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Are We Doing Enough? A Bibliometric Analysis of Hate Speech Research in the Selected Database of Scopus

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Are We Doing Enough

A Bibliometric Analysis of Hate Speech Research in Selected Database of Scopus

Abstract

Bibliometric analytical technique for examining hate speech research does not exist in the literature till now. The phenomena of hate speech are quite novel and urgent. The objective of this study was to perform a bibliometric analysis of hate speech research work and publication in the Scopus index. Analysed parameters include document type, publication output, most active countries, most involved universities, and funding agencies, etc. Social media and new media is some of the most powerful tools of communication. The digital world has gained its firm foothold. More and more communication, business, lifestyle-related work is moving on-line. This has exponentially increased the number of users. Billions of users in this media mean, more diverse conversations, opinions, agreements, disagreement, bullying, and good and hate speech. Hate speech is worrying the institutions, business, social media host, and government. This paper is an attempt to understand the true sense of hate speech. This paper aims to understand the presence of hate speech-related research. The author feels that a sudden urgency can be seen and felt due to recent incidents of hate speech in the digital world. This was apparent from this bibliometric analysis.

Keyword: hate speech, Scopus, digital world, social media, research, bibliometric analysis

Introduction

This research work was done at the time of the President of the USA getting blocked on various social platforms in wake of inciting violence that lead to the unfortunate event of Capitol Hill riots[1][2].

The use of social media as a mass communication platform is a double-edged sword. Recently concerns about the prevalence of hate speech in social media are getting louder. The off-line violence, turbulence is visible on the on-line space[3] Activists, civil society groups and journalist are calling for more dialogues, watch guards and regulators curb the hate speech [4].

Web 2.0 has created a singularity effect- a point of no return. It has changed the way we live, shop, date, carry on the conversation and interaction among other things. It has opened a new way of interacting; however, this came with challenges and repercussions. Publishing before Web 2.0 was a one-way process almost aristocratic with editors and peer reviews controlling the flow and content. Limited people were writing and publishing, however, in the last decade, owing to social media with its potent and far-reaching impact has risen as a new age conduit to propagate and proponent ideas/opinions/discourses/ and forwards. This has created a Petri dish of evolving trends, typical culture, idea sharing, and also animosity. Hate speech, Cyberbullying, and abuse are prevalent over digital devices like cell phones, computers, and tablets and can occur through SMS, Text, and apps, or online in social media, forums, or gaming where people can view, participate in, or share content. It includes writing, sending, posting, or sharing negative, harmful, false, or mean content about someone else or some group [5]. Primarily, it is an abusive speech targeting individuals (cyber-bullying, a politician, a celebrity, a product) or a particular group (a country, LGBT, a religion, gender, an organization, etc.).

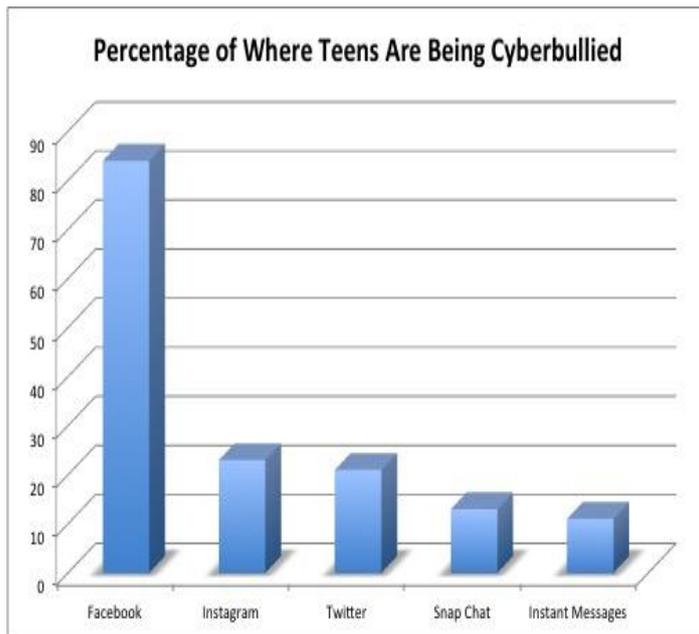


Fig 1: Avenues where Cyber Bullying occurs [2]

1.1 Understanding the concerns

Defining Cyber Abuse:

Cyber abuse is a sort of cyberbullying or showing or exerting power through words and posts. It involves various range of behaviors, including (but not limited to) trolling, flaming, cyberbullying, cyberhate, cyber violence, cyber mobbing, cyberstalking, cyber harassment, cyber racism, and online abusive speech, technology-facilitated abuse, sextortion, image-based abuse, Memes.

