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Review Article

Scientometric Analysis of AI in Library Services: Academic Librarians' and Lecturers' Discourses in Nigeria

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ABSTRACT

Artificial Intelligence (AI) has become an increasingly prominent focus of both scholarly publishing and professional discourse within academic librarianship, yet the scientometric characteristics of this literature and the lived discourse of practitioners in developing research systems such as Nigeria are rarely examined together. This paper synthesises the published scientometric evidence on AI in library services with a qualitative discourse synthesis of Nigerian academic librarians' and university lecturers' expressed perceptions, treating existing empirical Nigerian studies as bounded discourse cases. Three research questions guided the study: the scientometric characteristics of the global AI-in-libraries literature and Nigeria's position within it; the discourse Nigerian academic librarians express regarding AI adoption in library services; and the discourse Nigerian university lecturers express regarding AI's role in library and information services, compared with librarians' discourse. Drawing on published bibliometric analyses spanning Scopus records from 1987 to 2024, the synthesis shows sustained growth in AI-in-libraries publications since 2018, thematic clustering around foundational technologies, generative AI, chatbots, and AI literacy, and a modest but visible Nigerian and African presence within international collaboration networks. The discourse synthesis shows that Nigerian librarians consistently report high awareness of AI but a persistent gap between awareness and applied competency, shaped by infrastructural, financial, and training constraints, while lecturers report selective, non-core adoption concentrated in writing-support tasks, disciplinary variation, and concern for academic integrity. Librarians' and lecturers' discourse converge on infrastructural and training barriers but diverge in their institutional vantage points, with librarians emphasising service delivery and lecturers emphasising pedagogical and integrity concerns. The paper concludes that AI-related capacity building in Nigerian higher education requires coordinated engagement between libraries and faculties rather than parallel, uncoordinated initiatives.

Keywords: Academic Librarians, Artificial Intelligence, Bibliometrics, Discourse Analysis, Nigeria, Global South.

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INTRODUCTION

Artificial Intelligence (AI) has moved rapidly from a peripheral technical curiosity to a central subject of both scholarly investigation and professional practice within academic librarianship. Scientometric evidence documents a sustained rise in AI-related library and information science publications over the past decade, spanning applications from chatbots and automated cataloguing to generative AI literacy instruction (Islam *et al.*, 2025; Kulkanjanapiban *et al.*, 2025). This growth in the scholarly literature has been paralleled by a growing body of practitioner-facing discourse, in which academic librarians and, increasingly, university lecturers articulate their own perceptions, hopes, and anxieties regarding AI's role in scholarly information work (Ibrahim, 2024; Yusuf *et al.*, 2025).

Scientometrics, the quantitative study of scholarly communication through indicators such as publication counts, citation patterns, co-authorship networks, and keyword co-occurrence, provides a macro-level lens on how a research field develops over time (Donthu *et al.*, 2021; Pritchard, 1969). Several recent scientometric and bibliometric studies have mapped the global AI-in-libraries literature, most drawing on the Scopus database and visualisation tools such as VOSviewer (Islam *et al.*, 2025; Kulkanjanapiban *et al.*, 2025; Mashindano, 2024; Van and Waltman, 2010). These studies offer valuable macro-level evidence of thematic clusters, leading contributing countries, and influential journals, but by design they cannot capture how AI is actually discussed, understood, and evaluated by practitioners working within a specific national system. For that, a complementary, discourse-oriented lens is required.

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Nigeria offers a particularly instructive case for pairing these two lenses. A growing number of Nigerian empirical studies have independently examined academic librarians' and, more recently, university lecturers' awareness, perceptions, and use of AI tools (Ajani *et al*., 2022; Fasola, 2024; Oladokun *et al*., 2025; Yusuf *et al*., 2025), yet these studies have not been systematically read alongside one another as a body of discourse, nor situated within the broader scientometric landscape that Nigeria's own publications feed into. This paper addresses that gap by combining a synthesis of the published scientometric literature on AI in library services with a discourse synthesis treating existing Nigerian librarian- and lecturer-focused studies as bounded cases, in the tradition of qualitative case-study and thematic synthesis methodology (Braun and Clarke, 2006).

