

Original Research

Co-word Analysis of World Scientific Productions in the Field of Religion and Health

Mohammad Hadi Yadollahpour

Associate Prof., Social Determinants of Health
Research Center, Health Research Institute
, Babol University of Medical Sciences, Babol, Iran.

baghekhial@gmail.com

ORCID iD: <https://orcid.org/0000-0002-4337-2096>

Mousa Yaminfirooz

Assistant Prof., Social Determinants of Health
Research Center, Health Research Institute, Babol
University of Medical Sciences, Babol, Iran.

Corresponding Author: yaminfirooz@gmail.com

ORCID iD: <https://orcid.org/0000-0003-1554-277X>

Sara Amiri

M.A. in Knowledge & Information Science, Librarian,
Alamdar public library, Sari, Iran.

saraamiri630@gmail.com

ORCID iD: <https://orcid.org/0000-0002-9683-6288>

Khadijeh Tahmasbei

M.A. in Knowledge & Information Science, Faculty
of Management,
University of Tehran, Tehran, Iran.

khtahmasbei@gmail.com

ORCID iD: <https://orcid.org/0000-0002-5256-003x>

Abbas Nikzad

Associate Prof., Department of General Courses, School of Medicine,
Babol University of Medical Sciences, Babol, Iran.

Nikzad.2010@yahoo.com

ORCID iD: <https://orcid.org/0000-0002-8534-5117>

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Abstract

The purpose of this study was to evaluate the World science productions in the field of religion and health using co-word analysis. The research reviewed scientific documents indexed from 1958 to 2019 on the Web of Science (WoS). For analyzing the data and drawing the scientific map, Ravar Matrix and VOSviewer tools were used. The data analysis shows that Iran provided only 1.52 percent of global scientific production in this field with 32 scientific documents and countries such as the US, UK, and Germany are ahead of the others. The co-word analysis shows that the most important topics include spirituality and health, mental health, and medical ethics. In the past 60 years of studies on the three major religions of Islam, Judaism, and Christianity, the relationship between spirituality and health has been one of the most significant research topics. The findings suggest that the role of spirituality cannot be ignored in promoting the health of communities and the interaction between religion and health needs to be heavily considered in further research.

Keywords: Religion, Health, Scientific Productions, Co-word Analysis.

Introduction

In the health, social, and behavioral sciences, the relationship between religion and health

has been of long-standing importance, stretching over more than one hundred years (Chatters, 2000). Man has an instinctive desire for health, and it has been pursued throughout history by all human beings including the sick and the healthy. The sick eagerly seek health, and the healthy aim to promote it to enjoy the advantages associated with higher levels of well-being. From the time of Hippocrates to the present day, the belief that God is both the healer and the source of physicians' knowledge and that physicians are a means of diagnosing, treating, and healing patients has been more or less the same (Amundsen, 1996). There is awareness in the health and medical sciences that religious and spiritual issues are critical for understanding health-related habits, attitudes, and beliefs and are especially important for individuals whose health is compromised. The World Health Organization (WHO) referred to three fields in its 1946 definition of health: physical health, social health, and mental health, and suggested this definition of health: "*Health is a state of absolute physical, emotional, and social well-being and comfort, not precisely the lack of sickness or weakness*" (Larson, 1996. p. 181). In recent decades, however, according to studies by numerous physicians and psychologists, attending to the moral dimension of human beings and spiritual health among those involved in the health system, particularly WHO has been unavoidable.

The concept of mental health was added to physical health a century ago; later social and more recently spiritual aspects were also introduced as the third and fourth dimensions of health (Sam Aram, Hezarjaribi, Fadakar, Karami & Shamsaei, 2013). Spirituality refers to moral principles and actions that make a person have good or bad qualities. Religion is the faith in a deity and works related to this belief, such as a church, mosque, or temple are worshiped (Demir, 2019); spirituality is the indispensable core of religion (Azarbaijani, 2017). Many researchers conclude that spiritual health is a forgotten element in physical health considerations (Abbasian, Abbasi, Shamsi, Naseri & Memariani, 2011). However, research studies in the fields of religion, spirituality, and health have increased considerably in recent years. Therefore it is essential to evaluate these scientific products using Scientometric techniques.

As one of the most common techniques of scientometrics, co-word analysis is an important indicator in scientometrics that is used in the identification and study of conceptual or lexical networks in a discipline, its hidden and prominent patterns, internal and external relationships of the concepts, and the emerging events within that field. The conceptual or lexical network is drawn by co-word analysis and by the co-occurrence of words. This method is considered a technique in content analysis (Ahmadi & Osareh, 2017).

