



# Dharmic Religions and Health: A Holistic Analysis of Global Health Literature Related to Hinduism, Buddhism, Sikhism and Jainism

Engin Şenel<sup>1,2,3</sup> 

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## Abstract

Bibliometrics and scientometrics are popular and novel disciplines providing information in publication trends in a certain academic field. Although there has been an increasing popularity in bibliometric studies, a limited number of reports have been published in religion and health literature. In this study, to the best of our knowledge we aimed to perform a first bibliometric analysis in the health literature related to Dharmic religions, Hinduism, Buddhism, Sikhism and Jainism. We found a total of 655 health articles related to Dharmic religions as we searched Web of Science databases. The United States of America (USA) ranked first in Health and Hinduism literature with 62 documents followed by India, the UK and Bangladesh ( $n = 40, 33$  and  $6$ , respectively). A detailed keyword analysis revealed that the most used keywords in the field of Hinduism and health were “Hinduism,” “religion,” “spirituality” and “Islam.” The USA was also the leading county in the literature of Buddhism and Health with 159 articles (32.78%) and followed by Thailand, the UK and China (10.72, 6.8 and 6.39%, respectively). The Journal of Religion and Health was noted to be the most prolific source in this field. We found that the developing countries such as India, Thailand, Singapore and Taiwan were found to be included in the most productive countries list on the contrary to previous bibliometric studies in health and religion field.

**Keywords** Health · Dharmic religions · Hinduism · Buddhism · Sikhism · Jainism · Bibliometrics

## Introduction

There are two major religion schools in the world: Abrahamic and Dharmic. Dharmic religions are the family of religions consisting of Hinduism, Buddhism, Sikhism and Jainism from India (Frawley 1992). These religions are also classified as Eastern religions.

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✉ Engin Şenel  
enginsenel@enginsenel.com

<sup>1</sup> Department of Dermatology, Faculty of Medicine, Hitit University, 19030 Çorum, Turkey

<sup>2</sup> Beekeeping and Bee Products Research and Application Center, Hitit University, Çorum, Turkey

<sup>3</sup> Traditional and Complementary Research and Application Center, Hitit University, Çorum, Turkey

Scientometrics and bibliometrics are novel and popular disciplines investigating publication features and trends of academic literature in a certain field (Şenel et al. 2017). Although the number of studies in religion and health area has been increasing gradually by year, the academic literature lacks a sufficient number bibliometric studies in this field (Damiano et al. 2016). In this study, we aimed to investigate bibliometric features of the health literature related to Dharmic religions. To the best of our knowledge, this study was the first bibliometric and scientometric analysis in this field.

## Methods

The sources of this study were databases provided by Web of Science (Thomson Reuters, New York, NY, USA). Web of Science (WoS) includes four databases titled Core Collection, SciELO Citation Index, Korean Journal Database and Russian Science Citation Index. We used “health” and “Hinduism” keywords for Hindu, “health” and “Buddhism” keywords for Buddhist, and “health” and “Jainism” keywords for Jain academic literature. All academic items published during a period of 1975–2017 were included in the study, and all documents produced in 2018 were excluded. SPSS (version 22.0, SPSS Inc., Chicago, IL, USA; licensed for Hitit University, Çorum, Turkey) was used for the statistical analyses. GunnMap free resource was our main website for generating info-maps revealing publication density of the world countries (GunnMap n.d.). Scientometric networks were created by using VOSviewer software (Vosviewer 2017).

## Results

### Hinduism and Health Literature

Hinduism is the third most populous religion of the world with about one billion believers mainly from India, Nepal and Mauritius (Johnson et al. 2015; Vertovec and Malheiros 2002). We found a total of 155 articles as we searched all academic literature with the keywords of “health” and “Hinduism.” We found that high majority of the publications were original articles ( $n = 144$ , 92.9%) followed by unspecified materials, reviews and meetings (36.7, 13.55 and 6.45%, respectively) (Table 1). English was the primary language of the article (97.42%). Religion, psychology and behavioral sciences were the major research areas of Hinduism and Health literature (76.13, 65.81 and 59.35%, respectively). Das Chaudhuri AB (India) and Ghosh A (India) were the most prolific authors with three published items for each.

