

Past, present and future impact of social media on health workers' mental health: a text mining approach

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Abstract

Purpose – The COVID-19 epidemic has brought attention to the variables that influence the mental health of health workers who are entrusted with nursing individuals. Despite the fact that many articles have examined the effects of social media usage on mental health, there is a lack of research synthesizing learning from this body of research. The purpose of this study is to use text mining and citation-based bibliometric analysis to conduct a detailed review of extant literature on health workers' mental health and social networking habits.

Design/methodology/approach – This study conducts a full-text analysis of 36 articles selected on health workers' mental health and social media using text-mining techniques in R programming and a bibliometric citation analysis of 183 papers from the Scopus database in VOS viewer software. But the limitations of the methods used in this study are that the bibliometric analysis was limited to the Scopus database because the VOS viewer program did not support any other database and the text-mining approach caused the natural processing redundancy.

Findings – The bibliometric analysis reveals the thematic networks that exist in the literature of health workers' mental health and social networking. The findings from text mining identified ten topic models, which helped to find the related papers classified in ten different groups and are provided alongside a summary of the published research and a list of the primary authors with posterior probability through Latent Dirichlet Allocation.

Originality/value – To the best of the authors' knowledge, this is the first hybrid review, combining text mining and bibliometric review, on health workers' mental health where social networking plays a moderating role. This paper critically provides an overview of the impact of social networking on health workers' mental health, presents the most important and frequent topics, introduces the scientific visualization of articles published in the Scopus database and suggests further research avenues. These



findings are important for academics, health practitioners and medical specialists interested in learning how to better support the mental health of health workers using social media.

Keywords Social media, Health workers, Mental health, Text mining, Bibliometric

Paper type Literature review

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1. Introduction

The impact of social media on the mental health of professionals has received attention from researchers and policymakers (Ventola, 2014). With health workers accounting for 12% of the global workforce and exposed to higher levels of occupational risk (Zhu *et al.* (2020)), it is not surprising that the impact of social media on such workers has attracted much attention in the researchers (Hamm *et al.*, 2013). However, research examining the impact of social media on health workers' mental health has shown mixed effects (Gkotsis *et al.*, 2020). For example, some studies reveal that extensive social media use increases risk of sadness, anxiety, loneliness, self-harm and even suicidal ideation (Lu *et al.*, 2020). However, other studies point to its positive impacts on mental health (Hagaman *et al.*, 2016). People who are socially connected may receive assistance in coping with stress, worry and sadness, enhancing their self-esteem, providing comfort and joy and preventing loneliness. The fact that little data describes the current status of the research adds to the misunderstanding.

The internet has evolved into a useful and practical tool for promoting evidence-based medicine, health-care delivery and health-care decision-making. The spread of internet services and social media has changed how people think about and make health-care decisions (Nikzad-Terhune *et al.*, 2015). This is a very controversial topic, as people think social media has only impacted people negatively and distracted people from their work (Bondre *et al.*, 2022). For example: while working, people get distracted by the use of social media which causes hindrance in their work; using social media is also very time-consuming and leads to loss of productivity. But according to the researchers, people are also benefited from the social media use. The impact has been both positive and negative which has created a conflict (Price *et al.*, 2018).

Similarly, the health workers are also impacted by the social media use. It is a matter of question that the use of social media is impacting negatively or positively. There is a conflict on this matter, as few think the use of social media helps the health workers. For example: it provides services on health-care decision, health-care delivery, emergency health-care procedures, etc. Social media may impact the mental health which causes from the work environment (Ventola, 2014). The focus of this study is to resolve this conflicting matter and to analyze the impacts of social media on health workers' mental health.

There have been a number of review papers published on the impact of social media on health workers' mental health. But most of these review articles have used traditional systematic literature review (Hamm *et al.*, 2014) or other review methods that only cover a small number of papers out of a large number of relevant documents. They have missed covering all the documents in one study. Hence, there is a need of literature review covering most of the documents published on the impact of social media on health workers' mental health.

The Scopus database has accumulated many documents on mental health of health workers over the past 30 years. In the first phase, this study examines the complete list of documents associated with the literature using a citation mapping technique commonly known as bibliometric analysis. The results of this bibliometric analysis show that numerous journals are involved in highlighting the relevance of this research topic and in concluding the most prominent authors. The co-citation networking and co-occurrence network generate research fronts. In addition, this paper examines the impact of social

media on health workers' mental health using a text-mining technique on 36 selected papers. Finally, sentiment analysis is performed examining overall positive and negative sentiments from the overall literature.