Considering the increasing importance of religion and health interaction, this scientometric study aimed to map and analyze the World's scientific productions in the field by applying the co-word technique. In other words, this study aims to use co-word analysis to map the intellectual framework of the area of religion and health in the world, including the relationships between keywords, the structure of research, and the situation. Such findings will provide a framework for understanding the advancement of this field.

Literature review

The literature review shows that co-word analysis research has not been performed in the area of religion and health. But we are going to review several related scientometric studies:

Zangishe, Soheili and Ahmadi (2015) conducted citation analysis in the field of Islam and Quranic sciences; their study showed that there was a significant relationship between the

number of citations received and the level of scientific cooperation of authors. Damiano, Costa, Viana, Moreira-Almeida, Lucchetti and Lucchetti, (2016) studied Brazilian scientific articles in the field of spirituality, religion, and health; the results of their study showed that scientific production in this field had grown significantly in recent decades, and mental health has been the most important issue for researchers in this field. Khasseh, Sadeqi, Ezzati and Ghaffari (2017) studied the position of Quranic studies in the production of world science using scientometric techniques. Their findings showed that 1479 documents in the Quranic field are indexed in the Web of Science database of which 70 documents have been written by Iranian researchers and that the United States ranked first with 337 articles on the Quran while Iran ranked fourth. Senel and Demir's (2018) research shows that researchers used 2,973 keywords in the *Journal of Health and Religion* between 1975 and 2016, of which 5 keywords were the most common: "Religion, Spirituality, Religiosity, Health and Mental Health" (Şenel & Demir, 2018). Mohammadi, Rasoolzadeh Tabatabaei, Janbozorgi, Pasandideh and Salesi (2018) studied the scientific outcomes in the spirituality and depression field. They found that the average citation per article was 19.8 and 14.6, respectively. Ghazizadeh, Soheili and Khasseh (2018) analyzed the co-word structure of this field in the Islamic World Science Citation Center (ISC)¹. The results of the study showed that among the articles indexed in that database, Quran, Nahj al-Balagha and Imam Ali were the most frequently used keywords. In a study on the scientific products in the field of religion and health in the WoS database, Demir (2019) found that 1674 scientific documents in this field had been produced by the end of 2017, which they have been cited 14137 times.

As can be seen, health and religion-related papers have been studied from different scientometric techniques in different aggregation levels. However, the literature review shows that to date no study like the present study has been conducted. Our study is the first in this regard and can open the research way in the field.

Materials and Methods

This study uses co-word analysis and Bibliometrics, specifically the analysis of academic performance. Co-word analysis is equivalent to the analysis of co-citation or co-occurrence (Carmona-Serrano, López-Belmonte, López-Núñez & Moreno-Guerrero, 2020). All the documents that have been indexed in the Web of Science database from 1958 to 2019 are included in the analysis. The Web of Science contains seven databases, one of which is a citation database (WoS). Medical Subject Headings (MESH) were used to select synonymous keywords. The following search query was created using the Boolean operators "OR," and "AND", and data were obtained in February of 2020.

(Religion OR Prayer OR "Religious Beliefs" OR "Religious Ethics" AND Health OR Normalcy OR Normality)

Timespan: 1958-2019 years. Indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI.

Co-word analysis was done through Excel and science drawing was done with Ravar matrix and VOSviewer.

The main limitation of our study is that it only focuses on a single database (WoS). The findings can be compared with similar results found by other researchers investigating the

scientific products across other databases, such as Scopus and PubMed. The major strength of this research is the use of a comprehensive search technique and including scientific output that spans over a period of 60 years.

Results

The bibliometric analysis conducted in this study analyzed 2109 documents related to religion and health. According to this report, since 2008, annual publications have risen rapidly. The most productive researchers were from the USA (982), the UK (107), Germany (83), Canada (82), and Australia (43) (Table 1). In this field, Iran also published 32 articles and ranked 7th.

Table 1

Top Countries of Scientific Productions in the field of Religion and Health

Country	Articles	%
United States	982	46.56
England	107	5.07
Germany	83	3.94
Canada	82	3.89
Australia	43	2.04

We created a collaboration network map (Figure 1). 71 countries participated in the production of documents out of which 51 countries have done it through collaboration with others. The network consists of 12 clusters and 148 links, and as mentioned earlier, the United States has the largest scientific production in this field.

