

Research Ethics in Social Science: In-Depth Bibliometric Analysis

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Abstract: *This study uses data from the Web of Science (WoS) database to carry out a bibliometric analysis of research ethics in social science. The primary aim is to look at the core ethical principles that apply to social science research, including respect, beneficence, and justice, and draw attention to ethical challenges, such as those concerning big data, privacy, and informed consent. In addition, it maps trends in research ethics through the use of visualization tools like VOS Viewer. The search process retrieved 15,259 records, out of which 14,844 relevant datasets were included after the data screening process. The study examined major key terms including "ethics," "research ethics," and "informed consent" and probed their connections and occurrences within the literature. Results revealed a major focus on the ethical concerns raised against the use of big data, qualitative research, and social media in academic studies. The findings will be of immense value to researchers as they present a comprehensive overview of the current ethical challenges and the evolution of research ethics in social science. The study also calls for more stringent ethical guidelines that would guarantee responsible and transparent research practices.*

Keywords: Research ethics, social science, big data, informed consent, bibliometric analysis, ethical challenges, VOS viewer, social media, qualitative research, Web of Science

I. INTRODUCTION

Social science research ethics provides integrity, fairness, and accountability. The principles that guide respect, beneficence, and justice protect participants' rights and data. Biomedical fields have unique challenges for informed consent, privacy, and digital ethics that are not as present in social research. This paper highlights the need for a strong ethical framework to maintain research integrity. Ethical guidelines for research have traditionally been based on biomedical frameworks, which often constrain the scope of social sciences. This dominance negates the development of ethical standards that respect diverse methodologies but not with forcing restrictive norms. [Guerrero et al., 2015]. In the context of ethics, participatory research methods are important for promoting self-actualization and facilitating moral co-learning. They enable co-understanding and co-reconstruction of problems, mutual learning, and empowerment for eudemonistic change, all evaluated in terms of human flourishing. [Racine, 2024]. The integration of big data into social science research generates significant ethical challenges, which relate to consent, privacy, ownership of data, and potential harms towards research subjects. Although big data has been shown to provide valuable insights, there are still concerns about biases, interpretative complexities, and regulatory gaps. Unlike biomedical research, SSR does not have a much stricter system of ethical oversight, so it remains more vulnerable to misinterpretation and misuse. The reliance on publicly available data and third-party algorithms complicates further ethical accountability. [Hosseini et al., 2022].

Animals are integral for scientific and medical research, although advancement in non-animal methods has so far not had any alternative that could mimic living systems fully for basic research. Use of animals must be continued in testing food, drugs, medical devices, and methods of treatments before those in use in humans. No technology is advanced or sophisticated enough to simulate the complexities of the interactions of living organisms. Though there are ongoing efforts to find alternatives, animal research must be conducted ethically to ensure humane and responsible treatment. [Dahiya, 2010].

Interdisciplinary research brings together diverse teams to advance knowledge and address complex problems that exceed the boundaries of a single discipline. It is increasingly embraced in academia to foster innovative solutions. In this context, training in the responsible conduct of research (RCR) is essential for doctoral students, ensuring they understand the norms of ethical research. Such training upholds integrity, prevents misconduct, and maintains public trust in research outcomes. Research misconduct, including fraud or negligence, can severely damage the credibility of research and the reputation of its institutions. [Mathur et al., 2019].

The most eminent cases of research ethics such as the Tuskegee Syphilis Study, Nazi experiments, have compelled the development of ethical rules specifically to protect the participants. The guidelines already exist; however, some of the experts, such as Alex John London, want a reconsideration of that ethic base specifically with regard to more just and more collaborative approach to human research. [Resnik, 2022].

Research of Dual Use Concern DURC refers to studies that would benefit mankind but, at the same time, would have an alternative use in bioterrorism or biological warfare. Such types of studies might lead to the creation of viruses or technologies that could prove harmful to public health, the environment, and national security. Therefore, regulation of DURC is crucial in preventing its misuse and ensuring the prevention of misuse for harmful purposes. [Salloch, 2018].