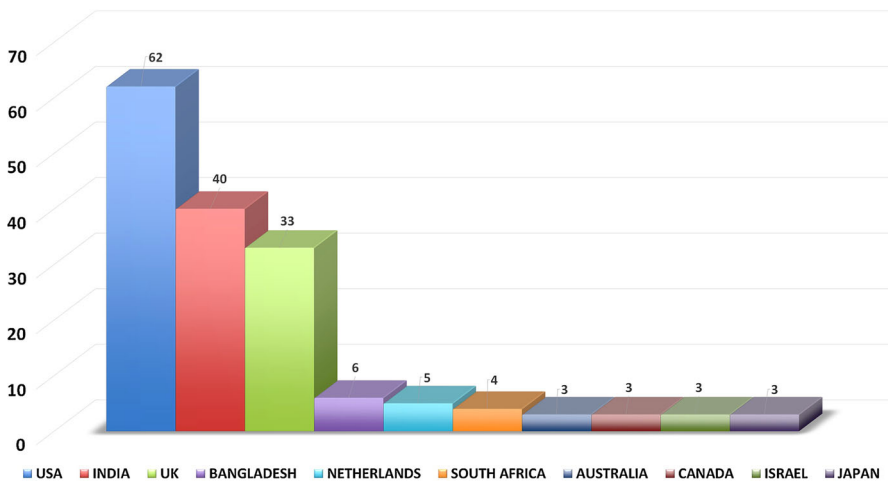
The United States of America (USA) ranked first in the literature with 62 documents published followed by India, the UK and Bangladesh ( $n = 40$ , 33 and 6, respectively) (Fig. 1). The global distribution of the publication density was irregular, and we detected no items published from South America, China and the great majority of Africa (Fig. 2). University of London (UK), University of California (USA), Indian Statistical Institute (India) and University of College London (UK) were the most productive institutions (Table 2). *Journal of Biosocial Science* and *Journal of Religion and Health* were found to be the most contributor journals in this field (Table 3). Meeting and Conference titles in which the most abstracts related to Dharmic religions and health literature were presented between 1975 and 2017 as shown in Table 4. The peak year of Hinduism and Health literature was 2013 with 18 items (Fig. 3). There was no document produced between 1975 and 1980, 1982 and 1984, and 1986 and 1987. A detailed keyword analysis revealed that

**Table 1** Document types in health literature related to Dharmic religions published between 1975 and 2017

Religions <sup>a</sup>	Hinduism		Buddhism		Jainism		Sikhism		Total <sup>b</sup>	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Original article	144	92.9	458	94.43	4	80	8	80	614	93.74
Review	21	13.55	43	8.87	1	20	2	20	67	10.23
Editorial	6	3.87	16	3.3	–	–	–	–	22	3.36
Meeting	10	6.45	30	6.19	1	20	1	10	42	6.41
Letter	4	2.58	2	0.41	–	–	–	–	6	0.92
Case report	5	3.23	11	2.27	–	–	–	–	16	2.44
Abstract	2	1.29	4	0.82	1	20	–	–	7	1.07
News	2	1.29	2	0.41	–	–	–	–	4	0.61
Clinical trial	1	0.64	5	1.03	–	–	–	–	6	0.92
Biography	2	1.29	–	–	–	–	–	–	2	0.3
Unspecified/ others	57	36.78	103	21.24	1	20	–	–	58	8.85
Book	–	–	1	0.21	–	–	–	–	1	0.15
Total <sup>b</sup>	155	100	485	100	5	100	10	100	655	100

