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RESEARCH ARTICLE

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MAPPING THE GLOBAL RESEARCH LANDSCAPE OF VIRTUAL VIOLENCE: A BIBLIOMETRIC ANALYSIS (2016–2025)

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ABSTRACT

The primary aim of this study is to analyze the global research output on digital violence based on bibliographic records retrieved from the Scopus database for the period 2016–2025. Microsoft Excel and the latest version of VOSviewer were used for data analysis and visualization. After removing duplicate records, a total of 3,064 publications were selected for the final analysis. To examine publication trends, influential articles, highest cited countries, and keyword co-occurrence networks. The findings reveal a steady increase in research output, average 306.4 publications per year, with rapid growth after 2020, reflecting increasing scholarly attention to cyberbullying, cybercrime, deepfakes, and AI-driven digital violence. Citation analysis identified “Cultural Backlash: Trump, Brexit, and Authoritarian Populisms” (2,993 citations) as the most influential publication. The United States (790 publications) ranked first in research productivity, followed by the United Kingdom (350) and Australia (275). Keyword co-occurrence analysis generated 7 thematic clusters from 675 author keywords, highlighted “crime” (450 occurrences; 1,614 link strength) as the dominant research themes. The study provides a comprehensive overview of the intellectual structure and emerging trends in digital violence research, offering valuable directions for future interdisciplinary investigations and policy development in social science and other subjects.

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INTRODUCTION

Digital abuse is rising fast in the world wide; many cases are not reported and unnoticed people in many countries do not report incidents. Society is facing several forms of digital violence they are online sexual, cyber harassment and deepfakes, these attacks spread fear, damage reputations, and silence women's voices. In the worst cases, they lead to offline violence and even femicide (*Digital Violence Is Real Violence: #NoExcuse for Online Abuse*, 2025). Digital spaces must be treated as real spaces where rights and safety apply. Until they are safe for all women and girls, true equality will remain out of reach. 90 to 95% of online deepfakes are sexual images of women (*UN Women*, 2025) Shockingly, fewer than 40% of countries have laws addressing digital violence, leaving nearly 1.78 billion women and girls without legal protection. In 2023, a woman was killed every ten minutes by someone in her own family. In the Europe and Central Asia region alone, an estimated 24 million women have experienced physical or sexual violence by an intimate partner in the past year.

According to a United Nations (UN) Women report, more than half of women over 18 across Europe and Central Asia who use digital technologies have experienced at least one form of digital violence. Among women who had experienced digital violence in the region, the most prevalent forms include receiving unwanted or offensive content or messages (40 per cent), receiving inappropriate sexual advances or content on social networking (30%) and hacking women's accounts and web pages (25%). A large quantity of women experienced digital violence once (40 per cent), while one in seven women experiences such violence daily or weekly. To avoid digital violence UN development coordination office introduced the following precaution for women and girls safety reported stronger laws and enforcement against digital violence.

- Cooperation with tech companies for platform accountability.
- Funding for women's rights organizations to support survivors.
- Digital literacy programs for women and girls.
- Investment in prevention to challenge toxic online behaviors.

- Without urgent action digital spaces will continue to increase violence and inequality, threatening progress toward gender equality, peace, and development.
- The Platforms must also step up by removing abusive content quickly and improving reporting systems.

Although, several studies have examined digital violence, comprehensive bibliometric analyses of global research trends remain limited. Therefore, this study aims to address this gap in academic knowledge, this study presents bibliometric indicators of published literature from the field of digital violence. The goal of this study is to describe the whole domain of digital violence and to uncover the important paradigms that contributed to its research, including the most influential authors, journals, cited articles, and keyword. Therefore, our study will contribute to the multidisciplinary and fast-growing topic of research on digital violence by showcasing the dynamics of the various attentions of this field of knowledge and laying the foundation for future academic investigations (Singh et al., 2024)

Types of Digital Violence

There are many types of digital violence; in this study, we have explained some of the major types.