Defining Free Speech:

Free speech is the first right of liberty. Free speech intends to discover the truth by open discussion; express personal belief and political attitudes; initiates participation in democracy and is also for personal growth [6].

Defining Abusive and Hateful Speech

Abusive speech often used when a person forcefully criticizes, insults, or denounces someone else [7-9]. Characterized by underlying anger and hostility, it is a destructive form of communication intended to harm the self-respect of the other person and produce negative emotions. Verbal abuse in some cases is a pattern of behavior used intentionally to control or manipulate others or to get revenge.

The term 'hate speech' is often interchangeably used or mixed with terms such as 'offensive', 'profane', 'harmful languages', 'abusive languages', and 'cyberbullying'. The author has identified hate speech as 1) targets an individual or group members based on their characteristics; 2) can lead to incitement or provocation of hatred and violence and 3) may or may not use derogatory or profane words.

The Internet has ushered us in the era of fast dissemination and reach to other people, but this also has created a problem. The Internet's speed and reach make it difficult for governments to enforce national legislation in the virtual world. It is becoming too complex to identify and curate the Issues around cyber abuse. Not only the government but even regulators of these forums are facing challenges when it comes to regulating the content in the forums. The sheer amount of information scattered around these platform takes a chaotic shape when it comes to manual curation

According to HateBase [10], a web-based application that is a watchdog for hateful/abusive speech online worldwide, the major causes of hate speech are aimed at ethnicity and nationality, but now abuse focusing on religion and class have also been on the rise. The author believes that the longer the content is available, the more damage causes to the victims. The more than light speed spread this news and posts like a forest fire and embolden and mask the perpetrators. It becomes imperative to remove the content at an early stage to limit the exposure. Bodies across the globe are vigilant and have formulated policies relating to cyber-abuse.

The International Convention on the Elimination of All Forms of Racial Discrimination (ICERD) [11] is the watchdog for ethical and racial hateful speech. Article 20 of the International Covenant on Civil and Political Rights (ICCPR) states that any advocacy of (certain kinds of) hatred that constitutes incitement to discrimination, hostility or violence "shall be prohibited by law". There is a Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) and other charters working tirelessly towards eradicating discrimination.

Cyber abuse-detection is a very pertinent and challenging problem in today's world. Traditionally, OCR is used to detect what's in pictures or videos but due to massive data generated by social platforms, OCR falls short [12]. Hence a system that can work with big and varied data (including text in a multitude of languages, images, and videos) that can work in real-time must be designed. It is essential, especially for detection and omission/deletion of harmful content from the social media sites, particularly as seen in the cases of reports accusing social media of helping to spur violence in Myanmar, Sri Lanka, and India [13, 14]. Most social media platforms have also started the process of putting policies in place for banning and removing disinformation that is creating socio-political tension and instability by exacerbate violence [15].

2. Bibliometric analysis of research work on hate speech

The bibliometric analysis helps the researcher in getting insights not only about the current research trend but also about the regions/ demographics/agencies working actively in the said research work. It helps in better collaboration and exchange of ideas among the research community. A detailed survey and study of existing literature evaluate the quality of research work with the investigation of limitations and contributions. To the best of the author's knowledge, no exhaustive qualitative and bibliometric analysis has been done so far, on hate speech.

The contributions of this work are as follows:

1. To perform a bibliometric analysis on work by researchers on hate speech/ cyberbullying reflecting the extent of the problem.
2. To survey the most active agencies trying to curb this menace
3. To survey and understand the trend of the hate speech research

This research work is organized as follows: the second section covers the research methodology with the details of the data collection process and search strategy used for data extraction. The next few sections provide results using bibliometric analysis and data visualization techniques. The paper concludes with essential findings, limitations, and future work directions.

