EXERCISE FOR POSTMENOPAUSAL WOMEN: A BIBLIOMETRIC STUDY

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Abstract

The present paper focused on Exercise for Postmenopausal Women: A Bibliometric study. The Study analyzed research productivity for a period of 05 years between 2018 and 2022& forthis Pub-Med database are used.In this 05 years period total 546 articles present on Exercise for Postmenopausal women. Analysis part focuses on the parameters like Journal, Author, ranking of contributing institutions and countries and total Keywords used in this articles. RStudioand VOSviewer application software have been used to present the datasets.

Keywords: Bibliometrics, Exercise, Menopause, Postmenopausal Women. Pub-Med, R-Studio

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Introduction

Definition: According to Pritchard "The Application of mathematics and statistical methods to books and other media of communication; Methodology of the information transfer process and its purpose is analysis and control of the process.

Bibliometric studies are useful for many purposes including general overviews of a research field and the analysis of leading researchers (Bjork et al. 2014). One of the main issues for providing an interesting bibliometric analysis is the determination of the most significant indicators for measuring the bibliographic material. Bibliometrics can be applied to any subject area and to most of the problems concerned with written communication. It helps to monitor growth of literature and patterns of research Bibliometrics is an emerging thrust area of research from different branches of human knowledge. Bibliometrics has become a standard tool of science policy and research management in the last decades. All significant compilations of science indicators heavily rely on publication and citation statistics and other, more sophisticated bibliometric techniques. Bibliometrics is a quantitative evaluation of publication patterns of all macro and micro communication along with their authorship by mathematical and statistical calculation. [Sengupta, 1985]

Review of Literature:

Gaikwad Deepa N. and Khaparde Vaishali.S. (2023) in their Bibliometric study highlighted the trends in authorship pattern and author's collaborative research in Acute Gastrointestinal Bleeding with a sample of 1920 articles collected from Pub Med database during 2009-2018.The study reveals the conclusion about the three Laws of Bibliometrics i.e. Lotka's law (No. of authors) Bradford law (No. of journals) and Zipf's Law of (Word Occurrence). Their findings must reveal various aspects of the characteristics and patterns of contributions of the study. In this study examines different trends on authorships such as Collaborative Index, Collaborative Coefficient, Moderate Collaborative Coefficient, and Collaborative - Authorship Index. Examine research performance national as well as Global contexts, Medicinal group as reflected in the publication output.

Gaikwad Deepa N. and Khaparde Vaishali .S. (2019) were studied in scientometric analysis on mapping of plagiarism research output in India. The Study analyzed the plagiarism research performance of India in national as well as global Context, Focused on geographical distribution that the most of the publication are from USA with 19.32% the study explained that the solo Research is predominant than the collaborative research and the degree of collaboration is 0.87 also shows that the Relative growth rate [R (A) is (0.346) while the Doubling time DT (A) gradually increased from (1.548) that shows rate of publication was decreased, the Doubling time was increased.

Khandare Jayshila K. and Khaparde V.S. (2015) paper deals with scientometric analysis of the new library world. The study cover bibliographical distribution of citations year wise, ranking of authorship pattern, observe average length of articles Geographical distribution of contributors of articles, subject trends of articles. 'The new library world' have 5 volumes, 39 issues of the New Library world during 2005-2009. Highest numbers of contributors are from USA with 104 articles with (46.22%) Single authors are predominant than collaborative author.

Khaparde V.S and etal (2014) Mapping of Library and Information Science Research Based on LISA (2006-2010) observed their article the top 30 most productive Indians and foreign journals contributing to Indian library and information science output together contributed 95.34 % share in the cumulative publication output of Indian in library and information research during 2006-2010 the cumulative share of these 30 journals showed decrease from 99.04 % in 2006-2008 to 86.95 % in 2009-2010.

Postmenopause:

Postmenopause is the time after menopause, when a woman hasn't experienced a period for over a year. Postmenopause, you will no longer have periods but some women do continue to experience symptoms of menopause. During post-menopause, some symptoms such as hot flushes usually become less concerning or disappear altogether. A woman's risk of cardiovascular disease and osteoporosis naturally increase in post-menopause. Post-menopause is a good time to go for important health checks such as a mammogram and pelvic exam. During this time, many of the bothersome symptoms a women may have experience before menopause gradually decrease.

