

Global Research Trends in Spirituality, Religion and Health: A Bibliometric Analysis and Visualization

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ABSTRACT

Objective: Bibliometrics is a field of research that provides a comprehensive picture of scientific publications by studying bibliographic information. This study was designed to analyze scientific publications and review the research process in the fields of spirituality, religion, and health.

Methods: In this bibliometric study, a total of 19332 scientific publications on the subject of spirituality, religion, and health in the Scopus citation database were retrieved and analyzed.

Results: The United States (U.S.) and the United Kingdom (U.K.), the University of Toronto in Canada, and Harvard Medical School in the U.S. are the top countries and scientific institutes, respectively, and published the most papers in the field. Analysis of the cooperation and citation network of authors, countries, and sources, as well as the co-religion network of words in the field of spirituality, religion, and health clarifies the status of scientific publications in this field.

Conclusion: It can be asserted that scientific publications in the field of spirituality, religion, and health have experienced significant growth in recent years, especially since 2000.

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Introduction

Spirituality is an inside mode that helps one to discover the nature of existence or the deepest values and meanings about our relationship with God and people's lives (Lucchetti et al., 2015). Spirituality is defined as *“the aspect of humanity that refers to the way individuals seek and express meaning and purpose and the way they experience their connectedness to the moment, to self, to others, to nature, and to the significant or sacred”* (Puchalski et al., 2009).

In recent years, studies in the field of religion and health (Damiano et al., 2016; Demir, 2019; Şenel, 2018, 2019; Şenel & Demir, 2018) have increased significantly spiritual health usually reduces medication use, lowers the prevalence of depression and suicide, and ultimately, improves quality of life and health (Bonelli, 2013; Lucchetti et al., 2011; Moreira-Almeida et al., 2014; Snider & McPhedran, 2014; Steinhorn et al., 2017). Given that research in the field of spirituality, religion and health is gradually increasing, it is necessary to conduct a variety of bibliometric studies to analyze this research and study research in this field from different angles.

Bibliometrics is a critical field of research that gives a comprehensive picture of scientific publications by studying bibliographic information (Mokhtari et al., 2020; Mokhtari et al., 2021). The term bibliometrics was first coined in 1969 by Pritchard (Şenel & Demir, 2018). Bibliometrics uses techniques such as collaboration network analysis, citation analysis, and co-occurrence analysis to analyze citations, the growth of literature in a particular field, and the productivity of authors, subject areas, journals, organizations, and countries, monitoring growth and development. Provided their trend (Şenel & Demir, 2018).

A review of bibliometric studies shows that in recent years limited bibliometric studies have been conducted in the field of spirituality, religion and health (Damiano et al., 2016; Lucchetti & Lucchetti, 2014; Doğan, 2020). The present study is a continuation of these studies and is designed to analyze bibliometrics and review the research process in this area. This study will provide a clear understanding of the studies conducted in the field of spirituality, religion and health and the development of further research and the creation of new research ideas in this field.

Methods

This study is a bibliometric and illustrative analysis. Bibliometrics as an interdisciplinary research field (Glänzel, 2003) is one of the most important quantitative approaches in library and information science (Pareek, 2013) and research method (Laengle et al., 2017). In the present study, the scientific publications on the subject of spirituality, religion and health (SR / H) in the Scopus citation database from the beginning (1862) to the end of 2020 were analyzed. The following keywords were searched in the *"Title, Abstract and Keywords"* field: "religious health", "spiritual health", "spirituality health", "mystical health", "religious practice", "spiritual practice", "spirituality practice", "mystical practice", "religious practices", "spiritual practices", "spirituality

practices", "mystical practices", "religious experience", "spiritual experience", "spirituality experience", "mystical experience", "religious care", "spiritual care", "spirituality care", "mystical care", "spiritual therapies", "therapies, spiritual", "exorcism", "exorcisms", "spiritual healing", "healing, spiritual", "healings, spiritual" and "spiritual healings".

These spiritual health related keywords were extracted from related texts and the Medical Subject Headings (MeSH) thesaurus. The MeSH thesaurus is a controlled and hierarchically-organized vocabulary produced by the National Library of Medicine and used for indexing, cataloging, and searching for health-related texts and information. Data visualization is done using VOSviewer bibliography software and GunnMap source. VOSviewer software for displaying citation networks (authors, documents, institutions, countries and journals); Co-authors (authors, institutions and countries); Co-citations (documents, authors and journals); Omnipotent vocabulary of documents; And the network of bibliographic pairs as well as their clustering is used (van Eck & Waltman, 2010). Using the free resource GunnMap (<http://lert.co.nz/map>), we created infographics that show the distribution density of documents produced globally. We used Excel software to draw graphs and to calculate the regression coefficient.

