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# BIBLIOMETRIC ANALYSIS OF LITERATURE GROWTH AND DEVELOPMENT IN YOGA

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**Abstract**

*This article presents a bibliometric analysis of the literature growth and development of "yoga". Yoga was a traditional system of about 5000 years of history and culture. Yoga is rooted in Indian philosophy and has been a part of traditional Indian spiritual practice for millennia. The Indian sage Patanjali prescribed adherence to eight limbs of yoga. It aimed at "quieting one's mind to achieve the union of mind, body and spirit" is called as traditional yoga. Worldwide, it is estimated that yoga is regularly practiced by about 30 million people. Yoga is most often associated with physical postures (asana), breath control (pranayama) and meditation. Meditation is an important part of yoga. Yoga ensures as a peaceful and healthy way in the ancient period and also in now a days. The critical disorders such as Rheumatoid Arthritis, Chronic Pain, Respiratory Problems, Heart Related Diseases, Diabetes, Cancer and Depression are also being controlled by yoga. Postures are used to heal an illness, reduce stress, or to look better. Yogic exercises have been shown to have positive effects on people. A few minutes of yoga practice every day, it prevents all diseases. If everyone has to follow the yoga in early morning, it assures the healthy life. For this Yoga research, the records are collected from Web of Science database for the period of 2009 to 2018. Total number of publications collected for this study was 3256. The collected data were scanned by the "bibexcel tool". This study deals with the highly Productive Journals, Authorship productivity, Publication Year, Document Type, Language, application of Zipf Law, Individual Authors Research Productivity, country wise contribution, h-index, citation analysis.*

**Keywords:** Bibliometrics, Yoga, Meditation, Relative Growth Rate, Doubling Time, Zipf Law, Bibexcel, Pajek

## Introduction

Bibliometrics is derived from Latin/Greek Word which means Biblio 'Books' Metrics 'Measurement'. Bibliometricis used to denote the application of mathematical and statistical methods to book. This is also called as a quantitative analysis. The historical review expresses that F.J. Cole and Nellie B. Eates presented the first recorded study on "Bibliometrics" in 1917 in science progress. Hulme was the first person to use the expression 'statistical bibliography' in 1923. In 1969, Pritchard was a first person used the term "Bibliometrics". He denotes the "application of mathematical methods to books and other media of communication". For quantify productivity distribution Pritchard uses the mathematics and statistical techniques. Bibliometrics is a type of research method used in library and information science. It is a quantitative study and it is used to identify the pattern of publications authorship and secondary journal coverage and dynamics of growth of knowledge. Compare to the past years, the bibliometric researches is to become increasing. Bibliometric techniques are used for determination of scientific indicators, evaluation of scientific output, forecasting the potential. The main purpose is to selection of journals for libraries. The Bibliometrics toolbox was first bibliometrics programmed package. It has developed T.A.Brookes to assist bibliometricians in preparing statistics from their downloaded data. Baskaran and Sivakami analysis the research papers in Swine Influenza about the multiple authorship, most productive institution, languages and journals[1].This Bibliometric study deals with the Research of Authorship Pattern, Research Publication, Document Type, Zipf Law, Lotka's Law, H-Index Etc.

## Yoga

Yoga has a lot of special benefits. Yoga strengthens not only the physically but also mentally and emotionally balanced. Yoga offers in uniting the body, mind and breath.In this computer world, there is no more relaxation in home and in work place to our mind. It leads to the migraines; headaches and sometimes it cause a stress. Yogic exercises have been shown to have positive effects on people with asthma, cardiac diseases, diabetes, tuberculosis, depressive disorders, osteoarthritis, and pleural effusion.A restlessness of the mind affects the body and mind. Yoga gives a peaceful relief from a migraines and headaches. Practicing yoga daily makes calm the mind, reduce stress, regain our focus and improve self- confidence. The delightful news of yoga is that it helps to lose weight and improves the stamina. Not only that, yoga boosts digestion also. Daily process of yoga improves the immunity content. Pregnant ladies and older people do not do

all of the yoga, for that a good idea to check in with doctor before doing up a yoga practice. Moreover deep breathing is used to fight diseases like diabetes, high cholesterol and heart disease.After removal of impurities from the body, and then only we practice yoga in morning. Yoga must be practiced only on empty stomach.For yoga practice, 4 hours gap must be followed, after eating food. Tools of medicine and psychology are majorly used in yoga research. Yoga ensures lower blood pressure. It improves the flexibility of body. Yoga is a continuous process. Yoga can help to fight cancer-related fatigue, manage high-blood pressure. Depression or other mental problems are deals with the yoga. It increases our total health and mental health. Yoga takes care of our body. Yoga and meditation performed together have an enormous benefits and using this combination can make difference in our life.