Cyberbullying and Harassment: Sending mean messages or threats to scare or upset someone over and over. **Cyberstalking:** Watching a person's online moves or using GPS apps to track them without permission. **Doxing:** Sharing private personal details, like a home address or phone number, online to cause harm. **Image-Based Abuse:** Sharing private or sexual photos of a person without their clear okay. **Deepfakes and AI Manipulation:** Using computer tools to make fake, often sexual, pictures or videos of a person's face. **Sextortion:** Forcing a person to give money or photos by threatening to share their private images. **Virtual Sexual Assault:** Unwanted sexual touching or actions done to a person's avatar in virtual reality spaces. **Hate Speech:** Posting cruel or mean words that attack a group or person based on who they are (“Unmasking Digital Violence: Legal Shields in the Virtual World,” 2025)

REVIEW OF LITERATURE

This research will apply a bibliometric framework to quantify and visualize the research structure (Rakhmawati et al., 2025). A study by (Hueso Romero et al., 2025) conducted a bibliometric analysis of 700 Web of Science publications (2005–2023) the study analyzed publication trends, collaboration networks, and keyword co-occurrence, identifying the United States and Spain as the leading contributors and cyberbullying as an emerging multidisciplinary research area (Ho & Luong, 2022) analyzed 387 Web of Science-indexed publications a decadal on cybercrime victimization through bibliometric techniques including co-authorship and co-occurrence analyses. The study found a steady increase in research output, with the United States leading scientific productivity, while cyberbullying emerged as the dominant research theme. (Rakhmawati et al., 2025) analyzed 1,068 Scopus-indexed publications (2010–2025) on virtual world crimes using Open Refine, Scopus Analyzer, and VOSviewer. The bibliometric assessment revealed rapid growth in cybercrime research, with India, the United States, and the United Kingdom leading publication

output, while artificial intelligence and blockchain emerged as key research themes. (Kızılaslan & Eminoğlu Güven, 2025) reviewed the literature on digital violence among university students, synthesizing evidence on prevalence, risk factors, and preventive strategies.

The study highlighted cyberbullying, online harassment, and social media misuse as major forms of digital violence and emphasized the need for awareness and institutional interventions. (Ezekwe, 2025) performed a bibliometric analysis of 340 Web of Science publications (1992–2026) using Bibliometrix and Biblioshiny to map the evolution of digital media violence research. The study identified significant growth after 2015 and reported cyberbullying, social media, victimization, and digital literacy as the major research themes.

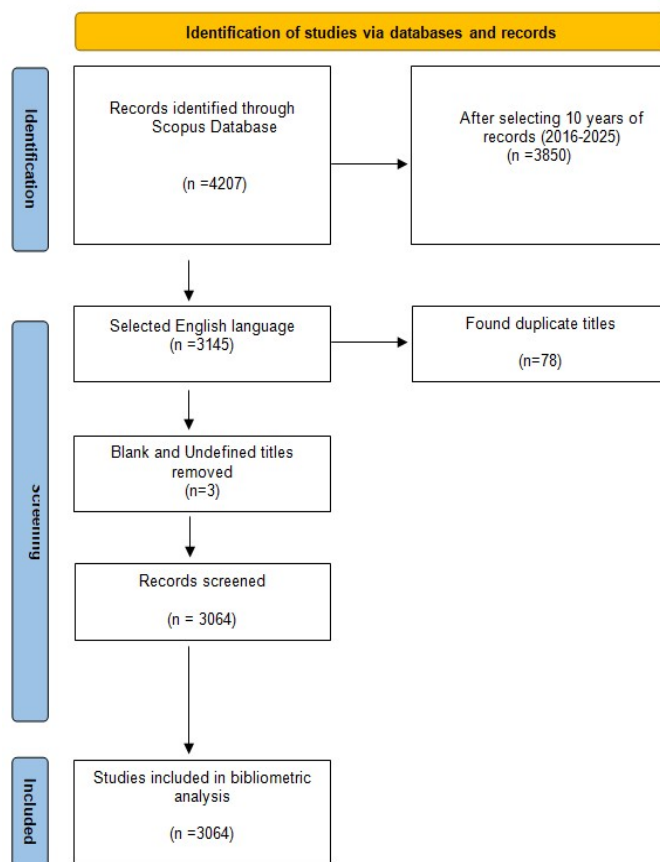


Figure 1. PRISMA diagram identifying procedure to refine documents for bibliometrics analysis

