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BIBLIOMETRICS ANALYSIS

A bibliometric study of worldwide scientific literature on somatopsychics (1913–2022)

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ABSTRACT

OBJECTIVES: This investigation aims to analyze the characteristics and development of literature and advocate to include "Somatopsychic" as a Medical Subject Headings (MeSH) term.

BACKGROUND: The interplay between physiological processes and psychological conditions, commonly referred to as "Somatopsychic," has garnered increasing attention in scientific literature over the years.

METHODS: Somatopsychic-related research from the Scopus database using (Text word) and (MeSH) features. Publications were collected on Mar 22, 2023. The publication output was then analyzed using the R package's bibliometrics (Biblioshiny) and VOSviewer.

RESULTS: In this study, search results for "somatopsychic" using (MeSH) resulted in a predictable return of 0 articles. Meanwhile, based on a search with (Text word), this study retrieved 306 documents for an unlimited period (and yielded published articles between 1913 and 2022). The analysis also revealed that 3,176 authors contributed to publications related to somatopsychic, with the United States ranking first in terms of authorship. In addition, the study presented a co-word network that illustrated frequent co-occurrence of particular keywords within somatopsychic research.

CONCLUSION: This study reveals that somatopsychic-related publications are becoming increasingly prevalent. Adding somatopsychic as a dedicated term to the MeSH thesaurus of the National Library of Medicine would assist in indexing and retrieving the most pertinent literature on this topic *(Tab. 3, Fig. 5, Ref. 51)*. Text in PDF www.elis.sk

KEY WORDS: bibliometrics, literature, medical subject headings, scopus, somatopsychic.

Introduction

The call to integrate mental and physical health care in medical practice is irrefutable, as studies have shown a strong link between the two (1–3). The link is assumed to be bidirectional, considering there is a psychological component in every somatic disorder, just as it is not uncommon for a mental disorder to have several physical symptoms (4–6). Although there have yet to be formal definitions in the American Psychiatric Association (APA) Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) nor the International Classification of Diseases (ICD), the terms "psychosomatic disorders" and "somatopsychic" disorders have been used to explain the relationship between mental and somatic disorders. Psychosomatic disorders are commonly described as somatic illnesses resulting from or exacerbated by mental problems, whereas somatopsychic disorders are mental disorders caused or exacerbated by somatic disorders (7). As opposed to the general population, people with chronic medical conditions are reported to experience higher levels of psychological distress and have a higher risk of developing mental disorders (8, 9). Around 30% of people presenting with long-term physical conditions continue to be diagnosed with mental disorders (10). The risk of developing psychological distress in these patients is reported to increase from 14.0% to 64.4% (11–18). Additionally, people with severe mental disorders are dying up to 20 years earlier than the general population, partly due to physical illnesses (19). The underlying mechanism that mediates the relationship between somatic and mental disorders still needs to be explored. However, it is reported that in psychosomatic disorders, there will be an elevated allostatic

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load and corresponding physiological changes when stress occurs in a person who is more emotionally and physiologically reactive (7, 20, 21). As for somatopsychic disorders, the mechanism is thought to be immune-mediated, though little is still understood (22, 23). This knowledge gap necessitates further studies to be conducted as the list of somatopsychic disorders continues to expand with our scientific understanding (7, 24).

Defining a particular scope of knowledge is useful for identifying gaps in that field. This could allow a rational allocation of resources for future studies. Bibliometric analysis is a popular method for discovering the general landscape of high-impact research and the trending development of a research field or issue (25, 26). This method assists academics in determining article performance, collaboration patterns, research elements, and the intellectual framework of a specific field in published literature and identifies prolific authors, journals, or regions with exceptional research activities (26–29). To our knowledge, a thorough search of relevant literature revealed that no bibliometric analysis of somatopsychic-related studies has yet to be published. Given the gravity of somatopsychic disorders, a more in-depth assessment of the characteristics and patterns of relevant research is required. Therefore, this investigation aims to (1) map somatopsychic-related literature using bibliometric analysis; (2) analyze the characteristics and development of somatopsychic-related research, including the identification of influential publications and prolific organizations, as well as the study of high-impact keywords and research trends; and (3) engage in a campaign to persuade the National Library of Medicine to add "Somatopsychic" as a Medical Subject Headings (MeSH) term to its MeSH thesaurus, and thus, it will aid in discovering relevant literature.

Material and methods

This study is a part of "INTEGRATE (Interdisciplinary Integrated Approach Transforms Whole Person Medicine): A Serial Study on Studies," which is a collection of sustainable study series that includes bibliometric analysis, scoping review, and systematic review in the fields of integrated healthcare model, psychosomatic and somatopsychic disorders, biological psychiatry, psychotherapy, psychopharmacology, and interventional psychiatry. This research is an analytical bibliometric study of somatopsychic-related publications. In this study, we collect data related to somatopsychic research from the Scopus database. Scopus is one of the largest databases with global coverage for journals, books, and conferences, with trustworthy scientific data (30). In the Scopus database, (Text word) and (MeSH) search features in All fields ("Somatopsychic" and "Somatopsychic (MeSH)") were utilized. To avoid the bias generated by daily database changes, all searches were performed on Mar 22, 2023. We limited the literature to those written in English that had reached the final stage of publishing. The publishing output was then examined using the R package's bibliometrics (Biblioshiny) and VOSviewer (version 1.6.18). The Biblioshiny is intended for quantitative scientometric and informetric analysis (31). VOSviewer was utilized to build a bibliometric network. VOSviewer is a data visualization program that displays cluster analysis and has superior data presentation (32–36).

