



Love it or hate it, but can you ignore social media? - A bibliometric analysis of social media addiction

Shivani Arora^{*}, Meera Mehta

Shaheed Bhagat Singh College, University of Delhi, India

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ABSTRACT

The study does a thorough bibliometric analysis of the subject through time to analyze the research landscape of social media addiction (SMA). The study concentrated on the scientific publications' topic, research trends, and scholarly production in social media addiction. From the Scopus database, the authors retrieved 712 peer-reviewed papers. The bibliometric technique thoroughly analyzed the trend, thematic focus, and scientific output in social media addiction. The analysis propounds that significant work in the field of social media addiction kickstarted in 2010. The most pertinent publications for articles about social media addictions are "International Journal of Environment Research and Public Health," "Journal of Behavioural Addiction" and "Computers and Human behavior." Griffith et al. (2016) work is the most cited of the examined materials. And amongst the nations, the United States has contributed the most to social media addiction research and has the most extensive number of scientific papers. The results also listed the discipline's most influential academic institutions and well-known researchers. The popular accompanying fields of analysis as revealed by the word map of the keywords, include "internet addiction", "behavioural addiction", "Facebook addiction", "anxiety, and depression". Thematic analysis suggests that researchers in this field may explore *Narcissism, Psychopaths, and Machiavellianism*, to provide a better perspective on social media addiction. Also, emerging themes like "Depressive symptoms, Emotional Regulation, and Social Networking Sites (SNS) Addiction" appear to be the new dimensions of social media addiction. The Bibliometric analysis helps the present study make a valuable contribution to the area by helping to provide the direction of the existing work and the future orientation required. These findings aim to aid researchers, particularly those who are just starting in the subject of social media addiction, in deciding what areas of the field to focus on for their research; what methodology has been used and most cited; where to get the work published; which dimensions to explore, and with whom to collaborate.

1. Introduction

Social media has become inseparable from our personal and professional lives and greatly impacts a nation's political scenario. Social media is used extensively, sometimes constructively and at other times obstructively (Masthi et al., 2018). Many researchers have studied the adverse effects of extensive use of social media. The overuse of social media is even more pronounced today, as the pandemic that struck the world in 2020 made the conditions for its propagation very favorable, viz., social distancing, staying confined to homes with good access to the online world (Gupta & Jawanda, 2020; Montag & Hegelich, 2020; Yang et al., 2020).

A lot of debate around categorizing it as addiction is documented.

Still, gaming disorder is the latest Behavioural addiction added by the 11th revision of the World Health Organization International Statistical Classification of Diseases and Related health problems (Balhara & Anwar, 2019)). Overuse of social media has not found a place on the list of disorders.

The Digital revolution has further increased the chances of more behavioural addictions being added to the list, such as internet addiction, smartphone addiction, and compulsive buying. Much research is being done to recognize the impact of social media overuse (directly related to excessive internet use) on users' lives.

Research has been directed toward the impact that Social media addiction can have on the lives of its users. The negative effects that its overuse has had a wide range from sleep disorders (Jolliff et al., 2020;

^{*} Corresponding author.

E-mail addresses: Shivani.arora@sbs.du.ac.in (S. Arora), meeramehta17@gmail.com (M. Mehta).

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Nagata, 2020; Wang & Ngai, 2021); to anxiety and depression (Groo-tendorst-vanMil et al., 2021; Sindermann et al., 2020; Sriwilai & Charoensukmongkol, 2016); unhappiness (Baltacı & Baltacı, 2019; Longstreet & Brooks, 2017; Tosuntaş et al., 2020) and low productivity (Al-Barashdi et al., 2014; Sun & Zhang, 2021; Whelan et al., 2020); amongst a host of other antecedents. The situation further validates the need to study how social media overuse impacts the people using it and the world around it.

A paper on Bibliometric analysis of social media use (and not addiction) was published in 2018. The paper reviews and assesses the social media use trends from 2008 to 2018. The bibliometric analysis focussed on 1232 articles during the ten years under consideration, implying the interest generated in the field of social media.

The possibility to look at the literature's trends for Social media addiction and how academic debate has developed has been made possible by the field's rapid expansion. A thorough examination of the literature is crucial to understanding and finding a solution to any problem. Social media made its humble beginning in 2004, with Facebook and Orkut being the torchbearers. The acknowledgment of its negative side began somewhere around 2010; and this research paper includes all the work (enlisted in Scopus from 2010 to 2022). This would provide an overview of the advancement and standing of academics. Second, it will provide crucial details that will aid researchers in choosing where to concentrate their future efforts to enrich the world of study and determine the best journal for publication in the field.

1.1. Research objectives

The primary objective of this study is to present a comprehensive review of social media addiction by applying bibliometric analysis. To our knowledge, no bibliometric research has been conducted on social media addiction. This study on Bibliometric analysis of social media addiction is the first in the field to examine social media trends and its over-usage. The study investigates the themes of SMA in publications, recognizes the prolific scholars from this field, their contribution in the field of SMA, the research hotspots (countries and the institutions) with maximum work in this area by way of research, and the emerging trends in SMA.

The study focuses on the research question in terms of identifying the progression of research in the field of social media addiction over the years with particular reference to the number of research publications; themes studied, and scientific contributions in the area. The following specific research objectives (RO) have been defined:

RO1. Mapping the theme bibliometric profile by extracting the trends in publications, most productive journals and the most cited papers.

RO2. Identifying the most prolific authors, along with the top contributing countries and organizations.

RO3. Determining the emergent themes in the research of Social Media Addiction.