Exercise for Postmenopausal Women

Exercise plays an important role in maintaining bone health. It also improves muscle strength, balance and fitness, and reduces the incidence of falls and fractures. It's recommended you do 30 to 40 minutes of physical activity most days of the week. Exercise certainly can ease specific menopause symptoms, including the loss of muscle mass and bone density, a lack of energy, feelings of

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anxiety, depression and trouble sleeping. These are best for those who are not osteoporotic, not have low bone mass, and are not frail. Weight bearing, low impact exercises: Are walking (treadmill/outside), elliptical training machines, stair step machines, and low impact aerobics. Routine should include aerobic exercises like swimming, walking, bicycling, and running, as well as resistance or strength training. Petty recommends a combination of strength training and cardio workouts to maximize health benefits and boost hormone levels. High-intensity exercises like squats, lunges, pull-ups, crunches and pushups are ideal, with minimal rest time in between.

Pub-Med:

PubMed is a free search engine accessing primarily the MEDLINE database of references and abstracts on life

sciences and biomedical topics. The United States National Library of Medicine (NLM) at the National Institutes of Health maintain the database as part of the Entrez system of information retrieval. PubMed has been reported to include some articles published in predatory journals. MEDLINE and PubMed policies for the selection of journals for database inclusion are slightly different. Weaknesses in the criteria and procedures for indexing journals in PubMed Central may allow publications from predatory journals to leak into PubMed. The National Library of Medicine had respond that individual journal articles can be included in PMC to support the

public access policies of research funders and that rigorous policies about journals and publishers ensure integrity of NLM literature databases.

Scope and Limitation: The present study is based is based on Exercise for Postmenopasual Women: A Bibliometric study on PubMed database of 05 years in between 2018-2022. Total articles gathered in this period are 546. And other major information are presented in main information of collection table below.

Objectives of the Study

1. To study the Annual growth year-wise distribution of articles
2. To identify most relevant sources.
3. To identify the most relevant author.
4. To study Lotka's law of Authors
5. To examine most relevant Affiliation of contribution.
6. To measure country wise distribution of articles.
7. To measure most relevant Keyword of distribution of articles

Methodology

Methodology means study of method or A. system of methods and rule applicant to research or work. It is connected basically with what principles and technique to be follow for collecting data information and material for a given research project. (Kothari, 1990). For the present study quantitative research method is used.

Data analysis and results

Table No. 01 Main Information about the collection

Description	Results
MAIN INFORMATION ABOUT DATA	
Timespan	2018:2022
Sources (Journals, Books, etc.)	243
Documents	551
Average years from publication	2.76
DOCUMENT TYPES	
case reports	2
journal article	202
other types of documents	108
DOCUMENT CONTENTS	
Keywords Plus (ID)	1483
Author's Keywords (DE)	1483
AUTHORS	
Authors	2960
Author Appearances	3923
Authors of single-authored documents	8
Authors of multi-authored documents	2952
AUTHORS COLLABORATION	
Single-authored documents	8

Documents per Author	0.186
Authors per Document	5.37
Co-Authors per Documents	7.12
Collaboration Index	5.44

An analysis of the collected data has led to several interesting findings that reflect the scholarly qualities of the source articles. Total Timespan taken for the study is 2018-2022, in this period of time sources available i.e. (243), average years from publication (4.06), documents (551), various document types are present i.e. highest is Journal Article (202) other review article and other form of documents are (108) Case Report (2) authors (2960),Author Appearance (3923) authors of single-authored documents (8), authors of multi-authored documents (2952), Documents per Author (0.186) Authors per Document (5.37) Co-Authors per Documents (7.12