Research Questions

This study discusses the following research questions:

RQ1: What are the research trends of digital violence in the virtual world according to the year of publication?

RQ2: What are the top 10 cited articles of digital violence in the virtual world?

RQ3: Which are the top 10 countries on digital violence in the virtual world based on number of publications?

RQ4: What are the popular keywords related to digital violence in the virtual world?

METHODOLOGY

This bibliographic data retrieved from Scopus database the search is restricted to the topic search on “digital violence” “Cyber Violence” “Digital World” with time span using the following search query (TS=Digital Violence) AND PY 2016 to 2025. The Scopus database provides us with a total of 4207 excluded unwanted document types and removed only after filtering the data and selected publication stage final and considered only in English language final records were selected 3064. This paper employed preferred reporting items for Systematic Reviews and Meta-Analyses (PRISMA) for data collection procedure. Prior to data analysis, the primary data were cleaned in Microsoft Excel 2016. The data were processed by Microsoft Excel and VOSviewer software latest version, then it was analyzed according to two main aspects. First, descriptive statistic provided evidence for yearly distribution and growth trend of publications, frequency counts of citations, and countries, most-cited publications. Second, co-authorship and co-occurrence analysis were constructed and visualized by VOSViewer version to explore the network collaborations.

RESULTS AND DISCUSSION

RQ1: What are the research trends of digital violence in the virtual world according to the year of publication?

Documents by year: The publication trend on “digital violence in the virtual world” between 2016 and 2025 demonstrates a steady but fluctuating growth in scholarly attention as shown in Figure 1. In the early years, research output was relatively low, with higher than 306 documents annually between 2016 and 2025. A slight increase began in 2020 (222 documents), followed by a notable increase in 2022 (317 documents), reflecting the growing recognition of digital violence as a global issue. However, this increased slowed in 2023 (447 documents). The average documents published 306.4 annually. The reasons behind this pattern are closely tied to technological and societal developments.

The significant rise after 2016 corresponds with increasing global concerns over ransomware, financial digital violence, and deep fake activities. The peak in 2019 can be linked to worldwide debates on digital privacy and high-profile cyber incidents, which likely spurred scholarly research. Similarly, the COVID-19 pandemic in 2020–2021 heightened digital dependency, encouraging studies on weaknesses in online platforms, which explains the sustained high numbers during these years. The high increase in 2023 coincides with emerging challenges such as AI-driven digital violence, cryptocurrency fraud, and the governance of virtual environments like the metaverse. Overall, the trend underscores how the evolution of digital technologies continues to shape academic discourse on virtual world violence.

Research Question 2: What are the top 10 cited articles of digital violence in the virtual world?

Top cited Articles: The table 1is provide top 10 cited articles on the topic of crimes in the virtual world. The citation analysis of the top ten most cited papers on digital violence in

the virtual world highlights several key trends in scholarly attention and impact. The most cited article, “*Cultural Backlash: Trump, Brexit, and Authoritarian Populism*” with 2993 citations, reflects how the global cultural backlash incidents and research interest, making it a foundational reference point for subsequent studies. Other highly cited works, such as “*The Effects of Over-Reliance on AI Dialogue Systems on Students' Cognitive Abilities: A Systematic Review*”, focus on the online AI and algorithmic crime prediction in policing, respectively. Their strong citation counts (1110) suggest the academic and policy relevance of these topics, as they directly address the intersection of technology, law enforcement, and criminal markets. The study considered above 500 citations. Overall, the results show that scholarly impact in virtual violence research is driven by topical urgency, interdisciplinary framing, and publication in well-established journals that bridge academic, technical, and policy audiences.