<sup>a</sup>Sorted by total number of publications

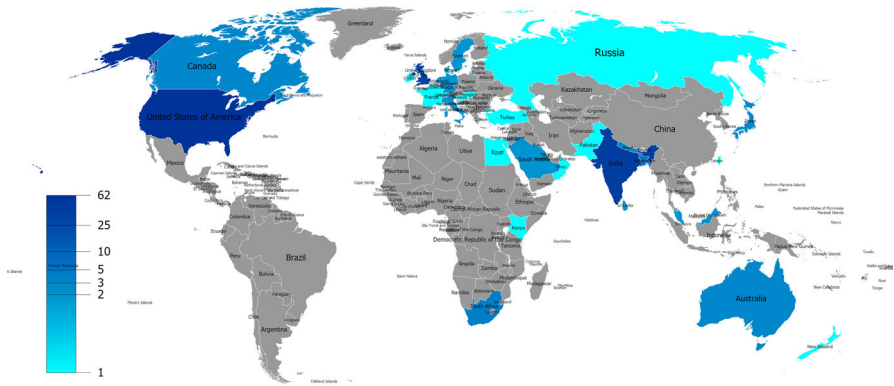
<sup>b</sup>Total percentages may exceed 100% because certain items were included in more than one category



**Fig. 1** Top ten countries producing articles in health and Hinduism field by total number of articles

the most used keywords in the field of Hinduism and health were “Hinduism,” “religion,” “spirituality” and “Islam” (Table 5). Keyword “Hinduism” was noted to be connected “family systems” and “ethnicity” keywords. “Health” and “Ayurveda” keywords were found to be connected in the keyword network (Fig. 4).

H-index of Health and Hinduism literature was measured as 13. We performed a holistic citation analysis of Hinduism and Health literature and noted that the article titled “What



**Fig. 2** World countries publishing in health and Hinduism area

**Table 2** The most productive ten institutions in the literature of health and Dharmic religions published between 1975 and 2017

Hinduism and Health		Buddhism and Health	
Institutions	<i>n</i> / <i>%</i>	Institutions	<i>n</i> / <i>%</i>
University of London, UK	8/5.16	Mahidol University, Thailand	15/3.01
University of California System, USA	7/4.52	Harvard University, USA	12/2.47
Indian Statistical Institute, India	6/3.87	University of California System, USA	12/2.47
University College London, London	6/3.87	National University of Singapore, Singapore	10/2.06
All India Institute of Medical Sciences, India	5/3.23	Chiang Mai University, Thailand	9/1.86
International Centre for Diarrhoeal Disease Research, Bangladesh	5/3.23	Prince of Songkla University, Thailand	9/1.86
University of Calcutta, India	4/2.58	University of California San Francisco, USA	8/1.65
Cornell University, USA	3/1.93	University of London, UK	8/1.65
Duke University, USA	3/1.93	Columbia University, USA	7/1.44
Harvard University, USA	3/1.93	Nottingham Trent University, UK	7/1.44

the World’s religions teach, applied to vaccines and immune globulins” by Grabenstein, John D. was the most cited document in this area (total citations = 423 and average citations per year = 8.67) (Table 6). Average citations of per item in the literature were calculated to be 9.2 times.

### Buddhism and Health Literature

Buddhism is the fourth populous religion in the world with over 500 million followers known as Buddhists (Johnson et al. 2015). It was founded in India subcontinent as a Dharmic religion. We found more documents than Hinduism and Health field as we searched “Buddhism” and “health” keywords in WoS databases. A total of 485 items were yielded in our basic database search. Original articles covered 94.43% of total literature

