



Bibliometric Visualisation Analysis of 20 Years of Research on Rehabilitation in Osteoarthritis Based on the Pubmed Database

Dr. Madhusmita Koch^{*1}, Dr. Amit Sharma²

^{*1}Associate Professor, Department of Physiotherapy, The Assam Royal Global University, Guwahati, Assam

²Professor, School of Physiotherapy, RK University, Gujarat

^{*1}Corresponding author: Dr. Madhusmita Koch, Associate Professor, The Assam Royal Global University

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ABSTRACT:

Introduction: Osteoarthritis (OA) is quite a prevalent musculoskeletal condition in which rehabilitation is often considered as the first line of treatment. With the advancement of healthcare and enhanced life span as well as the prevalence of obesity, the burden of OA as a public health concern is increasing, necessitating a thorough research in the field. Despite its widespread occurrence, rehabilitation in OA is still a contentious subject.

Objectives: The objective of the present study is to quantitatively analyze trends in OA rehabilitation publications over the past 20 years.

Methods: Relevant literature on rehabilitation in OA from the PubMed database was searched and bibliometric and visualization analyses using biblioshiny in R-Studio and VOSviewer (version 1.6.20) was conducted. A total of 998 documents were retrieved from the Pub Med database from 2005 to 2025, to highlight the current state, key focuses, and trends in rehabilitation in OA.

Results: The most relevant journals were found to be “Osteoarthritis and Cartilage” and the “BMC Musculoskeletal Disorders”. Australia and the United were the most influential countries, and the most active institute was the University of Sydney and Royal North Shore Hospital. Author analysis revealed that Benell K L, Hinman R S, made the highest contributions. Clustering analysis of the keywords found that important research priorities were “exercise,” “knee osteoarthritis,” and “rehabilitation” reflecting the basis of research in the field. Research related to rehabilitation in OA has grown markedly in the past two decades. While pain was a consistently dominant research focus, other topics that gained more attention during this time period were OA in females and knee osteoarthritis.

Conclusions: The findings of this study provides a context for analyzing strengths and gaps in the current state of research in this field, and for informing a comprehensive strategy for further advancing the field.

1. Introduction

The term “Osteoarthritis” (OA) is defined as a chronic degenerative joint disease marked by the progressive degeneration of articular cartilage, the formation of osteophyte at the joint margins, and pathological alterations in subchondral bone. Joint pain, stiffness, and limited mobility are among the clinical manifestations of OA [1]. Though it may also affect

other articular structures, OA usually affects the hip, knee, and hand joints [2]. The condition significantly lowers patients’ quality of life and along with that imposes marked socioeconomic costs on families and society [3]. Based on epidemiological data, OA affects around 300 million people globally, with middle-aged and older populations experiencing a disproportionately high incidence and prevalence. With the advancement



of healthcare and enhanced life span plus prevalence of obesity, the burden of OA as a public health concern is increasing, necessitating a thorough research in the field [4]. Despite its widespread occurrence, rehabilitation in OA is still a contentious subject. A wide range of often contradicting information and opinion exists regarding numerous facets of the rehabilitation process. As a result, there are many distinct rehabilitation regimens and a lack of clarity regarding the most effective manual therapy approaches and modalities or exercises for managing osteoarthritis. This argument is heavily influenced by the amount, caliber, source, and type of rehabilitation research that is now available in OA evidence. In recent years, numerous clinical trials randomized controlled trials, systematic reviews, and meta-analyses have been published to synthesize the current state of the data for rehabilitation in OA and to clarify underlying mechanisms. The evidence foundation supporting a variety of rehabilitation methods and protocols has been covered in these evaluations, including resistance training [5], water physical therapy [6], land-based exercises [7], and extracorporeal shockwave treatment [8]. On a larger scale, however, little is known about the overall trends in research endeavours. Since the number of academic publications within a specific subject, at least in part, reflects underlying strategies and goals [9–11], it is useful to objectively describe publication trends and compare them with other comparable disciplines [12–14]. Bibliometrics is a set of methods used to quantitatively analyze academic literature [10], and indicates productivity, quality (or "performance") and structural trends of researchers, organizations, or specific academic fields. It is a simple type of big data analysis that may be used to uncover past development [9], quantify current patterns [13], and forecast future developments in a particular field of study. Medical-related themes have been subjected to bibliometric approaches [15–21]. A thorough strategy plan for furthering the field can be informed by the results of these discoveries, which can also serve as context for evaluating the broad strengths and shortcomings in the current state of evidence in a field.