**Literature review**

Multiple sclerosis (MS) is a chronic and devastating autoimmune demyelinating, neurodegenerative disorder of the central nervous system that has been present in society probably as early as the 14th century. The author suggests that yoga and aerobic exercises improve quality of life in patients with MS[2]. The immediate cardiovascular effects are seen in healthy young volunteers by doing Yoga Asana. Hence, Shavasana also served as a control to the supine rest being carried out after the performance of the other Asanas. Further, cardiovascular recovery is greater after the performance of the Asanas as compared to Shavasana[3]. Each round of Surya Namaskar practice includes 12 postures. It gives the regular physical fitness. Regular Surya Namaskar practice improved cardiopulmonary efficiency in healthy adolescents and was beneficial for both males and females[4]. "Characteristics of randomized controlled trials of yoga: a bibliometric analysis" by Holger Cramer, RomyLauche and Gustav Dubos's growing number of randomized controlled trials (rcts) values of yoga have investigated in this bibliometric analysis. In this analysis, Medline/PubMed, Scopus, the Cochrane Library, IndMED are used[5]. Krishna BH, planned to examine the effects of a 12 week yoga therapy on blood pressure, heart rate, heart rate variability, and rate pressure product (RPP).There was a significant decrease in heart rate, blood pressure and RPP in yoga group compared to control group[6]. Yoga improves the peak oxygen consumption (peak $VO_2$) and health-related quality of life (HRQOL) and reduced heart failure-related hospitalizations. It clarified many clinical aspects of yoga; however, the main outcome measures were mortality, non-fatal cardiac events, exercise capacity and modifiable cardiac risk factors[7]. Laughter Yoga is a method in which there is a combination of unconditional laughter with Yoga breathing exercise (Pranayama) and was firstly suggested by Madan Kataria, an Indian doctor, in 1995. It enhanced feeling of security and

self-belief, positive energy, and distraction from negative thoughts and it cures Sleep disorders are among the positive treatment effects of laughter Yoga. The efficacy of laughter Yoga on IT professionals to overcome professional stress in India showed that there was a significant improvement in stress parameters including the level of blood cortisol[8]. Yoga is an adjuvant therapy for the patients with migraine. Yoga has shown to reduce stress arousal patterns, reduce stress hormones such as cortisol and bring stable autonomic balance in health and diseases[9].Yogic exercises have been shown to have positive effects on people with asthma, cardiac diseases, diabetes, tuberculosis, depressive disorders, osteoarthritis and pleural effusion. The author suggested that yoga training may improve the pulmonary function of patients with Chronic Obstructive Pulmonary Disease[10].

**Limitations**

This research is concentrated on yoga analysis.The records are collected from Web of Science database for the period of 2009 - 2018. Total number of publications collected for this study was 3256.

**Data Analysis**

"Bibexcel" a popular toolbox was used to analyze the data of this yoga research. Bibexcel was developed by Olle Persson, inforsk,Umeauniv (Sweden). This software is intended to assist a user in analyzing bibliometric data or any dataof atextual nature formattedin a similar manner.

**Objectives of the study**

- To examine the Authorship Pattern
- To identify the Publication Year, Relative Growth Rate and Doubling Time
- To assess the Document Type and to determine the Highly Productive Journals
- To indicate the Language wise Distribution and find out the application of Zipf law.
- To ensures the Lotka's Law, to evaluate the country wise contribution and countries Collaboration
- To assure the h-index and analyze the citation analysis

**Distribution of Authors in Yoga Research:**

Distribution of Authors in yoga research is shown in below table-1. The total number of articles gathered from web of science database was 3256. In bibliometric analysis, authorship pattern obtained an important role of work. Mainly, it was used to analyze the number of articles produced by a single, two and multi authors. Here the percentage of articles was also calculated. 569 articles were developed by a single author (i.e.) 17.48 %. Add to that, 465 articles were developed by the two author (i.e.) 14.28% and 479 articles were developed by the three author (i.e.) 14.71%. Thus the output shows that the single author contribution was more than other.

**Table No.1: Distribution of Authors**

| SL.No. | No. of Authors | No. of Articles | Percentage (%) |
|---|---|---|---|
| 1 | Single | 569 | 17.48 |
| 2 | Joint | 465 | 14.28 |
| 3 | Three | 479 | 14.71 |
| 4 | Four | 490 | 15.05 |
| 5 | Five | 423 | 12.99 |
| 6 | Six | 268 | 8.23 |
| 7 | Seven | 176 | 5.41 |
| 8 | Eight | 132 | 4.05 |
| 9 | Nine | 77 | 2.36 |
| 10 | Ten | 60 | 1.84 |
| 11 | More than Ten Authors | 117 | 3.59 |
| **Total** | | 3256 | 100.00 |

**Year wise publication list:**

The ten years from 2009 to 2018 can be taken for the bibliometric analysis of yoga research. The number of publications in the field of yoga was not growth sequentially. There was much more variation in a rapid growth of publication. The full details of year wise publication is shown in the below table-2. In the year 2009 the number of publication produced was 146 but in the next year 163. It shows the number of publication was increasing year by year.

Relative Growth Rate (RGR) over the particular period of interval can be measured from the next equation:

$$1\text{-}2^{R} = \mathrm{Log}_{e}W_{2} - \mathrm{Log}_{e}W_{1}/T_{2} - T_{1}$$

$1\text{-}2^{R}$ = mean relative growth rate over the specific period of interval

$log_e W_1$ = log of initial number of articles/pages

$log_e W_2$ = log of final number of articles/pages after a specific period of interval

$T_2$ - $T_1$ = the unit difference between the initial time and the final time

$aa^{-1}$ = average no. of articles

The year can be take here as the unit of time. The Relative Growth Rate for the articles and pages can be calculating separate.