The result of this study is directed at all the progress in the field, including the trend and theme analysis to generate research interest in the field. The research aims to provide helpful knowledge for the researchers seeking to research the field of SMA. Besides the thematic evolution, the trending topics of SMA can stimulate research interest.

2. Methods

Bibliometric mapping analysis forms the core of the analysis in the study, which is gaining acceptance in varied disciplines (Song, Chen, Hao, Liu, & Lan, 2019). The following section presents the bibliometric mapping analysis in micro-details.

2.1. Literature search and data collection

The reader can understand the current research plan from Table 1 where the inclusion and exclusion criteria are mentioned. An understanding of these criteria has helped in developing the structure of the present study. Initial search results with keywords "Social Media" AND "Addiction" in the Scopus database returned 1793 document results (as retrieved on July 7, 2022). The criteria for inclusion and exclusion adopted helped remove the irrelevant items. The criteria adopted have been explained in Table 1.

The inclusion of data is from one database i.e., Scopus; hence, the authors do not claim that the list is exhaustive since other databases viz., Web of Science, Pubmed, etc have not been included. All the other databases have not been included in this research since, Scopus is believed to have comprehensive coverage of the reputed articles (El Baz, J. and Iddik, 2022; Kannan & Thanuskodi, 2019; Md Khudzari et al., 2018; Mishra et al., 2021).

Adequate information was obtained to describe the scientific environment, research hotspots, and other analyses carried out in this work. Data extraction, loading, and conversion after refinement, 712 data was gathered on July 07, 2022 (Table 1).

For analysis, these data were exported. We used the Scopus platform

Table-1

Inclusion and Exclusion criteria for retrieving the dataset.

	Code	Criteria	Comments
INCLUSION CRITERIA	IC1	SearchKey-TITLE-ABS-KEY ("SOCIAL MEDIA" AND "ADDICTION") includes the articles in either the Title, abstract or the keywords	The search criteria for the relevant dataset included two keywords "Social Media" and "Addiction" concatenated with AND operator. The total No. Of relevant documents were 1793 (N = 1793)
	IC5	PUBYEAR, 2010–2022	The period of analysis for this study is 2010–22 (till July 7, 2022). N = 1604
	IC3	SUBJAREA, "MEDI", "PSYC", "SOCL", "ENVT", "COMP", "NEUR" "ARTS", "MULT", "BIOC", "NURS", "BUST", "HEAL", "MATH", "IMMU"	The subject area of the study includes articles from the Medicine, Psychology, Social Sciences, Computer Science, Arts and Humanities, Neurosciences, Business and Management, Decision Sciences; in order to highlight the mental, physical health and social aspects of the social media addiction research for the policy makers and the practitioners in field. N = 848
		DOCTYPE, "ar", "ch" and "cp"	The search is focused on final articles, book chapters and the conference papers that have been successfully published N = 815
	IC4	LANGUAGE, "English"	The study examines documents published in English. N = 727
EXCLUSION CRITERIA	EC1	PUBSTAGE, "aip"	Only final successfully published articles have been considered for this study and the articles in the press have been excluded. N = 712

as it allows the export of up to 2000 data at once. Additionally, Scopus enables researchers to export data into various file formats, including CSV, Plain text, RIS, and other formats. For this study, the data was imported into Biblioshiny in CSV format for bibliometrics applications.

3. Data analysis

Table 2 shows the summary extracted from Scopus on SMA research data. The SMA databases consist of 712 documents from 2010 to 2022 (Jul 07, 2022) published in 319 different sources. The first article in the research area was published in 2010. The dataset consists of Article papers ($n = 696$), Conference papers ($n = 15$) and Book chapters ($n = 1$). The collected papers have an Annual Growth Rate of 42.82%, and the Average Citations per document is 19.12. All the sources on SMA have 38,189 references. In addition, the 712 documents on SMA have 3041 index keywords or keywords plus 1671 author-keywords. The extracted data includes 36 articles written by a single author, and 2712 authors appeared in multi-authored documents. The international collaboration among authors in SMA research is 30.90%.

4. Results and discussions

This section of the study discusses the findings of review paper in terms of:

1. Trends in Social Media research viz., scientific research papers output, their citations and distribution
2. Prolific authors with their affiliations and collaborations
3. Application of thematic analysis to bring out the themes in SMA

4.1. Research Objective 1: Mapping the theme bibliometric profile by extracting the trends in publications, most productive journals, and the most cited papers

Table 3 demonstrates the annual publication of articles in the field of SMA shows (Scopus dataset) that research in SMA commenced in 2010 with the work of M. Robinson and S. Robertson titled “Young Men’s Health Promotion and New Information Communication Technologies: Illuminating the Issues and Research Agendas” published in Health Promotion International. It was the first research paper published in 2010. This paper was also the only piece of research that year. Fig. 1 shows 42.82% growth in the scientific research papers published from

Table-3

Annual scientific production.

