
ESTUDIOS / RESEARCH STUDIES

PubMed based Bibliometric Analysis of Health Information Available in Social Media: an Indian Study

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Abstract: Social networks have long been used to disseminate health-related information and help, and this use has increased with the emergence of online social media. The goal of this study is to conduct a bibliometric analysis of health information in the context of India. The literature available in PubMed is the source of the study. The objective of this paper is to develop a better insight into the literature on social media-based health information using bibliometric analysis in the context of India. The software used for bibliometric analysis is profile research networking software from Harvard University and Vosviewer. From the study, it is clear that social media is important in the context of public health. We also found out that although the number of publications in journals is highest but video-audio content has been cited more. Although there is a significant increase in publication during 2020, but number of researchers are still very few. It is clear that social media is of greater importance for marginalized people; health care providers and regulators must take precautions to avoid possible negative outcomes.

Keywords: bibliometric analysis; social media; India; health; health communication; Vosviewer; profiles research networking software

Análisis bibliométrico de información en salud basado en PubMed disponible en las redes sociales: un estudio de La India

Resumen: Las redes sociales se han utilizado durante mucho tiempo para difundir información y ayuda relacionadas con la salud, y este uso ha aumentado con la aparición de las redes sociales en línea. El objetivo de este estudio es realizar un análisis bibliométrico de la información sanitaria en el contexto de la India. La literatura disponible en PubMed es la fuente del estudio. El objetivo de este artículo es desarrollar una mejor comprensión de la literatura sobre la información de salud basada en las redes sociales utilizando el análisis bibliométrico en el contexto de la India. El software utilizado para el análisis bibliométrico es un software de redes de investigación de perfiles de la Universidad de Harvard y Vosviewer. Del estudio, queda claro que las redes sociales son importantes en el contexto de la salud pública. También descubrimos que aunque el número de publicaciones en revistas es mayor, se ha citado más contenido de video-audio. Aunque hay un aumento significativo de la publicación durante 2020, el número de investigadores sigue siendo muy reducido. Está claro que las redes sociales son de mayor importancia para las personas marginadas. Los proveedores de atención médica y los reguladores deben tomar precauciones para evitar posibles resultados negativos.

Palabras clave: análisis bibliométrico; redes sociales; India; salud; comunicación en salud; Vosviewer; software de redes de investigación de perfiles

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1. INTRODUCTION

It is a normal human tendency to form social groups to interchange ideas, share understandings, and offer support (Anglade et al. , 2019). As the Internet has evolved and developed, new networks have sprouted up to address the population's requirements (Erfani & Abedin, 2018).

During recent times, online social media have become a key node for individuals to collaborate and communicate, (Penni, 2017) share views with other people on ideas and content (Anwar et al. , 2019; Body and Ellison, 2007). The competitive design of these platforms, which has helped to develop user relationships (Tajeuna et al. , 2018; Elbanna et al. , 2019), has led to their exponential growth and the stability of these media. While people often use those networks to meet new people, people who have common aspirations or interests appear to communicate with each other even when strangers (Dokuka et al. , 2017). Disease states and medication bring unknown people together on social media.

An important motivation for these emerging social networks is to understand people's or societies' well-being (Romano et al. , 2018). Netizens are both active and passive players in these digitally interconnected networks (Cohen et al. , 2018). Depression and other mental health issues, as well as physical disorders like sexual infections, and now COVID are the hot topics among the netizens (Villanti et al. , 2017; Błachnio et al. , 2015; Ballester-Arnal et al. , 2016).

This topic has recently been investigated about social and health networks as both for prevention and training mechanisms, as well as risk factors (Tajeuna et al. , 2018; Aiello, 2017). In this respect, researchers investigated the negative impact of social media on health (Boyd et al. , 2007; Shensa et al. , 2017), as well as their mental side effects such as depression, stress, and eating disorders (Ainin et al. , 2015, Huang & Su, 2018).

Other studies have looked into their utility for health interventions (Alhuwail & Abdulsalam, 2019; Ridout & Campbell, 2018), especially health education (Ilakkuvan et al. , 2019). Patients' participation in health-care communities is also a research subject that often reflects on specific health or social welfare problems (Shen et al. , 2018). In general, based on the fitness and actions of the individual social media tends to have been used in several ways (Barton et al. , 2019; More & Lingam, 2019).

In the event of emergencies or disease outbreaks, digital health can be the answer to achieving long-term viability (Wang & Liu, 2005). This

technology is expected to help meet global health targets by including Internet connectivity, patient health and non-health data, and data from the community (Boman & Kruse, 2017). Telemedicine, mobile technology and apps, connected systems, and remote tracking sensors are examples of technologies that help stakeholders to control their wellbeing and service delivery (Widmer et al. , 2015; Vijayakumar et al. , 2017).