RQ3: Which are the top 10 countries on digital violence in the virtual world based on number of publications?

Top Cited Countries: The bibliometric data shows that United States of America (790), the United Kingdom (350), and the Australia (275) dominate research output on digital violence in the virtual world, significantly outpacing other countries. This trend reflects not only the academic capacity and research culture of these nations but also the pressing relevance of cybercrime in their contexts. India’s lead can be attributed to its rapidly growing digital world, high internet penetration, and increasing incidents of cyber fraud and online crime, which drive both government and academic focus on virtual crime research.

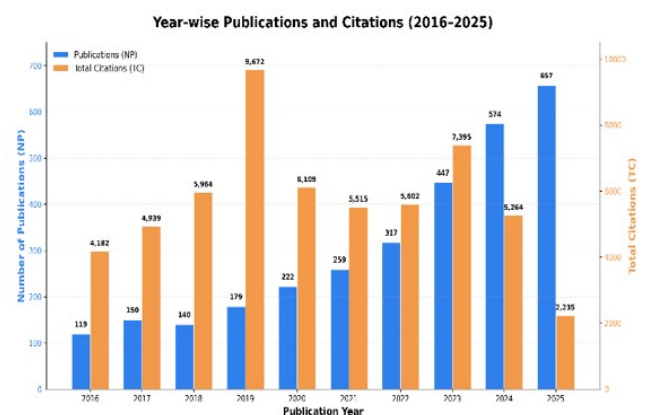


Figure 2. Year wise growth of publications and citation

Similarly, the United States and the United Kingdom are global technology hubs with advanced legal, technological, and cybersecurity frameworks, making digital violence a priority research area for their universities, policy think tanks, and legal scholars. The moderate output from Germany (143) and Canada (135), followed by Netherlands (86), the China (271), and Spain (143), highlights regional diversity in the research landscape. For countries like Indonesia and India had lowest digital violence in the virtual world, rapid digitalisation coupled with evolving legal infrastructures has encouraged growing academic interest in addressing virtual violence. Overall, the distribution suggests that publication volume is shaped by a combination of factors: the scale of digital adoption, prevalence of cyber threats, research infrastructure,

Top 10 Most Cited Articles on Digital Violence

Rank	Authors	Title	Year	Source Title	Citations
1	Norris, P.; Inglehart, R.	Cultural Backlash: Trump, Brexit, and Authoritarian Populism	2019	Cambridge University Press	2,993
2	Zhai, Chunpeng	The Effects of Over-Reliance on AI Dialogue Systems on Students' Cognitive Abilities: A Systematic Review	2024	Journal Name	1,100
3	Foley, S.; Karlsen, J.R.; Putniņš, T.J.	Sex, Drugs, and Bitcoin: How Much Illegal Activity Is Financed through Cryptocurrencies?	2019	Review of Financial Studies	711
4	Sparkman, G.; Walton, G.M.	Norm Perception as a Vehicle for Social Change	2017	Current Opinion in Psychology	661
5	Li, Yuchong	A Comprehensive Review Study of Cyber-Attacks and Cyber Security: Emerging Trends and Recent Developments	2021	Sensors	615
6	Capponi, Andrea	A Survey on Mobile Crowdsensing Systems: Challenges, Solutions, and Opportunities	2017	IEEE Communications Surveys & Tutorials	572
7	Diakopoulos, N.	Ethical Implications and Accountability of Algorithms	2016	Communications of the ACM	558
8	Weeks, J.	Sex, Politics and Society: The Regulation of Sexuality in Contemporary Politics	2018	Routledge	557
9	Roberts, M.E.	Censored: Distraction and Diversion Inside China's Great Firewall	2018	Princeton University Press	553
10	Bunce, V.J.; Wolchik, S.L.	Defeating Authoritarian Leaders in Postcommunist Countries	2011	Cambridge University Press	514