Table No 2 Year wise distribution of Article

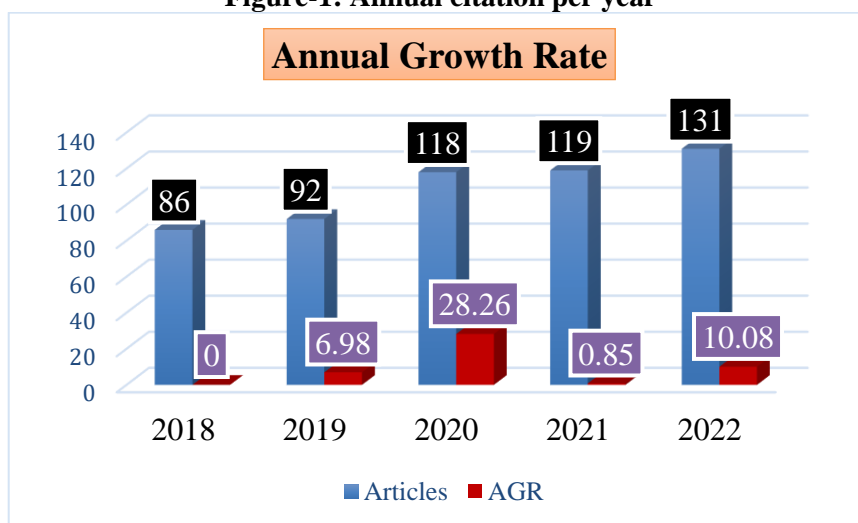| Year	Articles	Percentage	AGR	ARoG
2018	86	15.75	0	0
2019	92	16.85	6.98	0.93
2020	118	21.61	28.26	0.78
2021	119	21.79	0.85	0.99
2022	131	23.99	10.08	0.91
Total	**546**	**100**		

Figure-1: Annual citation per year

Table No.1 and Figure No.1 shows the year-wise distribution of articles and their annual growth rate of publications on "Exercise for Postmenopausal Women" collected from PubMed database during the year 2018 to 2022.The highest number of contributions 131(23.99%) was published in 2022 while the lowest number 86 (15.75%) of research contributions in the year of 2018.Maximum Annual growth rate (AGR) is 28.26 in the year 2020 and Minimum is 0.85 in 2021 and Highest Annual Ratio of Growth (ARoG) is 0.99 in 2021 and lowest is 0.78 in 2020 respectively.

Table No 02 Top 20 Productive Journal of Articles

| Sr. No.	Sources	Articles	Percentage %
1	International Journal Of Environmental Research And Public Health	39	7.08
2	Nutrients	35	6.35
3	PLOS One	16	2.90
4	Menopause (New York N.Y.)	14	2.54
5	BMC Women's Health	13	2.36
6	Frontiers In Physiology	11	2.00
7	Journal Of Applied Physiology (Bethesda Md. : 1985)	11	2.00
8	Scientific Reports	10	1.81
9	Medicine	8	1.45
10	Cancer Epidemiology Biomarkers & Prevention : A Publication Of The American Association For Cancer Research Cosponsored By The American Society Of Preventive Oncology	7	1.27
11	Medicine And Science In Sports And Exercise	7	1.27
12	Osteoporosis International : A Journal Established As Result Of Cooperation Between The European Foundation For Osteoporosis And The National Osteoporosis Foundation Of The USA	7	1.27
13	Cancer Prevention Research (Philadelphia Pa.)	6	1.09
14	Healthcare (Basel Switzerland)	6	1.09
15	Journal Of Bone And Mineral Research : The Official Journal Of The American Society For Bone And Mineral Research	6	1.09
16	Biomed Research International	5	0.91
17	BMJ Open	5	0.91
18	CUREUS	5	0.91
19	Frontiers In Public Health	5	0.91
20	International Journal Of Cancer	5	0.91