Therefore

$1 - 2^{R\ (aa-1\ year-1)}$ can represent the mean RGR per unit of articles per unit of year over a specific period of interval.

2010 = $Log_e$ 26 – $Log_e$ 10/2010 -2009

= 5.73– 4.98/1 = **0.75**

2011 = $Log_e$ 36 – $Log_e$ 26/2011-2010

= 6.29–5.73/1 = **0.56**

There is equal decreasing order from 0.75 to 0.17

**Table No.2: Yoga Research Productivities, Relative Growth Rate and Doubling Time**

| SL. No. | Year | Quantum of Output | Cumulative Total of Output | $W_1$ | $W_2$ | $1 - 2^{R\ (aa-1\ year-1)}$ RGR | Dt(a) |
|---|---|---|---|---|---|---|---|
| 1 | 2009 | 146 | 146 | | 4.98 | | |
| 2 | 2010 | 163 | 309 | 4.98 | 5.73 | 0.75 | 0.92 |
| 3 | 2011 | 228 | 537 | 5.73 | 6.29 | 0.56 | 1.25 |
| 4 | 2012 | 251 | 788 | 6.29 | 6.67 | 0.38 | 1.83 |
| 5 | 2013 | 335 | 1123 | 6.67 | 7.02 | 0.35 | 1.96 |
| 6 | 2014 | 366 | 1489 | 7.02 | 7.31 | 0.29 | 2.42 |
| 7 | 2015 | 362 | 1851 | 7.31 | 7.52 | 0.21 | 3.25 |
| 8 | 2016 | 442 | 2293 | 7.52 | 7.74 | 0.22 | 3.18 |
| 9 | 2017 | 469 | 2762 | 7.74 | 7.92 | 0.18 | 3.77 |
| 10 | 2018 | 494 | 3256 | 7.92 | 8.09 | 0.17 | 4.12 |

For Doubling Time of article Dt (a**)**, there exists a direct equivalence between the relative growth rate and the doubling time. "If the number of articles/pages of a subject doubles during a given period then the difference between the logarithms of numbers at the beginning and end of this period must be logarithms of number 2. If natural logarithm is used this difference has a value of 0.693. Thus the corresponding doubling time is for each specific period of interval."

$$\text{Doubling time (Dt)} = \frac{0.693}{\bar{R}}$$

Therefore,

$$\text{Doubling time for articles Dt (a)} = \frac{0.693}{1 - 2^{\bar{R}(aa^{-1}\,year^{-1})}}$$

2010 = 0.693/0.75 = 0.92

2011 = 0.693/0.56 = 1.25

There is increasing order in the Doubling Time 0.92 to 4.12.

**Document type**

In the yoga analysis, 14 document types were found. The 3256 publications were produced in the topic related to yoga; most of the research society chooses the "Articles" to publish their researches. That was 1871 records (i.e.) 57.46% are articles. The second largely used document type was "meeting abstract" of 540 records (i.e.) 16.58%. Sometimes the research work presented in the "review" has 485 records (i.e.) 14.90%.Table- 3 shows the Document type,

**Table No.3: Document type of Yoga**

| SL.No. | Document Type | Record | Percentage (%) |
|---|---|---|---|
| 1 | Article | 1871 | 57.46 |
| 2 | Meeting Abstract | 540 | 16.58 |
| 3 | Review | 485 | 14.90 |
| 4 | Book Review | 124 | 3.81 |
| 5 | Editorial Material | 113 | 3.47 |
| 6 | Letter | 47 | 1.44 |
| 7 | Proceedings Paper | 32 | 0.98 |
| 8 | Correction | 19 | 0.58 |
| 9 | News Item | 11 | 0.34 |
| 10 | Book Chapter | 6 | 0.18 |
| 11 | Poetry | 4 | 0.12 |
| 12 | Art Exhibit Review | 2 | 0.06 |
| 13 | Film Review | 1 | 0.03 |
| 14 | Biographical-Item | 1 | 0.03 |
| **Total** | | **3256** | **100.00** |

**Highly Productive journals**

Related to the yoga analysis, the maximum number 139 records were produced by "Journal of alternative and complementary medicine" and then "Complementary therapies in medicine" produced 88 records. The third highly productive journal was "Evidence - Based Complementary and Alternative Medicine" with 83 records. The full details of Highly Productive journals is shown in the below table-4. Here we can view the top Fifteen Journals and the number of records.

**Table No.4: Highly Productive Journals**

| SL.No. | Source Journal | No.of.Records |
|---|---|---|
| 1 | Journal of alternative and complementary medicine | 139 |
| 2 | Complementary therapies in medicine | 88 |
| 3 | Evidence-based complementary and alternative medicine | 83 |
| 4 | Medicine and science in sports and exercise | 82 |
| 5 | Complementary therapies in clinical practice | 58 |
| 6 | Annals of behavioral medicine | 55 |
| 7 | BMC complementary and alternative medicine | 48 |
| 8 | Cochrane database of systematic reviews | 44 |
| 9 | Indian journal of psychiatry | 43 |
| 10 | Library journal | 41 |
| 11 | Explore-the journal of science and healing | 37 |
| 12 | Alternative therapies in health and medicine | 31 |
| 13 | Journal of clinical oncology | 31 |
| 14 | PLOS one | 30 |
| 15 | Mindfulness | 27 |

1068 Journals produces 3256 Yoga research. On the basis of "SO" field, we got .doc. .out and .cit file. To find out the sentence case of letter, the .cit file is undergoing the "Edit out file/ Convert for Upper Lower case/ Good for reference cited strings.