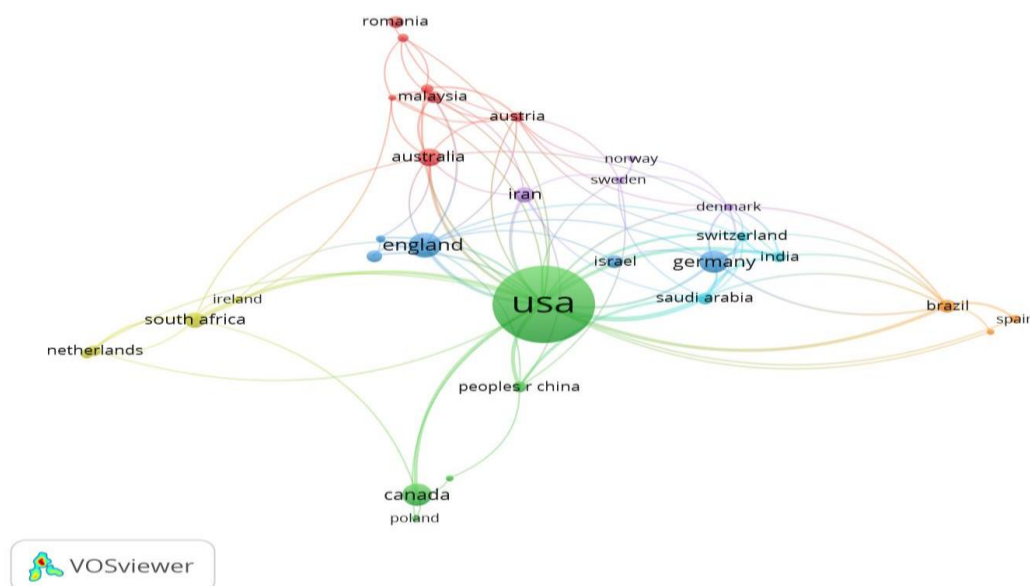


Figure 1: Collaboration network by countries

Table 2 shows the journals which have published the most documents in this area are based in three countries: Germany, the United States, and the United Kingdom. The *Journal of Religion & Health* (533 Articles) has published the most articles in this and is ranked 1st among the world's journals in this field (Table 2).

Table 2
Core Journals in the field of Religion and Health

Journal	Documents	Country
Journal of Religion & Health	533	Germany
Zeitschrift für Evangelische Ethik	100	Germany
Journal of Psychology and Theology	67	United States
Journal for The Scientific Study of Religion	66	United States
Theological Studies	61	United Kingdom

Co-word analysis shows that 89 keywords of high frequency have been identified of which the top 10 keywords are shown in Table 3.

Table 3
The top 10 keywords with high co-word data in the field of Religion and Health

Rank	Keywords	Co-word frequency
1	Spirituality and health	183
2	Mental health	72
3	Medical ethics	53
4	Christian	47
5	Psychological health	47
6	Religiosity	42
7	Healing	34
8	Islam	33
9	Health care	29
10	Faith-healing	28

The highest frequency is found for the key term "spirituality and health" with 183 appearances. "Mental health" and "medical ethics" are next with 72 and 53 instances respectively (Table 3). Furthermore, with VOSviewer software, we created high-frequency keywords Thematic Map (Figure 2).