Figure No.02 Most Relevant Sources

Most Relevant Sources
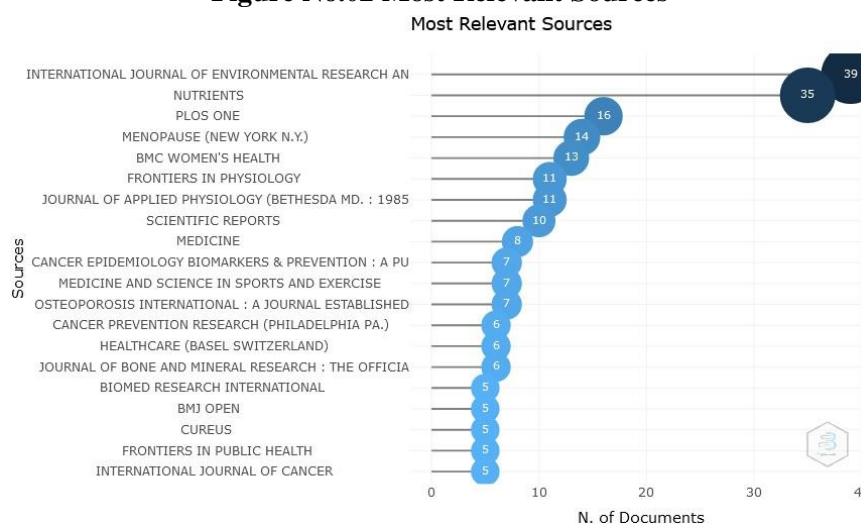
Table No 02 and Figure no.02observed that most local cited sources (from reference lists), the most local cited sources (from reference lists) of top most 20 in the source journal during the analyzed period is International Journal Of Environmental Research And Public Health (39), Followed by Nutrients (35), then PLOS One (16) shows in total number of Source of 551.

Table No.03 Top 20 Most Productive Author of Articles

| Sr. No.	Authors	Articles	Articles Fractionalized
1	FRIEDENREICH CM	11	1.73
2	MANSON JE	10	0.9
3	SHADYAB AH	10	0.95
4	COURNEYA KS	9	1.49
5	HELLSTEN Y	9	1.65
6	KEMMLER W	8	1.1
7	BERIN E	7	1.06
8	BRENNER DR	7	1.11
9	DE OLIVEIRA EP	7	0.71
10	HAMMAR M	7	1.06
11	JUNG SY	7	1.36
12	KOHL M	7	1.03
13	LI Y	7	0.92
14	PUGA GM	7	0.7
15	STEFANICK ML	7	0.58
16	VON STENGEL S	7	0.85
17	WACTAWSKI-WENDE J	7	0.68
18	AMARAL AL	6	0.61
19	AUKEE P	6	0.71
20	BATISTA JP	6	0.61

Figure No.03 Most Relevant Authors
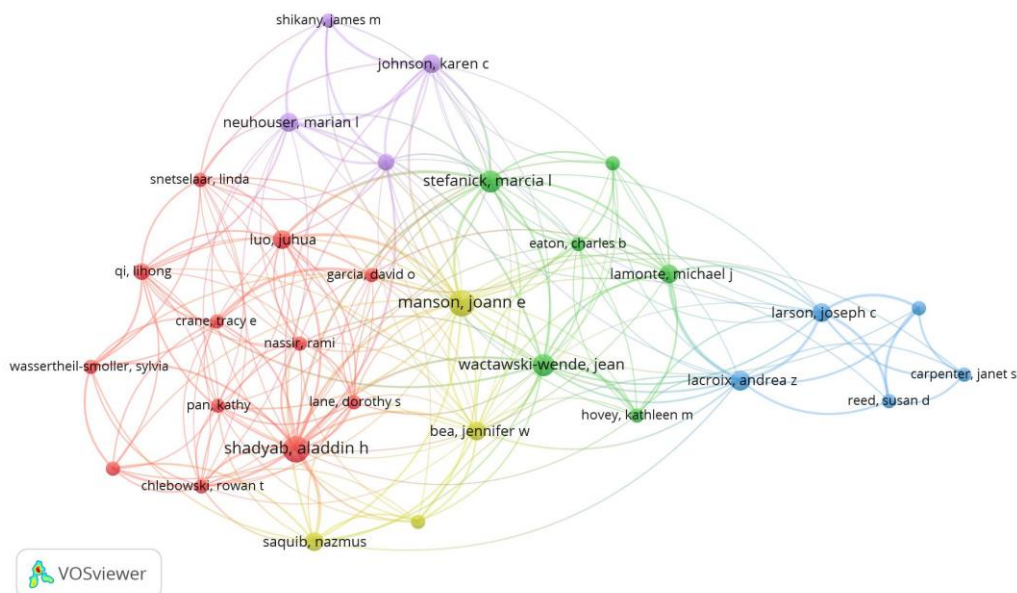
Table No 03 and Figure no 03 explained the most productive top twentymost relevant authors in the source journal during the analyzed period. The most relevant authors was Friedenreich CM 11 (1.73%), followed by Manson JE 10 (0.9%), then Shadyab AH 10 (0.9 %) and others are mentioned in the table and figure respectively.