Advancements in artificial intelligence (AI) and machine learning (ML) have the potential to revolutionize healthcare, with applications in diagnostics, biomarker detection, and neurotechnology. However, these technologies raise ethical concerns, such as discrimination, privacy issues, environmental impacts, and economic conflicts. While various frameworks for ethical AI development exist, no systematic methods have been established to address these challenges effectively. The Embedded Ethics approach addresses this gap by integrating trained ethicists and social scientists into research and development teams, allowing them to identify and resolve ethical issues in real time. This dynamic approach ensures that ethics are considered at every stage, fostering responsible AI deployment in healthcare [Willem et al., 2024].

The rise of digital labor platforms has introduced new ethical challenges in scientific research, particularly regarding the treatment of microworkers. While traditional research ethics emphasize informed consent, fair compensation, and participant rights, these standards often fall short in the context of microwork. Unlike conventional study participants, microworkers operate in a largely unregulated digital space, performing tasks under opaque conditions with minimal labor protections. This disparity raises concerns about fair treatment, transparency, and the ethical responsibility of researchers using these platforms. Addressing these issues requires a reevaluation of ethical guidelines to ensure equitable standards for both digital and in-person research participants [Molina et al., 2023]. Ethics dumping refers to the unethical practice where clinical trials sponsored by high-income countries (HICs) are conducted in low and middle-income countries (LMICs) using research practices that would be deemed unacceptable in the sponsor's own country. This leads to exploitation and vulnerability, as these practices can disadvantage participants in LMICs. Issues such as lack of voluntariness, undue inducement, and poor benefit-risk balance are key concerns in these situations. Recognizing and addressing ethics dumping is crucial to ensure that international research is conducted in an ethically responsible manner, respecting the rights and well-being of participants [Germán & Rosemarie, 2019].

The ethics review board (ERB) at Médecins Sans Frontières (MSF) promotes ethical discussions and innovation in research governance. Its new framework encourages open conversations on ethical issues, emphasizing MSF's specific research context. This approach challenges traditional ethics review practices and fosters a collaborative relationship between researchers and the ERB [Schopper et al., 2015]. Ethics in health and social science research ensures the responsible treatment of participants, emphasizing principles like informed consent, confidentiality, and minimizing harm. While health research ethics is well-defined, social science ethics, especially in participatory research, focuses on inclusivity, transparency, and managing power dynamics. Ethical challenges in participatory research include ensuring equitable participation, addressing emotional burdens, and reflecting on the research process to protect both researchers and participants, especially in contexts of inequality [Schaefer & Narimani, 2021]. The Covid-19 pandemic underscores the need for urgent research, but ethical principles like informed consent, justice, and non-maleficence must guide it. Despite the urgency, ethical standards should not be compromised. An ethics of precaution ensures research respects human rights and maintains integrity, avoiding shortcuts in times of crisis [Solbakk et al., 2021].

Qualitative health research often faces challenges with rigid ethics review processes, which don't align with the flexible nature of these studies. Critics argue that these procedures hinder research without sufficiently protecting participants.

Both ethical oversight and researchers' awareness of ethical issues during the study are essential for ensuring justifiable practices [Potthoff et al., 2023].

Ethical reviews aim to minimize risks, including physical, psychological, and informational harm. Researchers must obtain ethical clearance and demonstrate transparency in their methods, though inconsistent reporting practices in public administration highlight the need for standardized approaches to ensure ethical conduct [Jordan & Gray, 2014].

Bibliometric analysis is a research technique that utilizes quantitative and statistical methods to examine the production and dissemination of academic literature. It entails gathering and analyzing data, including citation frequencies, co-authorship networks, and sources of publication. This approach aids in assessing the impact of research, evaluating scientific output, and monitoring the reach and influence of scholarly work over time. With the growing volume of scientific publications and the increasing focus on research impact, bibliometrics serves a crucial role in evaluating and guiding the advancement of scientific knowledge [Jiang et al., 2023].

A bibliometric analysis is a quantitative method used to analyze scholarly publications, allowing for the identification of prevailing trends and the discovery of emerging developments within particular fields of study. [Kumar & Choudhary, 2024].