Year	Articles
2010	1
2011	2
2012	1
2013	7
2014	9
2015	14
2016	22
2017	40
2018	60
2019	102
2020	161
2021	221
2022 (till July 7th)	72

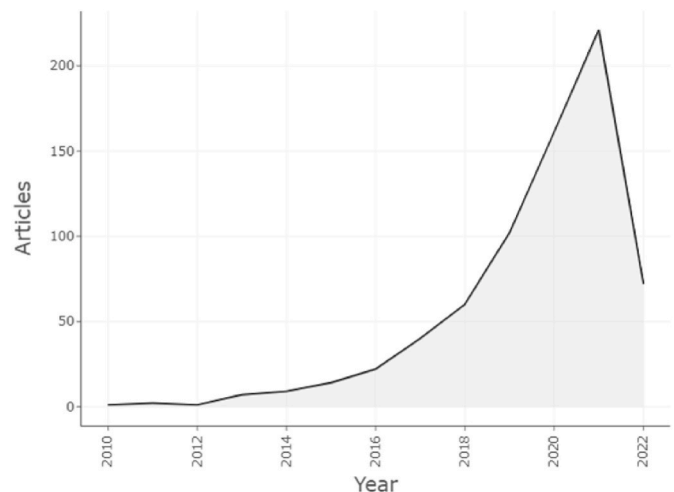


Figure SEQ Figure * ARABIC 1. Number of Articles in the given year.

2010 to June 2022.

Table 3 and Fig. 1, show the gradual increase in interest of the research community in the ill effects of social media. Sixty articles were published in 2018, indicating the growing interest in the field with an exponential increase in publications. The publication growth is more pronounced in 2019, with 103 papers published. The highest number of yearly publication is 221 in the year 2021.

The drastic increase from 2019 onwards can be attributed to the massive increase in social media usage during the pandemic and the researchers spotting the trend and analyzing the various aspects of social media addiction. The analysis reveals that researchers are constantly bringing out repercussions from the overuse of social media. Hence, the academic contribution would keep growing yearly, and the scientific contribution would evolve further.

Table 4 displays the average citations of the papers per year. This outcome demonstrates how much of an annual impact the publication has on the profession. The output reveals that in 2010, the year that seemed to mark the start of the subject, there was only one publication. It garnered an average of 2.4 citations, implying the lone frontier paper had a significant impact on arousing the interest of social media addiction. In 2012, the citation reached the maximum 28.6, which may be attributed to the fact that the Facebook addiction scale was developed in that year and had later been converted to Social media addiction scale. After 2012, the citations seem to be dwindling to 6.54 in 2015, rising a little in 2016 to 12.61 and then again in 2021 it fell to 5.32. The authors felt that since the publications are recent and so in times to come, the citations would increase.

Fig. 2 and Table 5 display the most relevant sources that have come up through the analysis. These resources would benefit the researchers

Table-2

Data Synthesis indicating main information about data.

S NO.	Description	Results
1	Timespan	2010–2022
2.	Sources (Journals, Books, etc)	319
3.	Documents	712
4.	Annual Growth Rate %	42.82
5.	Document Average Age	2.38
6.	Average citations per doc	19.12
7.	References	38,234
DOCUMENT CONTENTS		
8.	Keywords Plus (ID)	3046
9.	Author’s Keywords (DE)	1617
AUTHORS		
10.	Authors	2748
11.	Authors of single-authored docs	36
AUTHORS COLLABORATION		
12.	Single-authored docs	36
13.	Co-Authors per Doc	4.8
14.	International co-authorships %	32.02
DOCUMENT TYPES		
15.	Article	696
16.	Book chapter	1
17.	Conference paper	15

Table 4
Average Citation per year.

Year	Average Citation
2010	2.75
2011	27.64
2012	28.90
2013	9.83
2014	6.83
2015	6.54
2016	12.61
2017	10.55
2018	6.64
2019	7.02
2020	6.67
2021	5.32
2022 (till June)	–

who wish to study the field to keep their focus on which publications the researcher should be focussed on to submit their manuscripts on Social Media addiction. The findings of the top 10 most pertinent sources for publications on social media addiction are shown. This conclusion has been reached based on data from Scopus collected in July 2022. It has been established that the most current source for information about social media addiction is the International Journal of Environmental Research and Public Health, which has 86 publications. Other publication sources mentioned in the list in the order of their relevance are Journal of Behaviour Addictions, Frontiers in Psychology, Plos one, etc.

According to research, the number of citations for a single publication and scientific productivity counts forms indices for determining its significance and scholarly impact (Grant, Cottrell, Cluzeau, & Fawcett, 2000; Waheed et al., 2018).

Table 6 on relevant and local citations are an integral part of the Bibliometric analysis. This research looked into the global and local citations of publications. The number of citations a document has received from the entire database, in this case the Scopus database, is measured as global citation. The global citation also measures the impact of a document, which may receive a greater number of citations from other disciplines in most cases. Local citation, on the other hand, counts the number of citations a document has received from documents included in the data analysis. The local citation also assesses the importance of a document in the collections under consideration.

In addition, Table 6 shows the ten most cited documents from the dataset in the area of SMA. The study emphasizes that the research by Fanni Bányai, Ágnes Zsila Cecilie, Orsolya Király, Aniko Maraz,

Zsuzsanna, Elekes, Mark D. Griffiths Schou Andreassen, Zsolt Deme-troviics (2017) topped the list created with local (88) as well as global citation (303).

Research by Andreassen et al. (2016) received a full global citation of 511; however, going by the local citations, they come second to Bányai et al. As shown in Table 6, most authors have higher global sources than their local citations. The authors believe that the possible reason for this is that the research work by these authors has been highly impactful at the global level.