A broad blend of studies exists on rehabilitation in osteoarthritis (OA). However, there is a scarcity of studies presenting a bibliometric analysis or reassessing the literature on rehabilitation in osteoarthritis. Out of

the existing literatures on the topic from 2005 to 2025; 505 literatures were considered for further study. The present study aimed to quantitatively analyze trends in OA rehabilitation publications over the past 20 years.

2. Objectives

The researcher advocated a progressive approach to complete the present study through framing the following research questions (RQ):

RQ1: "What are the journals, countries, institutions with leading publications in the area of rehabilitation in Osteoarthritis"?

RQ2: "Who are the significant authors in terms of co-authorship with other authors in the area

of rehabilitation in Osteoarthritis"?

RQ3: "What are the most frequently occurring keywords and developing a cluster and content analysis in the area of rehabilitation in Osteoarthritis"?

RQ4: "What are the general research trends of Rehabilitation in Osteoarthritis"?

RQ5: "What are the future research questions to be explored by future researchers in rehabilitation in Osteoarthritis"?

4. Materials and methods

Data source and search strategy

The data utilized in this study were obtained from the PubMed database (<https://pubmed.ncbi.nlm.nih.gov/>) on May 07, 2025. PubMed is a database of biomedical and life sciences literature that contains more than 38 million records at present (22-23). The investigation specifically concentrated on the timeframe spanning from 2005 to 2025, with a particular emphasis on articles written in English. The key terms for this bibliometric analysis were "rehabilitation" AND "osteoarthritis" OR "rehabilitation" AND "OA" as keywords. The Boolean operators "OR" and "AND" were used. The documents belonged to different categories, such as clinical trial, review, meta-analysis, systematic review and randomized controlled trial. Only free full text articles (open access articles) were included in the analysis. The search resulted in the appearance of 998 documents from the PubMed database. The data was exported in the form of an Excel comma-separated values file. The data underwent a



rigorous cleaning and verification process to eradicate any instances of duplicate data or irrelevant data and to ensure the accuracy of the retrieved articles about rehabilitation in osteoarthritis. Systematic searches were conducted to ascertain the appropriateness of the selected article. The selected articles were marked and exported as a PubMed file.

Data analysis

The VOSviewer program version 1.6.20 by the Center for Science and Technology Studies at Leiden University in The Netherlands was utilized to examine the analysis of keyword co-occurrences, co-authorship between authors and institutions. The data analysis was performed using the RStudio program version 4.5.0 (2025-04-11-ucrt) with the assistance of Bibliometrix, a software tool developed by the Department of Economics and Statistics at the University of Naples Federico II in Italy [24]. The present study analyzed publication patterns, encompassing various aspects such as contributing institutions, sources, authors, and papers.

5. Results and discussion

Data searches

Upon searching using the keywords “rehabilitation” AND “osteoarthritis” OR “rehabilitation” AND “OA” in the PubMed search engine, 998 articles were retrieved. A maximum of 493 articles were excluded from the analysis on account of duplicate data or irrelevant data. By restricting the scope of the analysis to 505 pertinent articles, the contextualization of the analysis is enhanced. Furthermore, including extraneous articles will introduce data noise, potentially complicating the interpretation process. By directing attention toward pertinent articles during the analysis process, the resultant conclusions and findings attained a higher degree of validity and were readily embraced by the scientific community. Henceforth, a total of 505 articles were employed to conduct bibliometric analysis.

The flowchart in Figure 1 illustrates the sequential steps in conducting an article search. The analysis involved

querying the PubMed database to identify and categorize knowledge concepts associated with advancing research in rehabilitation in osteoarthritis (OA). The bibliometric analysis comprises two distinct components, namely performance analysis and science mapping, as elucidated by Dede and Ozdemir [25]. The performance analysis evaluates the contributions of researchers from various nations, institutions, sources, and authors, which collectively enhance the articles’ productivity [26]. In scientific inquiry, mapping visually represents the intricate framework of knowledge and its evolution within the research domain. In addition, the study elucidates the intricate dynamics and interconnections among the various components of the research as well as the robustness of their associations [25].