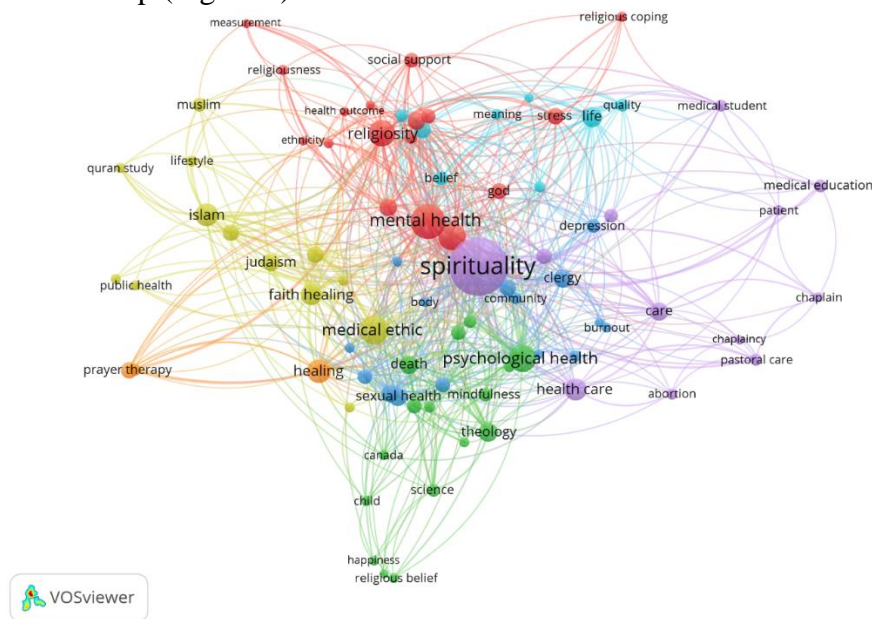


Figure 2: High-frequency keywords thematic map

The high-frequency keywords used in the three religions are shown in Table 4. In all three major religions of the world, "spirituality and health" has the highest frequency, and other similar concepts are also observed. In general, the studies on the relationship between spirituality in the three religions and health do have both similarities and differences; however, according to the results of co-word analysis, one can see that the commonalities between Judaism and Christianity are much less frequent than that the common research interests shared by Judaism and Islam.

Table 4

Top research subjects in Major Religions (Islam, Christianity, and Judaism)

Rank	Islam	Christianity	Judaism
1	Spirituality and health	Spirituality and health	Spirituality and health
2	Mental health	Faith healing	Mental health
3	Religiosity	Religiosity	Self-health
4	Physical health	Self-health	Physical health
5	Christian	Medical ethics	Death
6	Judaism	Physical health	Islam
7	Sexual health and reproductive	Women s health	Christian
8	Medical ethics	Psychological health	Emotions
9	Lifestyle	Islam	Lifestyle
10	Quran study and medicine	Judaism	Public health

The three religions of Islam, Christianity, and Judaism are described in Figures 3, 4, and 5 of the Ego networks. The Ego network is a private network that demonstrates what nodes are directly dealt with.