**Language wise Distribution List**

The full details of language wise distribution list is shown in the below table-5. English is a language to communicate all of the learned society throughout the world. Other languages are still not reached that exclusive place. Most of the researchers want to present a paper in the English language. If we see in the below table, we can understand this truth. 3181 articles were produced in the English language and German language takes the second place of 31 numbers of articles. If we compared the both English and German language there is a huge difference in number of articles produced in each language.

**Table No.5: Language wise Distribution**

| SL.No. | Language | No of Article | Percentage (%) |
|---|---|---|---|
| 1 | English | 3181 | 97.70 |
| 2 | German | 31 | 0.95 |
| 3 | Portuguese | 12 | 0.37 |
| 4 | Spanish | 8 | 0.25 |
| 5 | French | 8 | 0.25 |
| 6 | Russian | 5 | 0.15 |
| 7 | Lithuanian | 3 | 0.09 |
| 8 | Polish | 2 | 0.06 |
| 9 | Korean | 2 | 0.06 |
| 10 | Slovene | 1 | 0.03 |
| 11 | Czech | 1 | 0.03 |
| 12 | Icelandic | 1 | 0.03 |
| 13 | Hungarian | 1 | 0.03 |
| **Total** | | **2282** | **100** |

**Application of Zipf law:**

Zipflaw explains that which keyword was used number of times. Using the bibexcel tool, the data collected from web of science was arranged.Total Keywords used to search Yoga was 4258.The “Quality-of-Life” is a keyword used frequently of 380 times to search the yoga and followed that “Randomized Controlled-Trial” was used to search of 359 times. The keyword “Exercise” used in 306 times and the main keyword “Yoga" was searched in 284 times. It takes the fourth place only. The full details of Application of Zipf law is shown in the below table.

**Table No.6: Application of Zipf Law**

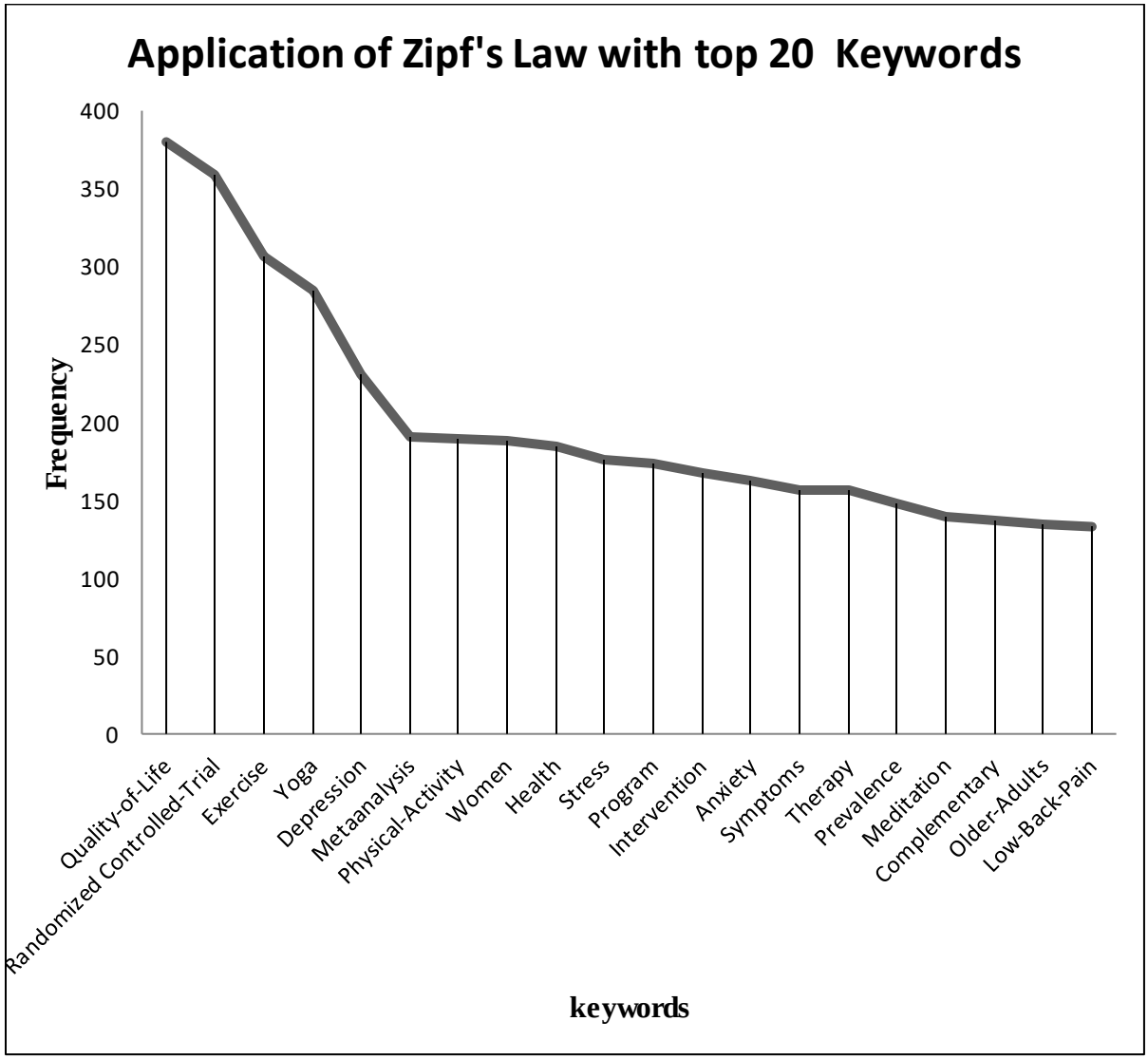
| SL.No. | Keyword | No of times used |
|---|---|---|
| 1 | Quality-of-Life | 380 |
| 2 | Randomized Controlled-Trial | 359 |
| 3 | Exercise | 306 |
| 4 | Yoga | 284 |
| 5 | Depression | 231 |
| 6 | Metaanalysis | 191 |
| 7 | Physical-Activity | 189 |
| 8 | Women | 188 |
| 9 | Health | 184 |
| 10 | Stress | 176 |
| 11 | Program | 173 |
| 12 | Intervention | 168 |
| 13 | Anxiety | 163 |
| 14 | Symptoms | 157 |
| 15 | Therapy | 156 |
| 16 | Prevalence | 148 |
| 17 | Meditation | 140 |
| 18 | Complementary | 137 |
| 19 | Older-Adults | 135 |
| 20 | Low-Back-Pain | 133 |