4. Strategy and Methodology

2019 was the 6th sixth-deadliest year in the USA on record [16] for extremist-related violence in the last 50 years, and a study by The National Consortium for the Study of Terrorism and Responses to Terrorism (START) stated that social media is playing a central role in the radicalization of domestic extremists [17]. Platforms like Facebook, which employ algorithms designed to promote engagement and thus end up amplifying the most corrosive content, serve up a fire-hose of material that glorifies hate and violence.

The Scopus database by Elsevier is one of the largest abstracts and citation databases. Since 2004, Scopus is home to well-written, credible, peer reviews and cutting-edge research papers that gain high citations. Scopus has nearly 36,377 titles from approximately 11,678 publishers, of which 34,346 are peer-reviewed journals in top-level subject fields [18]. It is also emerging as a platform that brings researchers, research ideas, and organizations together.

Scopus was taken as the data source for this research work

The search process was divided into three sections: data collection, data extraction, data analysis, and visualization. Data collection was done by using a keyword which helped in retrieving 934 documents as the primary source. The same keyword gave the result of 3425 secondary sources. These sources were not analyzed further since though they are extracted from a Scopus document reference list but they are not indexed by the Scopus [19].

The data so gathered was immense. To make data easier to read and bring out trends, patterns, and outliers, data visualization tools are used.

The time spans for the search was set from 1962 to January 2021.

In this work, visualization tools used by Scopus and Bibliometrix (an R package) were used to interpret the literature extracted from the Scopus.

4 Data collection

Keywords are very important to search for relevant research topics from the literature. Precise and accurate keywords can give you a clear picture of the prevalence of the topic as the research problem. For this research work, only " hate speech " is used.

A list of keywords and a number of primary and secondary documents are summarized in Table 1. Keywords like Cyberbullying; Radicalism; extremism; were not used since they produced an overlapping result.

To avoid any duplication in records, the keywords were refined as " Hate AND Speech." With this keyword, without any filter total of 632 primary documents were found. This bibliographic data collection process was conducted in January 2021.

Table 1. Search query used in the Scopus database (Data accessed till 26 January , 2021).

Sr No	Key Word	Primary Source	Secondary Source
1	Hate AND Speech	1765	3261

5 Bibliometric analysis of literature

The data analysis procedure helps to find out useful insights and patterns from raw data. It was performed to analyze the publication year, subject area, country, and publication source in this research area. For this research work, various tools and Vosviewer were used to bring clarity and connections to the data point. VOSviewer software version 1.6.15 (released in April 2020) was one of the best tools to generate a bibliometric map and to show the graphical representation of generated maps.

5.1 Analysis of publications by source

Out of the 1765 sources retrieved on January 26, 2021, Major research work published was in the form of research articles. There were 944 articles on various issues related to Hate speech. 395 research work were conference papers whereas 68 books were written on this subject. An analysis of the publications by the source is given in Figure 2.