Most of the top cited studies commonly use the Bergen Social Media Addiction Scale (BSMAS) to study the SMA. The most cited papers in the SMA field indicate how the field can be researched. Griffiths et al. (Bányai et al., 2017), cited the most, studied a sample of 5961 adolescents by applying Bergen Social Media Addiction Scale (BSMAS). The study identified the at-risk adolescents in Hungary and suggested school-based prevention and other prevention programs to help them. The second most cited study (Andreassen et al., 2016) in the Psychology of Addictive Behaviours delves deep into the psychological impact of Social media and Video Games. The 23,533 adults (mean age 35.8 years, with the range of age from 16 to 88 years) participated in an online cross-sectional survey. Positive and substantial correlations were found between the symptoms of mental disorders and those of addictive technology use. The addictive use of these technologies seemed to be inversely related to age. The addictive use of video games was significantly connected with being male, whereas the addictive use of social media was considerably associated with being female. Addiction to social networking sites and video games were both positively correlated with being single. The third most cited paper (Andreassen et al., 2017)

Table 5
Most relevant sources.

SOURCE	ARTICLES
INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH	86
JOURNAL OF BEHAVIOURAL ADDICTIONS	33
FRONTIERS IN PSYCHIATRY	28
PLOS ONE	27
JOURNAL OF MEDICAL INTERNET RESEARCH	21
ADDICTIVE BEHAVIORS REPORTS	16
COMPUTERS IN HUMAN BEHAVIOR	14
FRONTIERS IN PSYCHOLOGY	13
ADDICTIVE BEHAVIORS	11
INTERNATIONAL JOURNAL OF MENTAL HEALTH AND ADDICTION	8

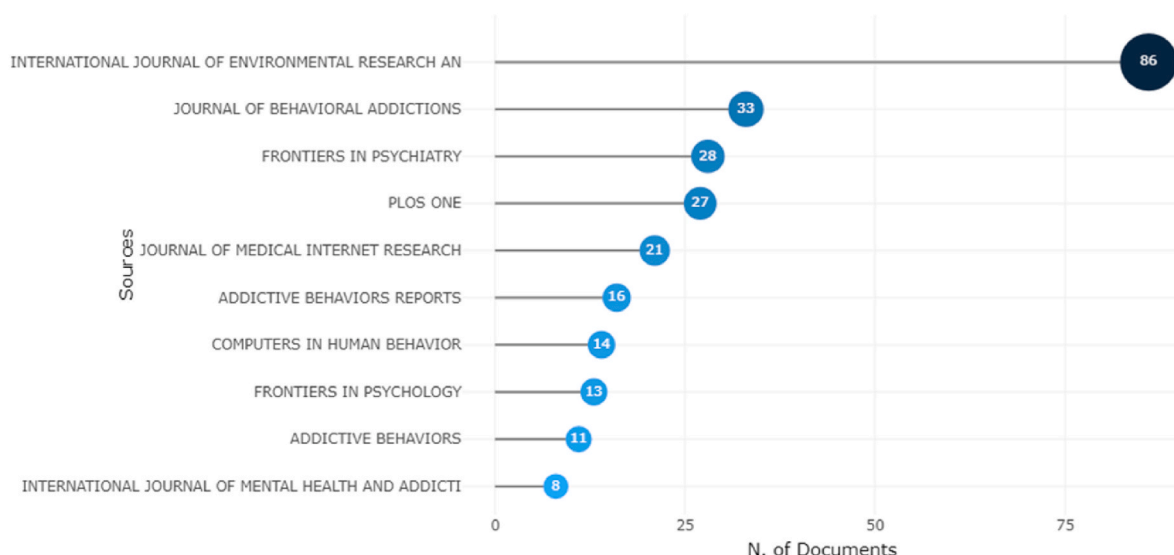


Fig. 2. Most relevant sources.

Table 6

Local and global citations with authors and document title.

S. No	DOCUMENT TITLE	AUTHOR & PUBLICATION YEAR	PUBLICATION SOURCE	LOCAL TOTAL CITATION	GLOBAL TOTAL CITATION
1.	Problematic Social Media Use: Results from a Large-Scale Nationally Representative Adolescent Sample	Fanni Bányaí, Ágnes Zsila Cecílie, Orsolya Király, Aniko Maraz, Zsuzsanna Elekes, Mark D. Griffiths Schou Andreassen, Zsolt Demetrovics (2017)	PLOS ONE	88	303
2.	The relationship between addictive use of social media and video games and symptoms of psychiatric disorders: A large-scale cross-sectional study	Cecílie Schou Andreassen, Joël Billieux, Mark D Griffiths, Daria J Kuss, Zsolt Demetrovics, Elvis Mazzoni, Ståle Pallesen	PSYCHOL ADDICT BEHAV	85	511
3.	The relationship between addictive use of social media, Narcissism, and self-esteem: Findings from a large national survey	Cecílie Schou Andreassen, Mark D Griffiths, Ståle Pallesen, 2017	ADDICTIVE BEHAVIOURS	62	374
4.	Social networking addiction, attachment style, and validation of the Italian version of the Bergen Social Media Addiction Scale	Lucia Monacis, Valeria de Palo, Mark D Griffiths, Maria Sinatra	JOURNAL OF BEHAVIOURAL ADDICTION	41	115
5.	Investigating the differential effects of social networking site addiction and Internet gaming disorder on psychological health	Halley M Pontes, 2017	JOURNAL OF BEHAVIOURAL ADDICTION	27	95
6.	Psychometric validation of the Persian Bergen Social Media Addiction Scale using classic test theory and Rasch models	Chung-Ying Lin, Anders Broström, Per Nilsen, Mark D. Griffiths, and Amir H. Pakpour, 2017	JOURNAL OF BEHAVIOURAL ADDICTION	27	71
7.	Problematic social media use and depressive symptoms among U.S. young adults: A nationally-representative study	Ariel Shensa, César G Escobar-Viera, Jaime E Sidani, Nicholas D Bowman, Michael P Marshal, Brian A Primack, 2017	SOCIAL SCIENCE & MEDICINE	25	163
8.	Association between Facebook Dependence and Poor Sleep Quality: A Study in a Sample of Undergraduate Students in Peru	Isabella Wolniczka, José Alonso Cáceres-DelAguila, Gabriela Palma-Ardiles, Karen J. Arroyo, Rodrigo Solís-Visscher, Stephania Paredes-Yauri, Karina Mego-Aquije, Antonio Bernabe-Ortiz, 2013	PLOS ONE	24	116
9.	Instagram addiction and the Big Five of personality: The mediating role of self-liking	Kagan Kircaburun, Mark D Griffiths, 2018,	JOURNAL OF BEHAVIOURAL ADDICTION	22	105
10.	Social media addiction: Its impact, mediation, and intervention	Yubo Hou, Dan Xiong, Tonglin Jiang, Lily Song, Qi Wang, 2019	CYBERPSYCHOLOGY	21	80