Table1: Main information about the data.

SL NO.	DESCRIPTION	RESULTS
1	Time span	2005:2025
2	Sources (Journals)	147
3	Documents	505
4	Annual Growth Rate	1.56%
5	Authors	2394
6	Authors of single authored documents	6
7	International Co-authorship	20.59%
8	Author's Keywords	1225
9	Co-authors per document	6.89
10	Document Average age	8.15

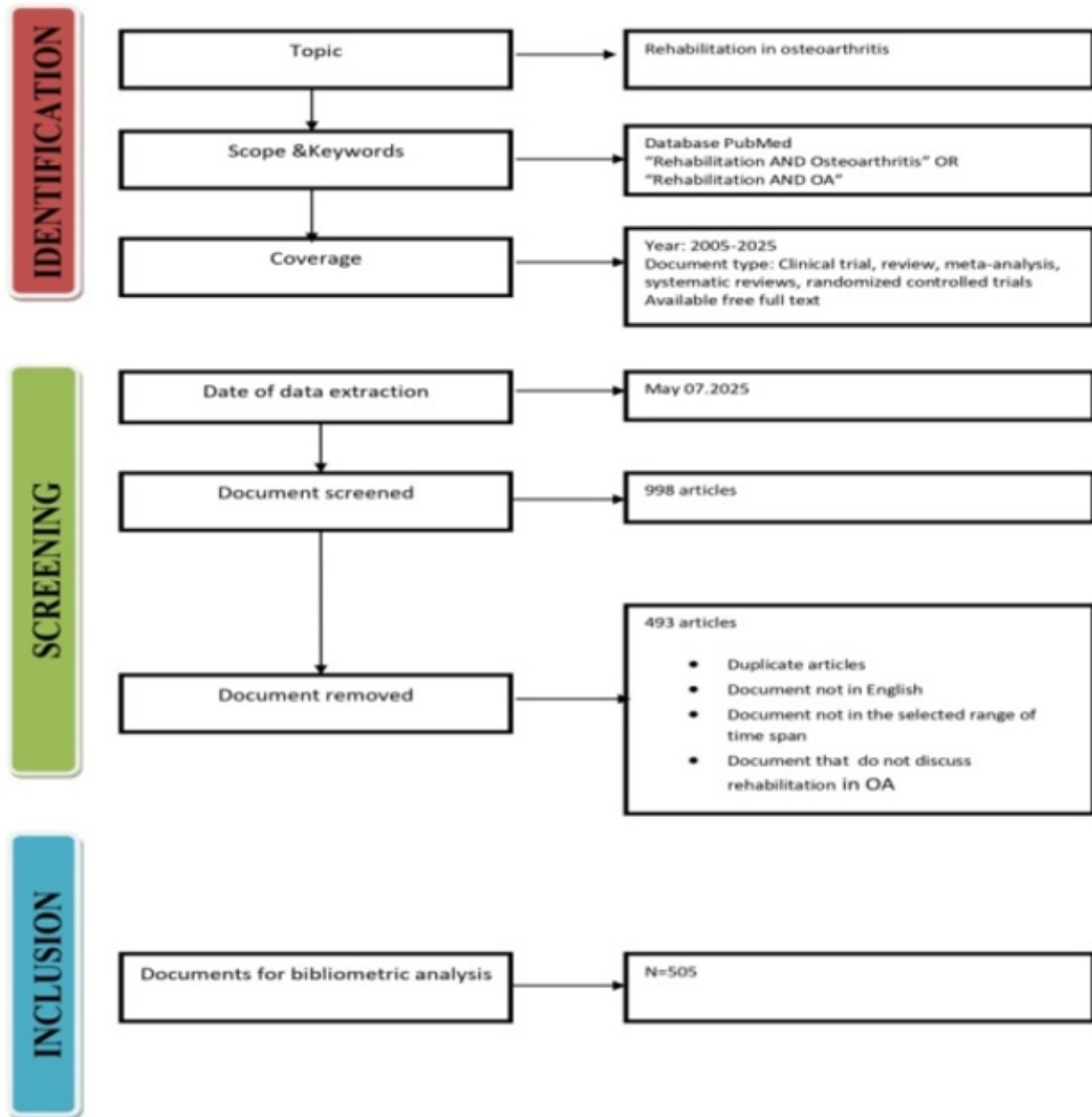


Figure 1: Article search procedure.