**Table 3** The most productive 10 journals in Dharmic religions and health literature between 1975 and 2017

Hinduism and Health		Buddhism and Health	
Journals	<i>n</i> / <i>%</i>	Journals	<i>n</i> / <i>%</i>
Journal of Biosocial Science	7/4.52	Journal of Religion and Health	26/5.36
Journal of Religion and Health	5/3.23	Social Science Medicine	11/2.27
Social Science Medicine	4/2.58	Mindfulness	6/1.24
BMC Public Health	3/1.93	Annals of the New York Academy of Sciences	5/1.03
Culture Medicine and Psychiatry	3/1.93	Bul Gyo Hak Yeongu Journal of Buddhist Studies	5/1.03
Lancet	3/1.93	Journal of Advanced Nursing	5/1.03
PLoS ONE	3/1.93	Journal of Clinical Nursing	5/1.03
BMJ Clinical Research	2/1.29	Korean Thought and Culture	5/1.03
British Journal of Oral Maxillofacial Surgery	2/1.29	Longevity Regeneration and Optimal Health Integrating Eastern and Western Perspectives	5/1.03
British Medical Journal	2/1.29	PLoS ONE	5/1.03

**Table 4** Meeting and conference titles in which the most abstracts related to Dharmic religions and health literature were presented between 1975 and 2017

Hinduism and Health	Buddhism and Health
16th Symposium of the International Organisation for Science and Technology Education	Conference on Longevity Regeneration and Optimal Health
1st Asia Pacific Conference on Health Promotion and Education	14th World Multi-Conference on Systemics Cybernetics and Informatics
58th Annual Meeting and Exposition of the American Society of Hematology	16th Symposium of the International Organisation for Science and Technology Education IOSTE
6th Biennial Cambridge International Conference on Mental Health	1st Asia Pacific Conference on Health Promotion and Education
6th Creative Construction Conference	21st Pan Asian Congress of Sports and Physical Education
6th International Congress on Vegetarian Nutrition	22nd International Congress of the Transplantation Society
9th Congress of the Turkish Transplantation Centers Coordination Association	2nd Annual International IEEE EMBS Conference on Microtechnologies in Medicine and Biology
9th World wilderness Congress Symposium Science and Stewardship to Protect and Sustain Wilderness Values	2nd International Conference on Social Work in Health and Mental Health
39th Applied Imagery Pattern Recognition Workshop	3rd International Conference on Computer Technology and Development
Science and Spirituality East and West Conference	3rd International Conference on Health and Health Psychology

(Table 1). English was the major language of the literature (77.11%) followed by Korean (20.82%) and no Sanskrit document was detected. The major research areas of Buddhism and Health were religion, psychology and behavioral Sciences (56.1, 53.4 and 50.1%, respectively). Shonin E and Van Gordon W were noted to be the most prolific authors with eight articles for each.

