Analysing a Decade of Research Ethics and Practices in Library and Information Science in Scopus and Library and Information Science Source Databases: A Scoping Review

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A Paper Presented at ABULC International Conference (Blended)

Theme:

Management of Information, Knowledge, Research and Innovation for Sustainable Development.

Organized By:

Ahmadu Bello University Library Complex On 1st - 3th November, 2021 at PG E-Library, Kashim Ibrahim Library, A. B. U. Zaria, Kaduna State Nigeria.

Abstract

Introduction and Background: Library and information science scholars are partially aware of the research ethics regarding data falsification, fabrication, data cooking, gifted authorship, neglected authorship and other factors. Such activities are not only unethical but may equally cause harm to the academic community and society.

Purpose: This paper aimed to identify the gaps in studies focusing on research ethics and practices in Library and Information science in Scopus and Library and Information Science Source Databases. The review sought to respond to research questions such as: what is the scope of articles focusing on research ethics and practices between 2011 and 2021?, What are the features of articles focusing on research ethics and practices in the Scopus and LISS domain? To what extent is the African research on ethics and practices and LISS reflected in the domain? What are the implications of studies focusing on research ethics as reported in the identified literature?

Methodology: Databases searched includes Scopus and Library and Information Science Source for articles published between 2011 and 2021. Advance search strategies were used as well as thematic analysis.

Result: Out of 190 documents identified from the databases, 70 were eligible for the review while 13 were included in the scoping review. The majority of the articles focusing on research ethics and practices were published between 2016 – 2021(n=63;84%). The year 2021 witnessed the highest number of publications; while the lowest was in 2014. The majority of social science related subject were published in the LIS domain. However, research outputs from African scholars in Scopus and LISS focusing on research ethics and practices was very scanty.

Implications: This paper has implications for LIS researchers and policy makers. Practical implications for reductions in data falsifications, data cooking and unethical research practices among LIS researchers.

Conclusions: Given that limited articles focus on the subject identified in the domain, African scholars need to contribute immensely towards literature addressing research ethics. They also needs to engage the researchers, information managers and policymakers, to empower librarians on how to manage scholarly publications in academic libraries.

Keywords: Research Ethics, Library and Information Science Source, Scoping Review, academic libraries

INTRODUCTION AND BACKGROUND

Ethics is regarded as a system of moral values which relates to what is right or wrong based on established guidelines or principles (Rogelberg, 2008:35). On the other hand, ethical behaviour can help to protect individuals, communities, and environment from the potential dangers to increase goodness in the world (Isreal & Hay, 2006:2). Several studies indicated the importance of promoting research ethics and values among Library and Information Science (LIS) researchers in the 21st century and beyond. Research development cannot be completed without meeting required ethical standards of practice (Barriage, *et al*., 2016:1). From the perspective of information scientists, the crucial need for research and innovation for sustainable development requires that research be conducted by following set of guidelines or principle (Esteves, *et al*., 2014:41). Research in LIS involving (live) human requires that such individual concerned or participants be fully informed and voluntarily consent before the research is undertaken (Gregory, 2003:35). In African context, it is imperative that ethical dimension should be infused into post-graduate studies (doctoral-research) to improve the relationships of supervisor and supervisee (Mutula, & Majinge, 2015).

Meanwhile, for research to adequately meet a required standard, subjects such as informed consent, risks to participants, and research design and dissemination have to be discussed especially at the faculty level or perhaps at the departmental level. Such discussions can assist in the control of publication fraud. In recent years, studies reveal that scholars in LIS are partially aware of the research ethics regarding data falsification, fabrication, data cooking, gifted authorship, ghost authorship, neglected authorship, lack of ethics approval, non-disclosure, 'salami' publication, conflicts of interest, auto-citation, a duplicate submission, duplicate publications, and plagiarism are common problems (Curno, 2016; Gollogly & Momen, 2006). According to Curno, (2016), it is a common practice for scholars to add authors to their research papers or grant proposals even when those individuals contribute nothing to the research effort. On the other hand, some argued that many engaged in coercing authors to add citations that are not relevant to their work by adding to their reference lists with excessive citations (Curno, 2016). It is important to note that such activities are not only unethical but may equally cause harm to the academic community and society in general. Such unethical practices and misconduct are capable of bringing the authenticity and integrity of the institutional and academic research digital record into question (Green & Johnston, 2021). In other to control unethical conduct in research practices, policymakers, library and information managers as well as university management are in a position to disseminate reasonable

information about standards of practice through harmonized guidelines on research ethics to state explicitly how research processes should be carried out (Gollogly & Momen, 2006). There is a need for an increased level of transparency in the research practices, by making research and publication ethics guidelines and policies publicly available at all research-level to prevent unethical research, publication misconduct, manipulation of the communication of research to practitioners, and the erosion of public trust.

