy month by month of literature searches but may be surpassed by DeepSeek and its derivatives.

More substantively, regardless of what Google Scholar chooses to do, other innovations in the digital environment will continue to change what is possible. The need for thoroughness of search has become a major concern in the proliferation of scoping reviews. As Gusenbauer and Gauster (2025, p. 24) remark, 'the influx of low-quality [scoping reviews and meta-analyses]) is undermining the method's reputation as the gold standard of knowledge creation and a cornerstone of theory-building. We believe recent criticism of [scoping review] practice (Ioannidis, 2016; Moore et al., 2022) does not reflect an inherent problem of the method but an unwanted byproduct of its current success. More and more researchers are being lured into publishing [reviews] by a fantasy of quick wins and high citation rates.' So much has changed since Arksey and O'Malley (2005).

In the larger picture around publishing in social and human services such as the present investigation addresses, there is also Google Scholar's less visible re-shaping of the academic community. Google Scholar's 'free' digital platform comes with political and ethical flags that are changing how and what data is retrieved, using rules and algorithms set by its 'technical' experts rather than academic researchers (Goldenfein & Griffin, 2022). It may be that there is an inherent contradiction between the academic principles of autonomy, openness, and research ethics and the platformized control that Google Scholar, and indeed other database owners, wish to exercise in digital search.

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