Results

The results indicate that 19,332 documents were found in the field of spiritual health from 1862 to 2020 in the Scopus citation database. Note that in 1862, three documents with the same title, "*Exorcism: Luther*", were published by three different authors in the journal notes and queries (1849-1923). Of these, 13,139 (67.97%) articles, 2406 (12.45%) book reviews, 1519 (7.87%) book chapters, 881 (4.56%) books, 327 (1.69%) letters to the editor, 313 (1.62%) conference articles, and less than 5% of the documents included notes, short survey, corrections of papers (Erratum), conference reviews, and data papers. English with 17,406 documents (90.04%), French with 402 (2.08%), Spanish with 352 (1.82%), and German with 320 (1.66%) ranked first to fifth, and about 6% of sources There were other languages.

Frequencies of published papers and received citations

Figure 1 shows the trend of publication growth and citations in the field of spiritual health since 1970. In the last five decades, the trend of publication is increasing. The equivalent to the growth trend of production ($y = 6.8869x - 235$) shows the increase in documents in this field, and the growth rate of documents in the field of spiritual health is $R^2 = 0.4302$. Citation of documents in this field for the first years to 1994 has grown steadily and from this year to 2006 has an upward slope. Citations to the documents from 2006 to 2011 is a turning point, and citation to the documents from 2011 to 2020 has decreased with a downward slope (symmetry of the Saudi slope), which is normal due to the dependence of the number of citations on time, and documents from recent years will receive more citations in the coming years. A total of 207,647 citations were

received in this field (each article received an average of 10.74 citations.). The equation of growth trend of citations in the field of spiritual health ($y = 221.41x + 2994.2$) shows the increase in citations in this field, and its growth rate is $R^2 = 0.1948$.

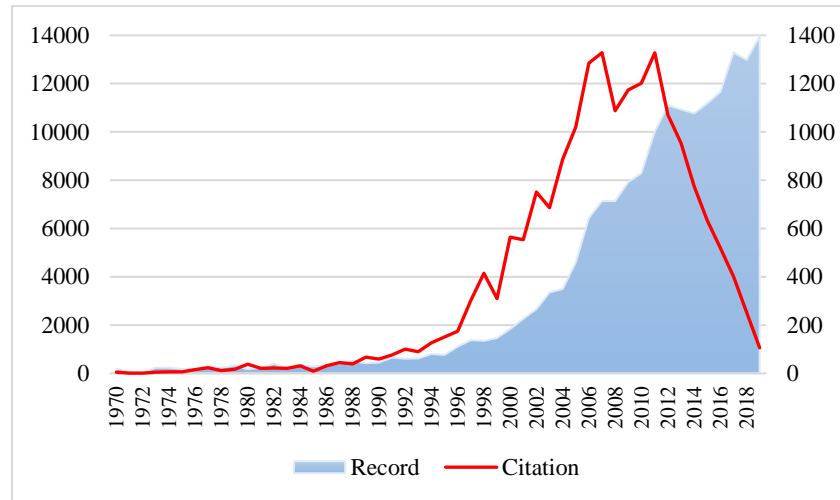


Figure 1. The trend of publication growth and citations

Highly-productive authors and most influential authors

Table 1 shows the sixteen authors of the field of spiritual health. Koenig, H.G. With 73 credentials, he is the most prolific author, ranking first, with Taylor, E.J., Fitchett, G. Puchalski, C.M., and Handzo, G.F. From the United States, they are ranked second to fifth with 45, 44, 42 and 31 documents, respectively. Eight prolific authors as well as 10 of the 16 most prolific spiritual health authors are from the United States, followed by the United Kingdom (U.K.) with three authors. Germany, Brazil and Portugal are also among the top 16 authors. Koenig, H.G. also has the most citations with 3,273 citations, and Fitchett, G., Griffiths, R.R., Puchalski, C.M., and Balboni, T.A. From the United States (U.S.) are ranked second to fifth, respectively. In this section, too, most of the cited authors are from the U.S. and then the United Kingdom. Among the 16 prolific authors, Griffiths, R.R. The U.S. has the highest citation rate per article (106.9) (Table 1).

Table 1. The 15 Highly-productive authors and most influential authors on spirituality, religion and health

R	Author	Affiliation	RC	CC	CPR
1	Koenig, H.G.	Duke University Medical Center, United States	74	3273	44.2
2	Taylor, E.J.	Loma Linda University, United States	45	750	16.7
3	Fitchett, G.	American Cancer Society, United States	44	2626	59.7
4	Puchalski, C.M.	George Washington University, United States	42	2003	47.7
5	Handzo, G.F.	HealthCare Chaplaincy, United States	31	1127	36.4
6	Balboni, T.A.	Dana-Farber Cancer Institute, United States	30	1634	54.5
7	Ferrell, B.	Division of Nursing Research and Education City of Hope, United States	29	1278	44.1

	Pargament, K.I.	Bowling Green State University, United States	29	1127	38.9
8	Francis, L.J.	University of Warwick, U.K.	28	275	9.8
	Ernst, E.	University of Exeter, U.K.	28	788	28.1
	Büssing, A.	Witten/Herdecke University, Germany	28	397	14.2
9	McSherry, W.	Staffordshire University, U.K.	27	1149	42.6
10	Lucchetti, G.	Federal University of Juiz de Fora, Brazil	26	368	14.2
11	Balboni, M.J.	Dana-Farber Cancer Institute, United States	25	1671	66.8
	Caldeira, S.	Universidade Católica Portuguesa, Portugal	25	186	7.4
12	Griffiths, R.R.	Johns Hopkins University School of Medicine, United States	24	2565	106.9
R= Rank; RC= Record Count; CC= Citations Count & CPR= Citations per Record					