This paper does not present a new primary bibliometric database query or new primary interviews; rather, it synthesises the findings of already-published scientometric studies and already-published Nigerian empirical discourse studies, treating both bodies of evidence as data for a second-order, comparative analysis. This approach is explained further in Section 3.

Research Questions

This study addresses three research questions:

RQ1: What are the scientometric characteristics of the global research literature on AI in library services, and how is Nigeria positioned within this literature?

RQ2: What discourse do academic librarians in Nigeria express regarding the adoption and use of AI in library services?

RQ3: What discourse do lecturers in Nigerian universities express regarding AI's role in library and information services, and how does this discourse compare with librarians' discourse?

Significance of the Study

This paper contributes to library and information science scholarship in three ways. First, it consolidates a rapidly growing but thematically scattered scientometric literature on AI in libraries into a single comparative synthesis. Second, it is among the first studies to systematically juxtapose Nigerian librarians' and lecturers' AI-related discourse as related but institutionally distinct bodies of evidence, rather than treating either group in isolation. Third, it offers Nigerian library administrators, university management, and professional bodies an evidence-based account of where librarian and lecturer perspectives converge and diverge, informing more coordinated institutional AI strategy.

LITERATURE REVIEW

Scientometrics and Bibliometrics as Methodological Traditions

The term "bibliometrics" was coined by Pritchard (1969) to describe the application of statistical and mathematical methods to books and other media of communication, and scientometrics subsequently developed as a closely related field concerned more specifically with the quantitative study of science and scientific communication. Contemporary bibliometric practice relies heavily on databases such as Scopus and Web of Science, combined with visualisation software such as VOSviewer, to map co-authorship networks, keyword co-occurrence, and citation structures (Donthu *et al*., 2021; Van and Waltman, 2010). Donthu *et al*. (2021) provide widely cited methodological guidance distinguishing performance analysis (publication and citation counts) from science mapping (co-citation, bibliographic coupling, and co-word analysis), both of which are drawn upon in the scientometric studies synthesised in this paper.

Scientometric Evidence on AI in Academic Libraries

Several recent bibliometric studies have mapped the global literature on AI in academic libraries. Kulkanjanapiban *et al*. (2025) analysed Scopus publications from 2014 to 2024 using a PRISMA-guided protocol combined with VOSviewer, Bibliometrix, and Biblioshiny, identifying four thematic clusters: foundational technologies (machine learning, natural language processing, and automation), emerging innovations (generative AI), user-centric applications (chatbots), and AI literacy. Islam *et al*. (2025) analysed 354 Scopus-indexed publications from 2010 to 2023, finding that collaborative studies accounted for approximately 75% of the literature and had higher citation impact than single-author studies, that the Journal of Academic Librarianship was the leading publication venue, and that China, the United States, and India led in publication volume while the United Kingdom and Australia produced higher-impact research; the study further identified notable international collaboration ties between Nigeria and South Africa within the literature. A related bibliometric study by the same lead author examined the narrower 2018-2022 window and similarly confirmed artificial intelligence as the most discussed keyword within the library-science AI literature (Islam and Hu, 2025).

Extending the temporal range further back, Mashindano (2024) conducted a Scopus-based bibliometric review of AI-in-library-services publications from 1987 to March 2024, using VOSviewer for co-citation and keyword cluster analysis; the study found the United States functioning as a central hub for international collaboration, notable co-citation clusters around "libraries," "metadata," and "knowledge-based systems," and an expanding, though still comparatively modest, network of African contributions. Taken together, these studies converge on a common picture: a literature that has grown substantially since approximately 2018, is thematically organised around foundational AI technologies, generative AI, and user-facing applications such as chatbots, is dominated in volume by China, the United States, and India, and in which African and Nigerian contributions, while still a minority share, are visibly present and growing within international collaboration networks.

AI Literacy and Discourse in Library and Information Science

Beyond the scientometric literature, a parallel conceptual literature addresses AI literacy as a competency domain relevant to librarians' professional discourse. Long and Magerko (2020) and Ng *et al.* (2021) offer foundational conceptualisations of AI literacy as the capacity to understand, use, and critically evaluate AI systems, while Almatrafi *et al.* (2024) provide a systematic review of AI literacy conceptualisation and assessment efforts. Within library and information science specifically, Cox (2024) and Deshen and Noa (2024) discuss how librarians' professional discourse increasingly frames AI literacy as both a service-delivery competency and an instructional responsibility. These conceptual resources inform the coding categories used in the discourse synthesis in Section 4.