In the last decade, previous studies had focused on library practices and services delivery, access and utilization of information by researchers challenge facing professional duties of librarians, ethical dilemmas, research integrity, ethical leadership, ethical decision-making, ethical tensions in research, as well as ethical aspects of doctoral-research. This scoping review explores a decade of research ethics in Library and Information Science in Scopus and Library and Information Science Sources databases to understand the role of ethics in library and information science (LIS) research and the need to integrate research ethics in LIS curriculum to meet up with the standard practices (Carlin, 2003:3). Given the importance of research ethics in LIS for decision-making and ethical leadership as emphasised in the previous LIS studies, the impact of research ethics and use of ethical considerations in research practices in the 21st century has not been adequately felt in the developing countries especially in the African sub-regions compared to standard of practices obtainable in the developed countries. Challenges encountered in research practices have been noted among LIS scholars (Winston & Bahnaman, 2008:222). Consequently, a robust discussion targeting promotion of research ethics and evaluation among LIS scholars have also been neglected (Ngulube & Ukwoma, 2019). Therefore, given the importance of research guidelines and research ethics in knowledge and information management, promotion and innovation for sustainable development, it is therefore envisaged that this scoping review can identify research 'gaps' in studies focusing on research ethics and practices in Library and Information science in Scopus and Library and Information Science sources databases including the absence of studies conducted in Africa as reflected in the domain to inform further contributions to knowledge in LIS domain.

Statement of Problems

Debates have been going on regarding the need for improvement in research, knowledge management and innovation in order to achieve a sustainable development in Africa and Sub-regions. These can be achieved by upholding a required standard of ethics and guidelines when conducting research in academic environment and in other sectors. In the use of online

information resources, authors have noted the need for cyber-ethics especially among undergraduates and postgraduate students in public universities to regulate how information is accessed (Ebiefung, & Adetimirin, 2021). The ongoing discussions regarding unethical practices and misconduct noted among LIS researchers is capable of bringing the authenticity and integrity of the library and information scientist to question (Green & Johnston, 2021). Some believe that it is important to explore LIS career journey to provide a comprehensive resource guide to reduce the level of misconduct and unethical practices surrounding research practices (Gibson & O'Hanlon, (2020). Scholars saw the need to establish the correlation between academic skill and competencies to apply legal and ethical issues to guide information access and utilization in libraries including that of digital library resources, to improve on the adherence to ethics and legal issues that relates to resource utilization in our academic libraries (Ikenwe, 2020). Furthermore, discussions regarding current trends in legislations guiding Library and Information Science discipline and profession is progressing towards a shift in paradigms embracing technologies supporting open access to LIS material from closed access and the adoption of the Western values of LIS values (Ssekitto, 2018). From the scoping review of literature, it was established that studies that focus on analysing a decade of research ethics in Library and Information Science in Scopus and Library and Information Science Sources Databases are limited. Therefore, this scoping review aimed at identifying the gaps in studies focusing on research ethics in Library and Information science in Scopus and Library and Information Science Source Databases to inform future studies thereby contributing to the body of knowledge of research ethics and practices. The review sought to respond to the following research questions:

- What is the scope of articles focusing on research ethics and practices between 2011 and 2021?.
- What are the characteristics of articles focusing on research ethics and practices in Scopus and LISS?.
- To what extent is the African research on ethics and practices and LIS reflected in the domain?
- What are the implications of studies focusing on research ethics and practices as reported in the identified literature?

METHODOLOGY

An overview

Scoping literature review follows a structured process to determine the scope of the body of literature available on a particular topic just as the name implies. This is to identify and analyze knowledge gaps in a certain field (Social sciences, information sciences ad in public health) (Ansu-Mensah *et al*., 2019; Munn, *et al*., 2018:143). Based on the submission by Munn, *et al*., (2018:143), this scoping review was carried out to identify knowledge gaps in studies investigating the research ethics and practices in Library and Information Science domain. A comprehensive literature search was conducted in Scopus and Library and Information Science Source databases between 2011 and 2021. The purpose of using Scopus and Library and Information Science Source (LISS) was that the database was commonly known to have been developed to meet the academic, learning, support and research needs of librarians, information professionals and students. It contained more than 460 full-text publications and indexing for hundreds of high-quality journals. And other qualitative information resources covering librarianship, classification, cataloguing, bibliometrics, online information retrieval, information management and more can be found in LISS. On the other hand, the Scopus database were used because of the high quality measure it has for each title; h-Index, CiteScore, SJR (SCImago Journal Rank) and SNIP (Source Normalized Impact per Paper). The database contains over 36,377 titles (22,794 active titles and 13,583 inactive titles) from approximately 11,678 publishers, of which 34,346 are peer-reviewed journals in top-level subject fields, including, social sciences, and health sciences.

This scoping review was guided by Munn, *et al*., (2018:143), using the framework of Ansu-Mensah, *et al*., (2019:1), and PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) by Liberati, *et al*., (2009:5), to avoid poor reporting of scoping literature review, and to avoid reducing the value of the review to the information scientists, librarians, researchers and other users in other contexts. PRISMA was used as a guideline for the scoping review and analyses of literature identifying gaps in studies (Liberati, *et al*. 2009:5). PRISMA is commonly used in health research and can still be applied to studies in other subject areas or other contexts to summarise pieces of evidence accurately and reliably (Liberati, *et al*., 2009). The structure of this scoping review involves: identifying the research objectives, relevant studies; study selection; recording the data; and organizing, summarizing and reporting results. The eligibility criteria for study selection include characteristics of the studies such as study

context (African sub-regions), methodology (quantitative, qualitative and mixed-methods), Concept (research ethics in LIS).