The objective of this paper is to develop better insight of literature on social media based health information using bibliometric analysis in the context of India. This study is undertaken because health information has profound impact on health care outcomes, both positively and negatively. It is duly noted that health care information is still illegal in most countries for the stakeholders other than the healthcare providers. A lot of research exist on positive and negative effects of health information available on internet. Social media based healthcare information need exploration because these are recent and are more advanced in nature than the earlier non-interactive websites on internet. The direction that research on social media based health information needs to be explored for helping the stakeholders, particularly the regulatory bodies and healthcare professionals to identify the gaps, trends and come up with appropriate responses to the challenges faced in this respect.

2. RESEARCH METHODOLOGY

The study is based on bibliometric analysis. The use of statistical techniques to calculate the content and quantity of books, papers, and other publications are referred to as bibliometrics (Durieux & Gevenois, 2010; Sweileh et al. , 2017). It's been used in crisis analysis (Ardito et al. , 2019; Chiu & Ho, 2007; Jiang et al. , 2019; Lee & Kim, 2016; Sweileh, 2019) and information management (Chao et al. , 2007; Cobo et al. , 2007; Du et al. , 2017). In keeping with the theme, because of the absence of published evidence across all subject areas. This study paper employs bibliometrics to analyze papers on social media health information in India; data for co-citation analysis, co-occurrence analysis, and other related studies of previous literature.

This paper is retrospective and descriptive bibliometric study is carried by reviewing the articles published in PubMed.

PubMed has been preferred as it is a free search engine which helps to access healthcare database.

The software used for bibliometric analysis is profile research networking software from

Harvard University although several software are available like; PROFILES by UMassMed Center for Clinical and Translational Research for bibliometric analysis as it examines publications to categorize significant ideas and diverse areas of research. Profile research networking software from Harvard University self-populates a database of publication history, open to all and it is easy to use. Researchers like GM Weber (2011), Alireza Ahmadvand (2019) have used this software for their study. Other software that we have used is Vosviewer. The "Visualization of Science (VOS)" mapping tool was used for the mapping of reference co-citation analysis and the document's bibliometric mixture analysis for these techniques. VOSviewer also has text mining capabilities, which may be used to build and display co-occurrence networks of key phrases retrieved from scientific literature.

Advent of social media is traced back to 1997 (Ketizman et al. , 2011). Orkut is the first social media platform in India (Statista, 2020). Healthcare based social media sites began to appear to India in the year 2004 as is obvious from the data base. The study therefore is for the period 2004-June, 2021. The keyword used for searching PubMed for this study are social Media, India, Health. In the first step the database of non-English documents were removed. Wherever full text was not available these papers are also discarded. This provided a list of 713 documents and which has been used as base for bibliometric analysis.

The popular three words or abbreviations are Social Network, Social Media, and SMP (Social Media Promotion). For this analysis, we used the keyword 'Social Media'. This study's inclusion criteria are dependent on the terms 'social media,' 'India,'

and 'health.' The terms were used to explore the interference of social networks in health, with the goals of this study in mind. The word "India" was also used to describe earlier studies on the region.

The field/discipline is based on the values provided to each journal by the NLM (National Library of Medicine). The headings in the broad journal are MeSH Descriptors which sum up the whole topics of a journal. Typically, there is more than one heading in the Broad Journal, therefore there may be more than once in the table below for a single edition. Therefore, the field NumPubs might add up to more than the number of publications. The ratio of RatioExpPubs is comparable to the projected year-to-year number of publications in the area.

From the Table I, it is clear that number of publication is much higher in the field of 'public health'. In the field of 'psychology', publication has started much later in this research area. Ratio of average number of citations, in the field of 'Psychiatry' is highest.

Summary Report

The summary statistics for the selected collection of PubmedIDs are shown in Table II. The predicted value is compared to the article wise average number of authors and the average number of times the articles were mentioned. The expected values are the averages of all articles in PubMed that have been matched by journal and year of publication. The "PT" predicted values also influence the kind of publishing. Except as specifically stated, self-citations (an author referring to his or her work) are not included in the analysis.

Multiple publishing categories can be attributed to the same article in Medine/PubMed. Articles are

Table I: Top Fields/Disciplines by number of publications.