Zipf Law is the governing of relation between the rank of a word and frequency of its appearance in a long text. If "r" is a rank of words (keywords) and "f" is its frequency (No. of Times) the Zipf's Law stated as flow

$$r f = c$$

For this yoga research 2503 key words are used as Mesh Heading. Here we selected 25 words for implementing Zipf's Law; the curve also came as a result.

**Figure 1: Application of Zipf's Law with top 20 Keywords**




**Prolific Authors Contribution**

The main concept of this law is “maximum number of articles are done by minimum number of author”. This law states that the individual authorcontribution in the No of publications. Rabindra implement Lotka’s Law of scientific research productivity of LIS Research in India during 1999-2013[11]. 9034 author’s works for 3256 publication of yoga.Most of 74 publications were produced by the author “Cramer H”. The 53 publications were produced by “Dobos G” and 51 publications were produced by the "Lauche R.This table -7 explains the top 20 Prolific Authors name and the number of contributions in Yoga.

**Table No.7: Prolific Authors Contribution**

| SL.No. | Name of the Author | No. of Publications |
|---|---|---|
| 1 | Cramer H | 74 |
| 2 | Dobos G | 53 |
| 3 | Lauche R | 51 |
| 4 | Telles S | 45 |
| 5 | Langhorst J | 35 |
| 6 | Gangadhar BN | 33 |
| 7 | Varambally S | 31 |
| 8 | Nagendra HR | 27 |
| 9 | Cohen L | 27 |
| 10 | Michalsen A | 26 |
| 11 | Sherman KJ | 25 |
| 12 | Khalsa SBS | 24 |
| 13 | Nagarathna R | 23 |
| 14 | Balkrishna A | 20 |
| 15 | Mustian KM | 19 |
| 16 | Sibbritt D | 18 |
| 17 | Schmid AA | 18 |
| 18 | Van Puymbroeck M | 18 |
| 19 | Peppone LJ | 17 |
| 20 | Huberty J | 17 |

**Country wise contribution**

The table-8 shows the Country wise contribution List. Thereare 2048 countries were contributed in the yoga analysis. On that, USA takes the first place of about 1985 contribution. And in second place India is followed by 385 contributions. United Kingdom is followed by an India of 226 contributions related to yoga research. The below figure shows, the contributed countries are indicated in Red color circle.The highly contributed country (i.e) U.S.A is shown in big red circle and followed that India's contribution in yoga is in second place so it indicates in next smaller size than U.S.A. The lowest contributed countries are shown in small circles.

**Table No.8: Country wise contribution**

| SL.No. | Country | No. of Records |
|---|---|---|
| 1 | USA | 1985 |
| 2 | India | 385 |
| 3 | UK | 226 |
| 4 | Australia | 216 |
| 5 | Germany | 196 |
| 6 | Canada | 194 |
| 7 | Peoples R China | 101 |
| 8 | Brazil | 80 |
| 9 | South Korea | 59 |
| 10 | Sweden | 56 |
| 11 | Netherlands | 52 |
| 12 | Japan | 50 |
| 13 | Italy | 50 |
| 14 | Holger | 49 |
| 15 | Spain | 43 |