Eligibility Criteria and Study Selection

This scoping review is guided by eligibility criteria as specified in the inclusion and exclusion criteria set for the studies (See table 1). The scoping review followed specific guidelines by representing a subset of all published articles indexed in Scopus and Library and Information Science Source and searching for articles published between 2011 and 2021. Advance search strategies were used to identify documents focusing on research ethics practices in LIS, while the eligible document was screened and included in the scoping review. Study and population characteristics were extracted from eligible publications. Findings were analysed according to themes of the objectives ad research questions set for the review. Based on the items outlined in the PRISMA statement and the flowchart. The scoping review better describes the status of research ethics ad practices in the subject domain across countries in the Horn of Africa sub-region. To ensure that relevant studies are included in this review, studies that met the following eligibility criteria were used: Table 1 illustrates the eligibility criteria used for relevant study selections.

Table 1: Eligibility Criteria used for study selections for the Scoping Review

S/N	**Inclusion criteria (A)**	**Exclusion criteria (B)**
1	Research ethics or publication ethics must be included either in the study title or in the abstract.	Studies not conducted in African sub-Regions
2	Studies presenting evidence of research ethics in LIS	Studies targeting other subject domain
3	Studies reporting evidence of research design.	Studies do not report evidence on research ethical practices or publication ethics.
4	Studies must cover investigations within the African context.	Studies not following specified research design.
5	Studies must be conducted between 2011 and 2021	Studies not conducted between 2011 to 2021
6	Studies conducted in the English Language	Studies not published in the English language

Search Process for Relevant Study in the Databases

The authors conducted a thorough and complete search of Scopus and LISTA databases to include all relevant studies on research ethics and practices in LIS between 2011 and 2021 for articles and conference papers published in the English language. Relevant grey literature was selected from references found in the reference lists of all included studies. A combination of the following keywords were used to search for relevant studies from the electronic databases: '*research ethics, LIS and research ethics scoping review, academic libraries, research ethics challenges* using Boolean search terms such as 'AND' and 'OR' to isolate keywords. The search language was limited to English because the most popular language used in the sub - Saharan Africa is the English language. The date of publication limit was set at 2011 to 2021. Table 2 shows the combinations of keywords used to search for the relevant studies from the electronic databases

Table 2: Combinations of Keywords Used to Search Relevant Studies from the Electronic Databases

S/N	**Type of Databases searched**	**Search terms/ Combinations**	**Searched Results**	**Total Number of Documents Identified**
Date	**Scopus**			**157**
26/10/2021		*Research Ethics AND practices AND Library and Information Science*	75	
26/10/2021		*Scoping review AND Research Ethics AND LIS*	12	
26/10/2021		*Ethics AND library Challenges AND/OR Africa*	7	
26/10/2021		*Research Ethics AND academic libraries AND Nigeria*	0	
28/10/2021		*Research Ethics AND/OR Challenges AND/OR Africa*	5	
28/10/2021		*"Ethical considerations" AND Library and Information Science AND Research*	6	
28/10/2021		*"Ethical considerations AND information science AND challenges*	52	
Total				157
B	**LISS**			21
26/10/2021		*"Research Ethics" AND practices AND Library and Information Science*	8	

26/10/2021		*"Research ethics" AND/OR practices AND/OR Library and information science*	5	
26/10/2021		*Research ethics AND/OR Scoping review*	3	
26/10/2021		*"Ethical consideration" AND Information science AND challenges*	3	
28/10/2021		*Research Ethics AND Academic libraries AND/OR Africa*	1	
28/10/2021		*Research Ethics AND academic libraries AND Nigeria*	1	
28/10/2021		*Additional references*	12	12
Total				178
Grand Total				190

Range of the Study Selection

Screening of relevant studies for inclusion in the scoping review was conducted in three phases. The first and second authors screened the eligible studies from the Scopus and LISS databases. The second stage included the screening of abstract by the third author, and the third stage included the screening of full-text documents by the fourth author. The other two authors screened the peer-reviewed documents independently based on eligibility criteria ('inclusive' and 'exclusive') using the eligibility criteria. All four authors reached a consensus for the final full-text peer-reviewed documents that are included in the scoping review. The search record was saved and documented according to the date of search on each database, keywords, the number of documents retrieved. Figure 1 illustrates how the PRISMA flowchart was adapted.