Highly-cited papers

Table 2 shows the 10 most cited documents in the field of spiritual health. The article entitled “*Complementary and alternative medicine use among adults: United States, 2002*” conducted by Barnes P.M., Powell-Griner E., McFann K., Nahin R.L. The year 2004 with 1283 citations is the most cited document in the field of spiritual health. The article entitled “*Measuring spiritual well-being in people with cancer*” written by Peterman A.H., Fitchett G., Brady M.J., Hernandez L. & Cella D. since 2002 is the second most cited document. Type 10 The first document is an article, which indicates that articles receive more citations than other formats (such as books or conference papers). These 10 documents are among the basic documents in the field of spiritual health that can be considered by authors in this field (Table 2).

Table 2. The 10 most cited manuscripts on spirituality, religion and health

R	Authors	Title	Y	Source	C	ST
1	Barnes P.M., Powell-Griner E., McFann K. & Nahin R.L.	Complementary and alternative medicine use among adults: United States, 2002	2004	Advance data	1283	Article
2	Peterman A.H., Fitchett G., Brady M.J., Hernandez L. & Cella D.	Measuring spiritual well-being in people with cancer: The Functional Assessment of Chronic Illness Therapy - Spiritual Well-Being scale (FACIT-Sp)	2002	Annals of Behavioral Medicine	918	Article
3	Shapiro S.L., Schwartz G.E. & Bonner G.	Effects of mindfulness-based stress reduction on medical and premedical students	1998	Journal of Behavioral Medicine	823	Article
4	Zimmermann C., Swami N., Krzyzanowska M., Hannon B., Leighl N., ...	Early palliative care for patients with advanced cancer: A cluster-randomised controlled trial	2014	The Lancet	815	Article
5	Richardson M.A., Sanders T., Palmer J.L., Greisinger A. & Singletary S.E.	Complementary/ alternative medicine use in a comprehensive cancer center and the implications for oncology	2000	Journal of Clinical Oncology	813	Article
6	Chiesa A. & Serretti A.	Mindfulness-based stress reduction for stress management in healthy people: A review and meta-analysis	2009	Journal of Alternative and Complementary Medicine	777	Article
7	Davidson J.E., Powers K., Hedayat K.M.,	Clinical practice guidelines for support of the family in the	2007	Critical Care Medicine	754	Article

	Tieszen M., Kon A.A., ...	patient-centered intensive care unit: American College of Critical Care Medicine Task Force 2004-2005				
8	Molassiotis A., Fernandez-Ortega P., Pud D., Ozden G., Scott J.A., ...	Use of complementary and alternative medicine in cancer patients: A European survey	2005	Annals of Oncology	687	Article
9	Puchalski C., Ferrell B., Virani R., Otis-Green S., Baird P., ...	Improving the quality of spiritual care as a dimension of palliative care: The report of the consensus conference	2009	Journal of Palliative Medicine	683	Article
10	Jain S., Shapiro S.L., Swanick S., Roesch S.C., Mills P.J., ...	A randomized controlled trial of mindfulness meditation versus relaxation training: Effects on distress, positive states of mind, rumination, and distraction	2007	Annals of Behavioral Medicine	661	Article
R= Rank; Y= Year; CC= Citation Count & ST= Source Type						

Highly-productive Journals, institutions and countries

Table 3 shows the most prolific journals, institutions and countries that produce documents in the field of spiritual health. The *Journal of Religion and Health* with 362 documents, the *Journal of Religions* with 245 documents and the *Journal of Christian Nursing* with 173 documents are ranked first to third in contributing to this field. The University of Toronto has the highest frequency with 144 documents, followed by Harvard Medical School, University of Michigan, and Duke University Medical Center with 113, 112, and 108 documents, respectively (Table 3).

Table 3. Highly-productive Journals, institutions and countries

R	Journals	RC	Institution	RC	Country	RC
1	Journal of Religion & Health	362	University of Toronto (Canada)	144	United States	7332
2	Religions	245	Harvard Medical School (United States)	121	U.K.	2119
3	Journal of Christian Nursing A Quarterly Publication of Nurses Christian Fellowship	173	University of Michigan (United States)	117	Canada	954
4	Mental Health Religion & Culture	132	Duke University Medical Center (United States)	111	Australia	751
5	Journal of Palliative Medicine	123	Columbia University in the City of New York (United States)	109	Germany	611
6	Journal of pastoral care & counseling: JPCC	121	University of Oxford (Great Britain)	109	Netherlands	397
7	Southern Medical Journal	117	King's College London (Great Britain)	105	India	390
8	Journal of Pain & Symptom Management	112	UCL (Great Britain)	94	Iran	373
9	Pastoral Psychology	111	VA Medical Center (United States)	93	France	362
10	Journal of Holistic Nursing	90	Duke University (United States)	89	Italy	344
11	Journal of Health Care Chaplaincy	93	The University of North Carolina at Chapel Hill (United States)	88	Brazil	334

