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A Scoping Review of Research Ethics and Practices in Library and Information Science in Scopus and Library and Information Science Source Databases

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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 aims to identify the gaps in studies focusing on research ethics and practices in Library and Information Science in the Scopus and Library and Information Science Source Databases. The review seeks 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; and what are the implications of studies focusing on research ethics as reported in the identified literature?

Methodology: Databases searched include the Scopus and Library and Information Science Source for articles published between 2011 and 2021. Advanced search strategies are used as well as thematic analysis.

Result: Out of 190 documents identified from the databases, 70 were eligible for review while 13 were included in the scoping review. The majority of the articles focusing on research ethics and practices were published between 2016 and 2021. The year 2021 witnessed the highest number of publications, while the lowest was in 2014. The majority of studies published in the LIS domain emerged from developed countries. However, few were published by African scholars in Scopus and LISS focusing on research ethics and practices.

Implications: This paper has implications for LIS researchers and policy makers. Practical implications include the control and reduction of data falsifications, data cooking, and unethical research practices among LIS researchers. Implications for efficient knowledge management for sustainable development are also prominent in this paper.

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 need to engage the researchers, information managers, and policymakers to empower librarians with knowledge of 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 the environment from potential dangers to increase goodness in the world (Isreal and 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 the 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 a set of guidelines or principles (Esteves *et al.*, 2014:41). Research in LIS involving (live) humans requires that such individuals concerned, the participants, be fully informed and give voluntarily consent before the research is undertaken (Gregory, 2003:35). In the African context, the ethical dimension must be infused into post-graduate studies (doctoral research) to improve the relationships of supervisors and supervisees (Mutula and Majinge, 2015a).

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, duplicate submissions, duplicate publications, and plagiarism are common problems (Curno, 2016; Gollogly and 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 argue 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 to society in general. Such unethical practices and misconducts are capable of bringing the authenticity and integrity of the institutional and academic research digital record into question (Green and Johnston, 2021). In order 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 harmonised guidelines of research ethics to state explicitly how research processes should be carried out (Gollogly and Momen, 2006). There is a need for an increased level of transparency in research practices. Making research and publication ethics guidelines and policies publicly available at all research-level can 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 have focused on library practices and service delivery, the access and utilisation of information by researchers, challenges faced in the professional duties of librarians, ethical dilemmas, research integrity, ethical leadership, ethical decision-making, ethical tensions in research, as well as other 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 the LIS curriculum to meet up with standard practices (Carlin, 2003:3). Given the importance of research ethics in LIS for decision-making and ethical leadership, as emphasised in previous

LIS studies, the impact of research ethics and the use of ethical considerations in research practices in the 21st century has not been adequately felt in developing countries, especially in the African sub-regions, compared to the standard of practices obtainable in developed countries. Challenges encountered in research practices have been noted among LIS scholars (Winston and Bahnaman, 2008:222). Consequently, a robust discussion targeting the promotion of research ethics and an evaluation among LIS scholars has also been neglected (Ngulube and 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 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 the LIS domain.

STATEMENT OF PROBLEMS

Debates have been going on regarding the need for improvement in research, knowledge management, and innovation to achieve sustainable development in Africa and the Sub-region. This can be achieved by upholding a required standard of ethics and guidelines when researching the academic environment and 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 and 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 scientists to question (Green and Johnston, 2021). Some believe that it is important to explore the LIS career journey to provide a comprehensive resource guide to reduce the level of misconduct and unethical practices surrounding research practices (Gibson and O’Hanlon, 2020). Scholars see the need to establish the correlation between academic skill and competencies to apply legal and ethical issues to guide information access and utilisation in libraries, including that of digital library resources, to improve the adherence to ethics and legal issues that relate to resource utilisation in academic libraries (Ikenwe, 2020). Furthermore, discussions regarding current trends in legislation guiding the Library and Information Science discipline and profession is progressing towards a shift in paradigms, embracing technology, supporting open access to LIS materials, and the adoption of the Western values of LIS (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 aims at identifying the gaps in studies focusing on research ethics in Library and Information science in the Scopus and Library and Information Science Source Databases to inform future studies, thereby contributing to the body of knowledge on research ethics and practices. The review seeks 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 features of articles focusing on research ethics and practices in Scopus and LISS?
- ❖ To what extent is African research on ethics, 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