This paper is structured in six sections. Section 1 indicates the introduction about the paper. Section 2 presents the methodological aspects and processes of the text mining, bibliometric analysis and sentiment analysis applied in this study. Section 3 describes the longitudinal overview of the literature studying the impact of social media on health workers' mental health. This represents the bibliometric analysis. The text-mining approach, results and findings along with the description are demonstrated in Section 4. Section 5 contains the limitations, research gap and further research goals in the implications followed by the conclusions in Section 6.

2. Methodology

A literature review can be undertaken in many ways. Structured review, review for model/framework creation, meta-analysis, review based on theory, framework-based, bibliometric review and systematic review are some of the commonly used review approaches. This report uses a bibliometric evaluation to identify the primary research streams and future research agenda in the area of social network influences health-care employees. Bibliometric analysis has become more popular because of its ability to build the study items in a research area based on citation mapping within recently published documents (Ikra *et al.*, 2021; Jarin *et al.*, 2021; Vogel and Güttel, 2013), but a bibliometric review is not entirely sufficient for reviewing a paper, so this review is taken to an advanced level through text mining.

In unstructured textual data resources, text mining is an automated process of discovering and disclosing newly discovered knowledge, inter-relationships and patterns. Text mining scours vast amounts of text for previously uncovered information. It is essentially a quantitative method to typically study large amounts of textual data, which aids knowledge discovery by vastly expanding the quantity of data explored (Cohen and Hunter, 2008; Loureiro *et al.*, 2020).

For document selection from the Scopus database, the keyword “mental health” was first searched within the title, abstract and keywords of articles, resulting in a total of 435,763 documents being found. This sample was narrowed down using the specific topic “social media” OR “social network” AND “health work*” OR “nurse*,” leaving 191 documents sorted. Finally, only the English-language papers were selected for the longitudinal study, ending with 186 papers in total. These 186 papers were used for bibliometric analysis. For text mining, the articles published in the top indexed journals were shortlisted using the impact factor provided by Scopus (Loureiro *et al.*, 2020). After a manual observation by the authors, only 113 documents were found as progressing documents within the topic limit. Among these documents, there are 16 review articles, 4 conference papers, 3 book chapters, 3 letters, 1 note, 1 book, 1 conference review and 1 editorial. Then, of those 113 documents, 73 documents were manually chosen by the authors based on their relevance to the topic. Later, based on the renowned journal impact factor greater than 1.5, only 36 papers were chosen manually for text mining. Figure 1 depicts the selection procedure of the articles.*

Now it is a matter of question why 36 papers have been chosen for the analysis. At first, we used key words to search the papers related to the topic and found 191 documents. Then we sorted the papers and took the papers which were in English, that is 186 papers. We observed papers Loureiro *et al.* (2020) and Quatrini *et al.* (2022) on text-mining approach and saw that the papers were comparatively less in number, as Latent Dirichlet Allocation (LDA) is a time-consuming analysis which takes a lot of time to analyze the papers. These papers were published in very renowned journals. So we decided to follow them and, thus, tried to sort the