The Web of Science (WoS) database is a premier research platform that provides comprehensive information across diverse disciplines, such as natural sciences, social sciences, arts, and humanities. It serves as a global citation index, encompassing works from the most reputable publishers around the world. [Wei et al., 2022].

Bibliometric tools like CiteSpace, VoSviewer, the "bibliometrix" R package, and HistCite are frequently employed to generate visual representations of literature analysis outcomes. [Wu et al., 2022]. Vos viewer is a visualization tool used for mapping and analyzing scientific data, particularly citation and co-authorship networks. It helps identify patterns, trends, and relationships in academic literature, aiding in systematic literature reviews and research mapping [Syaiful Rochman et al., 2024].

Materials and Methods pertaining to research

Collection of data: The present study conducted a Bibliometric Analysis (BA) using data obtained from the Web of Science (WoS) database, as of January 29, 2025. The WoS was selected due to its established reputation as a reliable source of research publications and citation data.

Identification of Relevant Data: To find and identify dataset number 15,259, the researchers utilized the search functionality of the Web of Science (WoS) platform, along with predefined keywords and selection criteria. This method ensured the accurate and precise retrieval of relevant study data.

Data Screening and Cleaning: Out of the 15,259 records retrieved, 415 were excluded for various reasons: 42 records were removed due to document type (e.g., reprints, biographical items, book reviews, meeting abstracts, and corrections), 217 records were excluded based on publication dates prior to 2020, and 156 records were excluded due to language barriers.

Record Evaluation for Inclusion: The subsequent phase involved reviewing 14,844 datasets, all of which met the inclusion criteria, confirming their relevance to the study.

Data Analysis: This study focused on analyzing the frequency of specific keywords related to Ethics in Social Science to identify key topics within the field. It also aimed to demonstrate the evolution and growth of knowledge in this area over time. Bibliometric analysis (BA) was performed to map connections between publications, authors, and keywords, and to examine trends in the literature. The research objectives were achieved using VOS viewer 1.6.19, which enabled the handling of large datasets and the creation of visual representations such as network, overlay, and density maps. These visualizations provided a comprehensive and valuable overview of the field, offering insights to guide future research and highlight significant advancements.

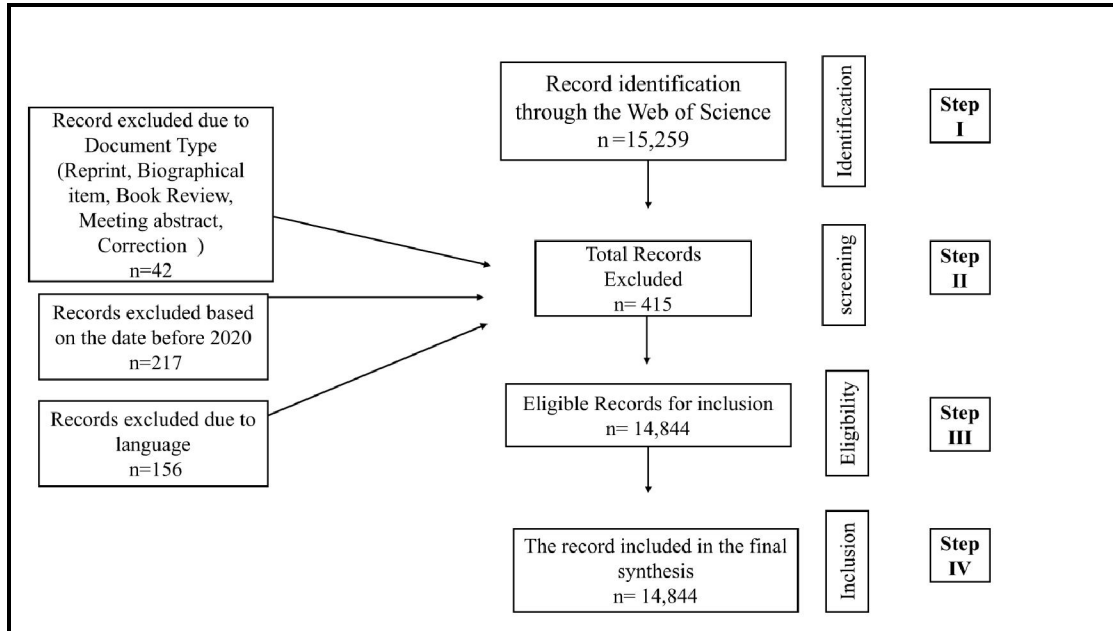


Figure: -1 Selection of Data with respect to the Study on Research Ethics in Social Science.