AI Discourse Among Academic Librarians and Lecturers in Nigeria

A substantial and growing body of Nigerian empirical research has examined academic librarians' AI-related awareness, competency, and perceptions. Ajani *et al.* (2022) found that Nigerian librarians express general awareness of and readiness for AI integration but that this awareness does not consistently translate into applied competency. Yusuf *et al.* (2025) found that librarians' AI competency in Kogi State tertiary institutions is significantly shaped by institutional knowledge management practices. Akwang (2024) examined library and information science professionals' awareness, competencies, and institutional support for AI-powered research-writing tools in South-South Nigerian universities, while Nwachukwu *et al.* (2023) documented Nigerian academic librarians' perceived impact of AI on library operations more broadly. Earlier foundational work by Eze and Ukwoma (2019) and Okonkwo and Ngwuchukwu (2022) established baseline evidence of Nigerian library professionals' awareness and utilisation of emerging technologies, including AI tools, prior to the generative-AI era.

A smaller but growing literature addresses Nigerian university lecturers' AI discourse specifically. Ibrahim (2024) assessed lecturers' knowledge and perception of AI for teaching and research among Faculties of Arts academics, finding general awareness alongside concern that AI might compromise critical thinking and originality in student work. Oladokun *et al.* (2025) examined library and information science educators' knowledge and usage of AI technologies in Nigerian universities, finding that educators are aware of AI tools but adopt them selectively for non-core writing tasks rather than core scholarly functions. Fasola (2024) similarly found that LIS educators in Nigerian higher institutions recognise AI's potential for information retrieval and personalised learning, but report limited actual usage due to infrastructural and technological-advancement challenges. Essien *et al.* (2024) and Ogunlade and Usman (2022) documented broader postgraduate and institutional perceptions of generative AI adoption challenges in Nigerian higher education. Comparable evidence from elsewhere in Southern Africa, notably Tsekea and Mandoga's (2025) study of AI ethics in Zimbabwean university libraries, situates the Nigerian discourse within a wider regional pattern of cautious, ethically inflected AI engagement.

METHODOLOGY

This study adopts a two-phase, literature-based design combining a scientometric evidence synthesis with a qualitative discourse case-study synthesis. Neither phase involved new primary data collection; both phases synthesise and critically compare findings already reported in published, peer-reviewed sources.

Phase One: Scientometric Evidence Synthesis

Rather than conducting a new primary Scopus or Web of Science query, this study synthesises the findings of existing, published scientometric and bibliometric studies of AI in library and information services (Islam *et al.*, 2025; Islam and Hu, 2025; Kulkanjanapiban *et al.*, 2025; Mashindano, 2024). This secondary-synthesis approach was chosen deliberately: it allows the reported bibliometric indicators (publication counts, thematic clusters, leading countries and journals, collaboration patterns) to be drawn directly and verifiably from peer-reviewed sources, rather than generated from a new, unverified database extraction. Studies were identified through Google Scholar and Scopus searches for combinations of "bibliometric," "scientometric," "artificial intelligence," and "library" or "libraries," restricted to studies published in peer-reviewed journals or peer-reviewed conference proceedings between 2023 and 2025. Four studies meeting these criteria and reporting sufficiently detailed, extractable findings were retained for synthesis and are summarised in Table 1.

Phase Two: Discourse Case-Study Synthesis

The second phase treats individual published Nigerian empirical studies as bounded discourse cases, following the logic of qualitative case-study synthesis: each selected study constitutes a case in which a defined population (academic librarians or university lecturers, in a specific Nigerian institutional context) has already reported its own AI-related perceptions, awareness, and concerns through interviews, surveys with open-response items, or focus groups. Cases were selected using three criteria: (a) the study reports findings specific to Nigerian academic librarians or Nigerian university lecturers; (b) the study was published in a peer-reviewed journal or peer-reviewed edited volume between 2019 and 2025; and (c) the study reports discourse-level findings (perceptions, attitudes, or expressed concerns) rather than purely technical or infrastructural data. Nine studies met these criteria: five centred on librarians (Ajani *et al.*, 2022; Akwang, 2024; Eze and Ukwoma, 2019; Nwachukwu *et al.*, 2023; Okonkwo and Ngwuchukwu, 2022; Yusuf *et al.*, 2025) and four centred

on lecturers or LIS educators (Essien *et al*., 2024; Fasola, 2024; Ibrahim, 2024; Oladokun *et al*., 2025).