Field	Num-Pubs	%Pubs	Ratio ExpPubs	First-Year	Last-Year	Avg Cites	Exp Cites	Ratio Cites	Exp CitesPT	Ratio CitesPT
Public Health	78	11.747	6.294	2004	2021	4.090	3.489	1.172	3.031	1.349
Medicine	60	9.036	1.335	2005	2021	4.333	2.787	1.555	4.282	1.012
Health Services	31	4.669	5.394	2004	2021	3.548	3.653	0.971	3.538	1.003
Medical Informatics	28	4.217	6.396	2014	2021	4.857	4.322	1.124	4.602	1.055
Psychiatry	24	3.614	2.426	2005	2021	14.708	2.802	5.249	2.566	5.732
Science	23	3.464	0.825	2004	2021	3.870	4.140	0.935	5.390	0.718
Pediatrics	21	3.163	1.617	2000	2021	2.952	1.878	1.572	3.482	0.848
Psychology	19	2.861	2.205	2011	2021	3.211	3.232	0.993	2.795	1.149
Social Sciences	18	2.711	7.919	2004	2020	3.000	3.353	0.895	3.094	0.970
Health Services Research	17	2.560	4.906	2004	2021	6.235	7.199	0.866	7.701	0.810

Table II: Summary statistics for the selected collection of PubmedIDs

Variable	Value	
NumPubs	708	Number of recognized PubmedIDs
FirstYear	2000	Earliest article year
LastYear	2021	Latest article year
AvgAuthors	6.001	Average number of authors per article
ExpAuthors	4.756	Expected number of authors, matched on journal and year
RatioAuthors	1.262	Ratio of the average number of authors to the expected number
AvgCitesAll	5.743	Average number of times an article has been cited, including self-citations
AvgCites	5.095	Average number of times an article has been cited, not including self-citations
ExpCites	2.438	Expected number of times an article has been cited, not including self-citations, matched on journal and year
RatioCites	2.090	Ratio of average number of citations (no self-citations) to expected number, matched on journal and year
ExpCitesPT	3.850	Expected number of citations (no self-citations), matched on journal, year, and publication type
RatioCitesPT	1.323	Ratio of average number of citations (no self-citations) to expected number, matched on journal, year, and publication type
HIndex	23	Hirsch-index (using total citations, including self-citations)
MIndex	1.917	Hirsch-index divided by the number of years since the first publication

matched across all publishing types for computing "PT" values. For instance, an article with the kinds "Abstract; Multicenter Study; Clinical Trial" will only be compared to other articles with those three kinds. As a result, while evaluating the "PT" numbers, take in mind that there are frequently relatively few publications that match on the journal, year, AND all publishing kinds, which might skew the findings.

Search Strategy

For this article, papers are selected from the PubMed database that included the keyword "Social Media" and checked research studies reported in the database between 2000, January and 2021, June.

Sampling

Pubmed database provides coverage on Medline, dental journal, nursing journal. The PubMed database yielded a total of 713 documents while the term "Social Media" was searched. Even though this research has been conducted in a variety of disciplines, we plan to review the published literature in the Indian context. Only papers with the English language were considered.

Data Analysis

713 articles were chosen using a systematic method for social media for health information in India and bibliographical methods, which included a co-citation analysis of reference and text analytics of the combination of bibliometric texts.

3. RESULTS AND DISCUSSION

The categories assigned to an article in Medline/ PubMed determine the type of publication. Because an article can have more than one publication type, a single publication may appear more than once in the table below. As a result, in Table II the NumPubs field may contain more than the total number of publications. Here it is clear that percentage of journal article publication is highest. But, the Ratio of average number of citations is highest for 'Letter' type of publication. The "Publication Type" expected values are not listed here since the data is already categorized by publication type.

Figure 1 indicates that researchers of social media health information in India have considered their article the following components or keywords (Table III). From Figure 2, it is clear that number of publication is highest on 2020. It might be due to COVID 19.

Keyword analyses revealed four subjects in their studies. The following are applicable: Topic/ disease, gender and age group, Systems and software, places.

Classification

- Topic/ Disease: According to authors (Young & Rice, 2011; Lariscy et al. , 2010; Corley et al. , 2010; Takahashi et al. ,2009; Mukherjee et al. ,2019; Selkie et al. ,2011; Liang & Mackey, 2011), in their findings, researchers identified the usage of social media in the population for different diseases or health conditions. However, standardization of the devices and regulatory approvals remain inadequate and

Table IV: Components identified by word cloud and its classification.