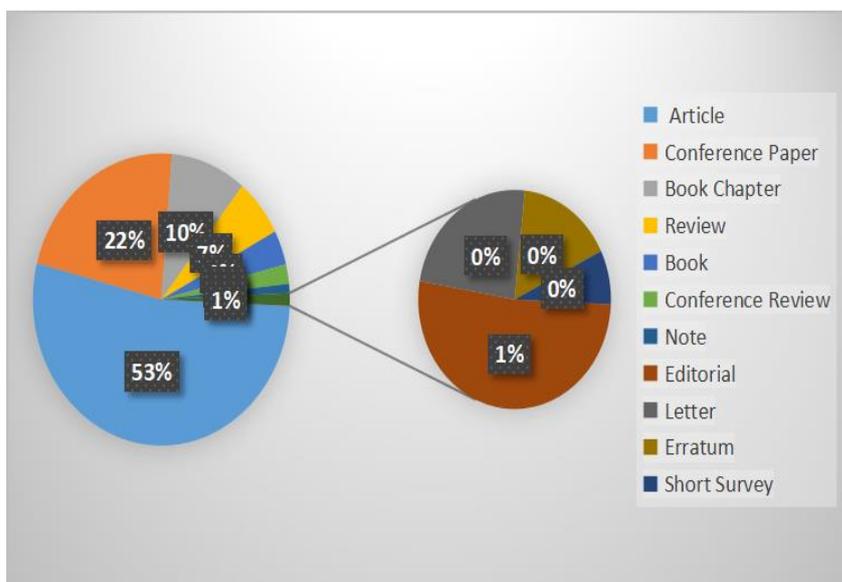


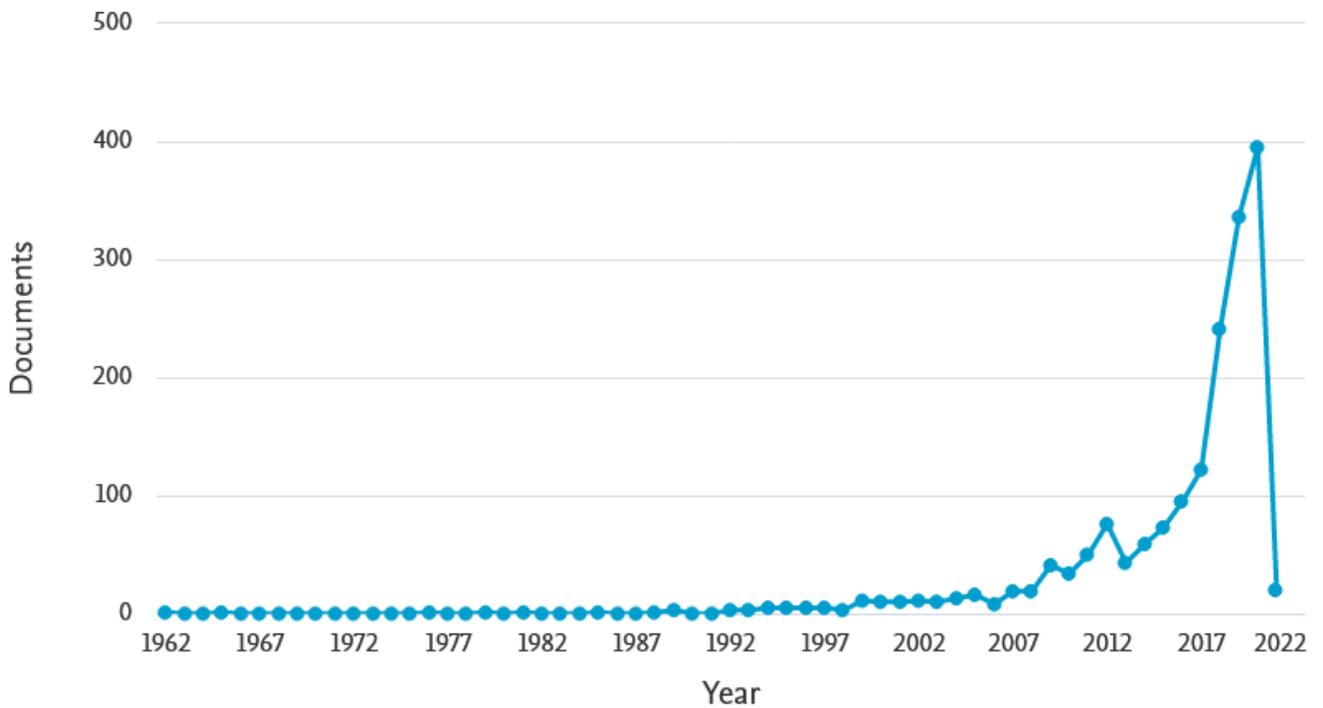
Figure 2: Publications by source

5.2 Analysis of publications by year

It was observed that the number of articles and conference papers in this research area has increased exponentially in recent times. The most interesting observation is that it was first written in 1962. With the rise of diverse platforms of social media, it seems hate speech has become more of a concern. The number of papers is rising exponentially over the last 4 years. As shown in Figure 3, the highest number of documents were published in 2019.

Figure 3: Year-wise trend of the published documents (Data accessed till January 26, 2021)

Documents by year



5.3 Analysis of publications by subject area

In the literature from 1962 to 2021, a total of 15 subject areas were involved which mentioned and worked upon hate speech. Social Sciences has the highest number of documents (39 %). Since most hate speech is present in the digital world, Computer Scientists and researchers are working on various tools to identify and remove such content. The Computer Science domain has 20 % of such research work.