uses the same 23,533 adults as in the previous study. Still, this paper focuses on identifying the relationship between the addictive use of social media, narcissism, and self-esteem by using the established tools to study the three viz., the Bergen Social Media Addiction Scale (BSMAS), the Narcissistic Personality Inventory-16, and the Rosenberg Self-Esteem Scale. Social media addiction was linked to being young, female, and single. Increased narcissism was linked to social media addiction and Social media addiction was linked to poorer self-esteem.

Another most cited paper (Monacis et al., 2017) focuses on validating BSMAS in an Italian sample of 769 participants in the study. The construct validity of the Italian BSMAS was evaluated using confirmatory factor analysis (CFA) and multigroup studies. The average extracted variance, the standard measurement error, and the factor determinacy coefficient were all included in the reliability studies. The study concludes that Italian BSMAS is a reliable psychometric tool that may be applied to future Italian studies on social networking addiction. A close association between Social media addiction and Internet Gaming disorder has been established in yet another most-cited study (Pontes, 2017). A sample of 509 adolescents was studied a significant impact on how SNS addiction and IGD are explained. Also, it was discovered that SNS addiction and IGD can both exacerbate each other's symptoms and simultaneously comparably worsen general psychological health, revealing a probable shared etiology and clinical course between these two phenomena. Ultimately, it was shown that the negative consequences of IGD on psychological health were marginally more severe than those caused by SNS addiction. This conclusion calls for further scientific investigation.

The studies are an indicator of the most used tools to study SMA and the demographics that may or may not affect the social media usage and its impact.

4.2. Research Objective 2: Identifying the most prolific authors, along with the top contributing countries and organizations

Fig. 3 represents the productivity of authors over time: The line represents an author's timeline, and the bubbles' size is proportional to the number of documents produced by an author per year. Griffith's contribution in the field is noticeable and significant for anyone researching the field and understanding the phenomena of social media addiction.

Fig. 4 presents the results of a Bibliometric analysis of the most productive authors in Social media addiction from 2010 to July 2022. The research highlights the works of Griffith, who is from the United Kingdom and has 57 documents to his credit, along with the highest citation count of 2856. Griffith started his research in SMA in 2016 and has the highest h-index score of 25, suggesting that Griffith continues to be the most influential author in the field of SMA. Our results also show that although Griffith has consistently published his work since 2016, his maximum work in SMA was published (18 papers) in 2020, and his Total citation per year stood at 173. The second on the list is C.Y.Lin from China, with 22 papers, with an H-index score of 15. Lin started researching SMA in 2017 when his first paper was published and has consistently published his work since then. In 2020, 8 of his writings were published and his Total citation per year went up to 133.

The analysis confirms that A.H.Pakpour, D.J. Kuss, and C. Montag next, with an h-index of 13, 10, and 9, profoundly affected the SMA research body. Fig. 4 highlights the works of other scholars.

Fig. 4 shows a three field plot called Sankey Diagram. It is a visual depiction of the relationship between Countries-articles contributed by region (countries), the authors and the keywords used in their research on SMA. The extreme left column indicates the countries actively

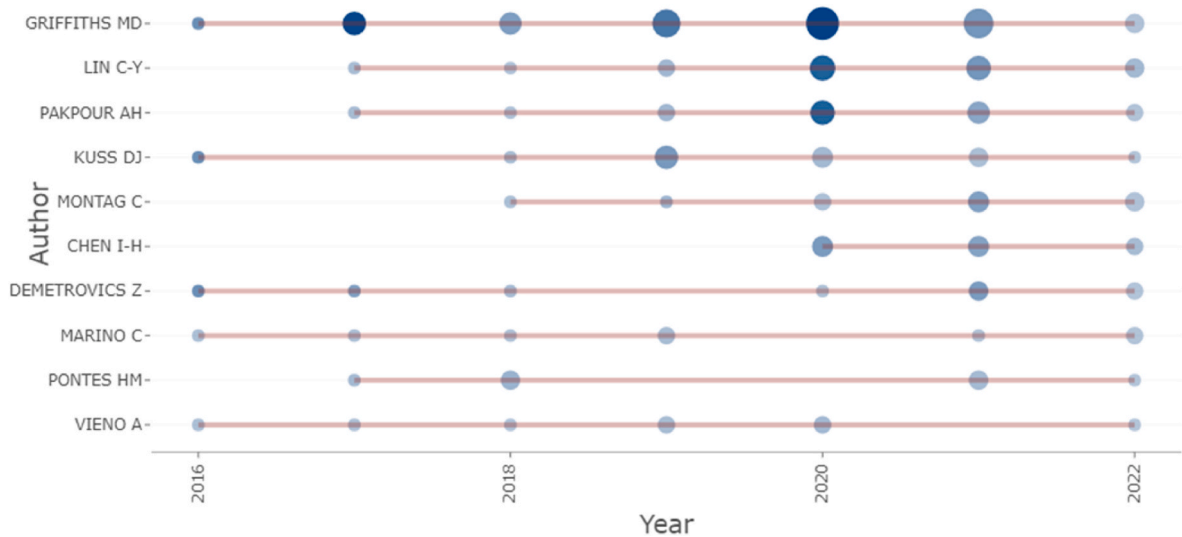


Fig. 3. Authors with publications.