Classification	Components/ Keywords
Topic	Covid 19, sars, sexual, nutrition, cancer, hiv, tuberculosis, zika, obesity, smoking, mental, stress, suicide, vaccine, tobacco, anxiety, depression, presbyopia, diabetes, ophthalmic, pregnancy, rheumatology, cardiovascular, coronaphobia, Rabies, Dengue, Chikungunia, cardiac, Overweight, Biopsy, Cervical, Chronic, Cyberchondria, Pediatrics, Optometry, COPD, Dyssomnia, Risk, Virus, Polio, Alcohol, breastfeeding, breeding, leptospirosis, cardiopulmonary, liver, laparoscopic, Measles-Rubella, pancreatic
Media	Facebook, tweet, digital, YouTube, WhatsApp, smartphone, telemedicine, Google, online, website, blog, internet
Places	West Bengal, Uttar Pradesh, Kerala, Amritsar, Jharkhand, Madhya Pradesh, Chennai, Mumbai, Chhattisgarh, urban, rural, Delhi, Andhra Pradesh, Gujarat, Bihar, Karnataka, village, India, Pondicherry
Gender & age group	Children, adult, young, aged, students, parents, adolescents, males, women, youth, grandmother, infant, boys, men, young, minor

media (Volpp & Mohta, 2018; Zhao et al. , 2020; Aparicio-Martinez et al. , 2019). Facebook, Twitter, Youtube, Blog, etc. are known as the social network for health Communication. It was determined that these social network apps can be found in smartphone features and software, as well as play store apps.

- Places: The importance of social media for sharing or seeking health information in India cannot be ignored. The marginalized group can use it for their benefit (Jha & Pandey, 2017). People living in developing places have started using social media more (Barrios et al. , 2019; Pai & Alathur, 2019; Mukherjee et al. , 2021).

To sum up, the keywords reflect that the social media researches on basic health conditions and health communication in India showed the need and relevance for developing countries and rural areas.

Top Journals

Table V shows the number of journals (NumPubs) and the share of the total published publications (percentage of pubs) appear for each journal. Here

it is clear that 'Journal of Family Medicine and Primary Care' have more publication; but, ratio of average number of citations is highest in 'Asian Journal of Psychiatry'. The quotes have the same significance as the summary table in general.

Table VI shows year wise number of articles (NumPubs), number of times any article in that year (NumCitesAll) has been cited, inclusive of self-quotation (CumPubs), the number of times no articles have been mentioned in the same year (NumCites); the number of cumulative articles mentioned, including self-quotations (CumCitesAll); the cumulative number of articles cited in that year (CumCitesAL); (CumCites).

The bibliographic analysis of the articles will help to identify research gaps and potential prospects (Xu et al. , 2020). The study of co-quotation analytics and the bibliographic mix of chosen papers are discussed in the following pages.

Study Characteristics

Identification of co-occurrences, co-authorships based on author keywords are among the research

Table V. Top Journals Publications & Citations by Year

Journal	Num-Pubs	%Pubs	First-Year	Last-Year	Avg-Cites	ExpCites	Ratio-Cites	ExpCitesPT	RatioCitesPT
J Family Med Prim Care	24	3.390	2016	2021	1.000	0.650	1.539	0.941	1.063
PLoS One	15	2.119	2012	2021	2.733	3.690	0.741	3.440	0.795
Indian J Med Ethics	13	1.836	2012	2021	0.692	0.659	1.051	0.539	1.284
BMC Public Health	10	1.412	2011	2021	6.200	4.354	1.424	3.940	1.574
J Educ Health Promot	10	1.412	2012	2021	1.200	0.857	1.400	0.809	1.483
BMJ Open	10	1.412	2013	2021	0.400	1.804	0.222	1.744	0.229
Asian J Psychiatr	9	1.271	2014	2020	30.889	2.843	10.863	2.889	10.694
J Med Internet Res	9	1.271	2014	2021	10.889	8.319	1.309	9.519	1.144
Indian J Public Health	8	1.130	2007	2020	4.750	1.865	2.546	1.827	2.600
Indian Pediatr	7	0.989	2008	2020	5.571	1.896	2.938	3.820	1.458

Table VI. Publication & Citation by year

PubYear	NumPubs	NumCitesAll	NumCites	CumPubs	CumCitesAll	CumCites
2021	115	965	865	708	4066	3607
2020	220	1221	1087	593	3101	2742
2019	71	324	283	373	1880	1655
2018	57	431	383	302	1556	1372
2017	55	350	315	245	1125	989
2016	34	253	224	190	775	674
2015	29	137	115	156	522	450
2014	30	110	96	127	385	335
2013	11	96	82	97	275	239
2012	24	58	53	86	179	157
2011	11	44	39	62	121	104
2010	5	22	20	51	77	65
2009	7	19	18	46	55	45
2008	4	14	11	39	36	27
2007	9	7	6	35	22	16
2006	4	5	5	26	15	10
2005	5	6	2	22	10	5
2004	7	1	0	17	4	3
2003	4	1	1	10	3	3
2002	4	2	2	6	2	2
2000	2	0	0	2	0	0

features of the selected 713 articles. This report demonstrates how social media is used in India for health information. It also highlights the most active, most studied fields for potential advancements in the field assessment. The results of the experiments are discussed in the following pages.