Result

Main information

In this study, search results for "somatopsychic" identified using (MeSH) resulted in a predictable return of 0 articles. Meanwhile, a search with (Text word) retrieved 306 documents for an unlimited period (and yielded published articles in the range of 1913–2022). All documents were gathered from 223 sources, and the majority were original articles (240). The average article citation rate was 9.912. There were 1481 keywords associated with somatopsychic disorders. We found 597 authors group that contributed to somatopsychic-related research with 149 of them being single-authored documents. International co-authorship was found in 0.9804% of the documents published.

Annual publication growth

Figure 1 depicts the quantitative growth in somatopsychic-related publications over time. In 2020 and 2021, 62 documents were published, while 71 documents were published in 2022, showing an annual growth rate of 1.8%. This demonstrates the weight of attention being paid by scientists worldwide.

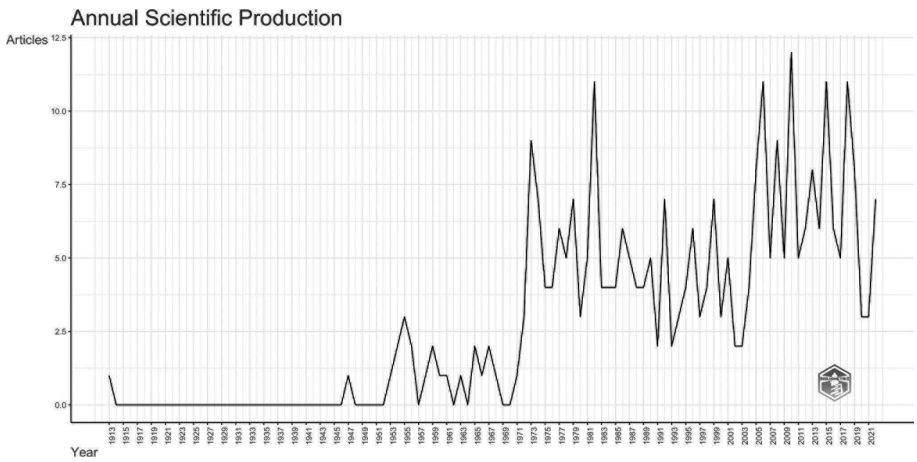

Fig. 1. The annual publication growth trend of somatopsychic research.

The most prominent and highly cited journals

The most prominent and highly cited journals were Psychotherapy and Psychosomatics (9), followed by *Psychotherapeut* (6), Psychosomatics (5), and *Revue Francaise De Psychanal* YSE (5). Both *Neuropsychiatrie de L'Enfance* and *de L'Adolescence and Zhurnal Nevropatolgii I Psikhiatrii* posted 4 papers related to somatopsychic

disorders, followed by *Aktuelle Dermatologie* (3), Clinics in Dermatology (3), International Congress Series (3) and International Journal of Psychoanalysis (3).

Both Psychosomatic Medicine and Psychosomatics had the highest h-index according to the bibliometric analysis (25). Psychosomatic Medicine had a higher g-index (43) and m-index (1.316) when compared to Psychosomatics (g-index of 41 and m-index of 0.417). Behind by quite a margin is the Journal of Psychosomatic Research, with a h-index of 11, a g-index of 21, and a m-index of 0.647. Both Biopsychosocial Medicine and BMC Psychiatry follow this with a h-index of 8. Although both have the same h-index, Biopsychosocial Medicine had a higher g-index (12) and m-index (0.500) compared to BMC Psychiatry (9 and 0.421, respectively).

The most relevant institutions

The University of Turin was the most relevant institution, with 17 publications. Behind by some distance were *Universitat Heidelberg* and *Uniersitatsklinkum Gieben und Marburg* with 8 publications. Hannover Medical School, the University of Catania, and the University of Copenhagen, all published the same number of publications (7). Kyushu University, the University of California, and *Universitats-Kinderklinik Heidelberg* published 6 documents.

The most relevant authors

A total of 3,176 authors published all somatopsychic-related publications. Ikemi Y. was the most productive author, with 5 articles (2.48 fractionalized value) and the highest h-index (8), followed by Fric M. (1.59 fractionalized value) and Lauk G. (0.87 fractionalized value). Andreasson B, Bock JE, Boucherat-Hue V, Cubala WJ, Fassino S, Granieri A, and Jensen SB all published the same number of documents (3).

The most relevant countries (based on the corresponding author)

This study also included the publication output and participation in somatopsychic research of the corresponding authors' countries. The United States ranked first with 123 single-country publications, 10 multiple-country publications, and the highest frequency (0.188). In terms of scientific productivity on this topic, the United States, along with Germany and the United Kingdom, were world leaders. Japan published 33 articles, with 30 of them being single-country publications. On the other hand, Sweden may have published a smaller number of articles (29), but 9 of them were multiple-country publications. Both China and Italy published the same number of articles (23), with 17 of them being single-country publications and the rest (6) being multiple-country publications.

The most cited authors worldwide

Local citations show how frequently an author (or document) in this collection has been referenced in other documents in the collection. A deeper analysis of the source articles was carried out using the local citation score (LCS) and global citation score (GCS) metrics. The frequency with which other papers in the collection cited the authors' publications in the Scopus database was ascertained by LCS. Total citations, as determined by GCS, is the sum of all citations to the papers in this collection. However, the publications cited were not necessarily in the field of somatopsychic. The more relevant the article was to the topic, the higher the LCS. In addition, bibliometrics was used to examine the publishing output of the world's most-cited authors who were involved in this topic. Travis SPL ranked first, as shown in Table 1, with 599 total citations, 33.28 citations per year, and a normalized citation score of 6.93. Results also show that papers about the relationship between underlying illnesses and psychosomatic symptoms were frequently cited.