A 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 analyse knowledge gaps in a certain field (Social sciences, information sciences, and in public health) (Ansu-Mensah *et al.*, 2019; Munn *et al.*, 2018:143). Based on the ideas of Munn *et al.* (2018:143), this scoping review is carried out to identify knowledge gaps in studies investigating the research ethics and practices in the Library and Information Science domain. A comprehensive literature search was conducted in the Scopus and Library and Information Science Source databases between 2011 and 2021. The purpose of using the 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 contains more than 460 full-text publications and indexing for hundreds of high-quality journals. Other qualitative information resources covering librarianship, classification, cataloguing, bibliometrics, online information retrieval, information management, and more can be found in LIS. On the other hand, the Scopus database was 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 the analyses of literature to identify 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 and relevant studies; study selection; recording the data; and organising, summarising, and reporting results. The eligibility criteria for study selection includes characteristics of studies such as study context (African sub-regions), methodology (quantitative, qualitative, and mixed methods), and 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 study (See Table 1). The scoping review follows specific guidelines by representing a subset of all published articles indexed in the Scopus and Library and Information Science Source Database and searching for articles published between 2011 and 2021. Advanced 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. The study and population characteristics were extracted from eligible publications. Findings were analysed according to themes of the objectives and 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 and 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: 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 domains
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 Studies in the Databases

The authors conducted a thorough and complete search of the 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 was used to search for relevant studies from the electronic databases: research ethics, LIS and research ethics scoping review, academic libraries, and 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		<i>Research Ethics AND practices AND Library and Information Science</i>	75	
26/10/2021		<i>Scoping review AND Research Ethics AND LIS</i>	12	
26/10/2021		<i>Ethics AND library Challenges AND/OR Africa</i>	7	
26/10/2021		<i>Research Ethics AND academic libraries AND Nigeria</i>	0	
28/10/2021		<i>Research Ethics AND/OR Challenges AND/OR Africa</i>	5	
28/10/2021		<i>“Ethical considerations” AND Library and Information Science AND Research</i>	6	
28/10/2021		<i>“Ethical considerations AND information science AND challenges</i>	52	
Total				157
B	LISS			21
26/10/2021		<i>“Research Ethics” AND practices AND Library and Information Science</i>	8	
26/10/2021		<i>“Research ethics” AND/OR practices AND/OR Library and information science</i>	5	
26/10/2021		<i>Research ethics AND/OR Scoping review</i>	3	
26/10/2021		<i>“Ethical consideration” AND Information science AND challenges</i>	3	
28/10/2021		<i>Research Ethics AND Academic libraries AND/OR Africa</i>	1	
28/10/2021		<i>Research Ethics AND academic libraries AND Nigeria</i>	1	
28/10/2021		<i>Additional references</i>	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 abstracts 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 the search on each database, the keywords, and the number of documents retrieved. Figure 1 illustrates how the PRISMA flowchart was adapted.