Figure 4, shows the distribution of subject areas in this research field.

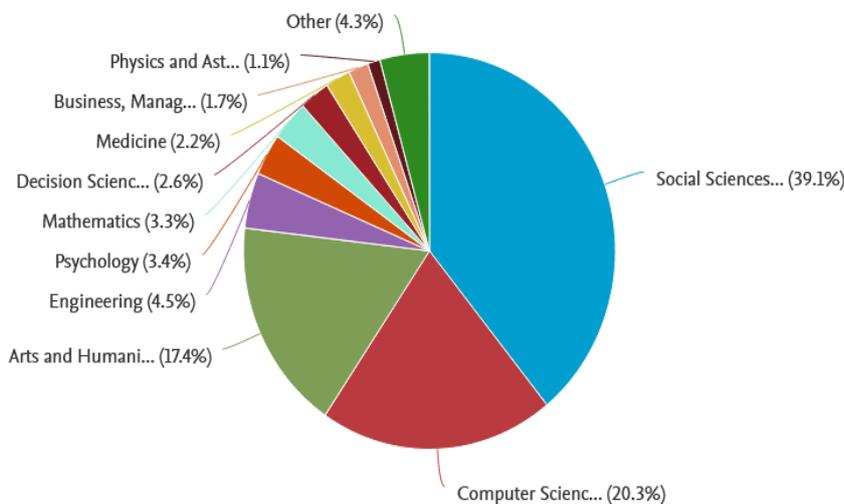


Figure 4: Publications by Subject Area

5.4 Analysis of country of origin and funding agencies

Hate speech is plaguing the peace of most countries. But there are a number of countries, which are taking a proactive interest in hate speech.

The United States of America (USA) has a major share in publications with 452 articles out of 1765 total literature on Hate speech. It is followed by the United Kingdom and India. Figure 5 shows the total number of publications across the world from 1962 to January 2021 by the top countries.

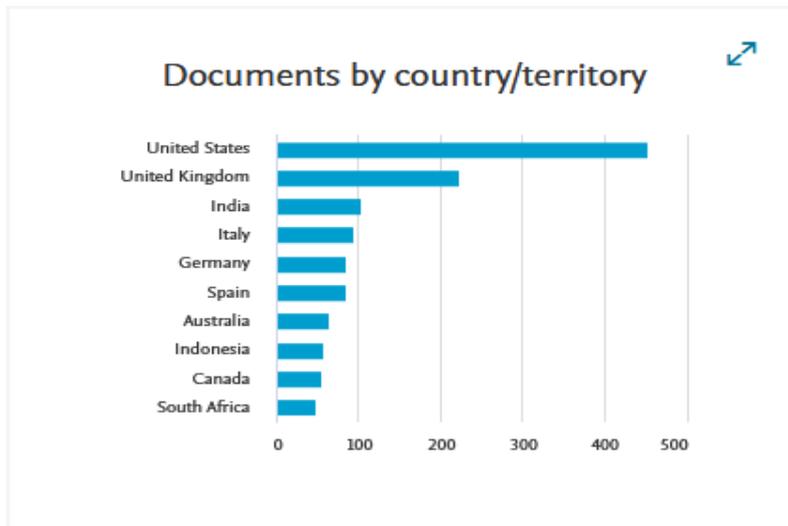


Figure 5: Publication by country/ region

Funding agencies plays important role in facilitation. The analysis of funding agencies draws attention towards the priority areas of the agencies too. The topmost funding agency was National Science Foundation with 17 papers; European Commission with 16 research works; Economic and Social Research Council with 12 papers. Google-funded 4 research work and Amazon Web Services-funded 2 papers are present in the Scopus database. Figure 6 shows the top 10 funding agencies on hate speech research work.

Documents by funding sponsor

Compare the document counts for up to 15 funding sponsors.