Tab. 1. The Most Cited Authors Worldwide.

Paper	Title	Total Citations	Total Citations per Year	Normalized Citation Score
Travis SPL, 2006, Gut	European evidence-based consensus on the diagnosis and management of Crohn's disease: current management	599	33.28	6.93
Sourander A, 2010, Arch Gen Psychiatry	Psychosocial risk factors associated with cyberbullying among adolescents: a population-based study	489	34.93	6.91
Kroenke K, 2003, Int J Methods Psychiatr Res	Patients presenting with somatic complaints: epidemiology, psychiatric comorbidity and management	442	21.05	4.52
Bair MJ, 2008, Psychosom Med	Association of depression and anxiety alone and in combination with chronic musculoskeletal pain in primary care patients	373	23.31	6.16
McFarlane AC, 2010, World Psychiatry	The long-term costs of traumatic stress: intertwined physical and psychological consequences	345	24.64	4.87
Afari N, 2014, Psychosom Med	Psychological trauma and functional somatic syndromes: a systematic review and meta-analysis	312	31.20	7.42
Talley NJ, 1990, Mayo Clin Proc	Assessment of Functional Gastrointestinal Disease: The Bowel Disease Questionnaire	298	8.76	1.28
Irish L, 2010, J Pediatr Psychol	Long-term Physical Health Consequences of Childhood Sexual Abuse: A Meta-Analytic Review	284	20.29	4.01
Ravens-Sieberer U, 2022, Eur Child Adolesc Psychiatry	Impact of the COVID-19 pandemic on quality of life and mental health in children and adolescents in Germany	277	138.50	48.32
Eisenberg NI, 2012, Psychosom Med	The neural bases of social pain: evidence for shared representations with physical pain	231	19.25	6.42

Notes: normalized citation score is a measure of a publication's citation impact, taking into account the number of citations and the years in which they were published

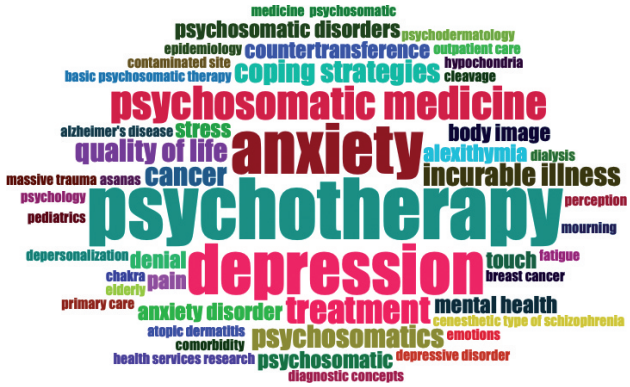

Fig. 2. Keywords word cloud related to Somatopsychic. It is a graphical representation of word frequency that gives greater prominence to words that appear more frequently in a source text. The larger the word in the visual, the more prominent or common the word was in the documents.

The most frequent words and their association with authors and countries

In Figure 2, the larger the keyword, the greater its frequency of occurrence, and vice versa. A word cloud reveals that "Psychotherapy," "Anxiety," and "Depression" were the terms with the highest occurrence (Fig. 2). The term "Psychotherapy" was used the most frequently by authors, appearing 11 times, followed by "Anxiety" and "Depression" with 9 occurrences each. The three-field plot (also known as a Sanky plot) illustrated the relationships between publication countries, authors, and keywords. In the diagram, the relevant elements are represented by rectangles of various colors. The height of the rectangles was determined by the value of the sum of the relations between the elements represented by the rectangle (one of the elements: authors, countries, and keywords). A larger rectangle represented the element with the greatest number of connections. Figure 3 depicts Sankey diagrams for the top ten most productive countries and authors, as well as their primary contributions to somatopsychic-related research. It demonstrates that Italian and German authors had the most influential research topics. The Sankey diagram illustrates the distribution of various item amounts (countries, authors, and keywords). The thickness of the connections (links) signifies a substantial information flow between a set of values.

Co-words collaborative network

Figure 4 presents a co-word network, a collaborative network of co-words frequently used in studies on somatopsychic-related publications. It shows eight clusters with different colors. These eight clusters and their nodal positions were based on the values of the measures of betweenness, closeness, and page rank. Table 2 shows these measures for each co-word.