Table -1: Co-occurrence of the keywords associated with Research Ethics in Social Science Research

S. No.	Keywords	Occurance	Total Link Strength
1	Ethics	22	66
2	Research ethics	21	57
3	Health	5	27
4	Social science	6	25
5	Social media	5	22
6	Qualitative research	4	17
7	Research	4	17
8	Informed-consent	5	16
9	Research integrity	3	16
10	Big data	3	15
11	Ethnography	3	13
12	Research ethics committees	4	13
13	Challenges	2	12
14	committees	3	12
15	Education	3	12
16	Issues	3	12
17	Open science	2	12
18	Research ethics committees	3	12
19	Social science	6	11
20	Bioethics	3	10
21	Computational social science	2	10
22	Decision- making	3	10
23	Experience	2	10
24	Science	3	10

25	Social science research	3	10
26	Vulnerable population	2	10
27	Ai	2	9
28	Informed consent	2	9
29	Interface	2	9
30	Internet research	2	9
31	Reflections	2	9
32	Standards	2	9
33	Fieldwork	2	8
34	Governance	2	8
35	Irb	2	8
36	Social justice	2	8
37	Values	2	8
38	Awareness	2	7
39	Consent	2	7
40	Gdpr	2	7
41	Health research	2	7
42	Regulation	2	7
43	Care	2	6
44	Technology	2	6
45	Children	2	5
46	Ethics review	2	5
47	Interdisciplinary research	2	5
48	Management	2	5
49	Computer ethics	2	4
50	Knowledge	2	4
51	Life science	2	4
52	Research ethics boards	2	4
53	Virtue ethics	2	2

The table represents the occurrence and total link strength of various keywords related to research ethics, derived from data obtained through Web of Science and analyzed using VOS viewer software. The occurrence column indicates the number of times a keyword appears in the dataset, while total link strength reflects the strength of connections between keywords, highlighting their co-occurrence relationships. A higher total link strength suggests stronger interconnections with other keywords in the dataset.

Ethics - 22 occurrences, 66 link strength Ethics refers to moral principles that govern behavior and decision-making in research. In academic research, ethics ensures honesty, integrity, and respect for participants, guiding researchers in conducting studies responsibly.

Research Ethics -21 occurrences, 57 link strength Research ethics focuses on ethical guidelines in conducting research. It includes principles such as informed consent, data protection, avoiding plagiarism, and ensuring the welfare of participants.

Health - 5 occurrences, 27 link strength Health-related research often involves human participants, making ethical considerations crucial. This includes medical trials, patient confidentiality, and bioethical concerns in healthcare studies.

Social Science - 6 occurrences, 25 link strength Ethics in social science research ensures responsible interactions with human subjects, addressing concerns like consent, bias, and cultural sensitivity.

Social media- 5 occurrences, 22 link strength Research involving social media raises ethical concerns related to privacy, data mining, misinformation, and the ethical use of publicly available digital data.

Qualitative Research - 4 occurrences, 17 link strength Ethical challenges in qualitative research include confidentiality, informed consent, and potential researcher bias when interpreting non-numerical data.

Research - 4 occurrences, 17 link strength A broad term covering all fields of scientific inquiry, research ethics ensures credibility, validity, and adherence to professional ethical standards.

Informed Consent - 5 occurrences, 16 link strength A crucial ethical principle ensuring that research participants voluntarily agree to take part after understanding the risks and benefits of the study.

Research Integrity- 3 occurrences, 16 link strength Refers to the adherence to ethical principles in research, including honesty in data collection, avoiding plagiarism, and transparent reporting of findings.