12	Supportive Care in Cancer	85	The University of Chicago (United States)	86	South Africa	329
13	Explore the Journal of Science & Healing	73	The University of Sydney (Australia)	83	Spain	313
14	Journal of Alternative & Complementary Medicine	71	University of Pennsylvania (United States)	79	Israel	280
15	Journal of Clinical Nursing	70	University of California, Los Angeles	78	Russian Federation	253

The U.S. ranks second in the world with 7,332 documents and the U.K. is second in the world with 2,119 documents. Canada, Australia, Germany, the Netherlands, India and Iran are ranked second to eighth in the world (Table 3 and Figure 1).

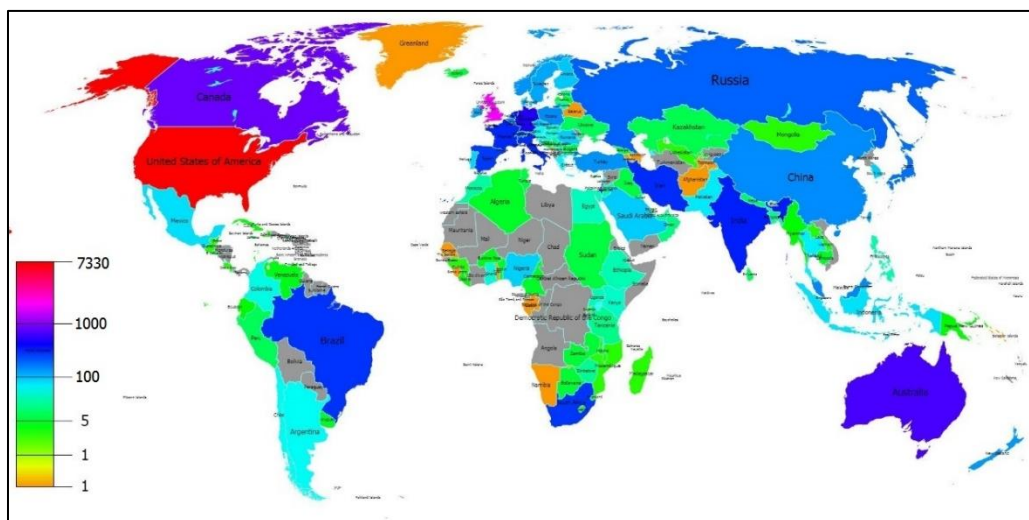


Figure 2. The distribution of the density of published documents

Subject Aria and Key Words

Table 4 shows the fifteen thematic areas and the top keywords in the field of spiritual health. Thematic field of humanities and arts with the production of 8,370 documents is the first field. Thematic field of spiritual health documents production and the field of medicine with 6,820 documents, and social sciences with 5837 documents are the second and third ranks and the fields of psychology and nursing are in the fourth and fifth ranks (Table 4). The keywords Human and Humans are mentioned in 12,992 documents in this field and the words Religion, Spirituality, Spiritual Care and Spiritual Healing are in the second to fifth ranks.

Table 4. Prolific subject areas and high-frequency vocabulary

R	Subject Aria	RC	Keywords	RC
1	Humanities and Arts	8370	Human/ Humans	12992
2	Medical	6820	Religion	5690
3	social Sciences	5837	Spirituality	3284
4	Psychology	2457	Spiritual Care	2719

5	Nursing	2372	Spiritual Healing	1515
6	Biochemistry, genetics and molecular biology	386	Psychology	1479
7	Health professions	340	Alternative Medicine	1439
8	Business, management and accounting	309	Major Clinical Study	1304
9	Environmental sciences	287	Psychological Aspect	1151
10	Neuroscience	278	Quality of Life	1119
11	Agricultural Sciences and Biology	250	Controlled Study	1083
12	Pharmacy, toxicology and Pharmaceutics	204	United States	1006
13	Economics, econometrics and business	186	Palliative Care	922
14	Computer science	154	Palliative Therapy	920
15	Mathematics	133	Spiritual Therapies	785

Authors' Collaboration Network

The results indicate that 31,537 authors contributed to the development of spiritual health documents. To form the authors collaboration network, 99 authors with at least 12 documents included in the analysis; then, the minimum items of each cluster of 5 authors determined; 55 authors placed in six clusters. In the first cluster (red), there are 15 authors centered on McSherry W., Hall J., and Ross L. from England and van Leeuwen R. from the Netherlands. The cluster includes authors from European countries, along with an author from Canada and an author from New Zealand. The second cluster in green has 10 authors, with nine authors from the U.S. collaborating with one author from Canada. Focusing on this cluster with Fitchett G., Balboni T.A., Taylor E.J. And Balboni M.J. They are all from America. In the third blue cluster, nine authors from the U.S. together have the most scientific collaborations, focusing on Pargament K.I., Handzo G.F., and Flannelly K.J. have. In the fourth yellow cluster, Koenig H.G. is the central node of the network for nine authors. There are five other authors from the United States, two from Brazil and one from Poland. The fifth purple cluster features seven authors (four from the United States, two from Canada, and one from Japan) centered on Puchalski C.M and Sinclair S. In the sixth turquoise cluster, there are five authors from the U.K. with a focus on Speck P. Given that most of the authors of spiritual health certificates are in the U.S. and the U.K., in all clusters there are collaboration networks centered on the authors of these two countries (Figure 3).