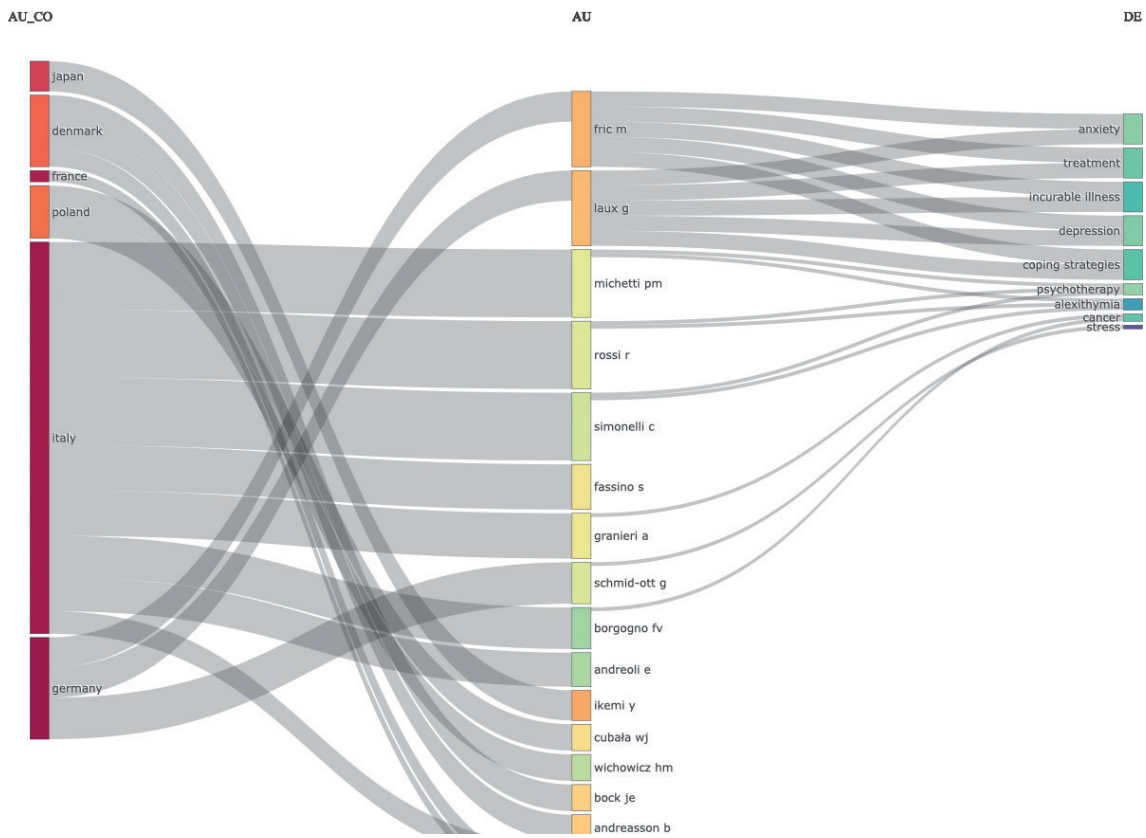

Fig. 3. Sankey plot related to Somatopsychic. The middle side defines the most productive authors, the left side defines the author's country, and the right side defines the most productive topics.

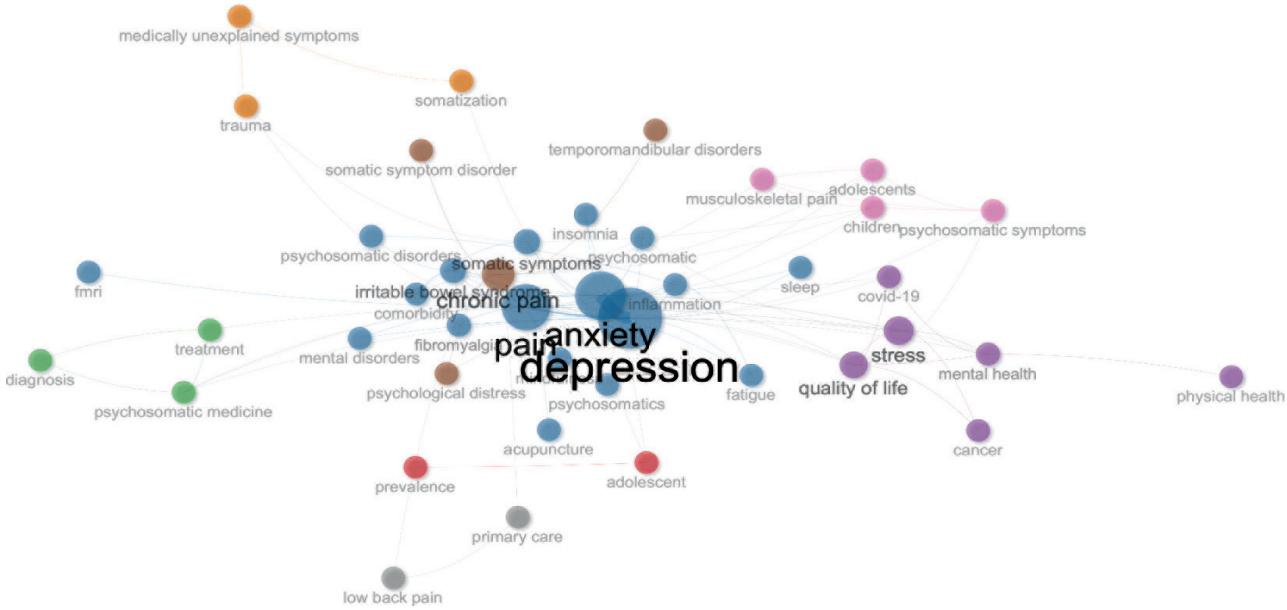

Fig. 4. A collaborative network of co-words related to somatopsychic.

Word clusters map

The data for keywords in somatopsychic-related publications, along with their typical measurements, are provided in Table 3. Through Callon's centrality, Callon's density, rank centrality, and rank density for word clusters (Tab. 3 and Fig. 5), theme evolution characterized the numerous evolutionary pathways and evolutionary drifts of the thematic substance. The primary objective was to recognize and identify pertinent topics between 1913 and 2022, such as theme evolution and development in somatopsychic-related publications.

Discussion

Because of the exponentially increasing size of the published literature, an organized approach must be taken to manage the scientific knowledge base. The UMLS Metathesaurus and its derivative, the NLM MeSH thesaurus, function to identify the major

Tab. 2. Collaborative Network of Co-Words related to Somatopsychic.