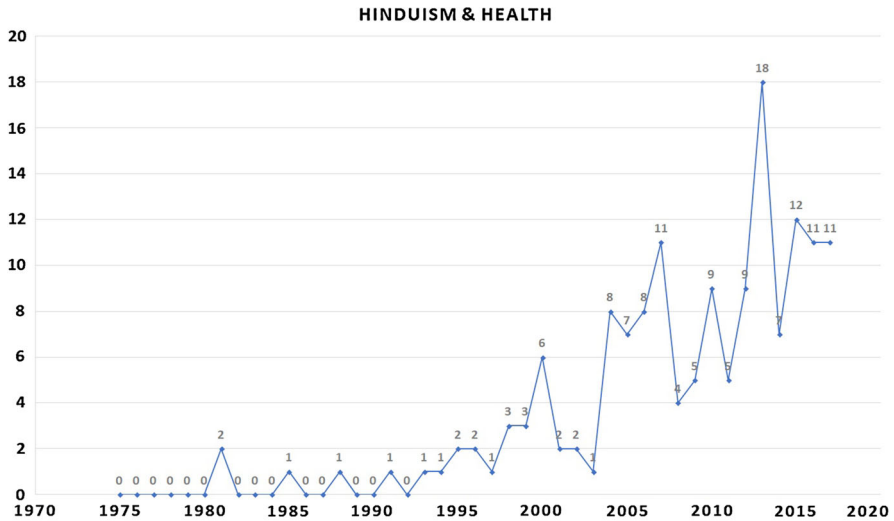


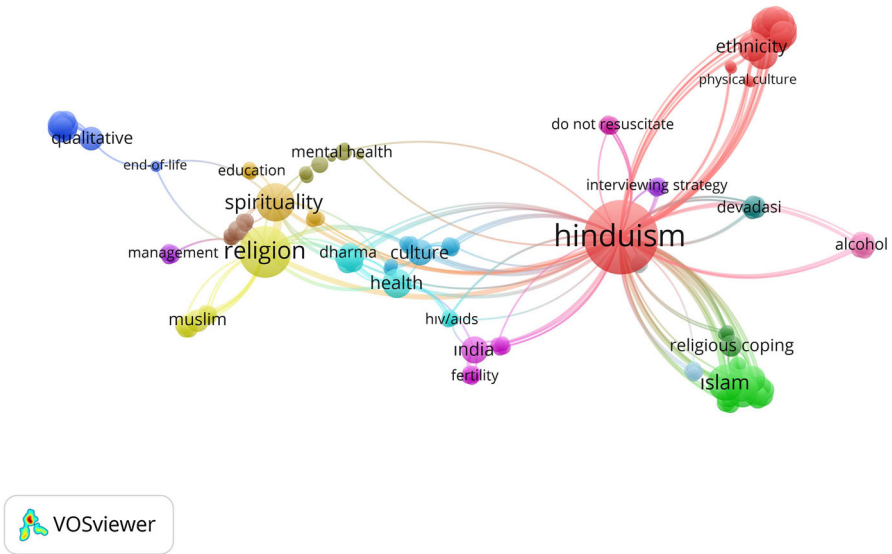
Fig. 3 Total number of publications of health and Hinduism field by year

**Table 5** The most used 10 keywords in the health literature related to Dharmic religions and health

Keywords (total link strength)	
Hinduism and Health	Buddhism and Health
Hinduism (116)	Buddhism (219)
Religion (55)	Mindfulness (61)
Spirituality (30)	Spirituality (59)
Islam (28)	Religion (56)
Christianity (23)	Meditation (52)
Judaism (23)	Christianity (31)
Health (18)	Mental health (28)
India (15)	Taoism (28)
Culture (14)	Psychotherapy (27)
Mental health (6)	Thailand (25)

The USA was also the leading country in the literature of Buddhism and Health with 159 articles (32.78%) and followed by Thailand, the UK and China (10.72, 6.8 and 6.39%, respectively) (Fig. 5). Thailand and China were the major countries producing Buddhism and Health articles although no document was noted from China or Thailand in the field of Hinduism and Health (Fig. 6). Mahidol University (Thailand), Harvard University (USA) and University of California System (USA) were the most contributor institutions in this field (3.01, 2.47 and 2.47%, respectively) (Table 2). *Journal of Religion and Health* and *Social Science Medicine* were noted to be the most productive journals in this field (5.36 and 2.27, respectively) (Table 3). The peak year according to publication numbers by year was 2015 with 50 items (Fig. 7).

H-index of the literature of Buddhism and Health was 31, and total citation number was measured to be 4636 times (4462 times without self-citations and 9.56 times per item). An article titled “From Posttraumatic-Stress-Disorder to Cultural Bereavement: Diagnosis of



**Fig. 4** Network of the most used keywords of health and Hinduism area

Southeast-Asian Refugees” by Eisenbruch, M. was the most cited document in the field of Buddhism and Health ( $n = 194$  times, average citations per year = 6.93 times) (Table 6).

We performed a holistic keyword analysis, and the most used keywords were “Buddhism,” “mindfulness,” “spirituality” and “religion” (Table 5). We found a high connection between “Buddhism” and the keywords of “mindfulness,” “meditation,” “mental health” and “well-being” (Fig. 8).