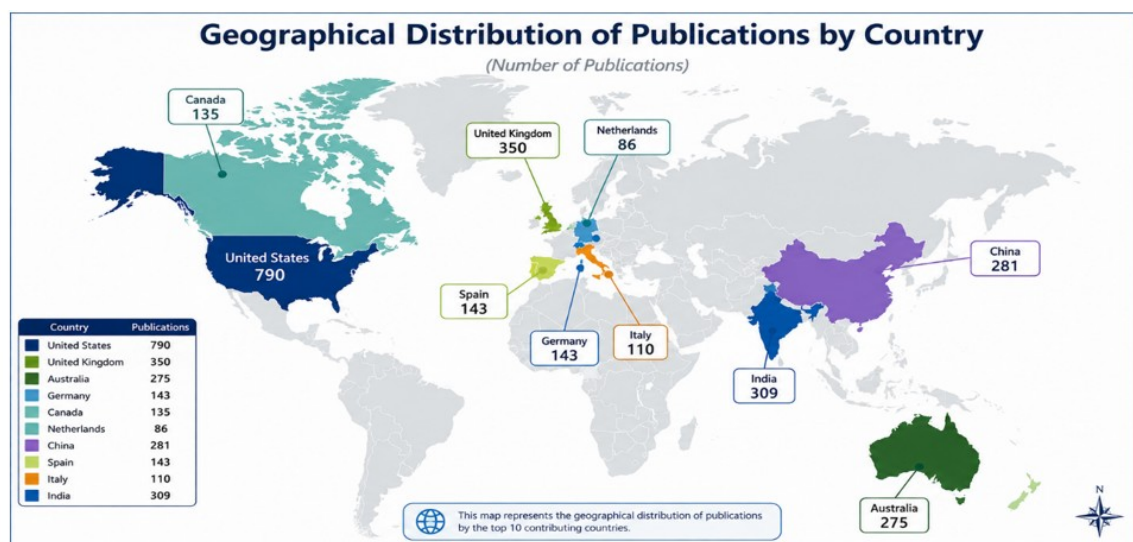


Figure 3. Top 10 countries based on number of publications

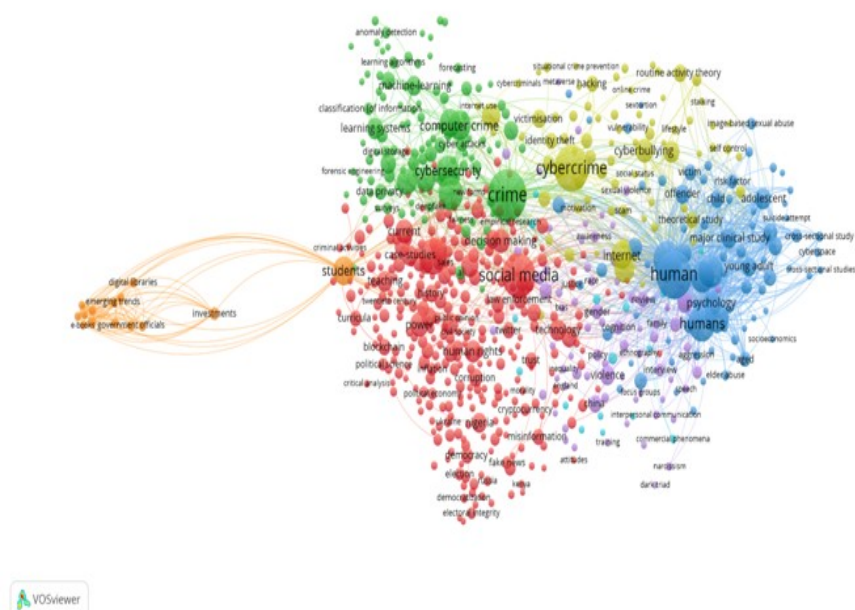


Figure 4. Keyword Co-occurrence

and national policy priorities in combating virtual world violence. The figure 3 reveals the top 10 countries based on number of publications in the area of digital violence in the virtual world.