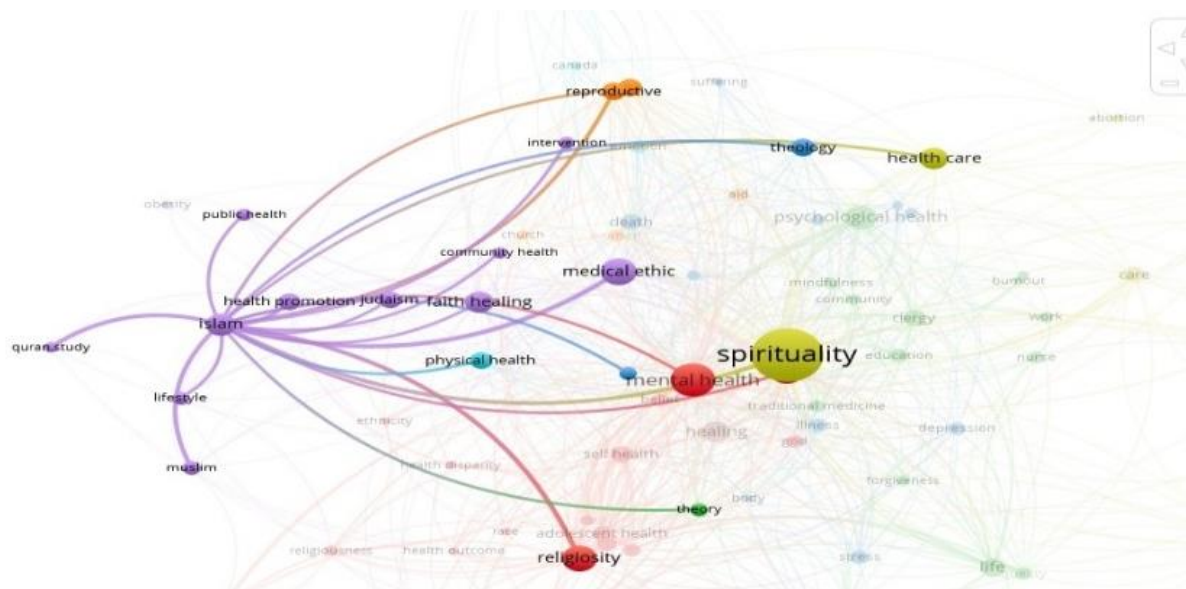


Figure 3: Thematic map of keywords in Islam religion

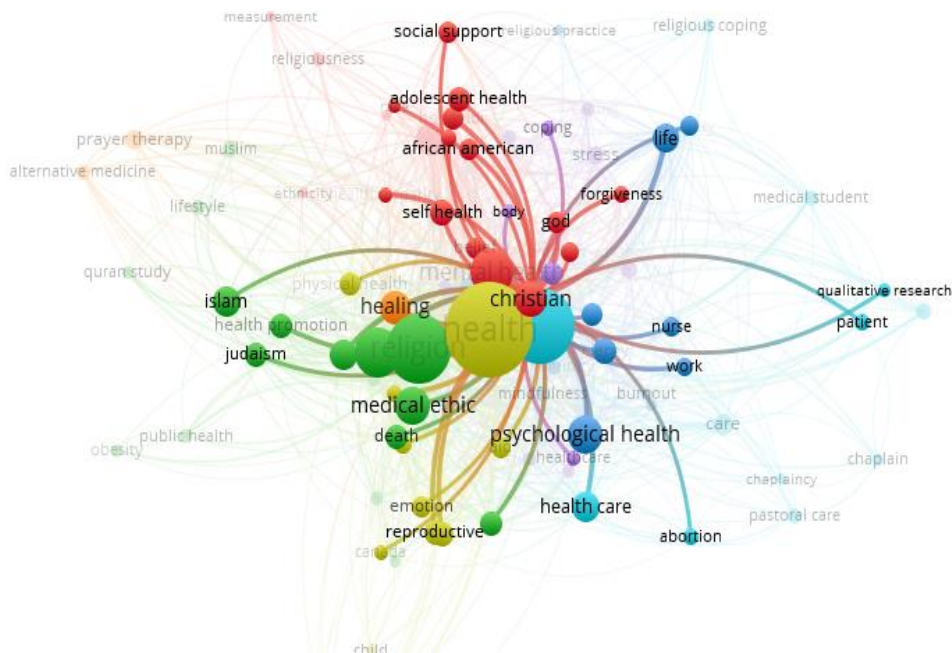


Figure 4: Thematic map of keywords in Christianity religion

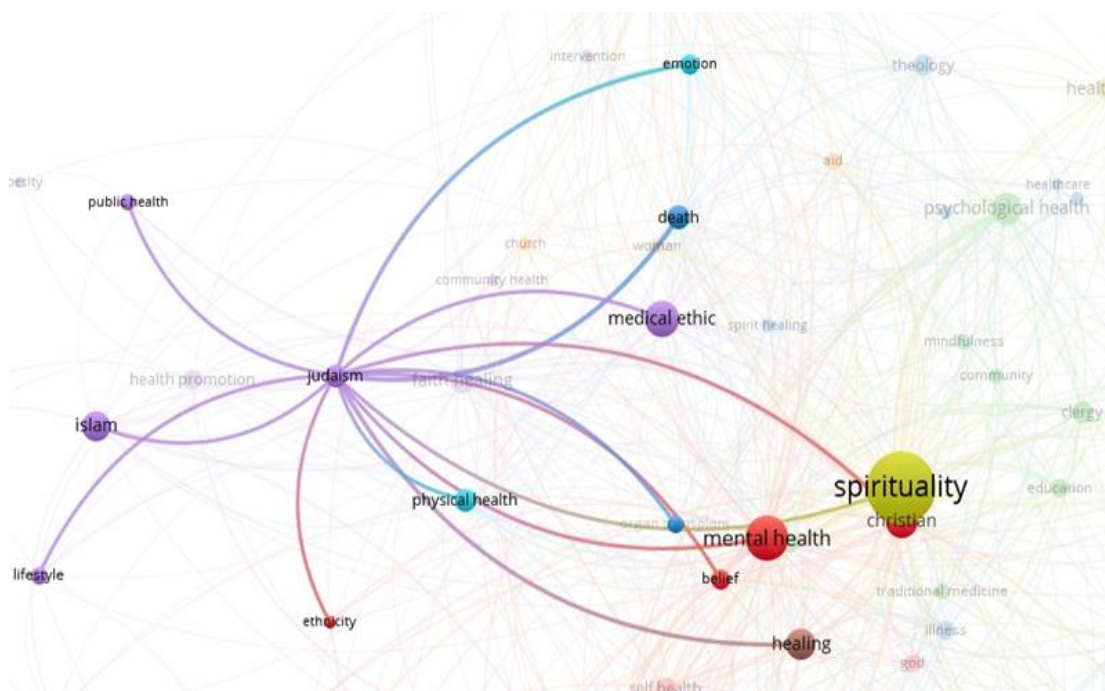


Figure 5: Thematic map of keywords in Judaism religion

Discussion

The advancement of each science depends on the efforts of previous researchers. Current scholars usually review the works of previous authors in order to see the transcendence of knowledge. In other words, scientists rely on the history of a science to develop its future (Adler & Harzing, 2009). In this regard, drawing a map of the studies conducted in a field can effectively help in developing a general understanding of its scientific framework (Boyack,

Klavans, & Börner, 2005). In this study, an attempt was made to evaluate the evidence of those studies focused on the relationship of religion and health by co-word analysis of documents that were indexed in the WoS database.

The findings indicate that religion and health studies are increasing rapidly in recent years. Such a trend has been found by Demir (2019). The present study showed that the world's scientific production in the field of religion and health in the period under review was 2109 documents and the United States with 982 scientific productions ranked first and Iran with 32 documents ranked 7th in the world.

Using VOSviewer software, a co-word map in the field of religion and health was obtained. As it is clear in the scientific map, the main topic of this field is *spirituality and health*, which is at the center of all words and other topics are formed around this topic. The findings showed that the terms *mental health*, *medical ethics*, *Christian and psychological health*, *religiosity*, *healing*, *Islam*, *health care*, and *faith-healing* had the highest frequency in this field, of course after "*Spirituality and health*" as the keyword with the highest frequency. Also, paying attention to the concepts used in different religions shows that in all religions, the emphasis is placed on spirituality and its effect on health. This finding confirms the results of studies in various fields, such as disease treatment (Cotton et al., 2009), health care (Pesut, Fowler, Taylor, Reimer-Kirkham & Sawatzky, 2008), and community relations (Williamson & Hood Jr, 2015), self-esteem, depression, anxiety, suicide, substance abuse (Koenig, 2015), and mental health (Dilmaghani, 2018). According to Mills (2002) a fresh discovery, such as that of a novel gene; the creation of a new medical instrument; or maybe a more sensitive and accurate assay, typically follows such an increase in interest and publications on a topic. In this instance, this is obviously not the case since spirituality and faith have been relative constants of cultures. Up until the 1980s, the term spirituality did not even appear in Medline. The growing area of complementary and alternative medicine as well as one of the more unpalatable features of managed care are likely to be explanations for this relatively drastic increase: the impersonal essence of evaluation and treatment (Mills, 2002).