The reported findings of each case were coded thematically following Braun and Clarke's (2006) six-phase approach, adapted here for synthesis across published studies rather than raw transcripts: familiarisation with each study's reported findings; generation of initial descriptive codes; collation of codes into candidate themes; review of themes against the full set of nine cases; and final theme naming, presented in Section 4.2 and Section 4.3 and summarised comparatively in Table 2.

Limitations of the Synthesis Approach

Because this study synthesises secondary, already-published findings rather than analysing raw bibliometric records or raw interview transcripts, its conclusions are necessarily bounded by what the underlying studies reported and by any differences in their original methods, sample sizes, and institutional contexts. The scientometric synthesis in particular reflects four studies' Scopus-based analyses rather than an independently verified, unified dataset, and reported figures (e.g., publication counts, percentages) are quoted directly from the cited studies rather than recalculated. Similarly, the discourse synthesis draws on studies that used varying instruments and sample sizes; the themes identified reflect patterns across these studies' reported findings rather than a single harmonised primary dataset. These limitations are revisited in Section 6.

FINDINGS

RQ1: Scientometric Characteristics of the AI-in-Libraries Literature and Nigeria's Position

Table 1 summarises the four scientometric studies synthesised for this research question.

Across the four synthesised studies, a consistent picture emerges. Publication output on AI in library services has grown substantially since approximately 2018, coinciding with the wider diffusion of machine learning and, more recently, generative AI technologies (Islam and Hu, 2025; Kulkanjanapiban *et al*., 2025). Thematically, the literature clusters around foundational AI technologies (machine learning, natural language processing, automation), user-facing applications such as chatbots, and, increasingly, AI literacy as a distinct research theme (Kulkanjanapiban *et al*., 2025). China, the United States, and India dominate publication volume, while the United Kingdom and Australia produce disproportionately higher-impact work relative to volume, and collaborative, multi-author studies achieve greater citation impact than single-author studies (Islam *et al*., 2025).

Nigeria's position within this literature is best characterised as an emerging, minority but growing presence. Islam *et al*. (2025) explicitly identify a Nigeria-South Africa collaboration tie within the global co-authorship network, and Mashindano (2024) similarly reports an expanding, if still comparatively modest, African contribution to the field. This scientometric evidence is consistent with, and provides useful macro-level context for, the discourse-level findings reported in Sections 4.2 and 4.3: Nigeria is neither absent from nor central to the global AI-in-libraries literature, occupying a position of growing but still peripheral scholarly engagement, a pattern that mirrors the practitioner-level gap between AI awareness and applied competency documented in the Nigerian discourse studies synthesised below.

RQ2: Discourse of Academic Librarians in Nigeria

Synthesis of the five librarian-focused Nigerian cases yielded three recurring discourse themes. The first, high awareness coexisting with limited applied competency, is the most consistent finding across cases: librarians across multiple institutional contexts report being generally aware of AI's relevance to library operations, yet this awareness does not reliably translate into confident, applied use (Ajani *et al*., 2022; Eze and Ukwoma, 2019). The second theme, organisational and knowledge-management mediation, reflects Yusuf *et al*.'s (2025) finding that librarians' AI competency is significantly shaped by how effectively their institutions acquire, organise, and share knowledge internally, suggesting that librarians' discourse frames AI competency as partly an organisational rather than purely individual achievement. The third theme, infrastructural and institutional-support constraint, recurs across nearly all five cases: librarians consistently attribute limited AI adoption to inadequate funding, infrastructure, and institutional support rather than to personal unwillingness (Akwang, 2024; Nwachukwu *et al*., 2023; Okonkwo and Ngwuchukwu, 2022).