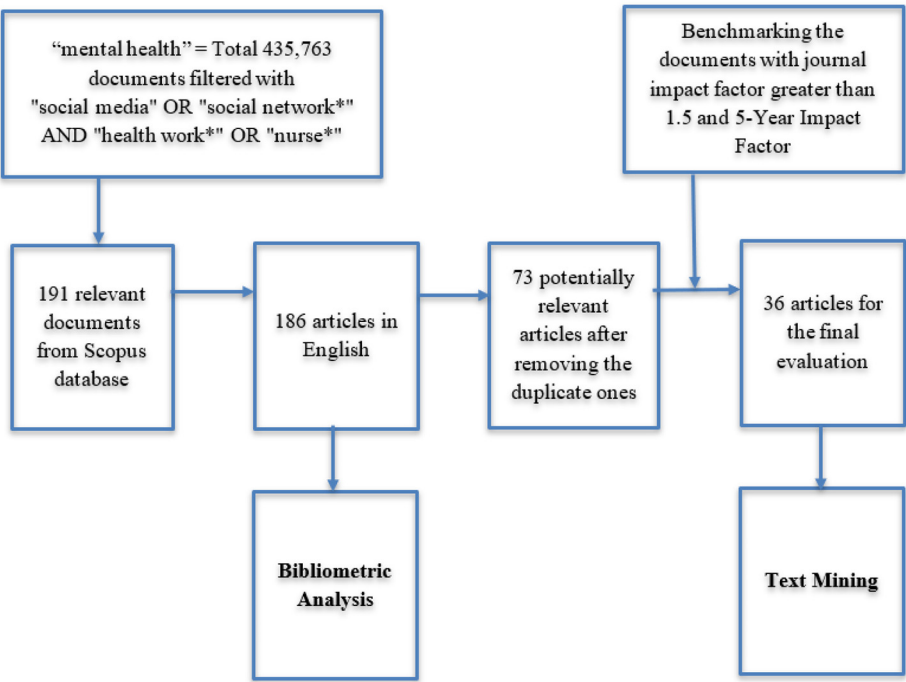


Figure 1.
Document selection
method

papers and reduce the number of papers. We sorted the papers, removed the duplicated ones and took the potentially related papers and considered the impact factor number and decided to do the analysis on 36 papers. The analysis on these 36 papers took 20 h.

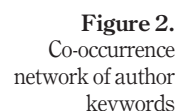
3. Analysis

3.1 Longitudinal overview of health workers' mental health literature

According to the Scopus database, most of the mental health research was published in articles devoted to mental health workers between 2001 and 2010, although two studies on professional health workers are notable. Cannuscio *et al.* (2004) stated about the health workers' mental health and social ties. The research aimed to access the link between health services and depressive symptoms. Besides, Burroughs *et al.* (2006) presented a qualitative research on justified depression. The emphasis of this paper was on how primary health workers and patients perceived late-life depression. The number of publications produced throughout the study period and the mean citation per article and year. This reveals that the number of publications on mental health and health providers has been rising at a good rate since 2004. Though in 2009 the graph line went down, in 2015, the graph went up again.

3.2 References network analysis

3.2.1 Co-occurrence network of author keywords. The co-occurrence network relates to the everyday existence, frequency of recurrence and proximity of relative terms across several websites. Co-occurrence comprises terms that are resemble one another and are based on the same issue but are not identical. In Figure 2, when the minimum number of occurrences of a



4. Text mining

In this part, sentiment analysis detects the positive and negative sentiment expressed to health-care providers throughout the review to determine the overall sentiment trend of social media's influence on mental health (Younis, 2015). As mentioned before, sentiment analysis was done on the 36 papers selected for final evaluation. All these 36 documents were converted to text files, and a corpus was made with the files, then the corpus was transformed using the string, tm and topic model packages in the statistical package R.

The remaining text was reviewed for positive and negative sentiment after converting the entire text to lower case and eliminating whitespaces, digits, stop words and unwanted single-letter words. This is known as the cleansing of the retrieved data. So the summary of the positive and negative sentiment refers to the relevance with the Lexicon used in the process, which includes 2,006 positive words and 4,783 negative words. Only a few references are positive words – achievements, comfort, empowerment, maturity, etc. Negative words are abnormal, aggressive, cruelty, dangerous, etc.

The sentiment score for the documents was calculated one by one individually. At first, the papers were compared with the list of positive words and negative words from the references of the lexicon using R packages. The words that matched with the list of positive and negative words were shown, and after that, the scores of negative sentiments were subtracted from the scores of positive sentiments, and final sentiment scores were found with 13 documents showing positive sentiment score. For example, the sentiment score of

the document (Depla *et al.*, 2004) is 122, which means this document consists of more positive sentiments that are focused on the positive impact of social network on caregiver mental health. This paper has the highest positive sentiment score among all the papers. The rest of the 23 documents show a negative sentiment score, such as the document by Cannuscio *et al.* (2004) that focused on the more negative impact of social networking as the sentiment score was -163. This negative score was also the maximum among the papers.

4.2 Latent Dirichlet Allocation analysis

Topic modeling is one of the most effective text-mining techniques for data mining, latent data discovery and discovering relationships between data and text documents. Topic modeling may take many forms, with LDA being one of the most well-known (Jelodar *et al.*, 2019). LDA is the major topic of this study. The number of latent themes was calculated using the log-likelihood and perplexity of the data (Arun *et al.*, 2010; Cao *et al.*, 2009; Griffiths and Steyvers, 2004). Perplexity is a measure that shows if “the model predicts the remaining words in a given subject after witnessing a portion of it, whereas log-likelihood evaluates how well the latent topics represent the observed data”(Guerreiro *et al.*, 2016). Figure 3 shows the range of possible themes investigated in this study, which ranged from K = 2 to K = 60. The results of the models show that the Cao *et al.* (2009) measure has the first inflexion on K = 10; thus, this article used K = 10 to assess the groups, given that the variance reported has the first inflexion and that the explanation is based on a small cluster.