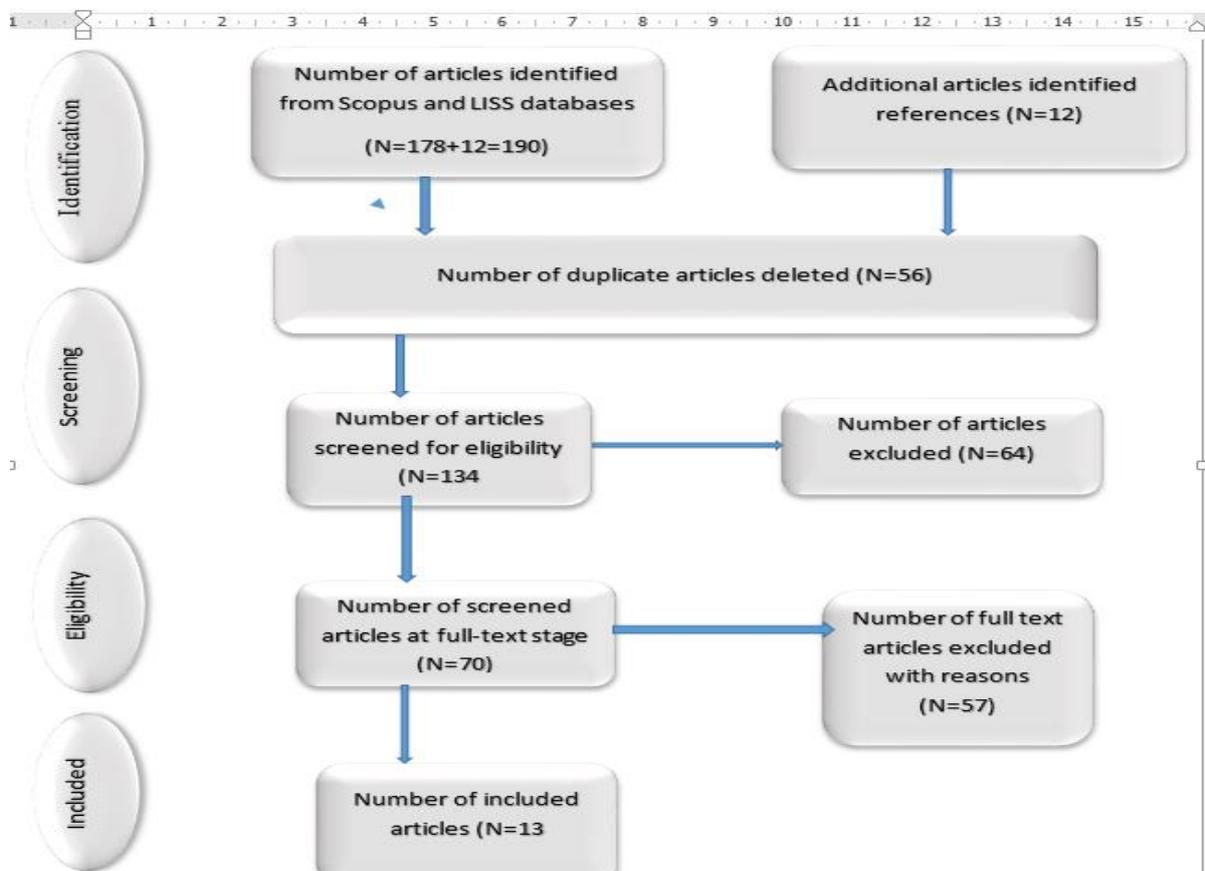
RESULTS

This section presents the total number of articles identified, screened, and selected for eligibility based on the inclusive and exclusive criteria set for the article selection in the flowchart (see Figure 1). This section presents the relevant studies included 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 articles include author and date, study title, objective/aim of the study, study design, study setting, and area of focus (see Table 3).

Presentation of Identified Literature

A total of 190 articles were identified from the Scopus and LISS databases (178 articles + 12 references). Out of 190 documents identified from the two databases, a majority of the documents emerged from the Scopus database (n=157;83%), others include 11.1 per cent (n=21) from the LISS databases, plus an additional 6.32 per cent (n=12) being 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 reason (articles focusing on other topics, published in other subject areas, etc.). Out of 70 full-text articles screened for eligibility, 57 were excluded with reason (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 database. 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, a majority were published in medical-related subjects ($n=53; 71\%$), followed by those in social sciences ($n=15;20\%$), computer sciences ($n=10; 13\%$), nursing ($n=4;5.3\%$), and the lowest being molecular biology ($n=3; 4\%$). Out of 15 documents published in social sciences, 14 were published in the Library and Information Science domain (LIS sources), one 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. 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 review.