Big Data - 3 occurrences, 15 link strength The use of large datasets in research raises ethical concerns related to data privacy, security, and responsible handling of sensitive information.

Ethnography - 3 occurrences, 13 link strength A qualitative research method that requires ethical considerations, particularly in respecting the culture, privacy, and consent of observed communities.

Research Ethics Committees - 4 occurrences, 13 link strength Institutional bodies responsible for reviewing and approving research proposals to ensure ethical compliance and the protection of human subjects.

Challenges - 2 occurrences, 12 link strength Refers to difficulties in implementing ethical research, such as balancing scientific progress with ethical responsibilities.

Committees - 3 occurrences, 12 link strength Ethics committees play a key role in overseeing research to ensure adherence to ethical standards.

Education -3 occurrences, 12 link strength-Teaching research ethics is crucial in developing ethical awareness among students and researchers, ensuring responsible scientific practices.

Issues - 3 occurrences, 12 link strength Common ethical issues in research include plagiarism, conflicts of interest, data manipulation, and participant exploitation.

Open Science - 2 occurrences, 12 link strength A movement promoting transparency, accessibility, and ethical data sharing in research while ensuring proper credit and participant privacy.

Research Ethics Committees - 3 occurrences, 12 link strength Same as point 12, referring to institutional review boards that approve and monitor research for ethical compliance.

Social Science Research - 3 occurrences, 10 link strength Ethics in social science research ensures the protection of participants' identities, cultural sensitivity, and informed consent.

Bioethics - 3 occurrences, 10 link strength A field of study that deals with ethical implications in biological and medical research, including genetics, cloning, and patient rights.

Computational Social Science - 2 occurrences, 10 link strength Involves using computer-based analysis in social research, raising ethical concerns about data privacy and algorithmic bias.

Decision-Making -3 occurrences, 10 link strength Ethical decision-making in research involves weighing risks, benefits, and ethical responsibilities before conducting studies.

Experience - 2 occurrences, 10 link strength Refers to the role of researchers' experience in handling ethical dilemmas and ensuring ethical rigor in studies.

Science - 3 occurrences, 10 link strength Ethical considerations in scientific research ensure integrity, reproducibility, and the responsible use of scientific knowledge.

Vulnerable Population - 2 occurrences, 10 link strength Research involving vulnerable groups, such as children, elderly, or disabled individuals, requires additional ethical safeguards.

AI -2 occurrences, 9 link strength Artificial intelligence in research raises ethical concerns regarding bias, transparency, and the potential misuse of AI-generated data.

Interface -2 occurrences, 9 link strength The interaction between ethical research and technology, ensuring human-centered and ethical technological advancements.

Internet Research -2 occurrences, 9 link strength Involves ethical concerns such as digital consent, anonymity, and data security when conducting research online.

Reflections -2 occurrences, 9 link strength Encourages researchers to critically evaluate their ethical choices and biases during research.

Standards -2 occurrences, 9 link strength Refers to ethical guidelines and principles that ensure responsible research practices.

Fieldwork - 2 occurrences, 8 link strength Ethical concerns in field research include ensuring safety, obtaining informed consent, and respecting local cultures.

Governance -2 occurrences, 8 link strength Ethical research governance includes institutional policies that regulate responsible research conduct.

IRB - 2 occurrences, 8 link strength Institutional Review Boards oversee research involving human participants to ensure ethical compliance.

Social Justice -2 occurrences, 8 link strength Ethical research should promote fairness, equality, and social justice in participant selection and study impact.

Values - 2 occurrences, 8 link strength Ethical research upholds core values such as honesty, integrity, and respect for participants.

Awareness - 2 occurrences, 7 link strength Promoting ethical awareness among researchers helps prevent misconduct and enhances ethical research practices.

Consent - 2 occurrences, 7 link strength Ensuring voluntary and informed participation in research is a fundamental ethical principle.

GDPR - 2 occurrences, 7 link strength The General Data Protection Regulation (GDPR) protects personal data and privacy in research.