The LDA is a descriptive probability distribution used in natural language processing that allows sets of facts used by latent groups that explain why some data sections are similar. The focus of this research is LDA. Here, the corpus is processed through R packages (tm, topicmodels, LDavis, stringr and stringi) with the help of LDA to find the posterior probability and word frequency in every document (Putri and Kusumaningrum, 2017). Taking K = 10, alpha = 1, eta = 0.001 and iterations = 1,000, where K is the value of the topic model number and the rest are the parameters of the functionality. There will be ten topic models created with a maximum of ten topic terms for each model.

4.3 Text-mining experiments, result and analysis

After the sentiment analysis is done, the parameters for LDA functionality are selected. The parameters are already selected (K = 10, alpha = 1, eta = 0.001 and iterations = 1,000), and their

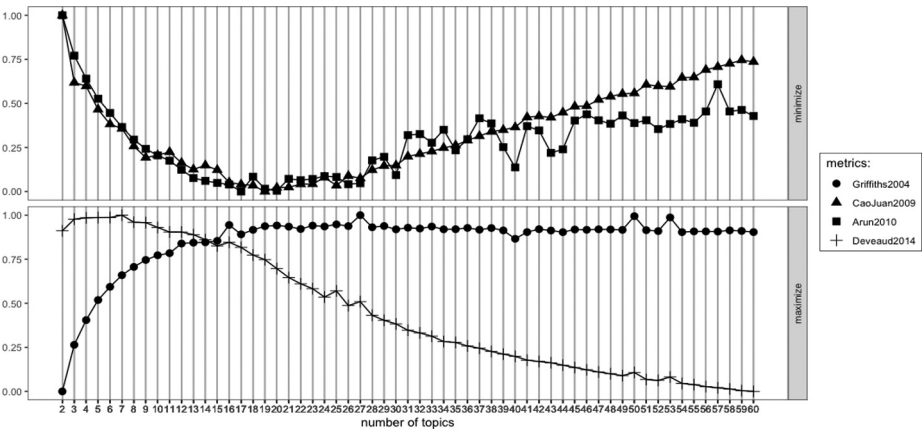


Figure 3.
Log-likelihood and
perplexity metrics to
evaluate K

functions were mentioned before. The commands for creating topic models and the distribution of co-related terms to the topic models are given with the help of R. The program runs the commands, selects the words used more frequently, related the papers and then distributes them to the ten topic models ($k = 10$) grouped by relevance. This is how the ten topic models are created. Each topic model consists of a maximum of ten correlated terms (`lda_fit.terms [1:10]`). Figure 4 shows the frequency of the topic terms in each topic model used in the documents.

With the help of R tool, the topic models are created, programming commands for finding the posterior probability of each document for each topic model using the same parameters. The program ran the documents' posterior probabilities and took approximately 20 h to provide the accurate result of the posterior probability of the papers. The topic models are named based on their topic terms. Table 1 shows the correlated documents of the topic models created with the journal, impact factor, paper type and affiliations with the journal, impact factor, paper type and affiliations being determined manually. The number K was chosen with the help of log likelihood after the researchers agreed among themselves following previous renowned papers so that a manageable selection of topics could be done to investigate. When the variability explanation does not vary considerably even if more clusters are added, the optimal number of clusters/topics is found (Loureiro *et al.*, 2020). The present profiles only include subjects with at least two publications connected with them (posterior probability > 0.2079) to have a conversation based on topics covering a broad breadth of the research available. The articles allocated to each of the subjects in Table 1 are based on the correlation among them of each topic on basis of their most common keywords (posterior probability > 0.2079).

In *Topic 1 (Mental support)*, the most focused theme was mental health treatment by nurses with the help of social networks and family groups. Dennis (2014) presented the