Node	Cluster	Betweenness	Closeness	Page Rank
Depression	2	292.110	0.016	0.142
Pain	2	235.114	0.014	0.094
Anxiety	2	190.540	0.016	0.111
Somatic Symptoms	2	10.869	0.012	0.028
Irritable Bowel Syndrome	2	32.981	0.013	0.031
Fibromyalgia	2	3.783	0.012	0.023
Psychosomatic	2	2.038	0.011	0.016
Comorbidity	2	1.919	0.012	0.022
Psychosomatic Disorders	2	0.286	0.009	0.010
Inflammation	2	12.469	0.011	0.017
Psychosomatics	2	0	0.010	0.006
Acupuncture	2	0	0.009	0.006
Sleep	2	0	0.010	0.010
Fatigue	2	0	0.011	0.016
fMRI	2	0	0.009	0.006
Insomnia	2	0	0.010	0.010
Mental Disorders	2	0	0.010	0.008
Mindfulness	2	0	0.010	0.009

Notes: Betweenness, closeness, and page rank are centrality measures used in social network analysis to identify important nodes in a network. Betweenness centrality measures the number of times a node acts as a bridge along the shortest path between two other nodes, indicating the influence of a node in the communication dynamics of a network. Closeness centrality measures the shortest paths between all nodes and assigns each node a score based on its sum of shortest paths, indicating the individuals who are best placed to influence the entire network most quickly. Page rank centrality measures the importance of a node based on the number and quality of links to it, indicating the popularity of a node in a network.

Tab. 3. Word clusters related to Somatopsychic.

Clusters	Callon's Centrality	Callon's Density	Rank Centrality	Rank Density	Cluster Frequency
fMRI	0.18	30.00	14	4.00	8
Psychosomatic Medicine	1.01	32.27	19	6.00	64
Epidemiology	0.90	35.66	18	15.00	57
Psychosomatic Disorders	0.24	22.64	15	2.00	28
Depression	3.46	30.34	21	5.00	574
Chronic Low Back Pain	0.11	37.04	11	17.50	9
Work-related Stress	0.11	33.33	11	9.50	7
Psychosomatic Symptoms	0.70	29.46	17	3.00	41
Somatoform Disorder	0.08	43.89	9	21.00	16
General Practice	0.00	37.04	4	17.50	9
Burning Mouth Syndrome	0.29	36.67	16	16.00	8
Low Back Pain	1.14	33.78	20	13.00	71
Neurofeedback	0.11	38.89	11	19.00	6
Psychogenic	0.00	42.59	4	20.00	10
Sick Leave	0.00	33.33	4	9.50	3
Psychology	0.04	16.67	8	1.00	6
Pregnancy	0.00	33.33	4	9.50	3
Telemedicine	0.00	33.33	4	9.50	3
Chest Pain	0.14	33.86	13	14.00	13
Non-cardiac Chest Pain	0.00	33.33	4	9.50	3
Irritable Bowel Syndrome	0.00	33.33	4	9.50	3

Notes: Callon's centrality and Callon's density are measures used to analyze the strength of the connection between a given theme and other themes in a dataset and the degree to which the themes in a cluster are interconnected, respectively. Rank centrality and rank density are measures used to rank the centrality and density of the clusters. Cluster frequency is the number of times a cluster appears in a dataset. These measures are used to categorize clusters into one of four quadrants: basic themes (high centrality and low density), motor themes (high centrality and high density), niche themes (low centrality and high density), and emerging or declining themes (low centrality and low density).

subject matter within published articles to facilitate retrieval. Subject indexing has historically been conducted manually by librarians in accordance with established guidelines, but the trend is shifting toward computer automation utilizing natural language processing and artificial intelligence (37). In recent years, pressure to comply with third-party guidelines and computerized algorithms has increased in the medical field, and there has been a trend toward super specialization with limited education in non-specialty disciplines. These issues have ultimately contributed to a silo mentality and knowledge fragmentation (38). Highly complex brain-body differential diagnoses present difficulties for insurers, physicians, and patients. Patients frequently report seeing multiple doctors before receiving an accurate diagnosis. These patients may not fit well into current diagnostic and treatment algorithms, and their evaluations may result in multiple tests and consultations with limited cost-effectiveness, which strains healthcare expenditures (39).

Various publications have discussed somatopsychic-related topics. This is evident from the fact that there have been 306 documents overall since it was first published, with 240 original research articles, 41 reviews, 9 conference papers, 7 book chapters, and less than 5 classified under other types of documents. There is an apparent increase annually in the number of documents published. Despite its annual growth, the number of published documents remains unstable. In 2020 and 2021, there were 62 documents published, and in the very next year, the number of published documents increased to 71 documents. The trend of documents published has an annual growth rate of just 1.8%, with an average number of citations per document of 9.912.

The most productive journal for publishing somatopsychic research was Psychotherapy and Psychosomatics, while the journal with the highest h-index was Psychosomatic Medicine, followed by Psychosomatics. The University of Turin had the most relevant affiliations that contributed to somatopsychic research, although most of the time, we found that articles were being published without reporting the institutions or authors‘ affiliations. There were 306 research papers on somatopsychic disorders published by a total of 3,176 authors. Ikemi, Y, was the most productive author (5 articles) and had the highest h-index.

The United States publishes the most articles related to somatopsychic disorders, followed by Germany, the United Kingdom, and Japan. This could be attributed to the United States having the highest GDP in the world (40). Thus, the United States can fund the necessary scientific investigations (41). As for the most globally cited authors or documents, the publications cited were not necessarily in the field of somatopsychic. Results in the articles published frequently cited the relationship between underlying illnesses and psychosomatic symptoms. The amounts of annual occurrences of each of the key terms increased over time, but some increased more rapidly than others. "Depression," "Pain," and "Anxiety" were the terms whose occurrence increased the most.