Commonly associated author keywords in the research articles

The network visualization analysis for the authors' keywords is seen in Figure 3. To map the results, VOSviewer was used by Van Eck and Waltman (2009, 2013). This software is not only useful for generating, analyzing, and exploring network data maps, but it is also useful for bibliometric data analysis (Van Eck & Waltman, 2013). Perianes-Rodriguez et al. (2016) suggested the fractional counting process and the overall sensitivity of the relation to normalizing the effects. For co-occurrence data, the Van Eck and Waltman data index (Pai & Alathur, 2019) is used.

A total of 727 keywords out of 3105 were obtained for this research study with 713 papers by setting a metric for counting, form, analytical unit, and threshold value as fraction metric, coexistence analysis, and minimum occurrence of keywords as 2.

The size of the circle in Figure 3 reflects the frequency of the keyword. The larger the diameter,

the more often the keyword appears in social media for health information journals. The distance between them shows the topic's relative intensity and similarity (Guo, et al. , 2019). In this report, keywords like humans, social media, India, Covid 19 have a higher weight. The use of the same color in different publications indicated a related subject.

The network visualization map displayed in Figure 3 has 8 clusters that describe the subfields of social media. The Yellow Cluster comprises varieties of family problems and their information such as family planning services, survey, health, postnatal care, risk factors, breast cancer awareness, geography, fertility, health education, family characteristics, etc. The red cluster included social media, online learning, pharmacovigilance, machine learning, natural language processing, algorithms, neural networks, etc. The keywords in the green cluster are human, measles, management, cluster analysis, infant nutrition, qualitative research, adolescence, diet, etc. Next, the keywords in the blue color cluster are correlated with India, social phobia, students, universities, etc.

The purple cluster contains pathology, what's app, Facebook, etc. keywords which are there. A cluster of other blue colors are combined of Covid 19, content analysis, gender, fake news, sentiment analysis, deep learning, anxiety disorder, information, periodical as a topic, Twitter, etc. The orange cluster, includes key terms basic