Another focus of this study was on Iranian scientific products in the field of religion and health. The findings showed that the amount of scientific production in Iran is very low compared to other countries in the world. This low rate of scientific production in the field of spirituality and religion, especially given Iran's position among the Islamic countries and its high rate of scientific production in various fields' calls for further extensive research. Also, the level of cooperation between Iranians and other Muslim scholars in this field is not favorable. As noted by Zangishe et al. (2015), cooperation among researchers can increase the citability and readability of the documents in such fields.

Conclusion

The key contribution of this research is to provide new trends in the most important development and evolution of this particular subject of health and religion for the scientific field and researchers. Health is a broad concept in the World Health Organization. The findings of this study showed that the issue of spirituality and health had been one of the most important topics in the study of three major religions of Islam, Judaism, and Christianity during the last 60 years. The impact of spirituality on physical and mental health can be considered a global phenomenon that is endorsed by many religions, cultures, and traditions around the world. Therefore, the role of spirituality in promoting the health and well-being of

societies cannot be ignored.

Therefore, it is suggested that researchers heavily consider the field, and the topics found in our study are regarded in further studies. This study showed that Iranian researchers need to identify and collaborate with their colleagues at the global level and plan to conduct joint research for promoting the field and having more contributions.

Author Contributions

Project supervision, creation of a design, and drafting of an article: first and second authors. Intervention: third author; and the fourth and fifth authors: data collection and analysis.

Supporting information

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Endnote

1. At a meeting held by ISESCO in 2008 in Baku, the capital of Azerbaijan, the Islamic Conference of Ministers of Higher Education and Scientific Research (ICMHESR) approved the establishment of the Islamic World Science Citation Center (ISC). Islamic universities and research institutes have also been obliged to comply with the ISC. This database's Internet address is: <https://isc.ac/en>

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