Publication trend

As depicted in Figure 2, a consistent and uninterrupted rate of article generation has been observed since 2005. Table 1 presents the main information about the data. The time span covered in this bibliometric analysis was from 2005-2025. 505 documents included for the analysis were retrieved from 147 sources published in the English language which were authored by 2394

authors. The annual growth rate of the documents was 1.56 percent. 2023 exhibited the highest number of article production, with 46 articles, followed by 2016 and 2019 wherein the articles produced were 38 and 35 respectively. A total of 34 articles were generated in 2022 and 2024, followed by 2013 and 2018 in which 29 articles were produced, and a total of 28 articles each were produced in 2012, 2014 and 2015.

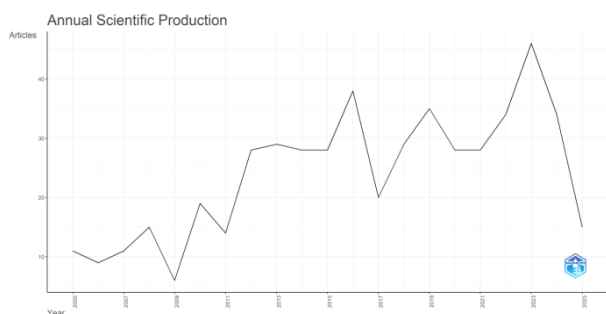


Figure 2: The annual production of scientific papers from 2005-2025.

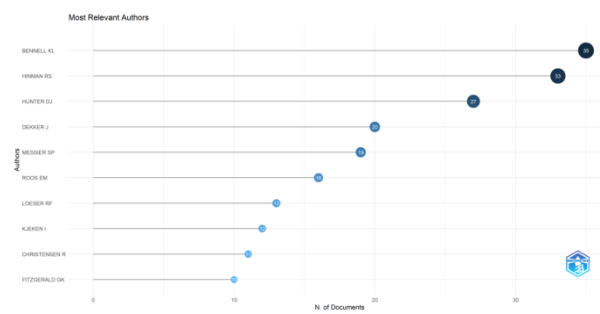


Figure 3: Most relevant authors conducting research in the field of rehabilitation in osteoarthritis

Analysis of contributing author

A total of 2394 authors were involved in the publication of documents related to research on rehabilitation in osteoarthritis. Spanning between 2005-2025, Benell K L and Hinman R S, both affiliated with the Centre for Health, Exercise and Sports Medicine, Department of Physiotherapy, University of Melbourne, Australia, has disseminated 35 and 34 scholarly literature respectively in the field of rehabilitation in osteoarthritis (Figure 3). Notably Benell K L possesses “h index of 99” and Hinman R S has “h index of 86” as recorded in the year 2025. The h-index is a number intended to represent both the productivity and the impact of a particular scientist or scholar. The acquisition of a good h index and production of such a huge number of research articles indicates their significant impact on the scientific community. The third individual researcher identified is Hunter DJ, affiliated with the University of Sydney who has contributed to the scientific community by authoring 27 scholarly papers from 2005–2025. The scholarly output of Dekker J, esteemed researcher affiliated with the Department of Rehabilitation Medicine, Amsterdam University, Netherlands encompasses 20 publications spanning 2005-2025. In the same time span, Messier SP from the Department of Health and Exercise Science, Wake Forest University, Winston-Salem, North Carolina produced 19 scholarly research works in the same field.

As depicted in Figure 4, Benell K L was most productive in the year 2018 with 5 scholarly publications, followed by 4 publications each in 2015 and 2023. Hinman R S was most productive in the year 2018 and 2023 with 5 publications, followed by 4 publications each in 2015 and 2021.