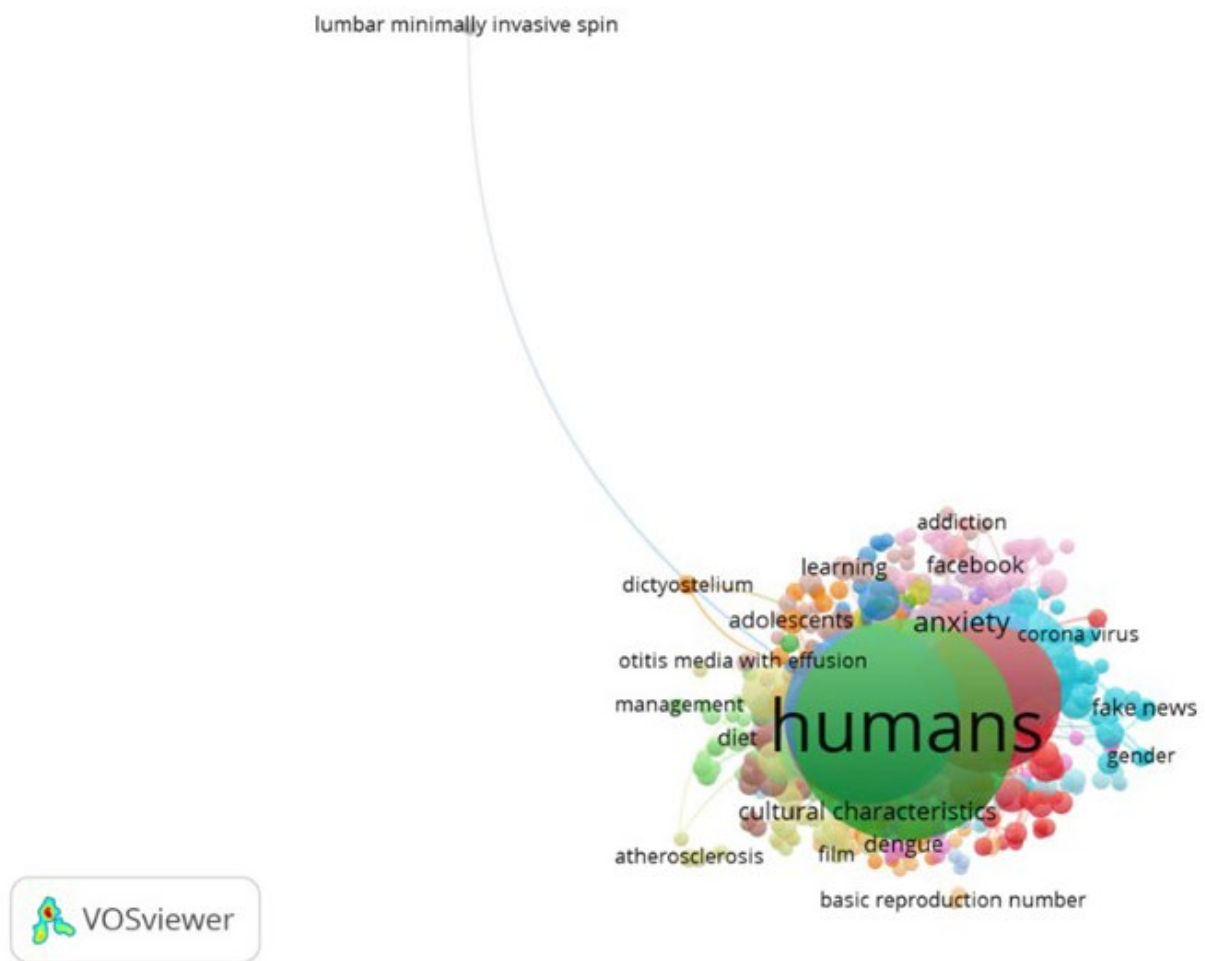


Figure 3: Network visualization for the keywords

reproduction number, culture media, circadian rhythm, parents, social media use, adolescents, behavior, students, etc.

Co-citation analysis

By reviewing quotations, this paper examines “the frequency with which two documents are cited together by other documents”(Small, 1973). It is also very important (Figure 4). A total of 91 papers out of 4488 were obtained for this research with 713 papers and the minimum number of papers per author is 2.

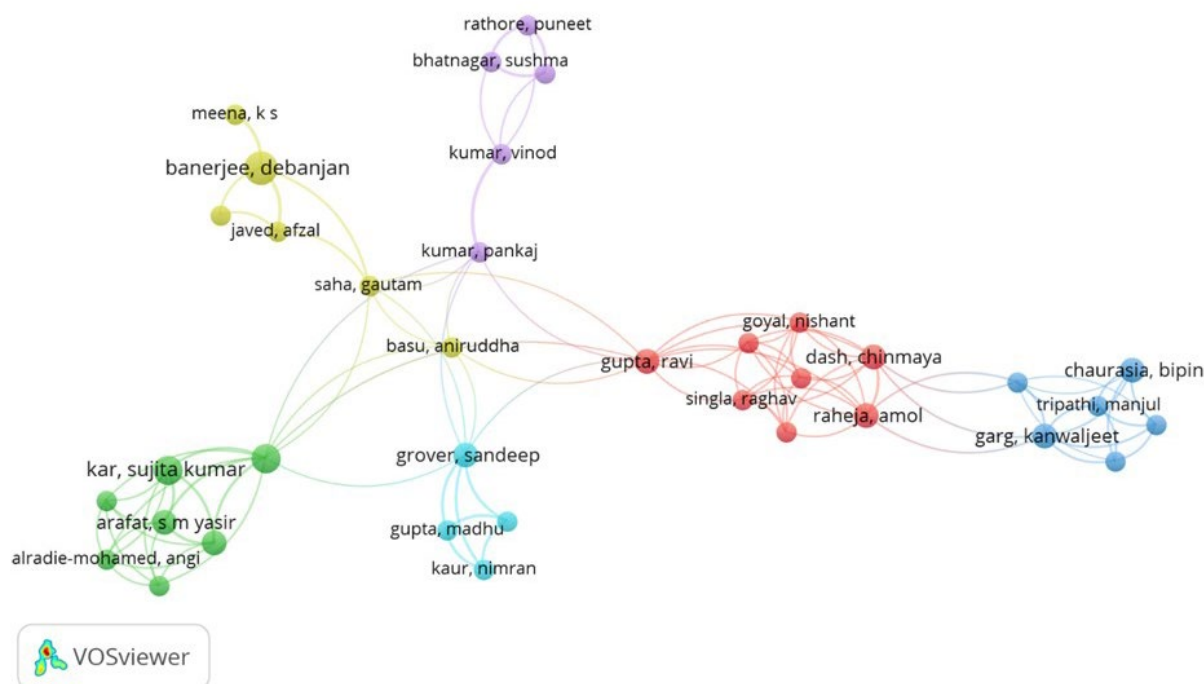
This diagram illustrates the interactions between the primary authors and the remaining researchers in the field of social media connected to health information in India. The first cluster, led by Dash, Chinmaya; Gupta, Ravi and Raheja, Amol have the most members. There are a total of 8 writers. The next cluster (green) has 7 writers, the most