Table No .04 Lotka's Law of Authors

Documents written	No. of Authors	Proportion of Authors
1	2446	0.826
2	290	0.098
3	118	0.04
4	50	0.017
5	26	0.009
6	13	0.004
7	11	0.004
8	1	0
9	2	0.001
10	2	0.001
11	1	0

Table No 04 shows the calculation of Bibliometric laws Lotka's law of productivity of authors in terms of scientific paper i.e. 1 Lotka's law Lotka's Law named after Alfred J. Lotka, describes the frequency of publication by authors in any given field (Lotka, 1926) in this table describe the trend of No of Authors and Proportion of Authors in terms.

Table No 05 Top 20 Affiliation of Articles

Sr. No.	Affiliations	Articles	Percentage %
1	UNIVERSITY OF CALIFORNIA	82	1.71
2	FEDERAL UNIVERSITY OF UBERLNDIA	70	1.46
3	THE UNIVERSITY OF SYDNEY	65	1.35
4	LINKPING UNIVERSITY	59	1.23
5	UNIVERSITY OF COPENHAGEN	54	1.12
6	UNIVERSITY OF PITTSBURGH	47	0.98
7	NAGASAKI UNIVERSITY GRADUATE SCHOOL OF BIOMEDICAL SCIENCES	46	0.96
8	UNIVERSITY OF JYVSKYL	42	0.87
9	HARVARD MEDICAL SCHOOL	36	0.75
10	UNIVERSITY OF OXFORD	36	0.75
11	INSTITUTE FOR CANCER RESEARCH	35	0.73
12	UNIVERSITY OF CALGARY	35	0.73
13	UNIVERSITY OF BOLOGNA	34	0.71
14	MCMASTER UNIVERSITY	31	0.65
15	POZNAN UNIVERSITY OF PHYSICAL EDUCATION	30	0.62
16	UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS	30	0.62
17	TEXAS TECH UNIVERSITY HEALTH SCIENCES CENTER	28	0.58
18	UNIVERSIDADE DE SAO PAULO	27	0.56
19	UNIVERSITY OF BARCELONA	27	0.56
20	UNIVERSITY OF MISSOURI	27	0.56

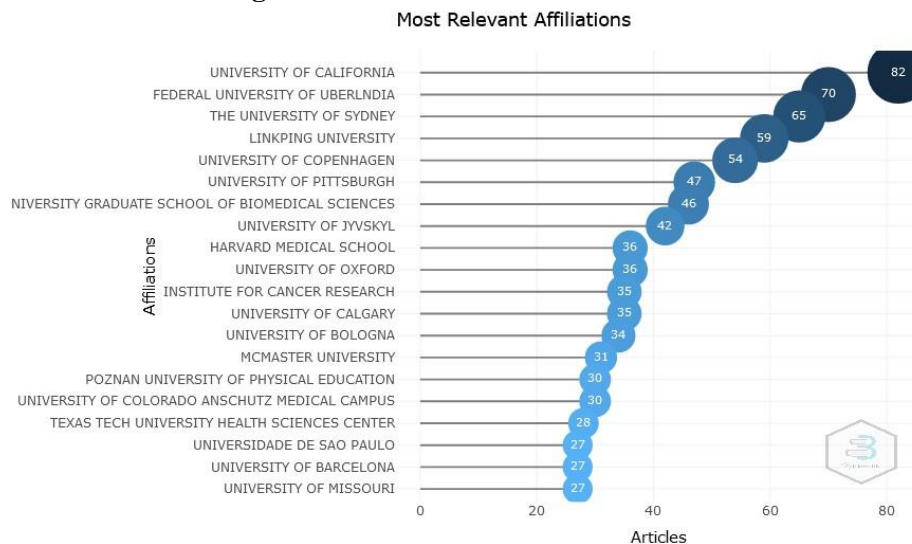**Figure No 05 Most Relevant Affiliation**

Most Relevant Affiliations

Table No 05 and Figure no 05represents the top 20 most affiliation in this analysis. According to data total 4802 Affiliations are available from that in this period highest affiliation is University Of California with 82 (1.71%) followed by FEDERAL University of Uberlndia with 70 (1.46%) and then The University of Sydney 65 (1.35%) and all represented in table.