**Country's Collaboration**

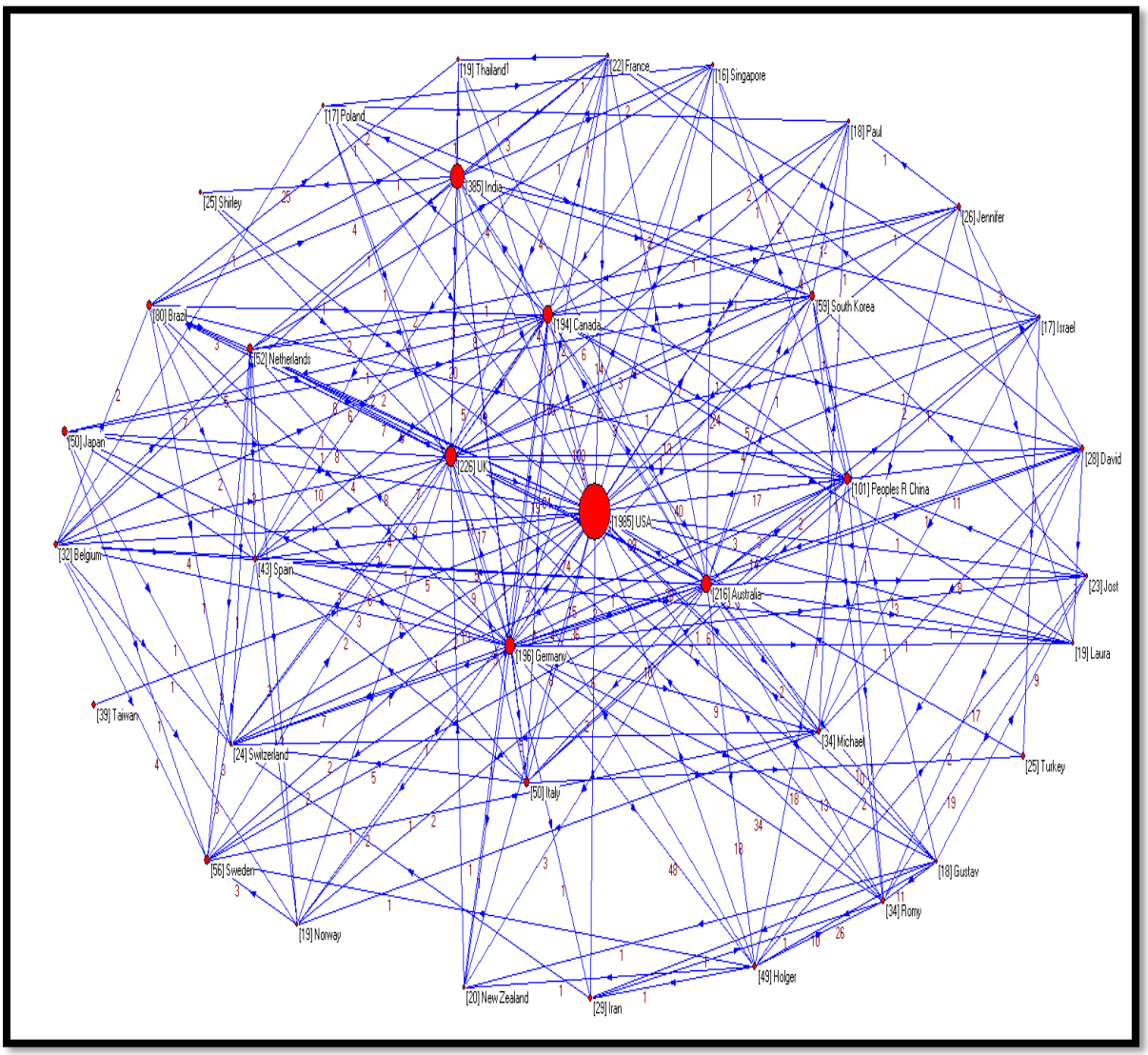
Every country is prepared to do collaborative effort with other country. Here 224 countries are done joint work. India worked with USA with 150 times. Canada had done 103 collaborative works with USA. India done research with countries like Shirley (25), UK (20), Australia (9), Germany (8), Brazil (4), Italy (3), France (3), Brazil (1), Poland (2) Belgium (1), Peoples R China, Israel, South Korea and Spain (1) times. It is growing situation. Here we can view the top 20 countries collaboration and with 19 and above number of records.

**Table No.9: Countries Collaboration in Yoga**

| SL.No. | Country | Collaborative Country | No. of Records |
|---|---|---|---|
| 1 | India | USA | 150 |
| 2 | Canada | USA | 103 |
| 3 | Australia | USA | 89 |
| 4 | UK | USA | 84 |
| 5 | Germany | USA | 74 |
| 6 | Germany | Holger | 48 |
| 7 | Peoples R China | USA | 40 |
| 8 | Australia | Germany | 36 |
| 9 | Netherlands | USA | 35 |
| 10 | Germany | Romy | 34 |
| 11 | Brazil | USA | 28 |
| 12 | Holger | Romy | 26 |
| 13 | India | Shirley | 25 |
| 14 | Jennifer | USA | 24 |
| 15 | Germany | Jost | 23 |
| 16 | India | UK | 20 |
| 17 | Michael | USA | 20 |
| 18 | Australia | UK | 19 |
| 19 | Jost | Romy | 19 |
| 20 | Sweden | USA | 19 |

On the basis of the authors address field (RP), the country was found out. The researchers are willing to share their experience with other country scientists. By their wider study countries teamwork is achievable. The bulk of the ball shows the collaborations. If the number of results are more the size of the ball is very big. We can find out the number of times collaborations with in the lines. USA [1985] had done 150 collaborative researches with India. It shows in the lines. The lines and values are very clear. For getting this Vector Map the researcher select the top Twenty Countries produced results more than 19 research results. The size of the ball is different according their production.