prominent of one is Kar, Sujita Kumar. Both yellow and blue cluster has the same number of writers; that is 6. For the yellow cluster Banerjee, Debanjan is the most prominent one and in the blue cluster Garg, Kanwaljeet, and Chairasia, Bipin are the most prominent ones. The purple cluster contains 5 writers, where each author has the same importance. In the other blue cluster 4 writers are there and among them Grover, Sandeep is the most prominent one.

Co-occurrence Map using Text

A total of 3675 terms out of 20321 were obtained for this study with 713 papers and minimum occurrence of terms as 2. 60% of most relevant terms are selected out of 3675 which is 2205

The size of the circle in Figure 5, reflects the frequency of the keyword. The larger the diameter, the more often the keyword appears in social

Figure 4: Network visualization mapping for the most prolific authors

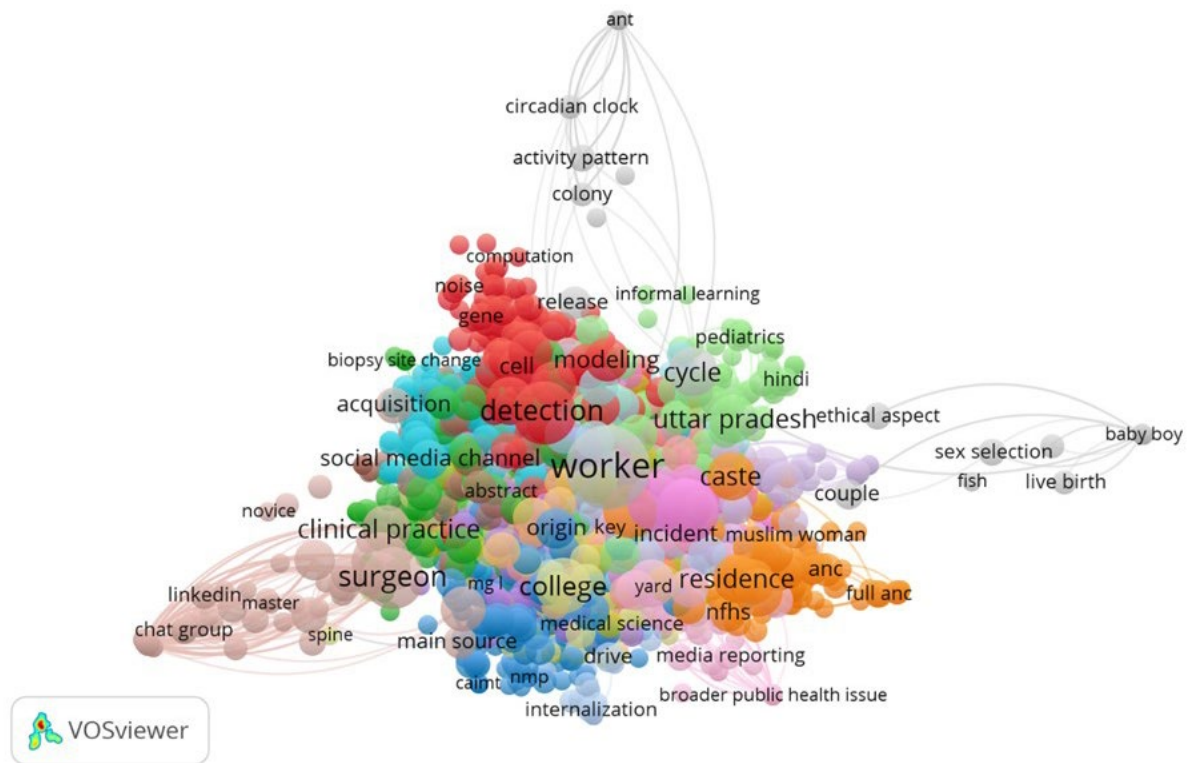
media for health information journals. The distance between them shows the topic's relative intensity and similarity (Guo et al. , 2019). In this report, keywords like workers, group discussion, detection, and surgeon have a higher weight. The use of the same color in different publications indicated a related subject.