Despite the increasing amounts of published articles with a somatopsychic topic, neither the APA DSM-5 nor the ICD has included the term "somatopsychic" (42, 43). Consequently, there

is an inadequacy in standardizing the definitions and classification of somatopsychic disorders; therefore, it is not used formally in diagnostic systems. Somatopsychic disorders are defined as mental conditions that are caused or exacerbated by somatic conditions (44). The symptoms exhibited by individuals with these conditions demonstrate a mind–body interaction; therefore, it is essential, when making a diagnosis, to define the most appropriate terminology. Included in this terminology are mental health and mental illness, psychosomatic, somatopsychic, multisystem Illness, medical uncertainty, DSM-5, ICD, and other terminologies. The majority of these symptoms are hypothesized to be immune-mediated. Infectious triggers that are already identified include viral, venereal, and vector-borne diseases (45–49).

There are two main classes of somatopsychic influences. Several somatopsychic influences result from the activity of the tissues of the brain, which is the most integrative organ of the body. In response to internal and external stimuli, significant alterations in brain tissue may alter perceptual, integrative, conceptual, and executive functions, with far-reaching implications. The second factor is abnormalities found in somatic structures besides the brain. The functions of the brain will be affected by any injury to other structures. Abnormalities in biochemical and physiological processes have feedback influences that have direct or indirect effects on brain function (50).

A fascinating study observed by the Dutch General Practice Registry revealed that patients with a diagnosis of somatoform disorders had a greater infection burden than matched controls before their diagnosis. This case-control study has established a significant causal link between infections and psychiatric disorders (48). It can be challenging to determine in any given circumstance whether psychological distress causes somatic symptoms and vice versa, or a multisystem condition resulting in both of them simultaneously. There may also be an exceptionally intricate cause-and-effect relationship or a high degree of genuine medical uncertainty (51).

The inclusion of somatopsychic as a dedicated term in the NLM‘s MeSH thesaurus as a diagnosis would help with indexing and retrieval of the healthcare provider-specific literature.

Conclusion

The authors conducted a comprehensive bibliometric study of worldwide scientific literature on somatopsychic. In this study, search results for “somatopsychic” identified using (MeSH) resulted in a predictable return of 0 articles. Meanwhile, based on a search with (Text word), 306 documents were retrieved for the unlimited period (and yielded published articles in the range of 1913–2022). The analysis also revealed that 3,176 authors

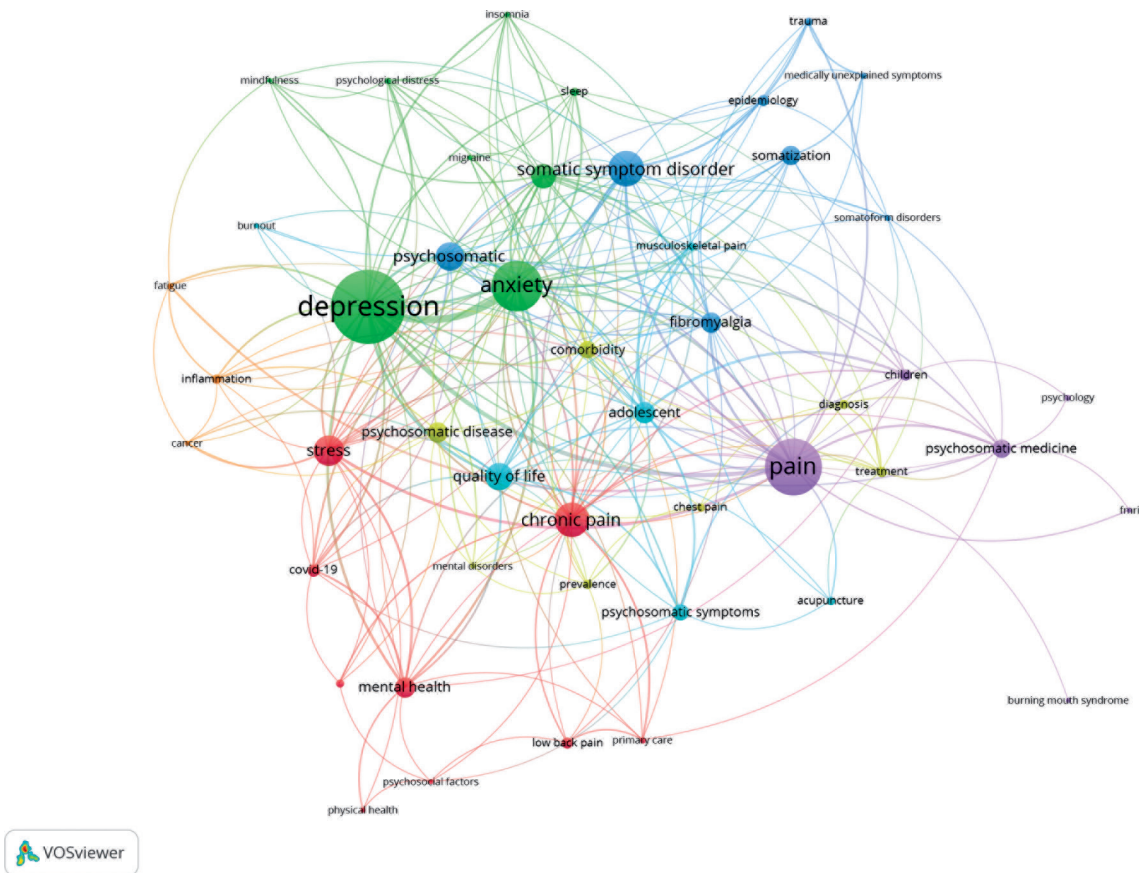

Fig. 5. Word clusters map related to somatopsychic. Different colors represent co-occurrence clusters of the author‘s keyword. The size of the circle is proportional to the occurrence of the keyword, while the thickness is proportional to the strength of co-occurrence.

contributed to publications related to somatopsychic, with the United States ranking first in terms of authorship. This highlights the international interest in the field and the need for international collaboration to advance research in this field. In addition, the study presented a co-word network that illustrated the frequent co-occurrence of particular keywords in somatopsychic research. This network offers insights into the most prominent themes and topics examined in the literature. The identification of influential publications and prolific organizations in somatopsychic research sheds light on the field's most important contributors and stakeholders. Understanding their contributions can assist in guiding future collaborations and research projects. In conclusion, the research strongly supports the addition of "somatopsychic" as a distinct term in the NLM's MeSH thesaurus. This addition would enhance the indexing and retrieval of relevant literature for healthcare providers, facilitating access to valuable resources and advancing the field's body of knowledge.