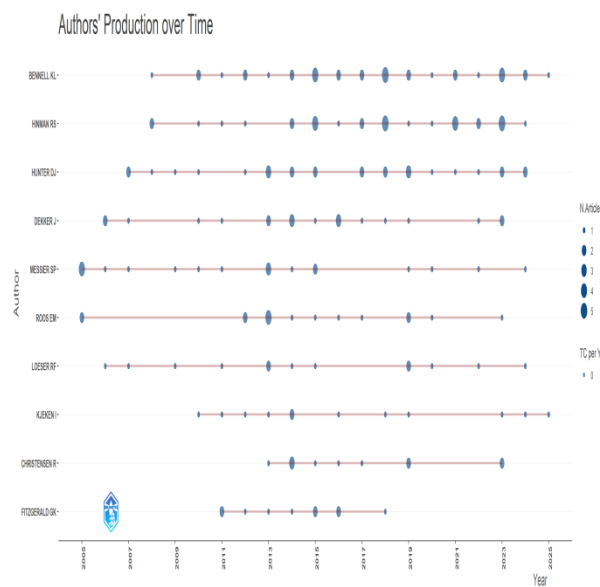


Figure 4: Most relevant authors and the number of articles per year

While performing network analysis of co-authorship between different authors (Figure 5), the minimum number of documents of an author for utilization of VOSviewer was established at 5. Of the 2582 authors, 48 met the threshold and 34 were found to be co-authors. After completing the VOSviewer analysis, 6 distinct clusters were observed to have formed. Each



cluster effectively demonstrates the interrelationship between individual authors. The visual representation of the network can be observed in Figure 15. The authors were visually depicted as circles of varying colors, with their respective sizes directly corresponding to their frequencies of co-authorships. Consequently, the dimensions of the letters and circles were determined based on their respective frequencies of collaborations. The consistent coloration of each author signifies a strong correlation among them. For e.g. the entities denoted by the names “Benell Kim L,” “Hinman Rana S,” “Harris Antony,” “Metcalf Ben,” “Egerton Thorlin,” and “Keffee Francis J” exhibit a common chromatic attribute, signifying their interconnectedness and cohesive categorization. Based on the data presented in Figure 5, it can be observed that specifically, “Hunter David J” has collaborated in 14 documents with a total link strength of 61, “Messier Stephen P” has co-authored 14 documents with a total link strength of 57, “Bennell Kim L” has co-authored 24 documents with a total link strength of 53, “Loeser Richard F” has collaborated in 8 documents with a total link strength of 53, and “Devita Paul” has co-authored 7 documents with a total link strength of 50. Based on the obtained results, it is evident that though Hinman Rana S has co-authored in the highest number of publications (N=20, link strength=33), but the total link strength is highest for Hunter David J (N=14, link strength=61).

Cluster 1 = Red: The authors in this cluster concentrated more on the prevention of osteoarthritis. Their works focus on the impact of both exercise and diet in the prevention and rehabilitation of osteoarthritis in general and knee OA in particular; as well on influences of alignment and obesity/BMI on knee joint loading in knee OA [27-29].

Cluster 2 = Green: The authors in this cluster have worked on a variety of topics related to rehabilitation in osteoarthritis. For e.g. they have worked on basics of osteoarthritis rehabilitation like devising exercising protocols for osteoarthritis to new areas like effectiveness of an Internet-Delivered Exercise and Pain-Coping Skills Training Intervention for Persons With Chronic Knee Pain; Websites and internet-based programs that can be used to educate patients about their condition, as well as to deliver exercise; about mobile apps that can monitor and track OA symptoms, exercise, and physical activity, while SMS can facilitate

positive behavior changes for self-management: e-learning courses for patients on OA management etc [30-32].

Cluster 3 = Dark blue: This cluster of researchers focused on studies to evaluate feasibility of rehabilitation protocols in osteoarthritis. E.g. they evaluated the state of quality of community based care for osteoarthritis (OA), feasibility of web based exercise program for OA, cost-utility analysis of a pattern of model of care etc [33-35].