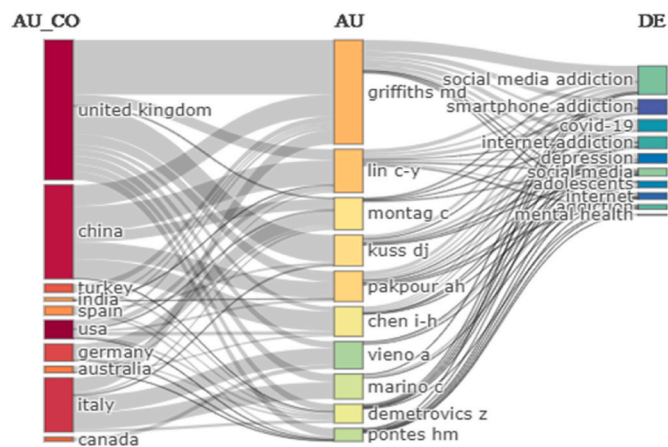


Fig. 4. Three-field plot (sankey diagram).

involved in research on SMA, the middle column represents the names of the scholars contributing from these active regions (countries) and the extreme right column represents the common and frequently used keywords for research. The visual representation of the three fields helps in creating and understanding the relationship between the fields. Thus, most of the research in the area of SMA is being undertaken in the United

Kingdom and China. Griffith's from U.K has contributed the maximum and "Social Media addiction" and "Smartphones" are the most prominent themes discussed in his research. Other important themes being discussed are "Internet addiction," "Covid-19"; "Depression"; a few papers also talk about "Mental health".

Fig. 5 depicts the most relevant affiliations, co-authorship and collaborations. Top 10 institutions contributing to the maximum research in SMA have been enlisted. U.K's Nottingham University tops the list with 103 documents, followed by the University of California, in the United States, with 47 papers closely followed by Utrecht University, in the Netherlands with 41 documents. Usually linked to such publication content, article keywords that authors define are sufficient.

4.3. Research Objective 3: Determining the emergent themes in the research of social media addiction

Analyzing the published papers' keywords is a pivotal method for determining popular subjects and academically essential topics. The study aims to study these keywords as indicators of the issues and trends in the field. The word cloud in Fig. 6 displays commonly used keywords in 712 papers in the social media addiction papers. Additionally, a trending topic analysis using the keywords used by the authors from the extracted data was done.

The following settings were made throughout the study: the time period was set to be between 2010 and 2022, the number of words each

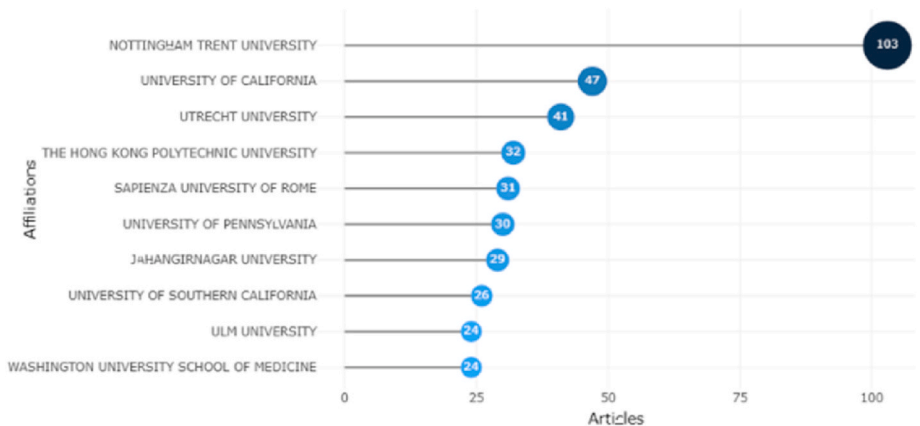


Fig. 5. Most relevant affiliations.



Fig. 6. Word cloud- keywords.

year was set to 5, and the word label size was also set to 5. Usually linked to such publication content, article keywords that authors define are sufficient to highlight the various aspects of research, in this case, Social media addiction (Song, 2019). The word cloud in Fig. 6 displays the most frequently used keywords in the papers on social media addiction in the 12 years. The results highlight the concerning aspects of the dark side of social media. Between 2010 and 2022, the interest in internet addiction, behavioural addiction, depression, and gaming disorder has been growing and will continue to be researched in the near future. To understand more about the field, the study also looked at the keywords co-occurrence network (KCN) trends in social media addiction.

The KCN analysis in Fig. 7 shows the relationship between literary terms, which provides an understanding of the body of knowledge in the area (Esfahani et al., 2019). As a result, our outcome displays that KCN goes beyond simply finding common keywords by bringing out connections in them, as demonstrated by the word cloud in Fig. 6.