**Table 6** Most cited 10 articles of the literature related to Dharmic religions and health

Article	Author	Year	Total citations	Average citations per year
<i>Hinduism and Health</i>				
What the World’s religions teach, applied to vaccines and immune globulins	Grabenstein, John D.	2013	52 <sup>a</sup>	8.67 <sup>b</sup>
Vegetarian nutrition: past, present, future	Leitzmann, Claus	2014	35	7
Controversies in faith and health care	Tomkins, Andrew; Duff, Jean; Fitzgibbon, Atallah; et al.	2015	30	7.5
Religion and Sexual Behaviors: Understanding the Influence of Islamic Cultures and Religious Affiliation for Explaining Sex Outside of Marriage	Adamczyk, Amy; Hayes, Brittany E.	2012	30	4.29
Religion, spirituality, health and medicine: Why should Indian physicians care?	Chattopadhyay, S.	2007	26	2.17
Bioethics for clinicians: 19. Hinduism and Sikhism	Coward, H; Sidhu, T	2000	26	1.37
Religious Coping Among Diverse Religions: Commonalities and Divergences	Abu-Raiya, Hisham; Pargament, Kenneth I.	2015	25	6.25

**Table 6** continued

Article	Author	Year	Total citations	Average citations per year
The 3 H and BMSEST Models for Spirituality in Multicultural Whole-Person Medicine	Anandarajah, Gowri	2008	22	2
Religious views of the “medical” rehabilitation model: a pilot qualitative study	Yamey, G; Greenwood, R	2004	20	1.33
Mental health and spiritual values. A view from the East	Wig, NN	1999	20	1
<i>Buddhism and Health</i>				
From Posttraumatic-Stress-Disorder to Cultural Bereavement: Diagnosis of Southeast-Asian Refugees	Eisenbruch, M.	1991	194 <sup>a</sup>	6.93
Mental balance and well-being: Building bridges between Buddhism and western psychology	Wallace, B. Alan; Shapiro, Shauna L.	2006	181	13.92
The Religion Paradox: If Religion Makes People Happy, Why Are So Many Dropping Out?	Diener, Ed; Tay, Louis; Myers, David G.	2011	149	18.63 <sup>b</sup>
A mindfulness-based group psychoeducational intervention targeting sexual arousal disorder in women	Brotto, Lori A.; Basson, Rosemary; Luria, Mijal	2008	149	13.55
Chinese values, health and nursing	Chen, YC	2001	139	7.72
Immigration and religion	Cadge, Wendy; Ecklund, Elaine Howard	2007	117	9.75
Asian students change their eating patterns after living in the United States	Pan, YL; Dixon, Z; Himburg, S; et al.	1999	102	5.1
Refugee trauma versus torture trauma: A retrospective controlled cohort study of Tibetan refugees	Holtz, TH	1998	81	3.86
Empirically Supported Religious and Spiritual Therapies	Hook, Joshua N.; Worthington, Everett L., Jr.; Davis, Don E.; et al.	2010	75	8.33
The effectiveness of a stress coping program based on mindfulness meditation on the stress, anxiety, and depression experienced by nursing students in Korea	Kang, Yune Sik; Choi, So Young; Ryu, Eunjung	2009	68	6.8