Cluster 4 = Yellow: These researchers studied the literature on the course of pain in patients with knee osteoarthritis (OA), prognostic factors that predict deterioration of pain, the course of physical functioning, and prognostic factors that predict deterioration of physical functioning in persons with knee OA; to analyze the influence of co morbidity in OA; to determine the effect of patient exercise adherence within the prescribed physical therapy treatment period and after physical therapy discharge on patient outcomes in individuals with osteoarthritis (OA) of the hip and/or knee [36-38].

Cluster 5 = Purple: This group of researchers concentrated on the etiology and pathophysiology of OA along with the rehabilitation aspect. E.g. they evaluated joint injury and muscle weakness as the predictors of osteoarthritis development in young adults and compared structural knee joint changes in obese patients with knee osteoarthritis (OA) that after an intensive weight loss therapy with dietetic support and specialized knee exercise program [39-41].

Cluster 6 = Sky blue: This particular cluster of researchers worked on association of osteoarthritis with other clinical conditions like diabetes, anxiety, stress, depression etc. Moreover, they also evaluated knee cartilage change in individuals with knee osteoarthritis (KOA) who have completed a therapeutic exercise program as well as worked on supplementing rehabilitation programs of knee OA with modified agility and perturbation training [42-45].



has disseminated scholarly articles from diverse nations like Australia (N=106), USA (N=88), Denmark (N=74), Netherland (N=62) to name a few among authors from 14 different countries.

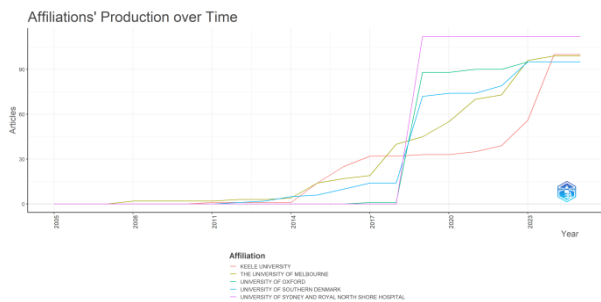


Figure 8: Affiliations' production over time.

Analysis of the contributing institution

A link clarification procedure was implemented to ascertain the most pertinent links. The primary entities engaged in research about this subject matter are enumerated utilizing the document co-authoring index presented by Abafe et al. [46]. According to the data presented in Figure 8, the University of Sydney and Royal North Shore Hospital, Keele University, the University of Melbourne, University of Oxford and the University of Southern Denmark are the primary institutions associated with the production of scholarly articles about rehabilitation in osteoarthritis. Following the affiliations' production over time, Figure 9 presents the institution that has exhibited the highest level of productivity in generating scholarly articles about rehabilitation in osteoarthritis. Remarkably, University of Sydney and Royal North Shore Hospital has emerged as the most productive institution, having successfully produced 112 articles on this subject matter. Keele University, with 100 documents, ranks as the second most productive institution, followed by the University of Melbourne as the third most productive institution with 99 documents. University of Oxford and the University of Southern Denmark ranked fourth, with 95 scholarly articles each.

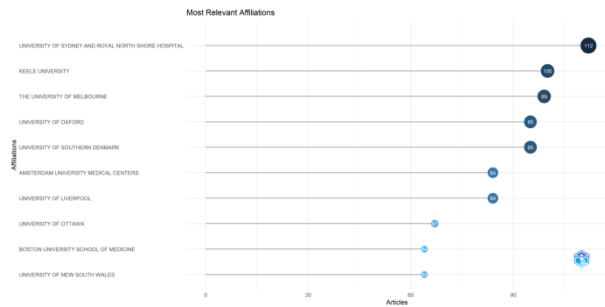


Figure 9: The most relevant affiliations.