RQ3: Discourse of Lecturers in Nigerian Universities

Synthesis of the four lecturer- and LIS-educator-focused cases yielded three comparable but distinct themes. The first, selective and non-core adoption, is well illustrated by Oladokun *et al*.'s (2025) finding that LIS educators are aware of AI technologies but adopt them selectively for non-core writing tasks rather than integrating them into core scholarly or pedagogical functions. The second theme, disciplinary and integrity concern, is prominent in Ibrahim's (2024) finding that Faculties of Arts lecturers fear AI may compromise critical thinking and originality in student work, a concern echoed in broader Nigerian postgraduate discourse around generative AI and academic integrity (Essien *et al*., 2024). The third theme, infrastructural and training limitation, parallels the librarian discourse closely: Fasola (2024) found that LIS educators recognise AI's potential benefits but report limited actual usage due to rapid technological change and inadequate infrastructural and technical support, a pattern also reported among lecturers more broadly by Ogunlade and Usman (2022).

Comparative Synthesis: Convergence and Divergence

Table 2 compares the discourse themes identified for librarians and lecturers across the nine synthesised Nigerian cases.

The comparative synthesis shows that Nigerian librarians' and lecturers' AI discourse converges substantially on structural explanations for limited adoption-both groups locate the primary barrier in infrastructure, funding, and training rather than in personal resistance to AI-while diverging in their institutional vantage points. Librarians' discourse is more likely to frame AI competency as an organisationally mediated, service-delivery concern, consistent with their institutional role as information-service providers, while lecturers' discourse more centrally foregrounds academic integrity and pedagogical risk, consistent with their institutional role as instructors and assessors of student work. This divergence suggests that librarians and lecturers, despite operating within the same institutions and often the same AI-adoption constraints, may be having largely parallel rather than integrated conversations about AI's role in scholarly information work.

DISCUSSION

Read together, the scientometric and discourse findings suggest a coherent, if uneven, picture of Nigeria's engagement with AI in library and information services. At the macro, scientometric level, Nigeria is a growing but still peripheral contributor to the global AI-in-libraries literature, visible principally through international collaboration ties such as the Nigeria-South Africa tie identified by Islam *et al.* (2025) rather than through independent, high-volume domestic output. At the micro, discourse level, this peripheral scholarly position is mirrored by a consistent practitioner-level gap between AI awareness and applied competency, reported almost uniformly across the librarian- and lecturer-focused Nigerian studies synthesised here (Ajani *et al.*, 2022; Fasola, 2024; Oladokun *et al.*, 2025).

This alignment between the scientometric and discourse levels is theoretically significant. It suggests that Nigeria's modest scholarly footprint in the global AI-in-libraries literature is not simply a publishing-output artefact but reflects a genuine, practitioner-reported capacity gap rooted in infrastructural and training constraints (Akwang, 2024; Ogunlade and Usman, 2022). Addressing this gap through infrastructure investment and structured professional development, consistent with recommendations emerging from adjacent African library-technology literature (Ngulube and Vincent Mosha, 2025; Shahzad *et al.*, 2025), may therefore be expected to yield benefits at both levels simultaneously: strengthening practitioners' applied AI competency while also, over time, supporting Nigeria's growing visibility within the international scientometric record.

The comparative discourse finding, that librarians and lecturers converge on structural barriers but diverge in their institutional framing of AI's significance, has a further practical implication. Because librarians and lecturers appear to be reasoning about AI from different institutional vantage points, service delivery versus pedagogical integrity, coordinated institutional AI strategy in Nigerian universities cannot safely assume that addressing librarians' concerns will automatically address lecturers' concerns, or vice versa. Institutional AI policy that engages only

Table 1: Summary of Synthesised Scientometric Studies on AI in Library Services.

Study	Database and Period	Publications Analysed	Tools/Protocol	Key Reported Findings
Kulkanjanapiban *et al.* (2025)	Scopus, 2014-2024	Not reported in extractable form	PRISMA-guided; VOSviewer, Bibliometrix, Biblioshiny	Four thematic clusters: foundational technologies, generative AI, chatbots, AI literacy
Islam *et al.* (2025)	Scopus, 2010-2023	354 publications	Bibliometrix, VOSviewer, MS Excel	Journal of Academic Librarianship leading source; China, USA, India lead volume; UK, Australia higher impact; 75% collaborative; Nigeria-South Africa collaboration ties
Islam and Hu (2025)	Scopus, 2018-2022	Not reported in extractable form	Boolean keyword search; bibliometric indicators	"Artificial intelligence" the most frequent keyword; confirms thematic centrality of AI within library-science literature
Mashindano (2024)	Scopus, 1987-March 2024	Not reported in extractable form	VOSviewer co-citation and cluster analysis	US central collaboration hub; clusters around "libraries," "metadata," "knowledge-based systems"; expanding African contributions

Note. Table constructed by the author from the four synthesised studies. Cells marked "not reported in extractable form" indicate that the source did not state a single overall publication count in the material reviewed.