RESULT

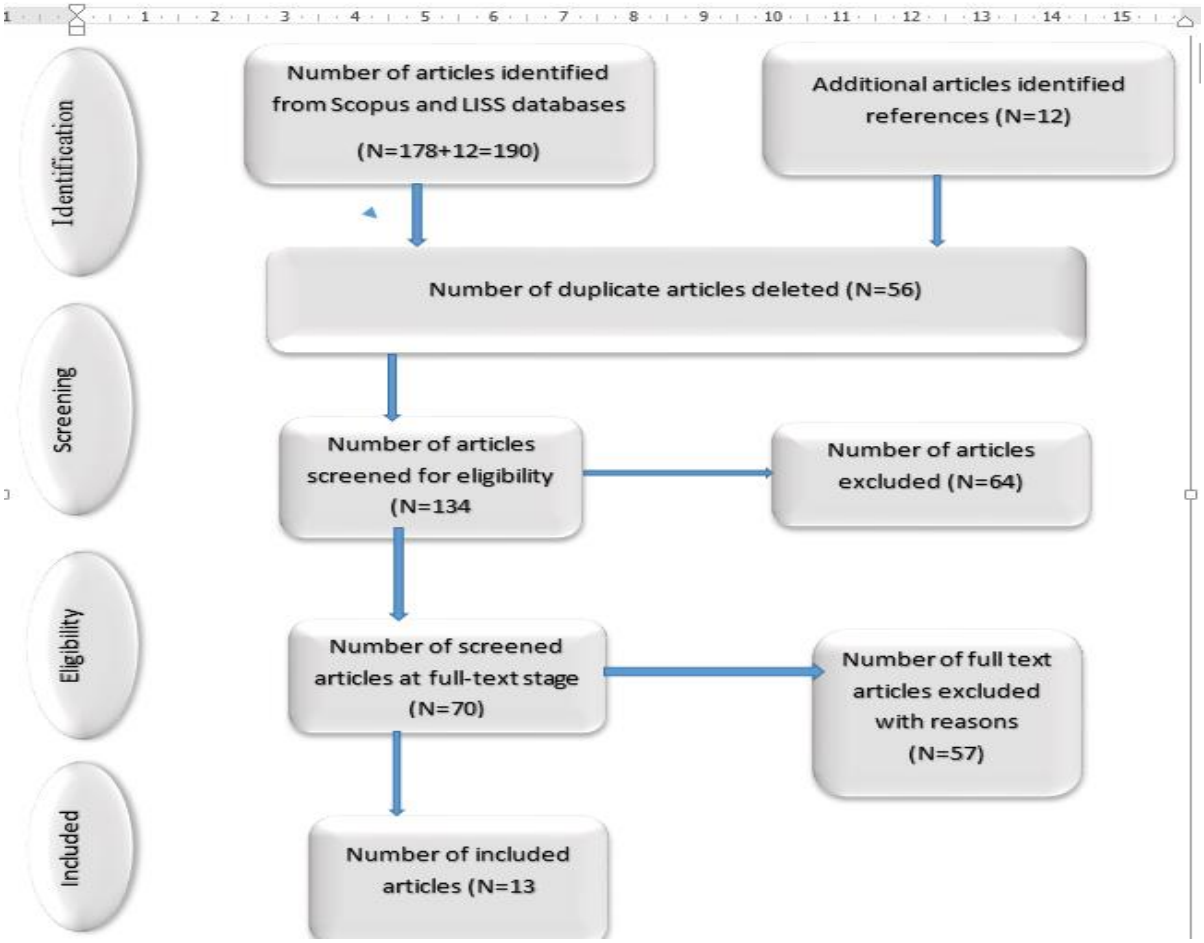
This section presents the total number of articles identified, screened and selected for eligibility based on inclusive and exclusive criteria set for the article selection in the flowchart (see Figure 1). The section presents the included relevant studies for the scoping review (See table 3). The features of each included article are analysed according to the themes of the objective. The features of the included article include *author and date, study title, objective/aim of the study, study design, study setting, area of focus (see table 3).*

Presentation of Identified Literature

A total of 190 articles were identified from Scopus and LISS databases (178 articles + 12 references). Out of 190 documents identified from the two databases, majority of the

documents emerged from Scopus database (n=157;83%), others include 11.1% (n=21) from LISS databases, plus additional 6.32% (n=12) articles selected from article references. Out of 190 articles identified, 56 duplicates were deleted. A total of 134 articles were screened while 64 articles were excluded with reasons (articles focusing on other topics, published in other subject areas). Out of 70 full-text articles screened for eligibility, 57 was excluded with reasons (See table 1B), while 13 articles were included for the scoping review. Figure 1 shows the flowchart of the identified and included numbers of articles for the scoping review using the adapted PRISMA flowchart.