Analysis by countries

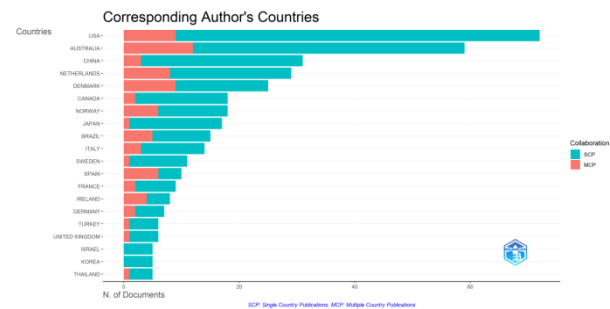


Figure 10: Corresponding author's countries and types of collaborations within and between countries

Figure 10 states that the corresponding authors were most commonly from the USA. USA (Number of articles =59), China (N= 31), Netherlands (N= 29), and Denmark (N=25) ranked the top five corresponding author's countries.

When the corresponding author's country was analyzed, the USA ranked first with 72 articles , Table 2 shows that authors mostly wrote the articles in the USA from a single country (N=63), but 9 studies were conducted in collaboration with authors from other countries. The number of articles on rehabilitation in OA in the USA was about 1.2 times higher than the number of articles in Australia and 1.8 times higher than the number of articles in China which ranks second and third respectively. Similar to the USA, single country publications were 47 and multiple country collaborations were 12 in Australia and SCP (N=28) and MCP(N=3) in China.



Table 2: provides the number, ratio, percentages of rehabilitation in osteoarthritis related publications according to the country and the status of being single country publications (SCP) or multiple-country publications (MCP).

Country	Articles	Articles %	SCP	MCP	MCP %
USA	72	14.3	63	9	12.5
AUSTRALIA	59	11.7	47	12	20.3
CHINA	31	6.1	28	3	9.7
NETHERLANDS	29	5.7	21	8	27.6
DENMARK	25	5	16	9	36

produce any article in 2005. In 2006, there was only 1 publication, followed by 3 articles in 2007, 7 articles each in 2008 and 2009, 12 articles in 2010, 14 articles in 2011, 17 articles in 2012 and 2013, 29 articles in 2014, 51 articles in 2015, 72 articles in 2016, 152 articles in 2017, 191 articles in 2018, 204 articles in 2019, 220 articles in 2020, 264 articles in 2021, 277 articles in 2022, 352 articles in 2023, 373 articles in 2024 and 384 articles in 2025. A similar graph was seen for rest of the top four countries as well.

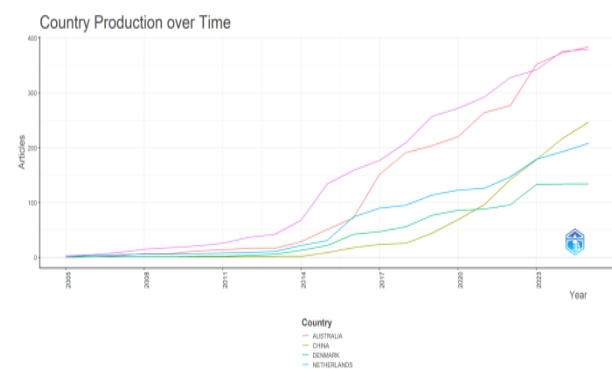


Figure 12: Scholarly productions on rehabilitation in OA by various countries spanning 2005-2025

Figure 13 depicts that, globally the highest collaboration is between Australia and the USA (N=14) in terms of research related to rehabilitation in osteoarthritis. This is followed by collaboration between Netherlands and Norway (N=9), then Australia and Netherlands (N=8), Australia and Denmark (N=7), Italy and Spain (N=6) as the first five highest worldwide collaborators.

Country Scientific Production

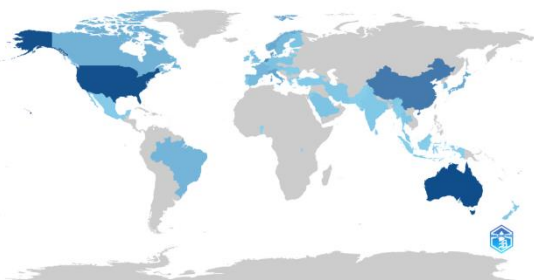


Figure 11: Scientific research articles on rehabilitation in OA produced by various countries

Figure 11 shows that the highest number of scientific research articles on rehabilitation in OA was produced in Australia (N=384), followed by the USA (N=379), China (N=247), Netherlands (N=284) and Denmark (N=134)