Research Question 4: What are the popular keywords related to digital violence in the virtual world?

Keyword Co-occurrence: Keyword analysis using VOSviewer is a bibliometric technique that identifies how frequently keywords appear together across publications, thereby revealing thematic structures, trends, and research linkages in a particular field. In this case, the analysis was generated using the full counting method, with a minimum occurrence threshold of 5, which means only keywords that appeared at least five times were included. From the total 675 keywords, 18792 met the threshold, and with the additional criterion of a minimum cluster size of 5, the software generated 7 clusters. These clusters visually map the intellectual structure of research on digital violence in the virtual world, showing central keywords like “crime” (450 occurrences, 1614 link strength) and “cybercrime” (264 occurrences, 756 link strength), alongside interconnected terms such as “human,” “cyber bullying,”. The clustering reflects thematic concentrations, where closely related concepts are grouped together, highlighting the multidisciplinary intersections of criminology, technology, and law. The findings contribute to the body of knowledge by offering a structured understanding of how research themes evolve and interact in the digital violence domain. Overall, this keyword co-occurrence analysis not only maps the landscape of current research but also signals emerging trends and interdisciplinary collaborations, guiding scholars toward gaps in literature and new research opportunities in digital violence and virtual world studies. The following Figure 4 highlights the main keywords used by the authors related to the study of digital violence in the virtual world.

FINDINGS AND CONCLUSION

The bibliometric analysis reveals that research on digital violence has evolved into a rapidly expanding multidisciplinary field, particularly after 2020, reflecting growing global concern over cyberbullying, cybercrime, deepfakes, artificial intelligence, and online harassment. Although the study primarily presents descriptive bibliometric indicators, several underlying insights emerge from the findings. First, the findings indicate that articles constituted the highest proportion of publications, with 1,343 documents (43.83%), followed by books with 1,091 publications (35.61%) and book chapters with 326 publications (10.64%). Conference papers accounted for 163 publications (5.32%), while review papers represented the lowest proportion, with 141 publications (4.60%). Second, the dominance of the United States with 790 publications the United Kingdom 350 publications and Australia 275 publications output suggests that countries with advanced digital infrastructure, stronger research funding, and comprehensive cybersecurity policies are leading knowledge production in this field. At the same time, the relatively lower contribution from developing countries indicates the need for broader international collaboration and greater research investment to understand digital violence in diverse socio-cultural contexts. Citation analysis further indicates that the most influential publications extend beyond traditional digital violence topics to include

politics, artificial intelligence, cybersecurity, algorithmic accountability, and financial crimes. This demonstrates that highly cited research is increasingly interdisciplinary, integrating perspectives from computer science, criminology, psychology, law, and public policy. The emergence of AI-related publications among the highly cited works also suggests a shift in research priorities toward addressing the societal implications of generative AI, automated decision-making, and digital governance. Keyword co-occurrence analysis highlights crime, cybercrime, cyberbullying, and related terms as the dominant themes, confirming that the research landscape is centred on understanding technology-enabled violence and its societal impacts. The presence of multiple thematic clusters further indicates increasing diversification of research, encompassing legal, technological, educational, and behavioural dimensions. Overall, the study provides evidence that digital violence research is transitioning from descriptive investigations toward more interdisciplinary and policy-oriented approaches. The findings emphasize the need for stronger international collaboration, comparative cross-country studies, and greater attention to emerging issues such as AI-enabled abuse, deepfakes, digital literacy, and online safety, thereby offering a roadmap for future scholarly and policy developments.

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