Health Research - 2 occurrences, 7 link strength Ethics in health research includes patient consent, confidentiality, and fair participant treatment.

Regulation - 2 occurrences, 7 link strength Legal and institutional frameworks ensure ethical research conduct and compliance.

Care - 2 occurrences, 6 link strength Researchers must prioritize the well-being and safety of participants.

Technology - 2 occurrences, 6 link strength Ethical considerations in technology-driven research include data security and bias in automated systems.

Children -2 occurrences, 5 link strength Research involving children requires special ethical protections, such as parental consent

Ethics Review -2 occurrences, 5 link strength A process in which research proposals are evaluated for ethical compliance before approval.

Interdisciplinary Research - 2 occurrences, 5 link strength Ethics in interdisciplinary research ensures integrity across diverse fields and methodologies.

Management - 2 occurrences, 5 link strength Ethical research management includes responsible data handling and conflict resolution.

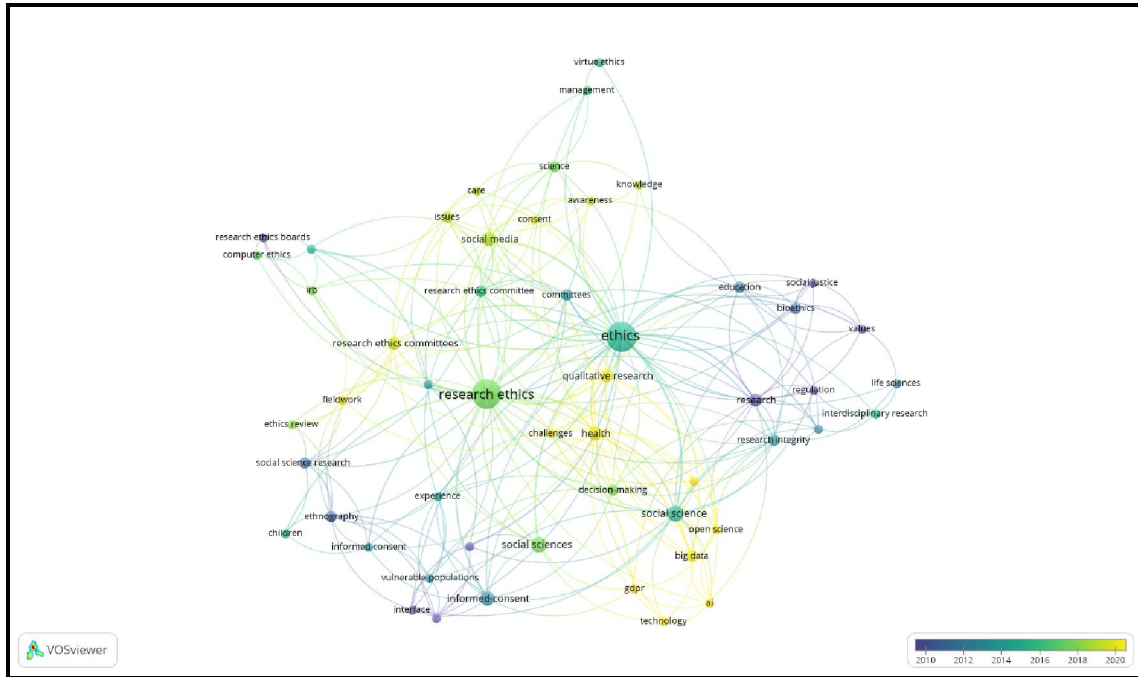
Computer Ethics -2 occurrences, 4 link strength Examines ethical issues in computing, such as cybersecurity and digital privacy.

Knowledge -2 occurrences, 4 link strength Ethical knowledge management ensures responsible sharing and attribution of research findings.

Life Science - 2 occurrences, 4 link strength Ethics in life sciences addresses biotechnology, genetics, and bioethics concerns.