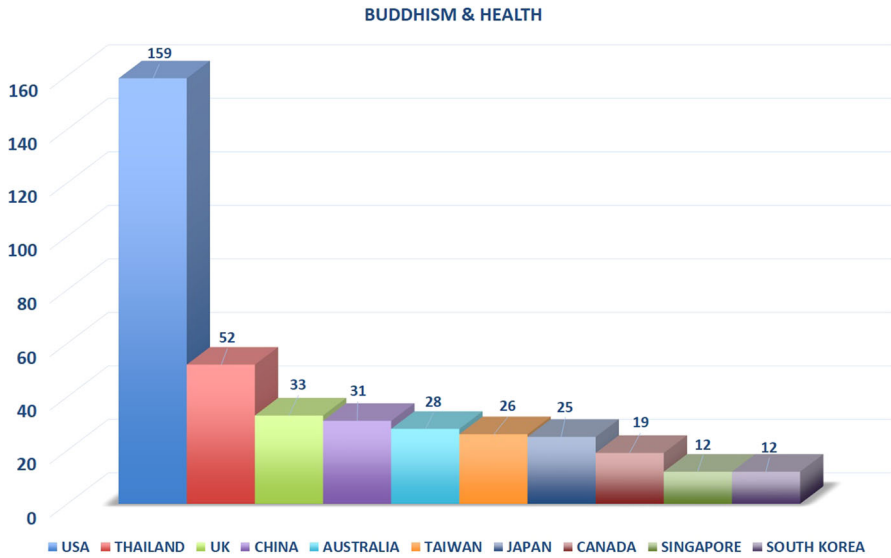
<sup>a</sup>Most cited publications

<sup>b</sup>Documents with the highest citation average by year

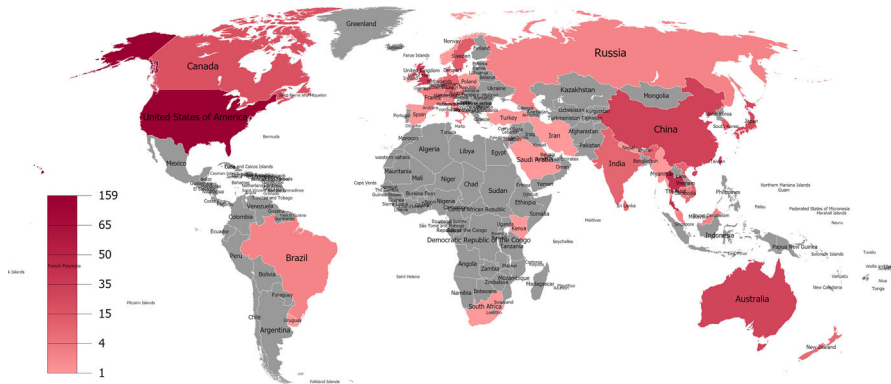
## Jainism and Sikhism

Jainism also known as Jainism or traditionally “Jain Dharma” is one of the oldest surviving religions of the world. It was founded by *Vardhamana Mahavira* in India in the sixth century BC. Jains are the believers of this religion, and they constitute 0.4% of total population of India (Somasundaram et al. 2016). We found only five articles in the literature of Jainism and Health (two documents from India, two from the USA and one from Russia). Sikhism was founded by Guru Nanak more than 500 years ago, and Sikhs





**Fig. 5** The ten most contributor countries publishing articles in health and Buddhism area by total number of items



**Fig. 6** Countries publishing articles in health and Buddhism field

constitute 1.9% of the population on India (Tatla 2008). We detected only ten articles related to Sikhism and Health and eight of which was original article (Table 1).

**Discussion**

Bibliometric and scientometric studies provide quantitative and qualitative analysis of science and academic literature and identify which areas are most active, popular and trending (Broadus 1987). Bibliometric studies reveal productivity of countries, authors and institutions and analyze publication patterns (Muslu 2018). Although there has been an increasing popularity of bibliometric studies, publications investigating academic literature in religion and health field are limited.