Figure 1: Flowcharts of the Identified Articles from Scopus and LISS



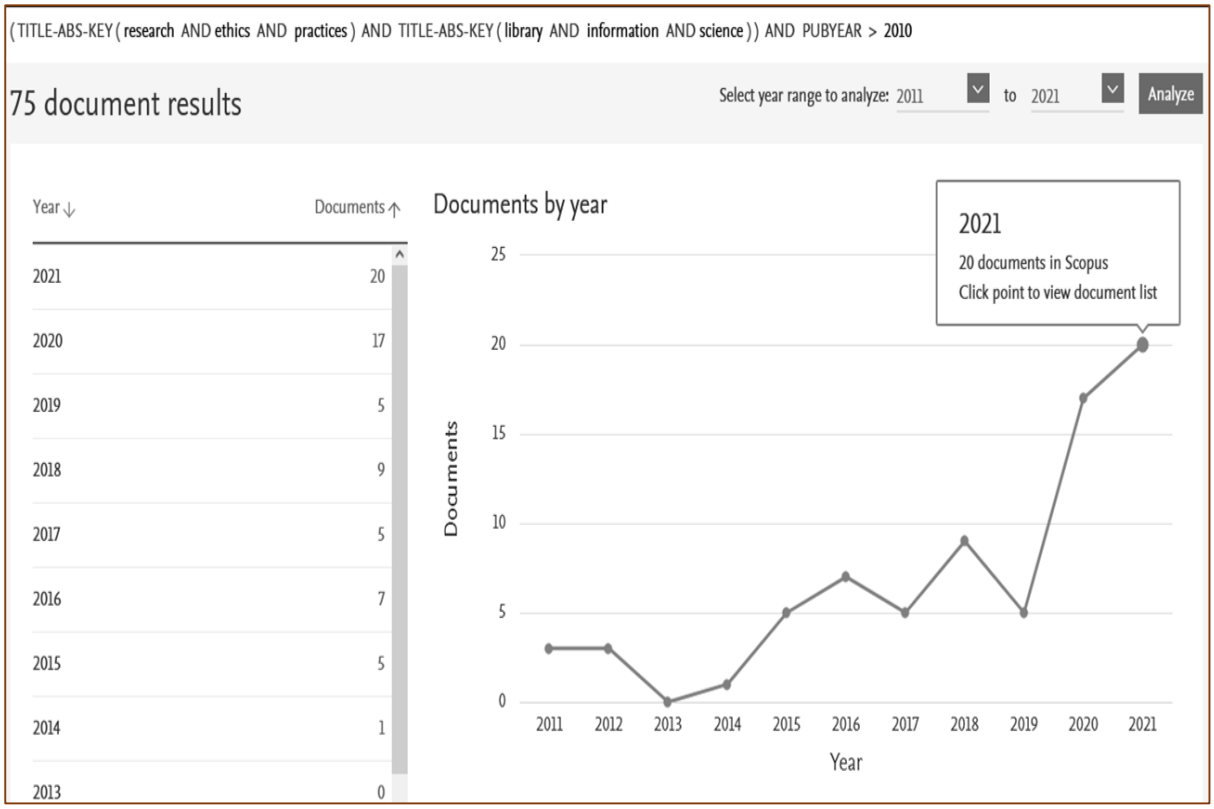
Source: *PRISMA (Liberati. et al., 2009); Extracted literature from Scopus and LSS databases.*

Presentations of Findings According To the Research Questions.

What is the scope of articles focusing on research ethics and practices between 2011 and 2021 in Scopus and LISS?.

The scope of articles focusing on research ethics and practices in this scoping review covers articles published between 2011 and 2021, countries or regions, subject coverage, affiliation and language. From table 2 of this paper, a search for "*Research Ethics AND practices AND Library and Information Science" in* Scopus yielded 75 documents. For data analysis and interpretations, Scopus analysis was used in this scoping review given that all the peer-reviewed documents identified in the two searched databases are contained in the Scopus. The search revealed that the majority of the articles were published between 2016 and 2021 (n=63;84%), others were published between 2011 and 2015 (n=12;16%) (See figure 2). However, majority were published in medical-related subjects (n=53; 71%), followed by social sciences (n=15;20%), others include computer science (n=10; 13%), nursing (n=4;5.3%), the lowest were molecular biology (n=3; 4%), and others. Out of 15 documents published in Social Sciences, 14 were published in Library and Information Science domain (LIS sources), 1 was published in other subject areas. The same search strings were applied to the LISS database, and it yielded 8 out of 21 documents identified using related search strings from the LISS database. The majority of the identified articles were already captured in the Scopus database because it captured the abstract of the full text and the peer-reviewed articles selected for the review.