Table No 06 Top 20 Country Scientific Production

Sr.No.	Country	Frequency	Percentage %
1	USA	811	20.67
2	CHINA	360	9.17
3	SPAIN	318	8.1
4	BRAZIL	280	7.14
5	AUSTRALIA	261	6.65
6	CANADA	239	6.09
7	ITALY	189	4.82
8	SOUTH KOREA	161	4.1
9	DENMARK	145	3.7
10	JAPAN	145	3.7
11	POLAND	108	2.75
12	GERMANY	92	2.34
13	FINLAND	89	2.27
14	IRAN	83	2.12
15	SWEDEN	83	2.12
16	NETHERLANDS	82	2.09
17	FRANCE	69	1.76
18	UK	66	1.68
19	INDIA	44	1.12
20	HUNGARY	31	0.79

Figure No 06 Scientific Production of Country
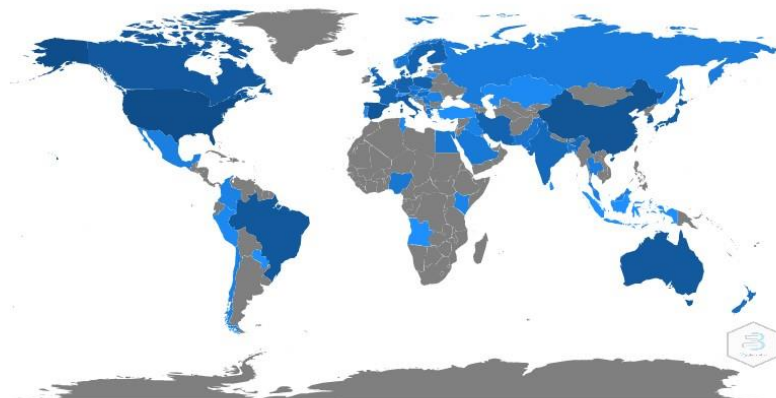

Country Scientific Production

Table No 06 and Figure no 06 countries, observestop most 20 countries of this study during this period Total countries are present in this period are 3924 according that top most 20 are analyzed

USAhas produced highest 811 (20.67%) papers followed by CHINA 360 (9.17%), SPAIN 318 (8.10%), then BRAZIL 280 (7.14%), respectively these countries are included in this table.

Table No.07 Most Frequent Keyword Occurrence

| Sr. No.	Words	Occurrences	Percentage %
1	humans	402	7.95
2	female	400	7.91
3	middle aged	242	4.79
4	aged	184	3.64
5	postmenopause	159	3.14
6	exercise	130	2.57
7	adult	70	1.38
8	risk factors	70	1.38
9	exercise/physiology	69	1.36
10	cross-sectional studies	56	1.11
11	male	47	0.93
12	body mass index	46	0.91
13	bone density	43	0.85
14	postmenopause/physiology	42	0.83
15	body composition	35	0.69
16	quality of life	35	0.69
17	aged 80 and over	33	0.65
18	prospective studies	31	0.61
19	resistance training	31	0.61
20	menopause	28	0.55