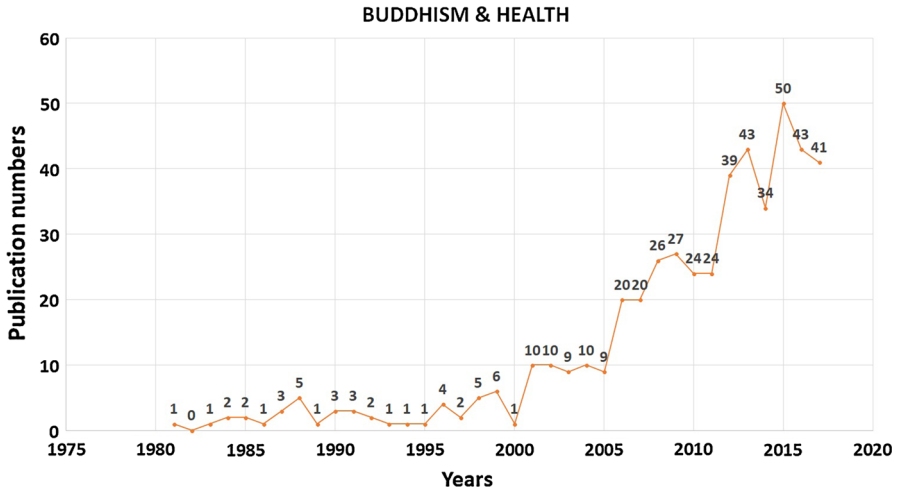


Fig. 7 Total number of publications in health and Buddhism topic by year

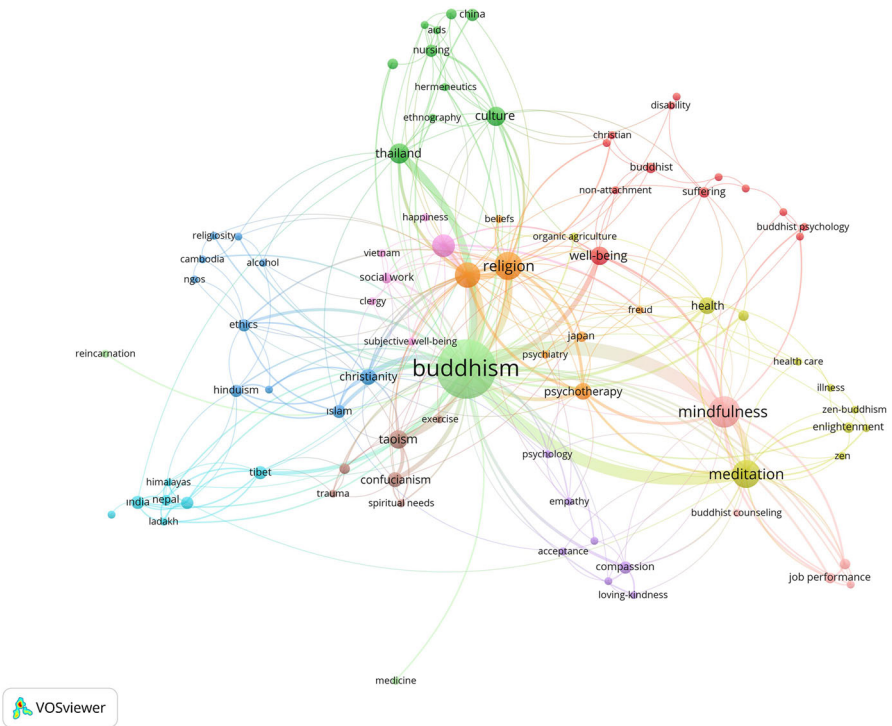


Fig. 8 Keyword network of health and Buddhism field

In 2014, Lucchetti and Lucchetti reported a bibliometric study investigating academic documents between 1999 and 2013 by searching PubMed database and they found that the USA was the most productive country (Lucchetti and Lucchetti 2014). Şenel and Demir

also found that the USA ranked first in all documents published in the *Journal of Religion and Health* between 1975 and 2016 (Şenel and Demir 2018). In a recent published bibliometric study analyzing academic literature related to health and Abrahamic religions, it was reported that the USA was also found to be the most productive country as we detected in our study (Şenel 2018).

Total number of publications related to Dharmic religions was noted to be rather small compared to that related to Abrahamic religions ( $n = 655\text{--}3730$ , respectively). We detected the *Journal of Religion and Health* was the most prolific source in health literature related to Dharmic religions as reported in Abrahamic religions (Şenel 2018).

## Conclusions

In the health literature related to Dharmic religions, on contrary of previous reports we found that the developing countries such as India, Thailand, Singapore and Taiwan were found to be included in the most productive countries list.

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