Figure 2: Scope of Publication by Year between 2011 and 2021 in Scopus Database

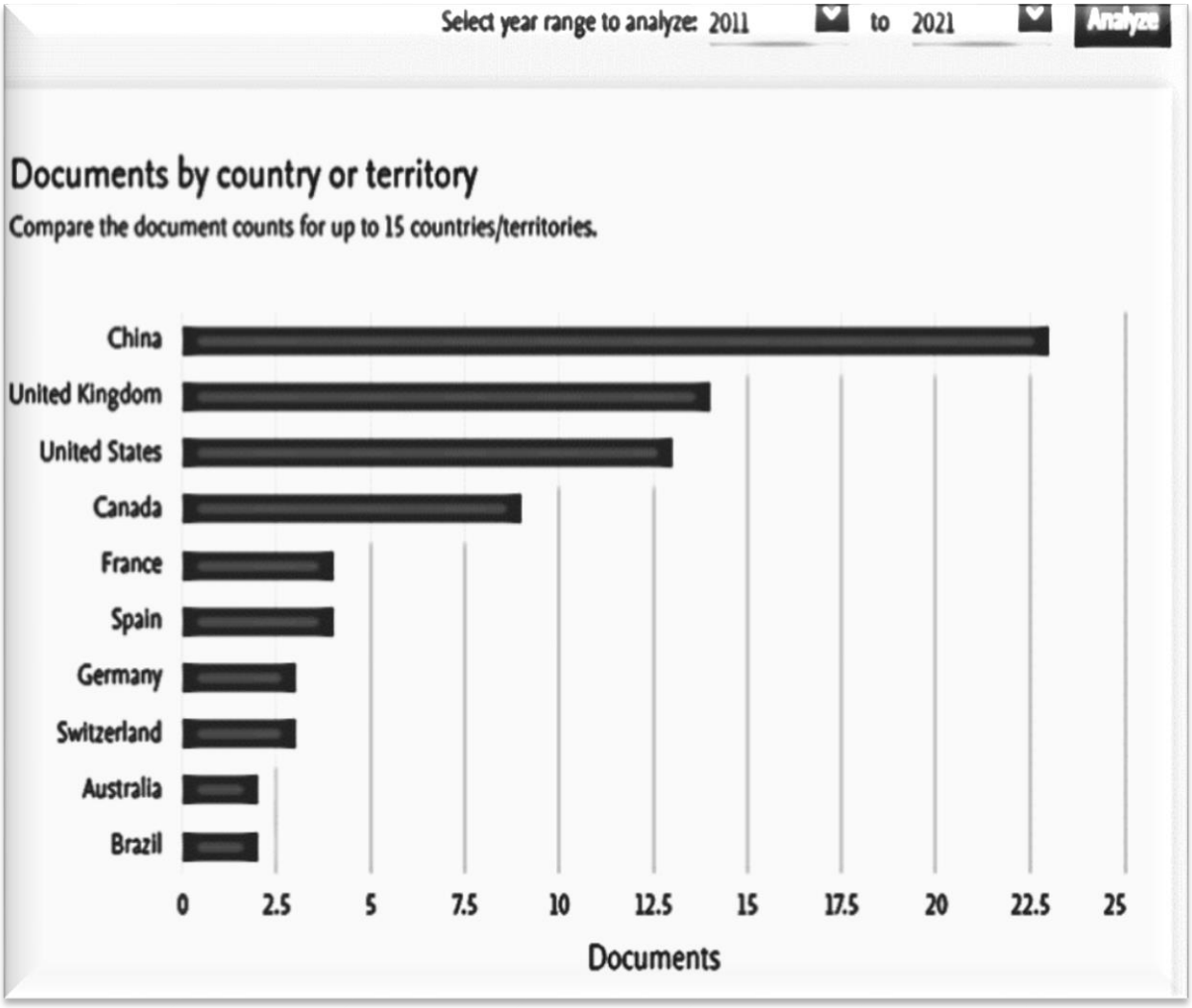


Source: Analysis by Scopus Database.

Scope of Affiliation: The majority of the identified articles in the Scopus database were affiliated to Chengendu University of Traditional Chinese Medicine (5), Tianjin University of traditional Chinese medicine, Beijing University of Chinese medicine (4), University McGill (3), China Academy of Chinese medical sciences (3), and among others. The studies were sponsored through collaborative bodies such as Horizon 2020 framework (5), collaboration for leadership in applied health research and care, Horizon 2020, medical research council; and others.

Scope of Region: The majority of the articles focusing on research ethics were published in China (*n*=23/75), followed by the United Kingdom (*n*=14/75), the United States (*n*=13/75), and Canada (*n*=9/75). Others include France *(n*=4/75) and Germany (*n*=3/75). However, few articles were produced by African researchers given that only 3 articles emerged with 2 publications from South Africa and 1 from Nigeria, based on the result of the identified literature in Scopus and LISS. The majority of the articles were at the final stage (*n*=73/75), source type was in Journal (*n*=73/75) while others include Book (1), and Book series (1). The majority of the articles were published in the English Language.

Figure 3: Scope of Publications by Country or Territory



Source: Analysis by Scopus Database.

What are the features of included articles focusing on research ethics and practices in Scopus and LIST?.

The feature of the included relevant studies for the scoping review are author and date, study design, area of focus, findings and implications. The majority of the included articles were published in 2016 (5/13), followed by 2020-2021 (4/13), others include 2018 (1/13), 2017 (1), 2015 (1), and 2014 (1). The majority of the articles applied literature survey design for investigations (7/13), others applied descriptive survey, (1/13), interview (1/13), correlation design (1/13), lecture methods and discussion methods. None of the articles applied mixed methods for investigations. The majority of the studies have links with either research ethics, information ethics, ethics of social network research or cyber ethics (Ebiefung & Adetimirin, 2021; Oladokun & Jorosi, 2020; Shiri, 2016; Mannheimer, *et al*., 2016). A study by Green and Johnston (2021) focuses on editorial misconduct in the library and information science, Gibson and O'Hanlon (2020) investigated information professionals and research integrity. Correlation

between academic skill, legal and ethical issues and information utilization of digital library resources by Ikenwe, (2020), legislations in library and information practice by Ssekitto (2018), authorship and citation manipulation in academic research by Fong and Wilhite (2017). Others include information ethics (Shiri, 2016), ethical foundation for future librarianship (Wather, 2016), ethics in social network research (Mannheimer, Young & Rossmann, 2016), ethical publishing (Curno, 2016) Ethics in doctoral research (Mutula & Majinge, 2015), and smart cities (Bianchini & Avila 2014). Findings revealed that the LIS profession is rife with ethics, non-rules, non-lists and no checklists on how to behave (Walther, 2016). Some argued that an ethical framework specific to that practice must be established (Mannheimer, Young & Rossmann, 2016). Some indicated that African scholars need to promote information ethics through curriculum development and research at the faculty level (Mutula, & Majinge, (2015).

To what extent is the African research on research ethics and practices in LIS reflected in the domain?