Figure No.07 Most Frequent Keyword Occurrence
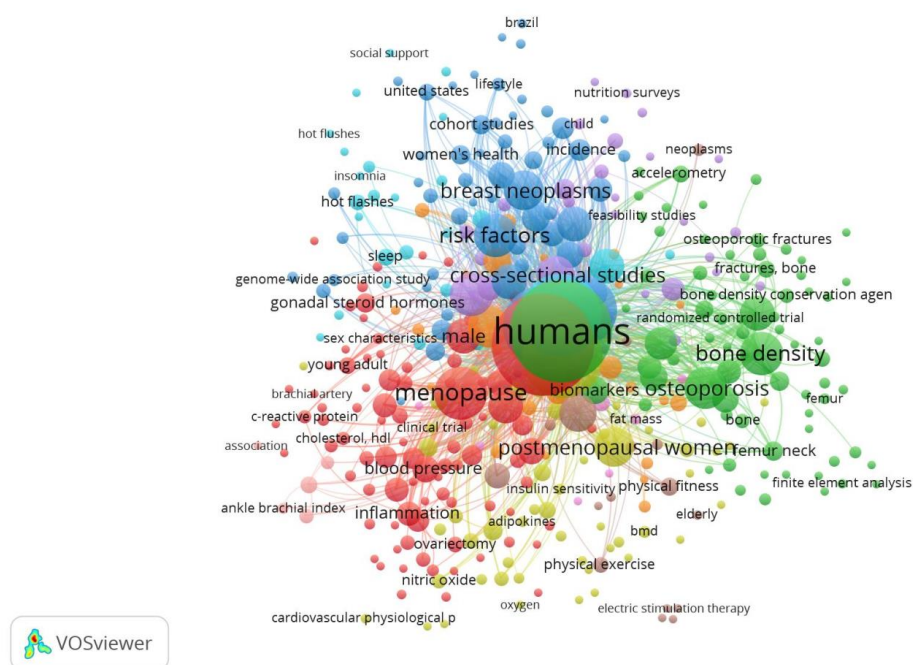
Table No 07 and Figure No 07 shows the top 20 Keyword of this study total keyword presents for this topic is 5057 on this data Humans with 402 (7.95%) are top most keyword followed by Female with 400(7.91%) and then Middle aged 242 (4.79%) remaining are presented in table and figure.

Conclusion

This study reveals that the categories of article distributions are remarkable in this research. The majority of the articles were contributed by single authors. And most authors from USA Countries, and Humans are the top most Keyword. First Bibliometric law i.e. Lotka's inverse square law also calculate in this analysis.And also rank the top 20 most journal, Author, Affiliations. Bibliometrics is relatively new subject of information. It helps to evaluate information and handle the information in libraries and information centers by the quantitative analyzed information. It deals with the mathematical and statically analysis. This is an umbrella term used for many studies where quantitative method or technique are used to investigate various aspect of written document.

References

1. Bjork, S., Offer, A., & Söderberg, G. (2014). Time series citation data: The Nobel Prize in economics. Scientometrics, 98(1), 185–196.
2. Gaikwad Deepa N. & Khaparde V. S (2023). Acute Gastrointestinal Bleeding: A Bibliometric study,Natural Volatiles and Essential Oil(Scopus indexed), Vol.10 (1), 163-176.e-ISSN: 2148-9637,
DOI: https://doi.org/10.53555/nveo.v10i1.5602
3. Gaikwad, Deepa N. & Khaparde V. S (2019). Mapping of plagiarism research output in India: A scientometric study, Library Progress (International), Vol. 39 (2), 377-388. ISSN: 2320 317X
4. Khaparde Vaishali, V.B. Ranveer & Ambhore Sagar P (2014). Mapping Of Library And Information Science Research Based ON LISA (2006-2010), Journal of Library, Information and Communication Technology (JLICT) Vol. 6 Issue (1-2) June, 2014, pp.1-10.
5. Khandare Jayshila K. and Khaparde V.S. (2015)Scientometric analysis of new library world, Knowledge Librarian,Vol-02 (3), 13-25, eISSN NO. 2394-2479.
6. Postmenopausal Women:https://www.webmd.com/menopause/health-after-menopauseAccessed on 26-12-2023.

7. Exercise:
   https://www.womenshealthmag.com/uk/fitness/a41639225/menopause-exercise/Accessed on 26-12-2023.

8. PubMed". Archived from the original on 13 December 2020. Retrieved 22 February 2019.

9. Lindberg DA (2000). "Internet access to the National Library of Medicine" (PDF). Effective Clinical Practice. 3 (5): 256–60. PMID 11185333. Archived from the original (PDF) on 2 November 2013.

10. Manca A, Moher D, Cugusi L, Dvir Z, Deriu F (September 2018). "How predatory journals leak into PubMed". CMAJ. 190 (35): E1042–E1045. doi:10.1503/cmaj.180154. PMC 6148641. PMID 30181150

11. Topper, Lauren; Marill, Jennifer; Kelly, Christopher; Funk, Kathryn (11 March 2019). "Rigorous policies ensure integrity of NLM literature databases". CMAJ. 191 (10): E289. doi:10.1503/cmaj.71602. ISSN 1488-2329. PMC 6411471. PMID 30858186