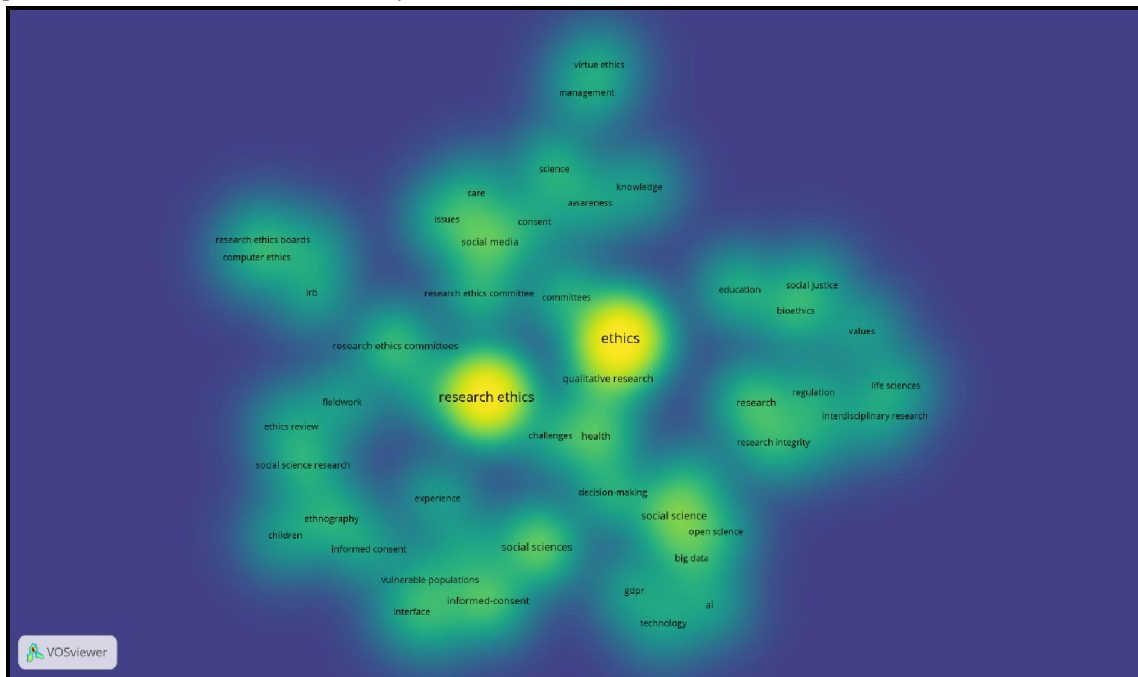
Research Ethics Boards - 2 occurrences, 4 link strength Similar to IRBs, these boards ensure that research follows ethical guidelines.

Virtue Ethics - 2 occurrences, 2 link strength A philosophical approach that emphasizes moral character in ethical decision-making.



The figure: - 4 Overlay visualization of Research Ethics in Social Science Research: A Network Analysis of Co-Occurring Keywords (Source: Prepared by Author using VOS viewer 1.6.19 software)

Figure 4 presents an overlay visualization, which builds on the network analysis by adding a layer of time-based data. The colors represent the timeline of research trends. Keywords that are more recent in the field are shown in warmer colors (like red or yellow), while older topics are represented in cooler colors (like blue or green). This visualization helps to track how the focus on various keywords has evolved over time in social science research ethics.



The figure: - 5 Density visualization of Research Ethics in Social Science Research: A Network Analysis of Co-Occurring Keywords (Source: Prepared by Author using VOS viewer 1.6.19 software)

Figure 5 shows a density visualization, which highlights the concentration of research topics within the field of ethics in social science. Areas with a higher density indicate clusters of keywords that are frequently researched and have a large number of associated studies. These areas are critical to understanding the core themes in the field and where most of the research efforts are concentrated.

Discussion of Findings

The findings from this bibliometric analysis provide a comprehensive overview of the key themes and trends in research ethics within the realm of social science. By analyzing data extracted from the Web of Science (WoS) database, this study sheds light on the most prevalent research topics and their evolution, providing valuable insights into how ethical issues in social science research have been addressed over time.