Most of the keywords began showing a steep trend from 2012 onwards. The findings have signified that interest in “social media” has been spiking and is not relenting, which implies that research in the field is ongoing. In the studies of social media related to adolescents, females, adults, the trend seems to be following an upward trend since 2010. It is evident that during the course of this analysis from 2020 onwards, the research on “social media” has accelerated during the pandemic. Any trending topic has a reason to support the increase in the research interest, in this case, it is because Social media started becoming an integral part of people’s existence and even political scenarios are impacted by their Social media usage. The United States of America leads the country-wise citations(2512), making it the most relevant in terms of research in the area of Social Media addiction research, followed by U.K. and Norway with 1458 and 934 citations, respectively as shown in [Table 7](#). From Europe, the analysis highlights that, U.K., Norway, Netherlands, Germany, Switzerland, Italy, Turkey contribute substantively to the field of social media addiction. From Asia, China and Hongkong are good contributors to the knowledge base of this behavioural addiction. Australia (n = 366) and Canada (n = 310) are also inclined to study this omnipresent challenge of social media addiction.

The thematic map of SMA aims to provide an understanding of current work (themes) in the field of SMA and the emerging themes therein. The thematic analysis uses authors' keywords and their relationships to discuss the evolution of various themes. These themes are distinguished by specific characteristics (density and centrality). The vertical axis represents density, while the horizontal axis represents centrality. The degree of correlation between different topics is measured by centrality, and density measures the cohesiveness among the nodes (Esfahani et al., 2019). These two properties quantify the growth and importance of specific topics. Fig. 8 provides the thematic map of the SMA field; themes in the upper-right quadrant contain the motor themes. They stand out for their high density and centrality indicating that they are sophisticated and important to the topic of

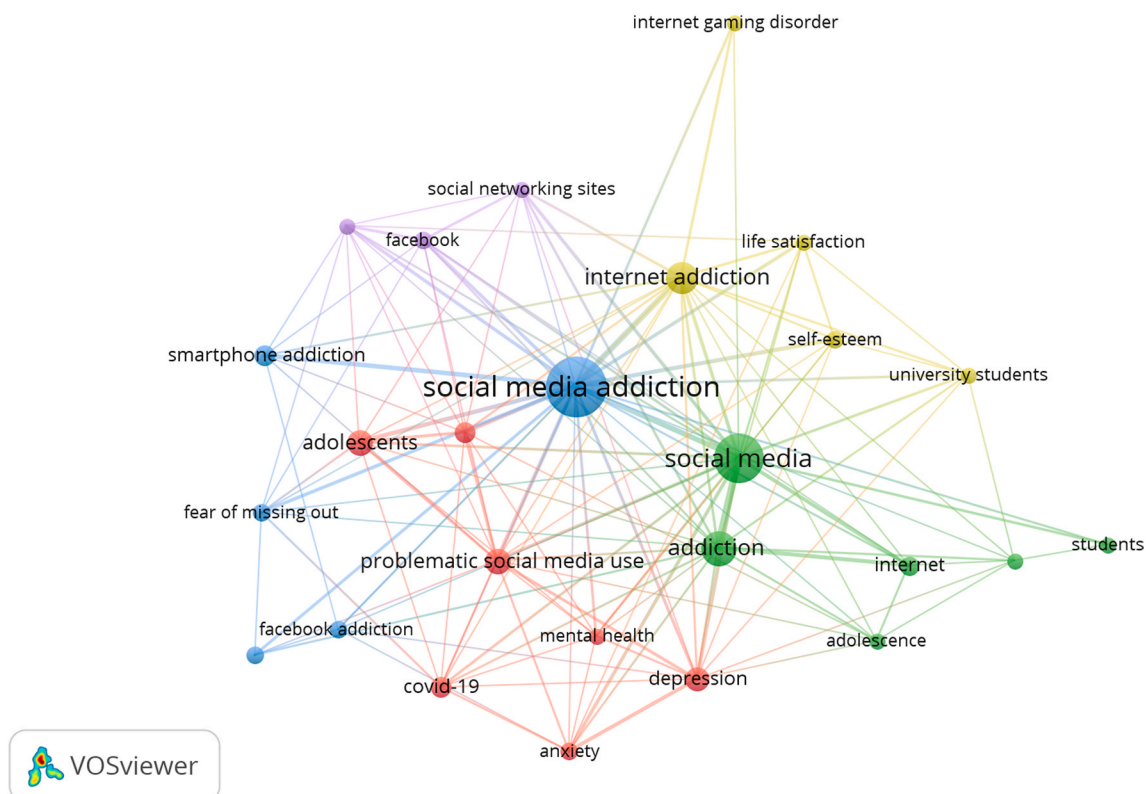
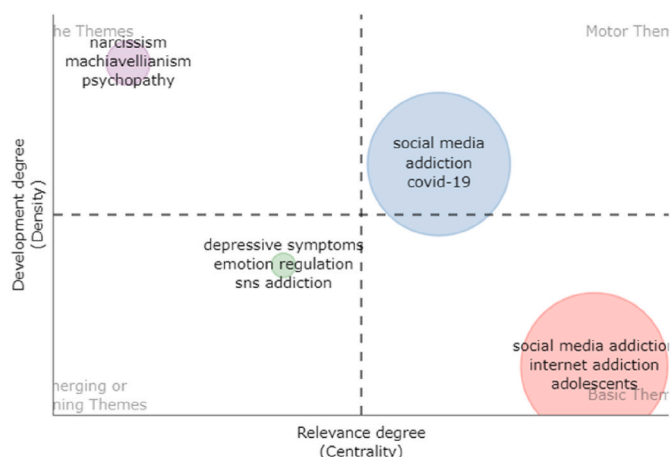


Fig. 7. KCN.