References

1. Attoe C, Lillywhite K, Hinchliffe E, Bazley A, Cross S. Integrating mental and physical health care: the mind and body approach. Lancet Psychiatry 2018; 5 (5): 387–389.

2. Nabi H, Kivimaki M, De Vogli R, Marmot MG, Singh-Manoux A. Positive and negative affect and risk of coronary heart disease: Whitehall II prospective cohort study. Bmj 2008; 337 (7660): 32–36.

3. Surtees PG, Wainwright NWJ, Luben RN, Wareham NJ, Bingham SA, Khaw KT. Psychological distress, major depressive disorder, and risk of strokesymbol. Neurology 2008; 70 (10): 788–794.

4. Ohrnberger J, Fichera E, Sutton M. The relationship between physical and mental health: A mediation analysis. Soc Sci Med 2017; 195: 42–49.

5. Haller H, Cramer H, Lauche R, Dobos G. Somatoforme störungen und medizinisch unerklärbare symptome in der primärversorgung: Systematischer review und metaanalyse der prävalenzen. Dtsch Arztebl Int 2015; 112 (16): 279–287.

6. Orzechowska A, Maruszewska P, Gałecki P. Cognitive behavioral therapy of patients with somatic symptoms – diagnostic and therapeutic difficulties. J Clin Med 2021; 10 (14).

7. Bransfield RC, Friedman KJ. Differentiating psychosomatic, somatopsychic, multisystem illnesses and medical uncertainty. Healthcare (Switzerland) 2019; 7 (4): 1–28.

8. Daré LO, Bruand PE, Gérard D et al. Associations of mental disorders and neurotropic parasitic diseases: A meta-analysis in developing and emerging countries. BMC Public Health 2019; 19 (1): 1–12.

9. Wubie MB, Alebachew MN, Yigzaw AB. Common mental disorders and its determinants among epileptic patients at an outpatient epileptic clinic in Felegehiwot Referral Hospital, Bahirdar, Ethiopia: Cross-sectional study. Int J Ment Health Syst 2019; 13 (1): 1–10.

10. Naylor C, Galea A, Parsonage M, McDaid D, Knapp M, Fossey M. Long-term conditions and mental health. The King's Fund 2012; 1–32.

11. Ayana TM, Roba KT, Mabalhin MO. Prevalence of psychological distress and associated factors among adult tuberculosis patients attending public health institutions in Dire Dawa and Harar cities, Eastern Ethiopia. BMC Public Health 2019; 19 (1): 1–9.

12. Nkporbu AK, Stanley PC. Psychiatric Comorbidity in Essential Hypertension. Update on Essential Hypertension 2016;

13. Bhatia MS, Munjal S. Prevalence of depression in people living with HIV/AIDS undergoing art and factors associated with it. Journal of Clinical and Diagnostic Research 2014; 8 (10): WC01–4.

14. Denur M, Tesfaw G, Yohannis Z. The magnitude and correlates of common mental disorder among outpatient medical patients in Ethiopia: An institution based cross-sectional study. BMC Res Notes 2019; 12 (1): 1–6.

15. Tesfa S, Giru BW, Bedada T, Gela D. Mental distress and associated factors among hospitalized medical-surgical adult inpatients in public hospitals, Addis Ababa, Ethiopia, 2020: Cross-sectional study. Psychol Res Behav Manag 2021; 14: 1235–1243.

16. Balajee K, Kumar G, Shidam U. Comparison of psychological distress and its associated factors among chronic disease and healthy subjects in rural Puducherry, India. Indian J Soc Psychiatry 2017; 33 (2): 177.

17. Ndetei DM, Khasakhala LI, Kuria MW, Mutiso VN, Ongecha-Owuor FA, Kokonya DA. The prevalence of mental disorders in adults in different level general medical facilities in Kenya: A cross-sectional study. Ann Gen Psychiatry 2009; 8: 1–8.

18. Asadi-Pooya AA, Nabavizadeh SA, Sadeghian S et al. Psychological problems among patients with chronic medical disorders during the covid-19 pandemic. Acta Med Iran 2021; 59 (6): 322–326.

19. Hoang U, Goldacre MJ, Stewart R. Avoidable mortality in people with schizophrenia or bipolar disorder in England. Acta Psychiatr Scand 2013; 127 (3): 195–201.

20. Wang J, Rao H, Wetmore GS et al. PNAS-2005-Wang-17804-9.pdf 2005;

21. Arnsten AFT. Stress signalling pathways that impair prefrontal cortex structure and function. Nat Rev Neurosci 2009; 10 (6): 410–422.

22. Bransfield RC. Neuropsychiatric lyme borreliosis: An overview with a focus on a specialty psychiatrist's clinical practice. Healthcare (Switzerland) 2018; 6 (3).