Based on the result of the databases searched for studies focusing on research ethics and practices in LIS, findings show that majority of the articles focusing on research ethics were in the social science subject area (14/15) but published in LIS journals. However, limited articles were published based on the specified subject by African researchers given that only 3 articles emerged with 2 publications from South Africa and 1 from Nigeria. Additional references sought and included focuses on "information ethics" by Oladokun and Jorosi, (2020), Shiri (2016), Ocholla, Onyancha, and Britz, (2010), Ocholla, (2009).

Table 3 Presentations of summary of the included number of articles in the scoping review

S/N	Author and Date	Study Design	Area of Focus	Study Findings	Study implications
1	Ebiefung, & Adetimirin, (2021).	Descriptive survey research design	Cyber ethics	Adherence to cyber ethics guidelines was high.	The use of EIRs in universities has brought enormous changes, especially in how information is accessed and used by undergraduates
2	Green & Johnston, (2021).	Use of key informant interviews	Editorial misconduct in the library and information science	Researchers in instances of editorial misconduct.	Ethics guidelines and policies are vital informing a transparent process that prevents unethical research.
3	Gibson & O'Hanlon, (2020).	Literature review	Information Professionals and Research Integrity	Researchers attempted to navigate the COI landscape, particularly in regard to scholarly publishing.	Contribute to the COI support efforts at its institution

4	Ikenwe, (2020).	Correlational research design.	Correlation between academics skills to apply legal and ethical issues of information and utilization of digital library resources	a significant relationship between skill to apply ethical and legal issues of information and utilization of digital library resources.	Implications for policy makers in the education sectors to improve on the adherence to ethics and legal issues in the utilization of information.
5	Ssekitto, (2018).	Literature survey.	legislations affecting library and information practice	A shift towards embracing changing technologies, within the legislations; open access to LIS material from closed access; the adoption of the Western values of LIS values.	Implications for Library and Information Science and its related disciplines such as Records, information and archives, archaeology and museum study.
6	Fong, E. A., & Wilhite, A. W. (2017).	Literature Survey	Authorship and citation manipulation in academic research	A widespread misattribution in publications and research proposals was found with variation by academic rank, discipline, sex, publication history, co-authors.	This could lead to changes in the review process to stem down the ethical decline. It could slow down progress.
7	Shiri, A. (2016).	Literature Survey	Information ethics	Information ethics covers such issues as social responsibility, citizenship, global information justice, freedom of speech, copyright, and privacy.	A contribution to the development of a knowledge map of scholarly activities in information ethics and encourage collaborative research and scholarship
8	Walther, (2016).	Designing a teaching activity that assists students in learning skills.	Developing an ethical foundation for future librarianship,	LIS profession is rife with ethics, non-rules, non-lists and no checklists upon how to behave.	Implications for professional associations to guide with ethical standards in professional practice.
9	Mannheimer, Young & Rossman, (2016).	Literature survey	Ethics and social network research in libraries	The unique role of the librarian-researcher demands an ethical framework specific to that practice.	The framework provides an ethical path forward for research using SNS data.
10	Barriage, *et al*., (2016)	Panellist/Discussion forum on how to address ethical challenges in LIS research.	Ethical tensions in research	Adopting such an approach will highlight some of the main challenges when engaging in ethical practices that may not align with institutional standard	Discussion forum provides the best strategies to meet ethical standards to resolve ethical constraints using methodologically sound approaches
11	Curno, (2016).	Illustrative cases, guidelines and discussion documents	To identify challenges to ethical publishing	Publishing misconduct, confidentiality in publishing, the influence of incentives in research	Implications for improved applications of electronic information and new technologies in publishing.

				assessments drive author behaviour.	
12	Mutula, & Majinge, (2015).	Literature survey underpinned by various ethical theoretical models.	Ethical aspects of doctoral-research advising in the emerging African information society.	African scholars need to promote information ethics through curriculum development and research.	An implication for the development of policy framework at the institutional level, promoting harmony and productivity in doctoral research.
13	Bianchini & Avila (2014).	Literature survey	Smart cities and ethical considerations.	ICTs allow new ways of interaction between citizens and communities.	Implications for greater social and economic development.

Sources*: Findings from the literature on research and information ethics.*

What are the implications of studies focusing on research ethics as reported in the identified literature?

This scoping review presents theoretical, practical, ethical implications. This paper has implications for LIS researchers, in the control of abuse and use of scholarly publications in higher institutions of learning. This scoping review will provide empirical evidence necessary for researchers, policy-makers in LIS, to set research standards for upcoming scholars in following the required ethical standard.