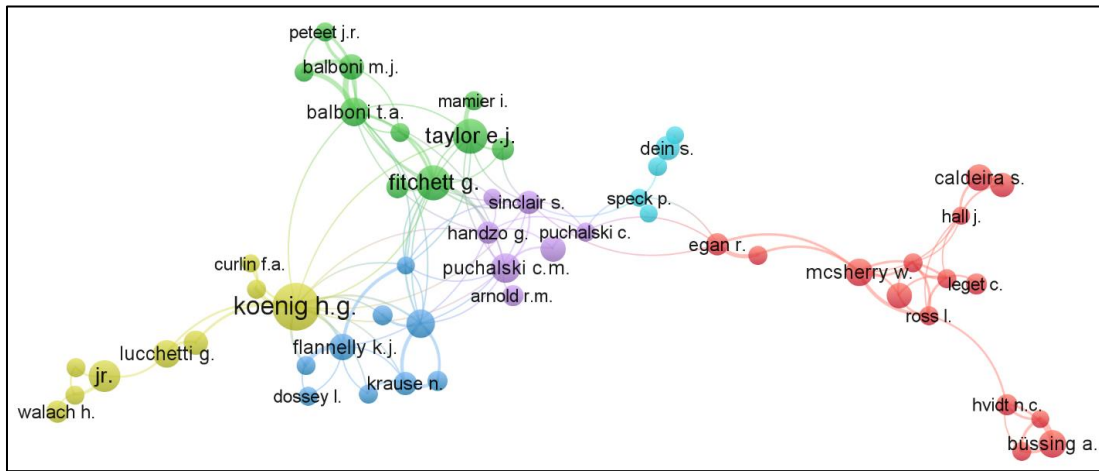


Figure 3. Authors' Collaboration Network

Collaboration networks in countries

Figure 4 shows the collaboration networks between countries. To select the standard sample, the publication of at least 50 documents was used by each country. By applying this limitation, 45 countries were included in the analysis; then the minimum items in each cluster of five countries were determined; under these conditions, 45 countries divided into four clusters.