The network visualization map displayed in Figure 5 has 9 clusters that describe the subfields of social media. The Yellow Cluster comprises college, self-breast examination, medical science, socioeconomic stratum, etc. The red cluster included detection, fake news, reconstruction, processing, computing, modeling, hybrid approach, architecture, cell, gene, generation, etc. The keywords in the green cluster are biopsy, pathologist, mask, specialty, abnormality, coordination, comprehensive strategy, daily activity, etc. Next, the keywords in the blue color cluster are correlated with ultrasonography, internalization, artery intima, cardiovascular disease, origin, glucose, BMI, depressive symptom, etc.

The purple cluster contains young child, infant, IPC, differential impact, program activity, etc. keywords that are there. A cluster of other blue colors are combined of the social media channel, meta-analysis, peer review, citation, altmetric score, e-survey, cloud, bridge, artificial intelligence, etc. The orange cluster includes

key terms caste, residence, national health survey, wealth index. Young mother, recent birth, effective implementation, social group, socio-economic group, interval, marital status, logistic regression model, etc. The pink cluster includes keywords like group discussion, media campaign, content analysis, suicide, broader health analysis, important challenge, Chennai, college suicide, media professional, qualitative interview, media guideline, etc. Other green cluster contains Uttar Pradesh, northern India, pediatrics, informal learning, businessman, mobilizer, Hindi, current situation, force, sale, coding, neglect, process, interrupt transmission, etc. keywords. The grey cluster includes ethical aspects, sex selection, couple, live birth, baby boy, release, colony, activity pattern, circadian clock, etc. as the keyword. Other pink colors have surgeon, clinical practice, mainstream, social media channel, variance, main source, the social media network, privilege, agreement, demographical data, chat group, LinkedIn, post-graduate training, common degenerative condition, invasive spinal surgery, etc. are there as keywords.

Martinez et al. (2019) in their study have shown that Journals are having largest number of publication a finding which is similar to our study. Like this study it also has 'humans' as keyword highest number of times and it is clear in Co-

Figure 5: Co-occurrence Map using Text

occurrence study. It, Pai & Alathur (2021), Zyoud et al. (2018) and Madjido et al. (2019) also has similar publication trends.

In Co-occurrence analysis 'Telemedicine' is an important keyword (Pai & Alathur, (2021); Madjido et al. (2019)); as is echoed in our article. However Co-citation analysis in our study is markedly different; perhaps they have worked on M-health.

Zyoud et al. (2018) mentions 10 most active journals which are not a part of our findings. This could be because we have focused on social media where as he has focused on Internet.

The usefulness of mHealth is the other important finding in the clustered papers. MHealth has been used to combine health awareness with phone (Pai & Alathur, 2020).

4. CONCLUSION

The objective of this paper has been to develop better insight of literature on social media based health information. From the study we find that 'Public Health' has been on top fields that has been studied (Table I). Social media therefore appears to be important in the context of public health.

Hence it may be assumed that social media could play an important role in prevention of disease and spreading awareness. We also find that the journals are the most common publications espousing social media and health information. This could be because the journals major reason are the major publication medium. But it could also be because social media health communication is being considered by serious researchers (Table II). Average citation is highest for 'Video-Audio Media' (Table II); this could be because Video-audio media appears more credible or perhaps because it invites greater attention. *Journal of Family Medicine Primary Care* has published highest number of paper (Table III). In 2020 number of publication on this topic was highest (Table IV); that is why citation is also highest in this year, might be due to pandemic. From Figure 4, it is clear that very few author have studied in this area. This reflect that it is an emerging issue for researchers but it is expected that more number of researches in India and others developing countries will eventually explore this area. 'Worker' is most frequent subfield appearing in literature. This may be explained on the basis of lower income group finding social media a cheaper and better option for health information.

Implications

Social media health information has arrived and will be more prevalent in future as reach of social media extends to developing and under developing countries. The regulators therefore has the challenges to regulate it in such a way that its positive influence remains higher than its negative connotations. Health care Regulators should frame policies so that public health may benefit immensely from the use of social media base health information. Prevention of disease is important and social media can play an important role. As this is an emerging issue academicians and researchers are required to pay greater attention and develop new theories and models for better societal health outcomes. As it appears social media is a greater importance for marginalized people; health care providers and regulators must take precautions to avoid possible negative outcomes.

Research Gaps and Future Scope

There are some flaws in the study. First, there were only papers from publications of the same 'PubMed' index, with no listing of articles from other sources. Second, the science Only English literature is permitted; no other languages are possible. The total consolidation of the study findings could be harmed (Müller et al. , 2018). Third, "social media" is the keyword for this review. The future researchers in this respect may include databases other than PubMed. Also newer keywords such as social network, social networking sites may be used for deeper analysis. Finally comparisons of two or distinct regions may provide information on differences across geography.

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