Table 7

Top 25 most cited countries in field of Social Media Addiction.

S.No.	Country	Total Citations(T.C.)	Average Article Citations
1	USA	2512	21.11
2	United Kingdom	1458	22.43
3	Norway	934	116.75
4	Netherlands	742	46.38
5	Germany	649	17.54
6	Switzerland	569	113.80
7	Italy	543	15.51
8	China	507	10.56
9	Hong Kong	399	22.17
10	Turkey	382	13.64
11	Australia	366	16.64
12	Canada	310	18.24
13	Iran	305	21.79
14	Spain	256	13.47
15	Bangladesh	206	29.43
16	Poland	189	12.60
17	Peru	147	73.50
18	Chile	143	143.00
19	Sweden	108	18.00
20	Estonia	100	33.33
21	Saudi Arabia	99	19.80
22	Japan	92	23.00
23	Korea	89	6.36
24	France	83	13.83
25	India	77	4.81

**Fig. 8.** Thematic map.

study. Themes in this quadrant are “Social Media”, “Addiction”, “Covid-19”. These are well researched themes hence capable of structuring.

The lower-right quadrant contains basic themes which includes fundamental and transversal topics. They are characterized by high centrality and low density. These topics are crucial to a study field and are connected to bigger challenges that span the discipline’s several research subfields. Thus “Social Media Addiction”, “Internet Addiction”, “Adolescent” are themes not adequately researched.

The topics in the lower-left quadrant are those that are emerging or waning. Due to their low centrality and density, they are undeveloped. Thus, themes like “Depressive symptoms”, “Emotional regulations”, “SNS addiction” hold potential for future research.

The upper-left quadrant contains the isolated and highly developed motifs, sometimes known as niche themes. Due to their highly developed internal linkages (high density), but negligible external ties (low centrality). Hence “Narcissism”, and “psychopaths”, can be the areas to be explored in future research concerning SMA and deepen the understanding further.

5. Conclusion

The construct “Social media addiction” has been studied for over a decade. Still, no study has summarized the findings of the past studies to be used by practitioners and policymakers. This paper attempts to do that by focussing on all the studies undertaken on Social Media addiction across all the domains. Using bibliometric analysis, this study has attempted to thoroughly evaluate scientific publications in the area of social media addiction over 12 years since the work on social media addiction started. The study looked into the themes of social media addiction in the literature, honored distinguished scholars and their contributions, geographical and local citations of the work done by the scholars, and presented the thematic research analysis in the field of social media addiction since the area started to be explored. The Scopus database yielded 712 documents altogether for this investigation. The first finding from the study was that the first publication on social media addiction was published in 2010, which may mark the start of the interest in the field of social media addiction. This investigation also points to suitable publishing venues like the International Journal of Environment Research and Public Health and Journal of Behavioural Addiction. This finding offers scholars crucial guidance regarding the publishing venue best suited for their research articles on social media addiction. The analysis of work Griffiths stands out, It would be both as a contributor of maximum papers and also the citations of those papers. Griffiths main area of research is around the validation of the social media addiction scale, developing social media craving scale, impact of social media addiction on life satisfaction and sleep disorders, and many other dark sides of social media addiction. Similarly, our findings show that over time, the United States has produced the most scientific works in social media addiction, making it the most powerful nation in terms of research. Nottingham Trent University in the U.K. leads the list in terms of contributions and relevancy of universities. The thematic interpretation is that more dimensions of mental well-being (Narcissism, depressive symptoms, psychopaths) can be tied to the study of SMA. Also, the study emphasized that the field of social media addiction research is currently expanding, especially during the pandemic, with new factors including “internet addiction,” “behavioural addiction,” “Facebook addiction,” “anxiety, depression,” and “gaming disorder”, etc. All these keywords are imperative to understanding the various aspects of the flip side of social media addiction. It is also clearly evident that the research is stepping up during the pandemic, which started in 2020. The significant increase in social media usage during the pandemic and various harmful effects, coming to light, is the reason for the growth of social media addiction research.

6. Limitations of the study

The study is not without its limitations. The database included in the study is taken only from the Scopus database; hence, the authors do not claim that the list is exhaustive. Since Scopus is thought to offer broad coverage of reputable papers and is therefore regarded as sufficient, all other databases have not been included in this research (Heradio et al., 2016; Shen & HO, 2020). But a considerable improvement to the study would undoubtedly result from accumulating data from other databases like Web of science, Pubmed, etc.

7. Future research

Further research is proposed in the following areas.

1. Since social media is a global phenomenon, it would be a good practice to form collaborations, consequently impacting the potential of social media as an addiction and how to manage it.
2. In countries like India, where internet and social media usage are the highest, research on social media addiction is ranked 25th. More

intense research in social media addiction should be undertaken in India.

3. All the vital databases, like Pubmed, and Web of science, could be included in order to include the work that has not been covered under Scopus. To further conclude the study, the bibliometric analysis provides insights into the research done, and suggests a further plan of action for the researchers who wish to research the area of social media addiction. This paper lays out the indicators of future research in SMA.

The study offers a quick overview for the researchers interested in exploring, collaborating, and seeking guidance.

Credit author statement

Dr. Shivani Arora-Writing Original Draft, Resources, Writing - Review & Editing, Visualization, Project Administration, SupervisionDr. Meera Mehta-Conceptualization, Methodology, Software, Formal Analysis, Investigation, Data Curation.

Declaration of competing interest

None.

Data availability

Data will be made available on request.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.chb.2023.107831>.

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