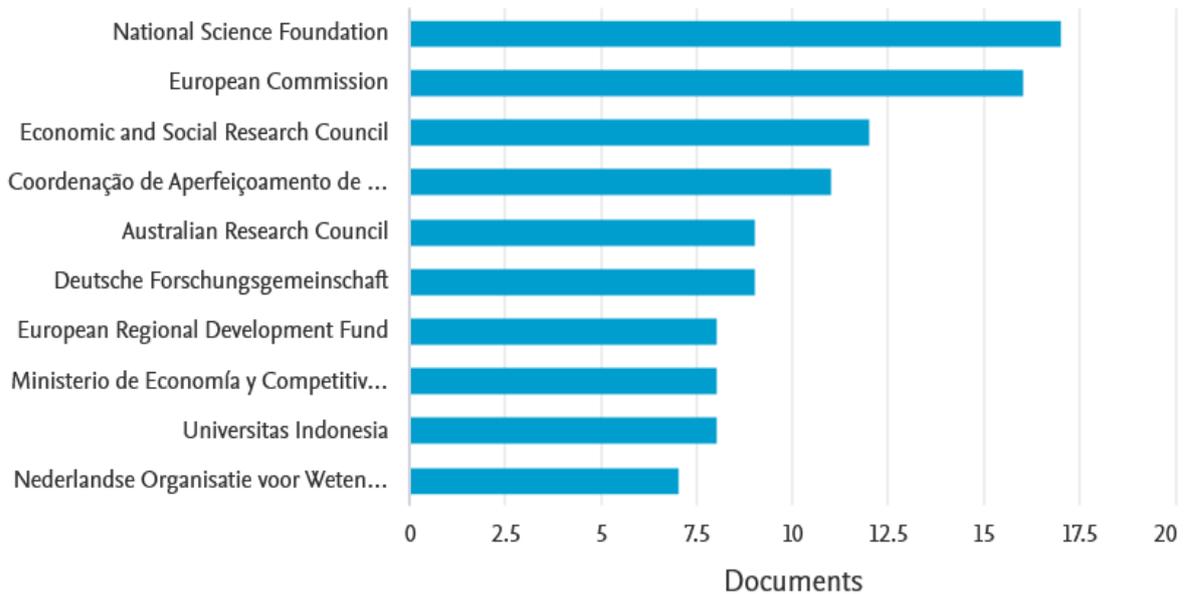


Figure 6: Funding agencies

5.5 Analysis by Affiliations

Like funding agencies, universities and research agencies have thrust areas. Figure 7 highlights the most active agencies and organizations in the Hate speech research area.

Università Degli Studi di Torino has produced 21 research works whereas the University of Colorado Boulder has produced 20 works, respectively. The table shows the few most active organizations

Documents by affiliation

Compare the document counts for up to 15 affiliations.