Figure 4.
Topic term frequency
allocated to topic
models

Table 1.
Latent topics

Topic name	Topic terms	Correlated papers	Posterior probability	Journal (impact factor)	Method of study
1. Mental support	Social, Support, Depression Group, Health, Women, Networks and Postpartum	Dennis (2014) Simmons (1994) Schout <i>et al.</i> (2017) Goenjian (1993) Depla <i>et al.</i> (2004) Fisher <i>et al.</i> (2014)	0.4867 0.2919 0.2082 0.4310 0.2844 0.2389	<i>Best Practice and Research: Clinical Obstetrics and Gynecology</i> (4.387) <i>Journal of Advanced Nursing</i> (2.561) <i>Issues in Mental Health Nursing</i> (1.431) <i>British Journal of Psychiatry</i> (7.233) <i>Aging and Mental Health</i> (2.478) <i>Annual Review of Public Health</i> (16.463)	Qualitative Qualitative Qualitative Quantitative Qualitative
2. Work environment	Health, community health workers, Social, Training, Students, Care, Media, Mental and Intervention	Berglund Melendez <i>et al.</i> (2020) Price <i>et al.</i> (2018) Kirkcaldy <i>et al.</i> (1993)	0.3139 0.2656 0.2889	<i>International Journal of Environmental Research and Public Health</i> (2.849) <i>Nurse Education Today</i> (2.490) <i>Social Psychiatry and Psychiatric Epidemiology</i> (3.335)	Qualitative Quantitative Quantitative
3. Female health workers	Health, Care, Women, School, Students, Nurses, Diabetes, May and Children	Shao and Zhang, (2020) Gawlik <i>et al.</i> (2018) Zhu <i>et al.</i> (2020)	0.4867 0.2193 0.4946	<i>Jama Ophthalmology</i> (6.198) <i>Journal of Professional Nursing</i> (2.045) <i>International Journal of Environmental Research and Public Health</i> (2.849)	Quantitative Qualitative Quantitative
4. Psychological initiative	Mental, Illness, Health, Media, Cluster, Articles, Public and Analysis	Liljeqvist <i>et al.</i> (2020) Lis <i>et al.</i> (2015) Hatton (2001)	0.5890 0.2389 0.3751	<i>Issues in Mental Health Nursing</i> (1.431) <i>Psychiatric Quarterly</i> (1.448) <i>Women and Health</i> (1.466)	Qualitative Quantitative Quantitative
5. Public media	Health, Mental, Care, Clients, Healthcare, Social, Public, Providers, Education and Professionals	Seosan <i>et al.</i> (2020) Ruiz-Frutos <i>et al.</i> (2020) Lin <i>et al.</i> (2020) Møllerhøj and Os Stølan (2018) Cannuscio <i>et al.</i> (2004)	0.3615 0.2694 0.2564 0.3271 0.5236	<i>Medicina (Lithuania)</i> (1.572) <i>International Journal of Environmental Research and Public Health</i> (2.849) <i>American Journal of Psychiatry</i> (14.119) <i>Nordic Journal of Psychiatry</i> (1.78) <i>Social Science and Medicine</i> (3.616)	Qualitative Qualitative Quantitative Qualitative Quantitative
6. Pandemic	Covid, Health, Mental, Information, Pandemic, Caregivers, Workers, Public and Level	Gureje <i>et al.</i> (2019) Vanden Bossche <i>et al.</i> (2021)	0.4057 0.2592	<i>The Lancet Global Health</i> (21.597) <i>International Journal of Environmental Research and Public Health</i> (2.849)	Qualitative Quantitative
7. Relationship of health workers with patients	Social, Care, Health, Mental, Patients, Symptoms, Depressive, Earthquake, Home and Women				
8. Mental condition	Group, Patients, Health Care, Care, Package, Health and Treatment				

(continued)

Topic name	Topic terms	Correlated papers	Posterior probability	Journal (impact factor)	Method of study
9. Service experiences	Health, Participant, Asylum, Mental, Healthcare, Services and Experiences	Schein et al. (2019) Koekkoek et al. (2012)	0.2992 0.2870	<i>BMC Health Services Research</i> (1.987) <i>International Journal of Nursing Studies</i> (3.783)	Qualitative Mixed
10. Depression	Depression, Health, Work, Burnout, Care, Social, Patients, Presenteeism and Resilience	Silva-Costa et al. (2020) Marnes and Hall, (2013) Burroughs et al. (2006)	0.3918 0.3179 0.2827	<i>International Journal of Environmental Research and Public Health</i> (2.849) <i>Women and Birth</i> (2.308) <i>Family Practice</i> (2.038)	Quantitative Qualitative Qualitative

Table 1.

current state of scientific knowledge linked to the treatment of postpartum depression from a psychosocial viewpoint (posterior probability = 0.4867), which is more intricately connected to the current topic. The research, which included 13 studies, looked at peer support, spouse support, non-directive therapy, home visits by mental health nurses and collaborative models of treatment. The findings from research on the social networks of patients with long-term mental illness and the consequences for mental health nursing in all settings were reviewed in [Simmons \(1994\)](#) (posterior probability = 0.2919). This limited review looked at some of the different approaches to analyze social networks, the link involving social networks and social support and the impact of communications and social support on mental well-being. Family group conferencing, according to [Schout et al. \(2017\)](#) (posterior probability = 0.2082), adds to the current approaches for reducing coercion in mental health care. In our research, we discovered that clients and their social networks were not always able to attend a conference. They did not bring in enough self-direction so that a plan could be created during private time. The utmost objective of this paper was to raise awareness of these possibilities among mental health practitioners.