23. Ohrnberger J, Fichera E, Sutton M. The dynamics of physical and mental health in the older population. J Econ Ageing 2017; 9: 52–62.

24. Tareke M, Bayeh AB, Birhanu M, Belete A. Psychological distress among people living with chronic medical illness and the general population, Northwest Ethiopia: A comparative cross-sectional study. PLoS One 2022; 17: 1–13.

25. Clementino LC, de Souza KSC, Castelo-Branco M et al. Top 100 most-cited oral health-related quality of life papers: Bibliometric analysis. Community Dent Oral Epidemiol 2022; 50 (3): 199–205.

26. Donthu N, Kumar S, Mukherjee D, Pandey N, Lim WM. How to conduct a bibliometric analysis: An overview and guidelines. J Bus Res 2021; 133: 285–296.

27. Hafeez DM, Jalal S, Khosa F. Bibliometric analysis of manuscript characteristics that influence citations: A comparison of six major psychiatry journals. J Psychiatr Res 2019; 108: 90–94.

28. Gong B, Naveed S, Hafeez DM et al. Neuroimaging in Psychiatric Disorders: A Bibliometric Analysis of the 100 Most Highly Cited Articles. Journal of Neuroimaging 2019; 29 (1): 14–33.

29. Chen Y, Yeung AWK, Pow EHN, Tsoi JKH. Current status and research trends of lithium disilicate in dentistry: A bibliometric analysis. Journal of Prosthetic Dentistry 2021; 126 (4): 512–522.

30. Baas J, Schotten M, Plume A, Côté G, Karimi R. Scopus as a curated, high-quality bibliometric data source for academic research in quantitative science studies. Quantitative Science Studies 2020; 1 (1): 377–386.

31. Shi J, Duan K, Wu G, Zhang R, Feng X. Comprehensive metrological and content analysis of the public–private partnerships (PPPs) research field: a new bibliometric journey. Scientometrics 2020; 124 (3): 2145–2184.

32. Moral-Muñoz JA, Herrera-Viedma E, Santisteban-Espejo A, Cobo MJ. Software tools for conducting bibliometric analysis in science: An up-to-date review. El Profesional de la Información 2020; 29 (1).

33. van Eck NJ, Waltman L. Citation-based clustering of publications using CitNetExplorer and VOSviewer. Scientometrics 2017; 111 (2): 1053–1070.

34. Xin Z, Keyu Z, Lin P. Analysis of domestic and foreign research status of agricultural pollution control based on VOSviewer. E3S Web of Conferences 2020; 214: 03026.

35. Bektan Kanat B, Yavuzer H. Top 100 articles on vitamin D: Bibliometric versus altmetric analysis. Bratislava Medical Journal 2022; 123 (03): 160–171.

36. Putri WA, Setiawan J, Sofyantoro F et al. Global research trends in non-alcoholic fatty liver disease. Bratisl Med J 2023; 124 (08): 590–598.

37. Névéol A, Shooshan SE, Claveau V. Automatic inference of indexing rules for MEDLINE. BMC Bioinformatics 2008; 9 (SUPPL. 11): 1–10.

38. Orešković S. Breaking down the Silo Mentality in Global Mental Health: The New Role for the Schools of Public Health. Psychiatr Danub 2016; 28 (4): 318–320.

39. Grupp H, Kaufmann C, König HH et al. Excess costs from functional somatic syndromes in Germany — An analysis using entropy balancing. J Psychosom Res 2017; 97: 52–57.

40. Suzuki E, Koh WC, Baffles J. World Bank 2023 (cited 2023 Jul 2). World Bank Open Data. https: //data.worldbank.org

41. Rodríguez-Navarro A, Brito R. The link between countries' economic and scientific wealth has a complex dependence on technological activity and research policy. Scientometrics 2022; 127 (5): 2871–2896.

42. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. Vol. 5. Arlington, VA: American Psychiatric Publishing; 2013.

43. World Health Organization. International Classification of Diseases 11th Revision (Internet) 2022 (cited 2023 Jul 2). https: //icd.who.int/en/

44. Bransfield RC, Friedman KJ. Differentiating psychosomatic, somatopsychic, multisystem illnesses and medical uncertainty. Healthcare (Switzerland) 2019 Dec 1; 7 (4).

45. Kim JY, Ko I, Kim MS, Yu MS, Cho BJ, Kim DK. Association of Chronic Rhinosinusitis with Depression and Anxiety in a Nationwide Insurance Population. JAMA Otolaryngol Head Neck Surg 2019; 145 (4): 313–319.

46. Fallon BA, Schwartzberg M, Bransfield R et al. Late-Stage Neuropsychiatric Lyme Borreliosis. Psychosomatics. 1995; 36 (3): 295–300.

47. Bransfield RC. Microbes and mental Illness. (Internet). 1999 (cited 2023 Jul 2). https: //www.mentalhealthandillness.com/Articles/MicrobesAndMentalIllness.htm

48. Lacourt TE, Houtveen JH, Smeets HM, Lipovsky MM, Van Doornen LJP. Infection load as a predisposing factor for somatoform disorders: Evidence from a dutch general practice registry. Psychosom Med 2013; 75 (8): 759–764.

49. Labrie V, Brundin L. Harbingers of Mental Disease—Infections Associated With an Increased Risk for Neuropsychiatric Illness in Children. JAMA Psychiatry 2019; 76 (3): 237–238.

50. Garner HH. Somatopsychic Concepts. Psychosomatics 1966; 7 (6): 329–337.

51. Bransfield RC, Friedman KJ. Differentiating psychosomatic, somatopsychic, multisystem illnesses and medical uncertainty. Healthcare (Switzerland) 2019; 7 (4).

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