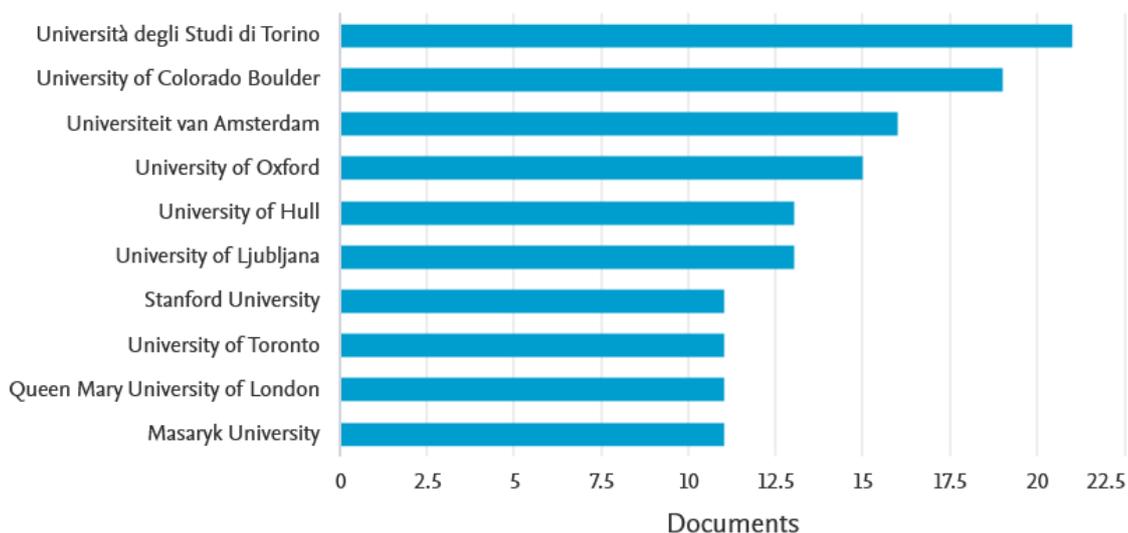
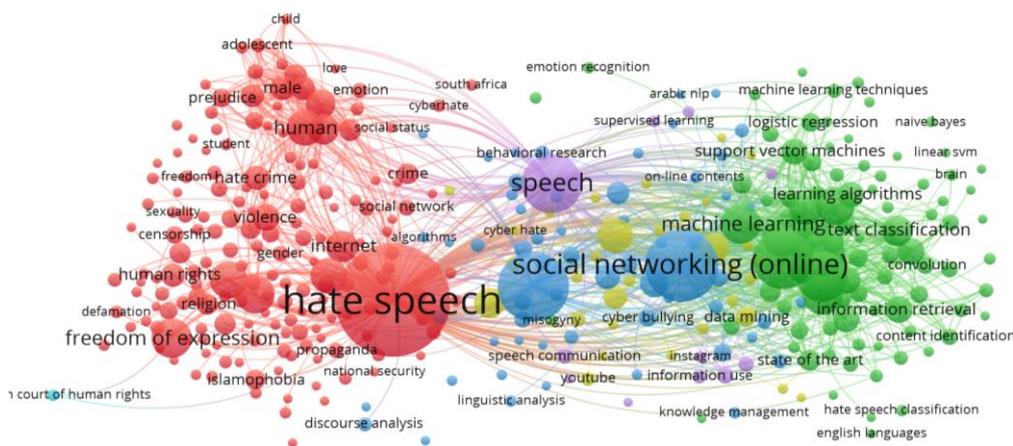


Figure 7 : Most active universities in the field of hate speech

5.6 Analysis by Keywords and Keyword co-occurrence

The analysis of the most frequent words and keywords used shows and depicts the essence of the paper. It helps in searching and referring to the article. This analysis was based on the compilation of the relevant wordings and their occurrences in publications. Out of 5315 keywords, only 364 were analyzed based on their co-occurrence.

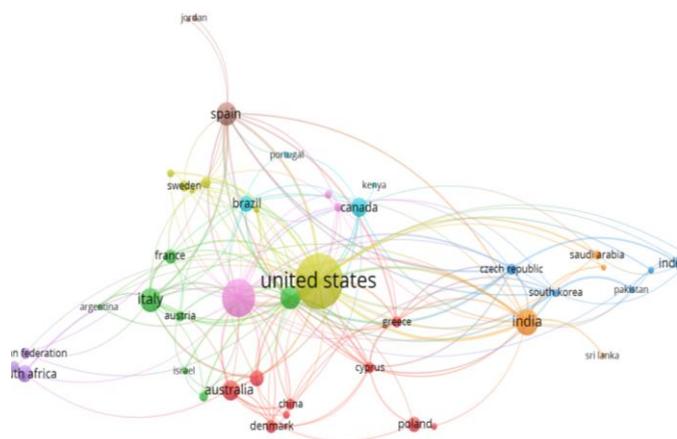


VOSviewer

Figure 8: Distribution of Keywords

5.7 Analysis of the Author Connections

This analysis helps fellow researchers in creating bridges and collaboration also. This also indicates the most active authors. Out of 2867 authors, only 42 were analyzed based on their co-authorship strength. Figure 9 shows the link and authorship



viewer

Figure 9: Author and Co-authorship links

5.8 Analysis of most prolific author

This analysis helps in understanding the most prolific and active researchers in the subject. Out of the 2867 authors, the research group of Patti V. was found most strong with 16 documents and 37 links.