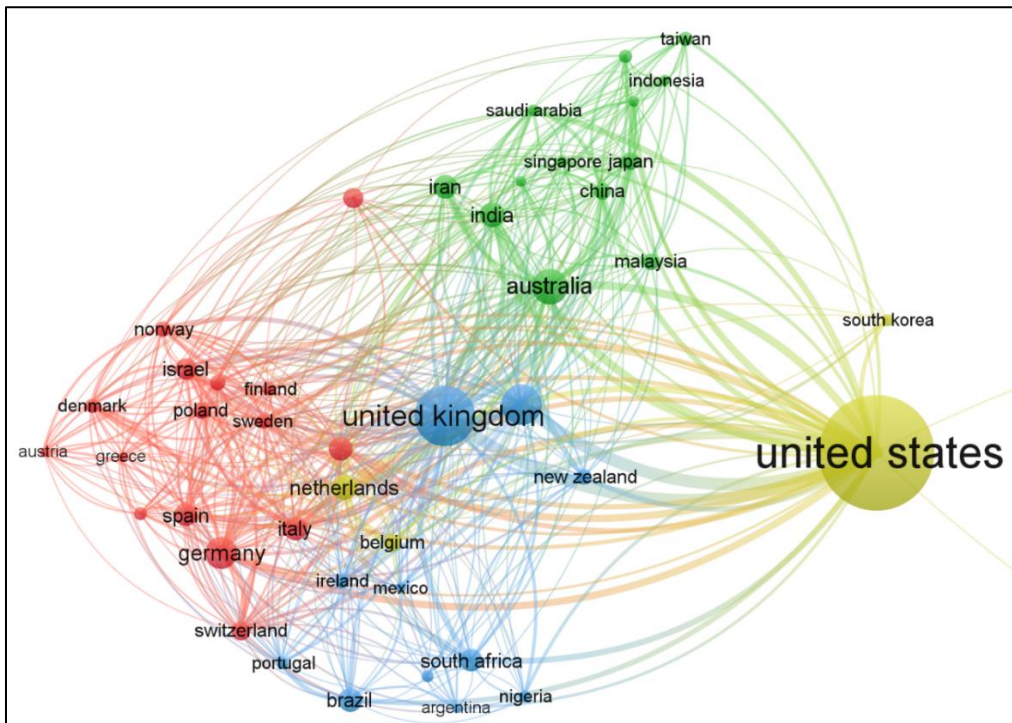


Figure 4. Collaboration networks in countries

In the first cluster (red), European countries including Italy, Germany, France, Sweden, Norway, Spain, Switzerland, Israel, Turkey, Poland, Denmark, the Czech Republic, Austria, Finland, Greece and Russia have the most cooperation and focus. With Germany, France and Italy. In cluster two (green), Asian countries (India, Japan, China, Singapore, Iran, Saudi Arabia, Malaysia, Thailand, Pakistan, Hong Kong, Indonesia and Taiwan) along with Australia from the Oceania have the most cooperation with each other and Australia, India and Iran are the index countries of the second cluster. The three clusters (blue) are more scattered, with scientific cooperation around the Commonwealth of Independent States, Canada, Ireland, New Zealand, Nigeria, and South Africa whose official languages are English, two Portuguese-speaking Portuguese countries, and two Spanish-speaking countries, Mexico and Argentina. And the country is a novel. The U.K., Canada and Brazil are the leading countries in this cluster. Finally, in the fourth cluster (yellow), the United States, the Netherlands, Belgium, South Korea and Croatia are the countries of the United States. In general, the U.S. and the U.K., which have the most products, have the most scientific cooperation with other countries (Figure 4).

Co-authorship/Authors Citation Network

To form an author citation network, 99 authors with at least 12 credentials included in the analysis; Then the minimum items of each cluster of 10 authors determined; Under these conditions, 92 authors placed in seven clusters. Examination of these seven clusters shows that except for cluster four (light green), which are authors from both the U.S. and Britain, the other clusters are authors from at least five different countries, citing works by authors from different countries (Figure 5).

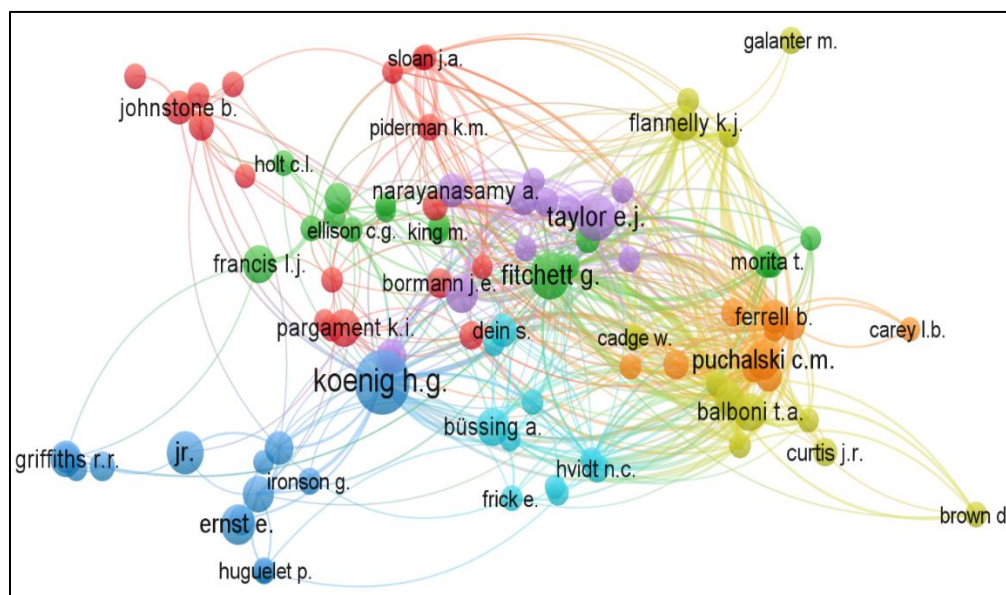


Figure 5. Co-authorship/Authors Citation Network

Resource citation network

There are 6,851 sources for publishing documents in the field of spiritual health, which are journals, books, conferences, etc. To select a sample to form a citation network of sources, the criterion of publishing 30 documents in each source was used, thus limiting the type of source to the journal. Figure 6 shows the citation network of spiritual health journals. By applying this restriction, 60 journals were included in the analysis. Then the minimum items in each cluster of 10 journals were determined. Under these conditions, 55 journals placed in four clusters (Figure 6). In the first cluster (red), there are 18 journals that exchange citations with each other, centered on the two major journals that is the *Journal of Religion and Health*, and *Religions*. In the second cluster (green), 15 journals centered on mental health, religion and culture. In the third cluster (blue), there are 12 journals, where the *Journal of Palliative Medicine* is the central node of the network; and in the fourth cluster in yellow, there are 10 journals, in which the *Journal of Christian Nursing* is at the center of their exchange network.