**Figure 2: Vector Mapof Countries and Number of Collaborations**




## H-index of Highly Productive Authors

H-index which shows thatlargest number h, where a journal has at least h of its articles cited at least h times. For Eg, ifan author has an h-index of 10 if 10 of its papers have each been cited at least 10 times. Here “Dobos G ” produced 53 articles. His h-index is 23 and his 23 articles got the 1098 citations. So, his overall citation is 1342. He is the leading and the first person to have lot of citations. But “Cramer H” produced 74 articles. His h-index is only 23The full details of H-index of highly productive authors are shown in the below table-10.

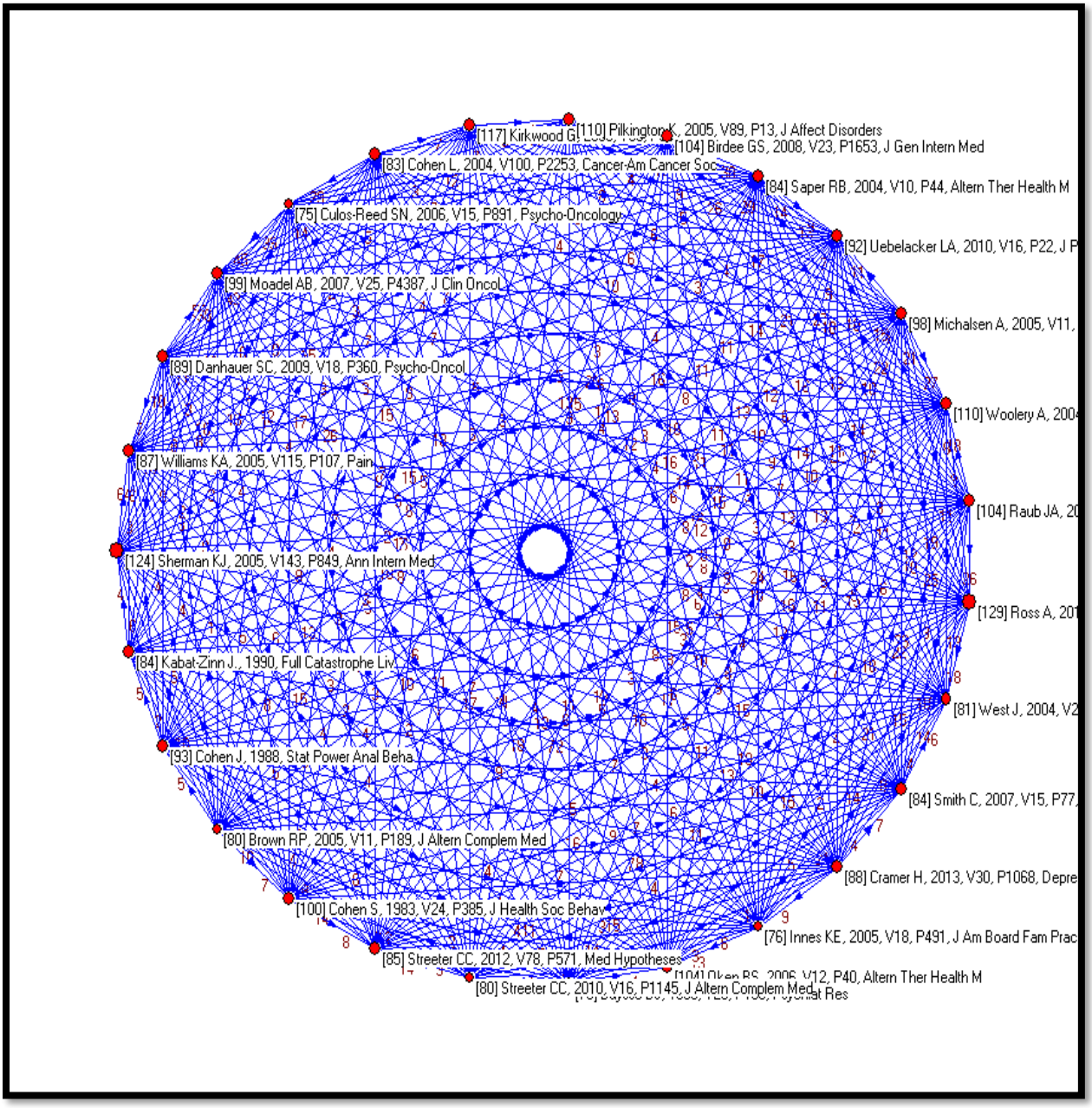
**Table No.10: H-Index of Highly Productive authors**

| SL.No. | Author | H-index | Citation sum within h-core | All citations | All articles |
|---|---|---|---|---|---|
| 1 | Dobos G | 23 | 1098 | 1342 | 53 |
| 2 | Cramer H | 23 | 1110 | 1452 | 74 |
| 3 | Lauche R | 21 | 951 | 1143 | 51 |
| 4 | Langhorst J | 17 | 623 | 760 | 35 |
| 5 | Sherman KJ | 16 | 686 | 741 | 25 |
| 6 | Michalsen A | 13 | 513 | 551 | 26 |
| 7 | Gangadhar BN | 11 | 302 | 387 | 33 |
| 8 | Telles S | 11 | 318 | 449 | 45 |
| 9 | Nagendra HR | 11 | 676 | 697 | 27 |
| 10 | Nagarathna R | 11 | 593 | 638 | 23 |
| 11 | Varambally S | 11 | 321 | 400 | 31 |
| 12 | Khalsa SBS | 11 | 386 | 445 | 24 |
| 13 | Ernst E | 10 | 331 | 331 | 10 |
| 14 | Thirthalli J | 10 | 219 | 223 | 16 |