Scope of Affiliation: The majority of the identified articles in the Scopus database were affiliated to the Chengendu University of Traditional Chinese Medicine (5), Tianjin University of Traditional Chinese Medicine, Beijing University of Chinese Medicine (4), University McGill (3), and China Academy of Chinese Medical Sciences (3) among others. The studies were sponsored through collaborative bodies such as the 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, only three articles emerged with two publications from South Africa and one from Nigeria, based on the results of the identified literature in Scopus and LISS. The majority of the articles were in the final stage ($n=73/75$), source type was Journal ($n=73/75$), while others were books (1) and book series (1). The majority of the articles were published in the English language.

What Are the Features of Included Articles Focusing on Research Ethics and Practices in Scopus and LISS?

The features 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 a literature survey design for investigations (7/13), others applied descriptive survey (1/13), interviews (1/13), correlation designs (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 and Adetimirin,

2021; Oladokun and 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 the information utilisation of digital library resources was studied by Ikenwe, (2020), legislations in library and information practice by Ssekitto (2018), and authorship and citation manipulation in academic research by Fong and Wilhite (2017). Other areas of study include information ethics (Shiri, 2016), ethical foundation for future librarianship (Wather, 2016), ethics in social network research (Mannheimer *et al.*, 2016), ethical publishing (Curno, 2016), ethics in doctoral research (Mutula and Majinge, 2015), and smart cities (Bianchini and 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 argue that an ethical framework specific to the research practice must be established (Mannheimer *et al.*, 2016). Some indicated that African scholars need to promote information ethics through curriculum development and research at a faculty level (Mutula and Majinge, 2015).

To What Extent is the African Research on Research Ethics and Practices in LIS Reflected in the Domain?

Based on the results of the databases searched for studies focusing on research ethics and practices in LIS, findings show that the 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 three articles emerged with two publications from South Africa and one from Nigeria. Additional references sought and included a focus on information ethics by Oladokun and Jorosi, (2020), Shiri (2016), Ocholla *et al.*, (2010), and Ocholla, (2009).

Table 3 Presentation 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, and Adetimirin (2021).	Descriptive survey research design.	Cyber-ethics.	Adherence to cyber-ethics guidelines was high.	The use of EIRs in universities has brought about enormous changes, especially in how information is accessed and used by undergraduates.
2	Green and Johnston (2021).	Use of key informant interviews.	Editorial misconduct in library and information science.	Researchers caught in instances of editorial misconduct.	Ethics guidelines and policies are vital in informing a transparent process that prevents unethical research.
3	Gibson and O’Hanlon (2020).	Literature review.	Information professionals and research integrity.	Researchers attempted to navigate the COI landscape, particularly regarding scholarly publishing.	Contributes to the COI support efforts at its institution.
4	Ikenwe (2020).	Correlational research design.	Correlation between academic’s	A significant relationship between skill to apply ethical	Implications for policymakers in the education sector is to improve on the

			skills to apply legal and ethical issues of information and utilisation of digital library resources.	and legal issues of information and utilisation of digital library resources.	adherence to ethics and legal issues in the utilisation 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 studies.
6	Fong and Wilhite (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, and co-authors.	This could lead to changes in the review process to stem the ethical decline. It could slow down progress.
7	Shiri (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.	The LIS profession is rife with ethics, non-rules, non-lists, and no checklists describing how to behave.	Implications for professional associations to guide ethical standards in professional practice.
9	Mannheimer <i>et al.</i> (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, <i>et al.</i> (2016)	Panelist/Discussion forums 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 standards.	Discussion forums provide 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, and the influence of incentives in research	Implications for improved applications of electronic information and new technologies in publishing.

				assessments drive author behaviour.	
12	Mutula and Majinge (2015).	Literature survey underpinned by various ethical theoretical models.	Ethical aspects of doctoral research advising 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 is that it needs to promote harmony and productivity in doctoral research.
13	Bianchini and 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, and ethical implications. This paper has practical implications for LIS researchers in control of the abuse in the use of scholarly publications by postgraduate students and researchers in higher institutions of learning. This scoping review presents theoretical implications which are given that can provide empirical evidence for researchers in the applications of positivist (quantitative survey) and interpretive paradigms (qualitative interview) to explore research ethics and practices in other study contexts. Ethical guideline adherence using methodologically sound approaches (interpretive discussion forum) provides the best strategy to meet ethical standards to resolve ethical constraints (Barriaga *et al.*, 2016)