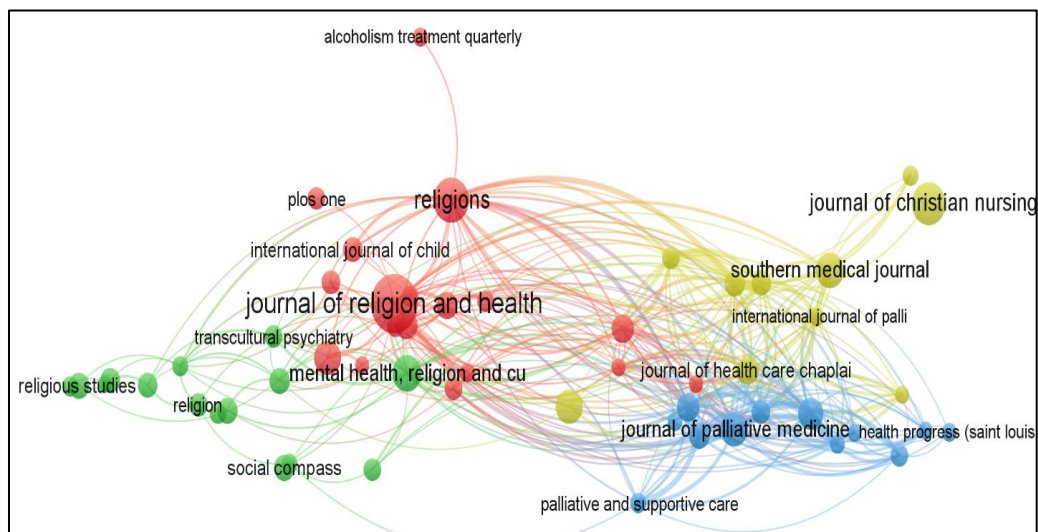


Figure 6. Journal Citation Network

Countries citation network

To select the sample of countries to form a citation network of countries, the criterion of publishing at least 50 documents by each country was used. By applying this restriction, 45 countries included in the analysis; then the smallest items in each cluster of five countries determined; under these conditions, 44 countries divided into five clusters. In cluster one (red) are European countries (Switzerland, Turkey, Germany, Denmark, Italy, Israel, France, Greece, Austria and the Czech Republic) along with Nigeria, which have the most citations to other authors. The United States, along with Iran, India, China, Saudi Arabia and Malaysia from Asia, Belgium, Portugal and Romania from Europe, South Africa from Africa and Mexico from Central America, are in the second cluster (green). They have each other. In the third cluster (blue), Canada from North

America, along with the Netherlands, Poland, Finland and Russia from Europe, and Taiwan, Japan and South Korea from Asia, have the most citations to each other. In the fourth cluster (yellow) is the U.K., along with the English-speaking countries of Australia, Hong Kong, Ireland, New Zealand and Singapore, along with two European countries, Norway and Croatia. Finally, in the fifth cluster (purple), Brazil, along with Sweden, Spain, Thailand, Pakistan, and Argentina, relied on each other's evidence the most (Figure 7).

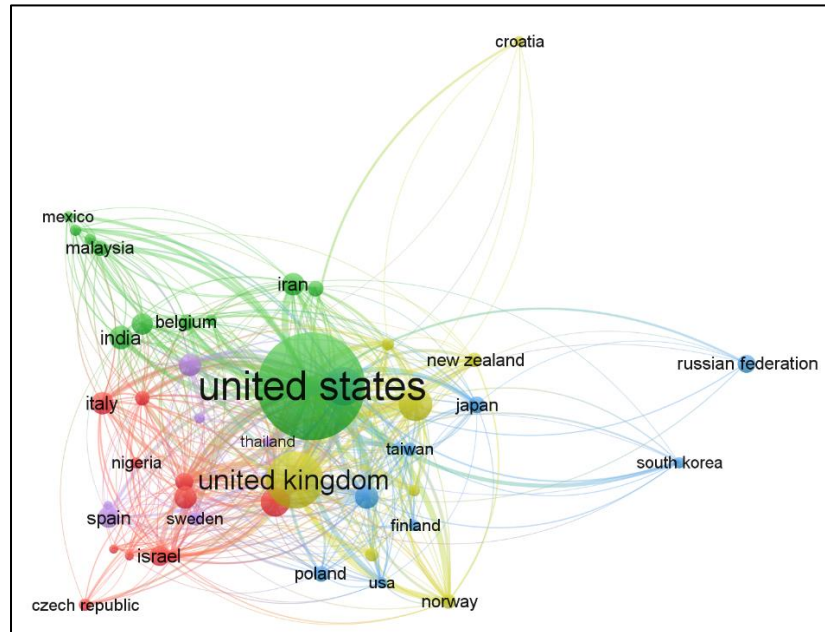


Figure 7. Countries citation network

Co-occurrence network of words

Co-occurrence of words has been used through reviewing the title text of documents. The titles of documents in the field of spiritual health had 35,542 words. By limiting the words to at least 100 frequencies, 55 keywords are selected, in creating a co-word network before clustering, for 55 words, the vocabulary relevance scores are calculated and ranked by the software. Then, 60% of words are analyzed based on relevance scores. Therefore, 32 words selected and by manually reviewing these keywords, six general words (Case; child; quality; systematic review; use end) deleted. Finally, 26 words analyzed. Finally, 26 words entered the analysis. By determining the number three for the smallest items in each cluster; 26 words placed in three clusters. The first cluster in red has 13 words (culture, God, consequences, mental health, mystical experience, mysticism, relationship, religion, Religiosity, religious experience, religious practice, spiritual experience, spiritual health). This cluster can be related to the mystical and religious aspects of the study of spiritual health. The second cluster, which is marked in green, includes 7 concepts (alternative medicine, cancer, care, complementary, life, palliative care, patient), this cluster can