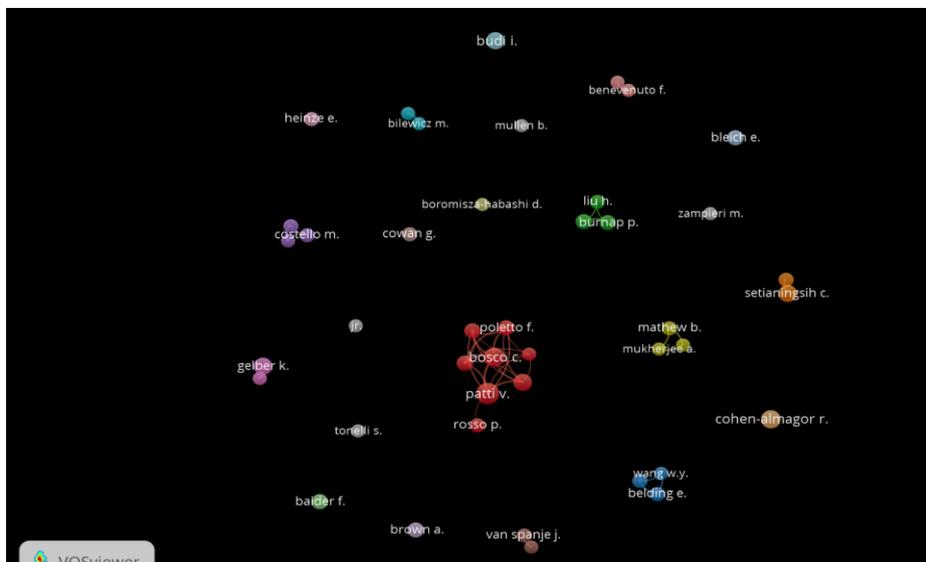


Figure 10: Most prolific research group

6. Discussions

In this section, the results of the bibliometric analysis are discussed. The survey study of the data based on formulated research objectives is summarized.

This study observed that the work on Hate speech is increasing exponentially in the healthcare domain, and it is now one of the active and fastest-growing research concerns and research work in Social sciences and also in the technological domain. The number of publications in 2020 proves that there is tremendous interest among social commentators and researchers on the topic. The author is sure that the 2021 January event of Capitol Hill Storming and successive social media ban and removal of such accounts will trigger more interest and work in this area.

It is to be noted that not only the developed but also developing countries are actively pursuing research on this topic. India is a country of diversity and home to a multitude of religions/regions/races has growing concerns about ways to curb hate speech. The United States is the most active country in this domain with the highest number of papers and citations. In the continent of Asia, India is the most productive country.

This study observed that the most prominent subject area in the published literature is Social Science, followed by Computer science.

This study has limitations as well since this was confined only to the Scopus scientific database. Major databases like Web of Science, EBSCO, HEIN were not taken into account for this research work. Since the database was huge and ever-growing, qualitative research could not be done on most cited papers. In the future, a more comprehensive qualitative and quantitative survey of all the literature from well-known scientific databases will be added for the analysis in this research field.

Concluding remarks

This bibliometric analysis not only analyses the work in hate speech but also is opening a new foray into digital humanities. It is bridging the gap between the work of the Social Sciences where problems of

Hate speech and implications are discussed and solutions proposed by the Computer Science domain mostly deploying AI and other technologies to identify and remove such content. This bibliometric analysis can be used as a quick compass for the aspiring researcher to understand the landscape of hate speech research work.

Social media with a de facto 'free speech' platform is now facing a challenge in the form of harmful and hateful speech[20]. In a Pew Research Center study [21], 60% of Internet users had witnessed offensive name-calling, 25% had seen someone physically threatened, and 24% witnessed sustained harassment of an individual. Prior work has shown that people are primarily bullied for their perceived or actual ethnicity, behavior, physical characteristics, sexual orientation, class or gender [22], social, political, etc. In one of the research articles [23], it was found that social media can act as a propagation mechanism between online hate speech and real-life violent crime. Analysts reported that prevalent hate crimes around the world echo changes in the political climate, and social media magnifies the animosity and discord. In this time of fake news/ half-truths and non-credible news, it is imperative to work on our critical thinking and produce work focussing on these strategies [24].

This research work indicates the concerns and actions universities, funding agencies, and individual researchers are taking to mitigate the threat.

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