In *topic 2 (Work environment)*, there are three papers correlated with the terms. [Goenjian \(1993\)](#) (posterior probability = 0.4310) analyzed the mental health of Armenians following the earthquake of 1988. It was critical to carefully select the therapists based on their life experience, motivation and low stress level; to prepare the physicians by holding meetings to impart information about the new challenges and create an *esprit de corps*; and to have a team leader to coordinate the therapists' actions and liaison between the therapists and the patients for a successful psychological relief program. Similarly, the influence of the workplace on mental health and community health professionals was explained by [Depla et al. \(2004\)](#) (posterior probability = 0.2844) and [Fisher et al. \(2014\)](#) (posterior probability = 0.2389). The Dutch Working Alliance Questionnaire for Community Care, which was completed by the elder health workers primarily accountable for each patient, was used to measure the quality of the worker-patient interaction in the paper by [Depla et al. \(2004\)](#). Only the nurse-trained personnel had correlations with outcome measures when the mental health workers workforce was divided into medically trained and nurse-trained professionals.

Topic 3 (Female health workers) explains the mental health conditions of the students/children through nurses. Nurses in schools, according to [Berglund Melendez et al. \(2020\)](#) (posterior probability = 0.3139), should help kids with neurodevelopment disabilities (NDDs). In southern Sweden, a qualitative technique consisting of seven focus group interviews was used. Three themes emerged from the findings: aiding students with NDDs in understanding sensations, detecting early signs of distress among NDD students and using an inclusive design for health education. [Kirkcaldy et al. \(1993\)](#) (posterior probability = 0.2889) analyzes a child and adolescent psychiatric clinic. The physician and the patient's parents were key players in the social network. Between these two major occupational groups, administrators had a unique important role. The social media's effect on students is explored by [Price et al. \(2018\)](#) (posterior probability = 0.2656). The ultimate focus of this research was to assess first-year student nurses' usage of social network before and after starting a pre-registration curriculum that included a Twitter module. To complete a cross-sectional approach, a descriptive survey was used. For a month in 2016, an online survey with a Likert scale and open questions were made accessible.

Topic 4 (Psychological initiative) focused the mental health workers. [Shao and Zhang \(2020\)](#) (posterior probability = 0.4867) analyzed the psychological condition of nurses working with patients. In Wuhan, China, and Jiangxi, China, a province about 300 kilometers south of Wuhan, ophthalmologists and ophthalmic nurses were polled. A

messaging and social media app was used to perform questionnaire surveys using the Hospital Anxiety and Depression Scale, the Van Drem Anxiety Scale and the Ocular Surface Disease Index. [Gawlik et al. \(2018\)](#) (posterior probability = 0.2193) supported that providing the general population with the knowledge and tools required to recognize and aid people who are suffering from mental illness is done with the help of mental health workers. Students created a website, four online instructional modules, four social media profiles and two films to promote the effort. [Zhu et al. \(2020\)](#) (posterior probability = 0.4946) simply did a bibliometric analysis on health-care workers. This research sought to offer scholars with a comprehensive quantitative and qualitative examination of health-care professional occupational health.

Topic 5 (Public media) is related to the experience of mental health workers on social network about mental health. [Liljeqvist et al. \(2020\)](#) (posterior probability = 0.5890) analyzed the experiences of Swedish nurses, describing how mental illness is depicted in the media through the eyes of mental health nurses with eight semi-structured interviews with certified mental health nurses being performed. A qualitative content analysis revealed three categories: negative depictions of mental illness, inconclusive images of mental illness and skewed distribution of varied opinions. [Lis et al. \(2015\)](#) (posterior probability = 0.2389) studied how psychiatrists see social networks and whether they use them. Mental health professionals (N = 48) at an academic medical center in Canada completed a survey to assess their use of social networking sites, such as Facebook and Google Plus, as well as status update platforms, such as Twitter and Live journal, and if they linked them to psychopathology. Through social networks, [Hatton \(2001\)](#) (posterior probability = 0.3751) investigated the access of homeless women to health services. The researcher conducted in-depth interviews with 19 homeless women, 6 homeless women's agency personnel and 2 community mental health nurses, all guided by grounded theory and complex models. The findings indicated that most homeless women took detours rather than straight paths to health care.