Ethics and Research Ethics The terms "Ethics" and "Research Ethics" emerged as the most frequently occurring keywords, with 22 and 21 occurrences, respectively. This prevalence underscores the foundational role that ethics plays in guiding research in the social sciences. Research ethics serve as a cornerstone of scientific inquiry, ensuring that studies are conducted in a manner that protects participants' rights, ensures data integrity, and upholds the public trust (Resnik, 2022). The prominence of these terms reflects the increasing importance of ethical considerations in contemporary research practices, which are essential for ensuring responsible, transparent, and socially beneficial outcomes.

Health and Social Science The frequent occurrence of the terms "Health" (5 occurrences) and "Social Science" (6 occurrences) emphasizes the interdisciplinary nature of research ethics, particularly in studies that integrate health-related issues within social science frameworks. Research in this domain often involves vulnerable populations, making it crucial to adhere to ethical principles such as informed consent, confidentiality, and participant welfare (Molina et al., 2023). This intersection highlights the need for robust ethical guidelines to navigate the complexities of health-related research within the broader context of social science.

Social media and Ethical Concerns The inclusion of "Social Media" as a keyword, appearing 5 times in the dataset, reflects the growing impact of digital platforms in social science research. This trend brings with it a host of ethical concerns related to privacy, data collection, and consent. Social media platforms provide vast amounts of publicly available data, but ethical challenges arise in using this data, particularly regarding participant privacy, the potential for exploitation, and the risk of misinformation (Schaefer & Narimani, 2021). The rise of digital research methods necessitates the development of clear ethical frameworks to address these emerging issues and to ensure that research conducted via these platforms adheres to established ethical standards.

Informed Consent and Research Integrity The term "Informed Consent," which appeared 5 times, is central to the ethical conduct of research. This term reflects the ongoing emphasis on ensuring that participants are fully aware of the nature, risks, and benefits of their involvement in a study, which is a key aspect of maintaining ethical research standards (Hosseini et al., 2022). Coupled with "Research Integrity," which appeared 3 times, these terms highlight the importance of upholding the credibility and transparency of the research process. Research integrity remains a critical concern, especially in light of potential ethical violations such as data manipulation or plagiarism, which can compromise the validity of research findings (Mathur et al., 2019).

Big Data and Ethical Implications The term "Big Data" was identified 3 times in this study, reflecting the increasing use of large datasets in social science research. Big data offers researchers unprecedented opportunities to derive insights, but it also raises significant ethical challenges. Issues such as privacy, security, informed consent, and data ownership are critical in ensuring that the use of big data aligns with ethical research practices (Guerriero et al., 2015). Furthermore, the potential for algorithmic bias in the use of big data in social science research highlights the need for ethical oversight to prevent discriminatory outcomes and ensure fairness in research methodologies.

Ethnography and Ethical Challenges "Ethnography," mentioned 3 times, is indicative of the ethical challenges specific to qualitative research, particularly when it involves close interaction with participants or vulnerable populations. Ethical issues in ethnography often revolve around informed consent, researcher bias, and the potential for harm to the participants or communities under study (Racine, 2024). Ethnographic research requires a careful balancing act to ensure that the research process is both ethically sound and respectful of participants' autonomy and dignity.

Research Ethics Committees and Institutional Oversight The term "Research Ethics Committees" (4 occurrences) emphasizes the role of institutional oversight in maintaining the ethical standards of research. These committees are responsible for reviewing research proposals, ensuring that studies are conducted in compliance with ethical guidelines, and protecting the rights of participants (Schopper et al., 2015). Their presence is critical in safeguarding the ethical conduct of research, especially in complex or high-risk studies. The frequent mention of committees in the findings highlights the importance of institutional review in upholding the integrity of research.

II. CONCLUSION

In conclusion, this bibliometric analysis highlights the significant trends and themes in research ethics within the social sciences. The findings underscore the growing complexity of ethical issues arising from the integration of health-related research, digital platforms, and big data. Key areas of focus, including informed consent, research integrity, and the role of ethics committees, continue to shape the ethical landscape of social science research. As the field evolves, it is essential to develop and refine ethical frameworks that address emerging challenges, ensuring that social science research remains responsible, transparent, and in service of the public good.

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