Table 2: Comparative Discourse Themes: Nigerian Academic Librarians and University Lecturers on AI.

Discourse Dimension	Librarian Discourse	Lecturer Discourse	Convergence/Divergence
Awareness vs. applied use	High awareness; limited applied competency	General awareness; selective, non-core adoption	Convergent - both groups report an awareness-practice gap
Primary attributed constraint	Infrastructure, funding, institutional support	Infrastructure, rapid technological change, training	Convergent - both groups attribute limited adoption primarily to structural rather than attitudinal barriers
Institutional/organisational framing	AI competency shaped by knowledge-management practices	Not prominently reported	Divergent - librarians uniquely frame competency as organisationally mediated
Primary concern beyond access	Service-delivery and operational efficiency	Academic integrity, originality, critical thinking	Divergent - librarians emphasise service delivery; lecturers emphasise pedagogical and integrity risk

Note. Table constructed by the author from the thematic synthesis in Sections 4.2 and 4.3.

the library or only teaching faculty risks leaving the other group's central concern, whether service-oriented or integrity-oriented, unaddressed (Buitrago-Ciro *et al*., 2025; Cox, 2024).

CONCLUSION

This paper has synthesised published scientometric evidence on AI in library services with a discourse synthesis of Nigerian academic librarians' and university lecturers' expressed perceptions of AI, treating both bodies of published evidence as data for a second-order comparative analysis rather than generating new primary bibliometric or interview data. The scientometric synthesis shows a rapidly growing, thematically clustered global literature in which Nigeria occupies a modest but visibly growing position, principally through international collaboration ties. The discourse synthesis shows that Nigerian librarians and lecturers converge in attributing limited AI adoption to structural, infrastructural constraints rather than personal resistance, while diverging in their institutional framing of AI's central significance, service delivery for librarians, academic integrity and pedagogy for lecturers. Because this study relies on synthesis of existing published sources rather than new primary data collection, its conclusions should be understood as a structured evidence synthesis rather than a definitive empirical test of librarian-lecturer discourse convergence; future research employing new, directly comparable primary data collection across both groups within the same institutions would strengthen and extend these findings.

RECOMMENDATIONS

Based on this synthesis, the following recommendations are made:

University library management and faculty administration should establish joint, cross-institutional AI working groups that bring librarians' and lecturers' discourse together, rather than allowing library and faculty AI initiatives to develop in parallel and uncoordinated fashion.

Nigerian university administrators and library management should prioritise infrastructure and funding investment as a precondition for translating existing AI awareness, already high among both librarians and lecturers, into applied competency.

Professional bodies such as the Nigerian Library Association and relevant faculty associations should develop structured, joint continuing professional development programmes addressing both service-delivery AI competency (for librarians) and pedagogical/integrity-focused AI literacy (for lecturers).

Nigerian library and information science researchers should be encouraged and supported to publish in internationally indexed venues, building on Nigeria's existing but still modest presence within international AI-in-libraries collaboration networks.

Future researchers should conduct new, directly comparable primary studies surveying or interviewing librarians and lecturers within the same Nigerian institutions concurrently, to test directly whether the convergence and divergence patterns identified through this literature synthesis hold within matched institutional samples.

Journal editors and research funders should support further scientometric research specifically mapping African and Nigerian contributions to the AI-in-libraries literature, given that existing scientometric studies address this sub-topic only incidentally.

ABBREVIATIONS

AI: Artificial Intelligence; **LIS:** Library and Information Science; **RQ:** Research Question; **PRISMA:** Preferred Reporting Items for Systematic Reviews and Meta-Analyses; **Scopus:** Elsevier's

Abstract and Citation Database; **USA:** United States of America; **UK:** United Kingdom; **MS Excel:** Microsoft Excel.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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