**Citation Analysis**

The retrieved data were also analyzed with the "bibexcel tool". With the help of "any: separator text" in the bibexcel tool the cited document was analyzed. Finally, ".Out file" was recorded. Then ".net" file was created. The ".net" file is also called as Pajek. Pajek is a mapping tool. Here "Pajek118" was used to mapping the data.After opening the Pajektool, click draw/draw. Then choose the layout - energy - kamada-kawai-separate compounds. Finally, the below image is shown.

**Figure 3: Citation Map of Yoga**




In this citation analysis, the group of scientists and their publications results can be anlayzed. Jennifer Noe and Julia Furay studied that medical and science/technology journals cited most often from Social Science, 70% and 12%, respectively. This will be of help to collection development and subject librarians[12].The top 15 citations are placed here. In the below table shows that the "Ross A, 2010, V16, P3, J Altern Complem Med" can be cited more times of 129 records followed that "Sherman KJ, 2005, V143, P849, Ann Intern Med" can be cited of 124times.

**Table No.11: Highly Citated Articles in Yoga Research**

| SL.NO. | Cited Articles | No. of Times Cited |
|---|---|---|
| 1. | Ross A, 2010, V16, P3, J AlternComplem Med | 129 |
| 2. | Sherman KJ, 2005, V143, P849, Ann Intern Med | 124 |
| 3. | Kirkwood G, 2005, V39, P884, Brit J Sport Med | 117 |
| 4. | Pilkington K, 2005, V89, P13, J Affect Disorders | 110 |
| 5. | Woolery A, 2004, V10, P60, AlternTher Health M | 110 |
| 6. | Birdee GS, 2008, V23, P1653, J Gen Intern Med | 104 |
| 7. | Raub JA, 2002, V8, P797, J AlternComplem Med | 104 |
| 8. | Oken BS, 2006, V12, P40, AlternTher Health M | 104 |
| 9. | Cohen S, 1983, V24, P385, J Health Soc Behav | 100 |
| 10. | Moadel AB, 2007, V25, P4387, J Clin Oncol | 99 |
| 11. | Michalsen A, 2005, V11, Pcr555, Med Sci Monitor | 98 |
| 12. | Cohen J, 1988, Stat Power Anal Beha | 93 |
| 13. | Uebelacker LA, 2010, V16, P22, J PsychiatrPract | 92 |
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**Findings**

Yoga literature was downloaded from Web of Knowledge from 2009 to 2018 for ten years. The researcher got 3256 as result. The data was downloaded in the txt format and analysis with the Bibexcel Tool. For single authors produced 17.48 %. Most of the research done by collaborative authors only. The number of publications in the field of yoga was growth sequentially. In 2009 the result was 146 but in 2018 the publication was 494.In this present study, most of the research society chooses the "Articles" to publish their researches. That is 1871 (57.46%) are in articles. In the Highly Productive Journals category, the maximum number 139 records were produced by

“Journal of alternative and complementary medicine”. Most of the researchers want to present their paper in the “English language” with 3181 (97.70%). In the Application of Zipf law, the “Quality-of-Life” is a keyword used frequently of 380 times to search the yoga. Most of 74 publications were produced by the author “Cramer H” has published 74.2048 countries were contributed in the yoga analysis. On that, USA takes the first place of about 1985 contribution. India took second place with 385 . Though “Dobos G” produced 53 results his h-index is 23. His Twenty three articles cited 1098 times. His total number of citation is 1342. For the Citation analysis “Ross A, 2010, V16, P3, J Altern Complem Med” was cited 129 times. The citation map was created with the help of “Pajek” Tool

**Conclusion**

Yoga is to become a part of modern young generation due to that simple processing steps weight loss, beautiful skin, flexible body and peaceful mind. In all over the world, the awareness and benefits of yoga is increasing and majority of countries are accepted the Yoga and Yoga day on June 21st. The international yoga day was celebrated in over the world. It ensures that the mass of self-awareness about yoga has been increasing. More than millions of people meditate regularly, throughout the world. . Health realization of people which ensures that they are all turns into yoga and meditation. Yoga & meditation both givesbest benefits to the brain and body.Yoga exercises increased immunity power and fight against the tumors and to viruses. Yoga has no side effects.Yoga is not only says the stretching. But it involved creating balance in the body through developing both strength and flexibility.Yoga and meditation makes charge to our health. And no doubt, practice yoga daily leads to a healthy and happiest life. It not only cures the diseases alone but also does the prevention of diseases.

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