A practical implication for policymakers in LIS is to set research standards for upcoming scholars by following the required ethical standards. In a practical sense, adherence to research ethics could lead to changes in unethical practices (Fong and Wilhite, 2017). Policymakers in the LIS need to improve 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 among other things (Ssekitto, 2018). The justifications have been acknowledged by scholars who agree that ethical guidelines and policies are vital in informing a transparent process useful in preventing unethical research practices in all institutions of learning (Green and Johnston, 2021). This scoping review contributes to the improvement in the knowledge of scholars in their adherence to ethical practices as well as encouraging collaborative research and scholarship (Shiri, 2016). There are implications for the development of policy framework at the faculty and institutional level (Mutula and Majinge, (2015). Adherence to ethical standards in research helps to promote harmony and productivity in doctoral research.

Furthermore, this scoping review has implications for professional associations in the provision of updated guidelines supported by legal documents mandating LIS researchers to follow the required standards of professional practice (Walther, 2016). The framework provides an ethical path for research practices in the LIS domain and related fields (Mannheimer *et al.*, 2016). There are implications for improved applications of electronic information and new

technologies in publishing (Curno, 2016). There are also implications for greater social and economic development (Bianchini and Avila, 2014).

DISCUSSIONS

Based on the 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 the Scopus and LISS databases. 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. The majority of documents identified in social sciences have been published in the Library and Information Science domain (LIS journals). The majority of the identified articles in the Scopus database were affiliated with Universities in developed countries (China, UK, USA, Canada France, and Germany), while few of the articles are affiliated with developing countries (South Africa and Nigeria). At this period, the rate of publication is very low among researchers in LIS. Within the last decade, the trend of publications focusing on research ethics and practices were very progressive 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 this may improve exponentially (see Figure 3).

This scoping review sought to establish the features of included articles focusing on research ethics and practices in the Scopus and LISS databases. 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 a literature survey design for investigations, others applied descriptive surveys, interviews, correlation designs, 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 them to research ethics and practices in the LIS domain. The reason for applying methodological protocols in LIS research was that research designs are important to the research process and the production of knowledge that supports performance and development. Because the appropriateness of the methodologies used in research has implications for ensuring the integrity of the research itself, the trustworthiness and validity of the outcomes of research and practice is integral (Ngulube and Ukwoma, 2019).

Findings show that a majority of the articles focusing on research ethics were in the 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 engage with scholars around the continent by increasing participation in research collaborations with other African scholars outside their communities (Mutula and Mazinge, 2015).

This scoping review presents theoretical, practical, and ethical implications. This paper has implications for LIS researchers, in the control of abuse and use of scholarly publications in higher institutions of learning. Furthermore, professional associations need to guide the domain with ethical standards of 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 analysing a decade of research ethics and practices in Library and Information Science in the African context. The search can be extended to more scientific databases or undertaken across a wider scope for generalisation. The search is limited to the

Scopus and Library and Information Science Source databases. Further studies can be carried out through empirical investigations. Theories can also be applied to 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 the 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 trend in research outputs in publications points 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 developed countries through research collaboration, including managers and policymakers, to empower librarians with knowledge of how to manage scholarly publications in academic libraries and 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 utilisation 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 manipulation 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 the foundations level in LIS (Walther, 2016). Another welcome development is the exploration of the ethical dimensions of researching using user-generated social networking service (SNS) data. This data can provide an ethical path for research using it (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 need to be guided from an African scholar's perspective (Mutula and Majinge, 2015). There is a need for robust discussions focusing on how to improve interactions between citizens and communities through the adoption of smart cities guided by ethical considerations (Bianchini and Avila, 2014).

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