Topic 6 (Pandemic) focused on the mental health effects in the pandemic situation of COVID-19. [Secosan et al. \(2020\)](#) (posterior probability = 0.3615) discussed how infomediary became another challenge for Romanians during COVID-19. Between March and April 2020, 126 frontline health-care professionals from Romania's Intensive Care Units, and emergency departments conducted a survey to measure stress, depression, anxiety and sleep problems. The results indicate that throughout the pandemic period, frontline medical professionals who claimed to have been affected by false news were much more frightened, agitated and sleepless than health-care workers who had not been influenced by false information. [Ruiz-Frutos et al. \(2020\)](#) (posterior probability = 0.2694) analyzed the psychological distress because of COVID-19. They conducted a survey to gather information on COVID-19 including the source, date, assessment and beliefs expressed in it. Goldberg's General Health Questionnaire was also used to assess mental health. [Lin et al. \(2020\)](#) (posterior probability = 0.2564) explained the mental health effects because of COVID-19 on health-care providers in China with numerical data. The project administrators sent an online questionnaire to health-care employees in hospitals selected using social media. The code for the online survey was not supplied to anyone who did not work in hospitals.

In *topic 7 (Relationship of health workers with patients)*, the correlated papers by [Møllerhøj and Os Stølan \(2018\)](#) (posterior probability = 0.3271) were aimed at the patient and user views, as well as how mentally ill offenders interpreted their aspirations and expectations. The study provided useful information on service users' experiences with nursing, therapy and rehabilitation techniques. As part of the surveys, patients were asked to make suggestions on how to improve mental health-care methods. Also, patient

relationships with mental health professionals by [Cannuscio et al. \(2004\)](#) (posterior probability = 0.5236) aimed to assess the relationship between informal care provision and depressive symptoms. They looked at the relationship between working outside the house and providing informal care for a handicapped or ill spouse or parent in logistic regression models that predicted depressed symptoms.

Topic 8 (Mental condition) focused on the mental condition of workers while handling mental patients. [Gureje et al. \(2019\)](#) (posterior probability = 0.4057) did a cluster randomized controlled trial on primary care patients to understand the health workers' mental strategy to handle patients. Using a microprocessor random number of series, centers (clusters) were assigned to one of two categories: an impact of an intervention getting a stepped-care intervention plus enhanced usual care or a control group receiving improved standard treatment only. [Vanden Bossche et al. \(2021\)](#) (posterior probability = 0.2593) also used the same method for the research. This randomized controlled trial looked at whether a community health worker treatment in a primary health center might help patients with limited social network cope with emotional distress caused by physical separation techniques.

In *topic 9 (Service experiences)*, the correlated papers by [Schein et al. \(2019\)](#) (posterior probability = 0.2992) and [Koekkoeck et al. \(2012\)](#) (posterior probability = 0.2870) highlighted the health-related experiences of Ethiopians seeking refuge in Norway, as well as potential impediments to care and to determine whether an intervention program would be feasible and successful in caring for difficult patients, respectively. [Schein et al. \(2019\)](#) used thematic analysis to get a better understanding of the larger context of refugee resettlement and how it affects health experiences of the participants and health-seeking behaviors. Before and after they were awarded residency, participants noted a difference in access to services. Participants were educated about the health-care system through official education programs and social media. A quasi-experimental mixed-methods research using objective and subjective measures was carried out by [Koekkoeck et al. \(2012\)](#) across many dimensions. Both Certified Pediatric Nurses and patients found Interpersonal Community Psychiatric Treatment to be realistic. A lot of outcomes improved in both the experimental and control conditions.

Topic 10 (Depression) described mental depression during work, perinatal period and views of professionals on late-life depression. In the relationship between psychosocial variables at work and common mental diseases, [Silva-Costa et al. \(2020\)](#) (posterior probability = 0.3918) wanted to look at the mediating role of the capacity to focus on work and accomplish tasks despite a health problem. A total of 1,218 nurses from a public hospital in Brazil participated in this cross-sectional research with structural equation modeling being applied. [Marnes and Hall \(2013\)](#) (posterior probability = 0.3179) proposed techniques that might be integrated into everyday midwifery practice to help accomplish the National Perinatal Depression Initiative's aims. A case study (Jen) and discussion were used to demonstrate how midwifery care might be provided, including ideas from the Australian Nursing and Midwifery Competency Standards or even beyond the Clinical Practice Guidelines. [Burroughs et al. \(2006\)](#) (posterior probability = 0.2827) aimed to find out how primary care doctors and patients think about the causes and treatment of late-life depression, which was viewed as an issue in primary care rather than an objective diagnostic category by primary care providers. They regarded sorrow as part of a continuum that encompassed loneliness, a lack of social ties and a loss of function, and they thought it was "reasonable" and "easy-to-understand."