Findings reveal that ethical guidelines and policies are vital in informing a transparent process useful in preventing unethical research practices in all institutions of learning (Green & Johnston, 2021). The review presents implications for policymakers in the LIS to improve on the adherence to ethics and legal issues in the use of information through various sources (Ikenwe, 2020). Research ethics can be applied to various aspects of LIS disciplines such as records management, information and archives, archaeology and museum studies and among others (Ssekitto, 2018). In a practical sense, adherence to research ethics could lead to changes in unethical practices (Fong & Wilhite, 2017). This scoping review contributes to the improvement in knowledge of scholars in adherence to ethical practices, encouraging collaborative research and scholarship (Shiri, A. (2016). Furthermore, it has implications for professional associations to guide with ethical standards in professional practice (Walther, 2016). The framework provides an ethical path for research practices in the LIS domain and related fields (Mannheimer, Young & Rossmann, 2016). Ethical guidelines adherence in a discussion forum provides the best strategies to meet ethical standards to resolve ethical

constraints using methodologically sound approaches, (Barriage, *et al*., 2016) Implications for improved applications of electronic information and new technologies in publishing (Curno, 2016).. An implication for development of policy framework at the faculty and institutional level Mutula, & Majinge, (2015). Adherence to ethical standards in research helps to promote harmony and productivity in doctoral research. Implications for greater social and economic development (Bianchini & Avila, 2014).

Discussions

Based on research objectives set for the paper. The scoping review sought to establish the area of coverage of articles focusing on research ethics and practices between 2011 and 2021 in Scopus and LISS. Findings revealed that the majority of the articles in the LIS domain were published between 2016 and 2021. Others were published between 2011 and 2015. Out of 15 documents identified in Social Sciences, 14 were published in Library and Information Science domain (LIS sources). The majority of the identified articles in the Scopus database were affiliated with Universities in developed countries, while few of the articles are affiliated with developing countries. At this period, the rate of publications was very low among researchers in LIS. Within the last few years, the trend of publications focusing on research ethics and practices were very encouraging compared to the years before 2016. With the high rate of publications in 2021, it is possible that the years ahead witness a huge improvement in studies focusing on research ethics, and even improves beyond (See figure 3).

This scoping review sought to establish features of included articles focusing on research ethics and practices in Scopus and LIST. The majority of the included articles were published in 2016, followed by 2020-2021, others include 2018, 2017, 2015, and 2014. The majority of the articles applied literature survey design for investigations, others applied descriptive survey, interview, correlation design, lecture methods and discussion methods. None of the articles applied mixed methods for investigations. Although Similar findings from Carlin (2003) emphasised that LIS takes advantage of methodological protocols such as qualitative research techniques developed in other disciplines and applies to research ethics and practices in LIS domain. The reason for applying methodological protocol in LIS research is that research designs are important to research process and the production of knowledge that supports performance and development. Because the appropriateness of the methodologies used in research has implications of ensuring integrity of the research itself, trustworthiness and validity of the outcomes of research and practice (Ngulube & Ukwoma, 2019).

Findings shows that majority of the articles focusing on research ethics were in social science subject area, but published in LIS journals, while others were published in another subject area. African scholars need to promote information ethics through curriculum development, as well as with engage with scholars around the continent by increasing participation in research collaborations with African scholars outside their communities (Mutula, & Majinge, 2015)..

This scoping review presents theoretical, practical, ethical implications. This paper have implications for LIS researchers, in the control of abuse and use of scholarly publications in higher institution of learning. Furthermore, the professional associations needs to guide with ethical standards in professional practice (Walther, (2016). The framework provides an ethical path for research practices in the LIS domain and related fields (Mannheimer, et al., 2016).

This scoping review is limited to the analysing a decade of research ethics and practices in Library and Information Science in African context. The search can be extended to more scientific databases or wider scope for generalization. The search is limited to Scopus and Library and Information Science Source databases. Further studies can be carried out through empirical investigations. Theories can also be applied for further investigations. It is envisaged that findings from the scoping review will inform future research and reveal evidence-based information to address potential challenges that may arise in research ethics practices and policy implementation among African researchers in LIS domain.

Conclusion and Recommendations

Given that limited articles focus on the subject identified in the domain, African scholars need to contribute immensely towards literature addressing research ethics. Based on the findings that revealed limited articles focusing on research ethics between 2011 and 2015, the upward trends in research outputs in publications point to the fact that African scholars are waking up to embrace research ethics in the LIS domain. African researchers in LIS need to engage with their counterparts in the developed countries through research collaboration, including managers and policymakers, to empower librarians how to manage scholarly publications in academic libraries, to uphold the best practice guidance supported by ethical principles. Ikenwe (2020) believes that university management and library management can join together to continuously educate their academic staff on ethics and legal issues in the utilization of information. Mutula and Majinge (2015) share the same opinion that African scholars need to promote information ethics through curriculum development and research.

Suggestions were made to develop a framework for the prevention of research manipulations by seeking a coherent and integrated perspective of the scholarly activities supporting research ethics. To achieve such a transformation goal, there is a need for improvement in the curriculum of LIS graduate and undergraduate students, so that courses can be taught from the introductory level or from the foundations level in LIS (Walther, 2016). Another welcome development is the exploration of the ethical dimensions of researching with user-generated social networking service (SNS) data. These can provide an ethical path for research using SNS data (Mannheimer, *et al*., 2016). To address ethical challenges, there is a need for a discussion forum to provide the best strategies to meet ethical standards to resolve ethical constraints through methodologically sound approaches (Barriage, *et al*., 2016). The ethical aspects of doctoral research needs to be guided from an African scholars perspective (Mutula, & Majinge, 2015)., There is a need for robust discussions focusing on how to improve interactions between citizens and communities through adoptions of Smart cities guided by ethical considerations (Bianchini & Avila 2014).

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