be related to medical aspects. The third cluster in blue has 6 keywords (church, faith, healing, spirit, spiritual healing, exorcism) and covers the spiritual aspects of spiritual health. Figure 8 also shows the historical emergence of the words in the titles of spiritual health documents. Historically, words related to the medical, mystical, and religious aspects have appeared, respectively, and words related to the spiritual aspect have appeared in the titles of the documents.

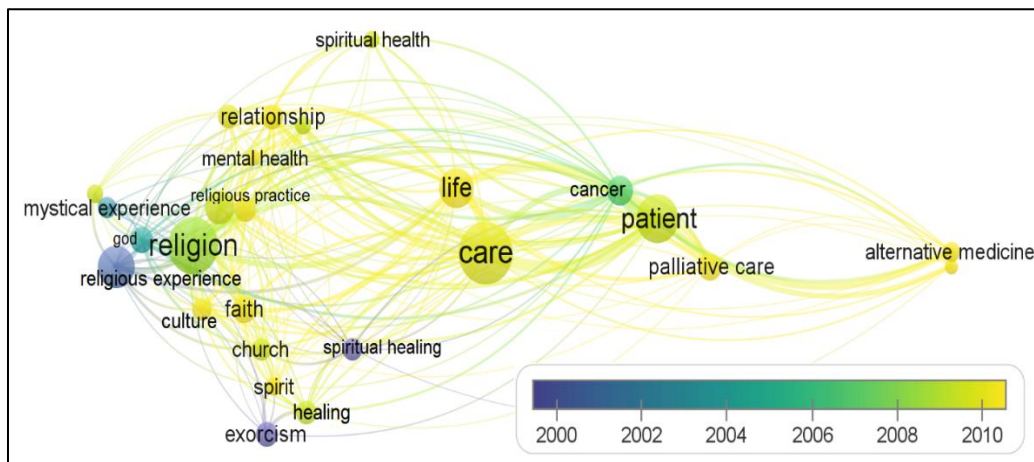


Figure 8. Co-occurrence network of words

Discussion and Conclusion

Previous bibliometric studies in the field of spiritual health conducted cross-sectional on databases such as Web of Science and PubMed, which were very limited in terms of the number of documents and the coverage of different types of documents. In addition, they used limited search keywords, which resulted in less document retrieval and, as a result, the analysis of smaller scientometrics networks with fewer authors, articles, journals, organizations, and countries. The present study has overcome the above-mentioned problems by comprehensive use Mesh controlled keywords as well as Scopus citation database and has analyzed more than 19,300 documents. The use of Scopus has also made newer activities related to documents, journals, people, organizations and countries more prominent than Web of Science.

The results of this study showed that there has been a significant increase in scientific production in the field of spiritual health, especially since 2000. Also, since 2006, we have witnessed a rapid increase in citations in this area. The 10 most cited documents in this field are articles, and articles in the field of spiritual health obtained the most citations. According to the results obtained in the U.S. and Britain, the University of Toronto and Harvard Medical School and Koenig, H.G. from the U.S. have the most documents and the most citations in this area are constituencies. The field of humanities and arts and the field of medicine have the highest production of documents, and the words human / humans and religion have the highest frequency in the documents of this field. All clusters of the authors' collaboration network are influenced by authors from two countries, the

U.S. and the U.K., and the participation of authors from other countries is limited. But the authors' citation network has more participation than authors from different countries. The Resource Collaboration Network is also influenced by articles and citations from the Journal of Religion & Health and Religions. Co-occurrence network of words also shows three clusters related to the mystical and religious aspects, the medical aspects and the spiritual aspects of spiritual health.

Based on the results and discussions presented above, it can be asserted that scientific output in the field of spirituality, religion, and health has experienced significant growth in recent years, similar to other fields discussed in the background of this subject. Additionally, investigating other relevant indicators—such as co-authorship among universities, authors, and articles—can serve as a roadmap for researchers and those interested in this field. By adopting efficient search strategies, researchers can access relevant articles tailored to their information needs. Furthermore, delineating the subject areas within spirituality, religion, and health can provide valuable guidance for key policymakers, offering insights into the past, present, and future of this field.

Author Contributions

All authors contributed equally to the conceptualization of the article and writing of the original and subsequent drafts.

Data Availability Statement

Not applicable.

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Not applicable.

Ethical considerations

The study has been approved by the Ethics Committee of Hamadan University of Medical Sciences (Ethical code: IR.UMSHA.REC.1398.549).

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Conflict of interest

The authors declare no conflict of interest.

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