The *first model* gave thoughts in favor of social media. According to them, social media provides enough support to health workers. At the same time, the *second model* thinks social

media distracts them during work time which is a massive loss for them, including time wastage. Again the *third model*, while focusing on encouraging female health workers through social media; the *fourth model* assumes social media might work as a psychological initiative for the health workers. The *fifth model* described how the health workers' experiences are depicted in social media, which positively influences others. Then the *sixth model* discussed the mental effects on the health workers after the pandemic. According to them, social media worked as an influencer on the mental condition of the health workers after the pandemic. Where the social media helped the workers to spend boring time on social media during the pandemic, this became a habit for them.

According to the *seventh model*, social media helped build a better relationship between the patients and the health workers, as social media is an excellent communication medium. But while handling the patients, their mental condition gets affected, which can be cured with the help of social media according to the *eighth model*. The *ninth model* indicated that social media could be a bad influence by spreading false news about the work experience of the health workers and demotivating people about the health worker. Finally, the *tenth model* described mental depression during work, perinatal period and professionals' views on late-life depression, which can be both caused because of social media or cured through social media.

Thus, while some findings suggest that the influence of social networks on caregiver mental health is depicted in a negative light, some authors have also shown a favorable relationship between social networks and caregiver mental health, which is intriguing. Although the social network has more negative effects, the positive results show that individuals have begun to use it effectively and find it helpful in enhancing the mental health of health workers (Bondre *et al.*, 2022; Dam *et al.*, 2018; Sinha Deb *et al.*, 2018). All these negative and positive opinions will help care givers to use social media more cautiously and properly.

5. Implications and future research directions

The current study's findings point in the right direction for further research. The posterior probability in ten latent topics is determined, allowing future studies on any of these topics to be conducted. Furthermore, this research reveals important implications regarding the influence of social media on health workers' mental health. The highest posterior probability belongs to papers of *topics 5* (Public Media) and *7* (Relationship of health workers with patients), which is greater than 0.51, thus implying that there is a high chance of choosing these two topics for further research. Researchers can research the impact of public media on health workers' mental health, which not only has a negative influence on the health workers but also can be a positive influence by supporting mental illness. This paper has the highest posterior probability, indicating that health workers' experiences of mental illness as portrayed in the public media, both positively and negatively, will be an appealing issue, as this research can be used to examine public reporting on mental health to address the current scarcity of valuable facts about mental disease. Mental health workers will find it easier to comprehend public attitudes.

Researchers might also focus their research on the connection between health workers and patients. Patients need to have support from their health workers; however, in rare cases, insufficient treatment can lead to mental health problems, particularly depressive indications. Many health-care institutions may take advantage of the patients for their own business. If researchers can examine the proper relationship between health workers and patients based on both sides' perspectives, then this issue might become attractive for

research and might become a rare opportunity to foster interaction among them, as this topic may become a controversial one that attracts people's attention.

6. Conclusions

People with mental health disorders, substance addiction, poverty and other social problems are cared for by a mental health worker providing medical treatment and advice based on formal education and experience. By monitoring sufferers, giving therapeutic support and maintaining patient information, they help psychiatrists, physicians and nurses. According to Nikzad-Terhune *et al.* (2015), the use of the internet for health-related purposes, including social media and social networking, has several consequences for health workers. In the 21st century, this extensively used resource is expected to continue to assist family health workers. This research uses a text-mining technique to look at the influence of social networks on health workers' mental health. Latent Dirichlet Allocation, sentiment analysis and citation mapping of the publications selected are among the findings of this study. Major study findings are summarized using related analysis and a chronological analysis and author affiliation, revealing the involvement of several prolific writers, journals recognizing the importance of this research topic and a country-by-country engagement in finding a solution.

The methodology is quite well developed, but the methods also have some limitations. The study's drawback is that the bibliometric analysis was limited to the Scopus database because the VOS viewer program did not support any other database. Other database could have made the research more insightful and open new more directions. For future research, other databases can be included. Again, for the text-mining approach, the main drawback was the natural processing redundancy. The code created for the text mining approach caused redundancy in the data which was manually taken care of. So, in future research papers, to omit this kind of drawback, steps can be taken.

Future research can also be done on the mental health of middle-aged people, as they are the ones who suffer from this the most and this topic is not elaborated here. The positive and negative impact of social networks on health workers' mental health is a remarkably interesting topic to be discussed, as authors have explained both its negative and positive sides. This also can be used for future research studies.

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Further reading

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