Figure 12 shows that the number of scholarly productions on rehabilitation in OA increased in an exponential manner in all the countries from 2005-2025. The topmost country, Australia, for example, didn't

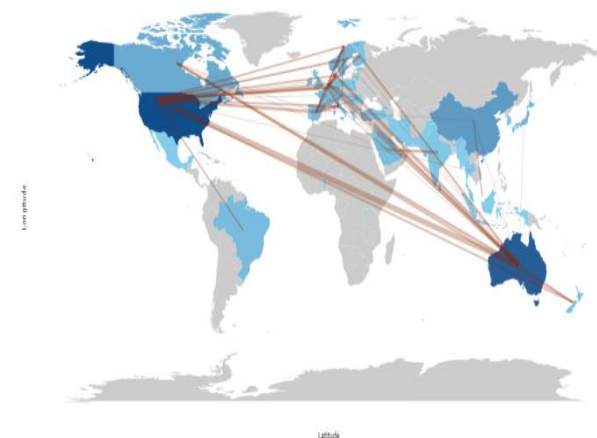


Figure 13: Countries collaboration world map



Figure 14: Tree map obtained using author keywords

When Figure 14 was examined, it was seen that concepts such as humans (N=476, 14%), female (N=274, 8%) and middle aged (N=260, 8%), male (N=248, 7%) and aged (N=240, 7%), treatment outcomes (N=207, 6%), exercise therapy/methods (N=113, 3%) and pain measurement (N=93, 3%), quality of life (N=79, 2%) stood out in the articles included in the analysis. The frequency with which these concepts have been used in articles over the years is given in Figure 12 with the word frequency over time plot. It was seen that the word “human” was included 11 times in 2005, 113 times in 2012, 253 times in 2017, 366 times in 2021, and 476 times in 2025. (Figure15). Similarly, the usage of the word “female” was included 10 times in 2005, 82 times in 2012, 178 times in 2017, 246 times in 2021, and 274 times in 2025(Figure15).

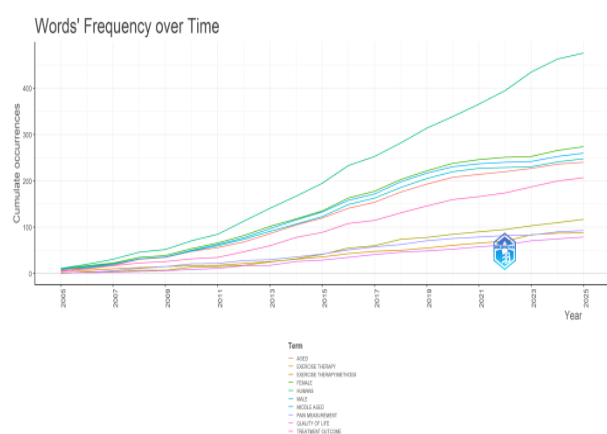


Figure 15: Word frequency over time plotting

Figure 16 is depicting a trend topics plot based on author’s keywords. The time span considered was 2005-2025. “Word minimum frequency” parameter was taken as five and the “number of words per year” parameter

was taken as three when constructing trend topics plots. It is seen that pain and knee osteoarthritis has been the trending topics based on author’s keywords in recent years (see Figure 13). It correlates with the fact that knee osteoarthritis is one of the most common degenerative pathologies worldwide, and its incidence is increasing every year [47, 48]. Knee OA usually reduces quality of life due to pain, limited mobility, and intra-articular deformities [49]. This provides the rationale for these trending keywords. The most commonly used author’s keywords were ranked as humans (f=476), female (f= 274), middle aged (f= 260), male (f= 248), aged (f= 240), exercise therapy or methods (f= 117), exercise therapy (f= 88), adult (f= 75) amongst the top few.

Figure 17 shows how themes and keywords have evolved over the time span from 2005-2025. From 2005-2017, the trending author keyword was “human” and from 2008 onwards, there was an emergence of a new trending author keyword “females”. It shows that research on the topic rehabilitation in osteoarthritis is dynamic and is evolving over time. There is a shift in focus and more concentration on females suffering from osteoarthritis. But when we look at the connections between the focus on human from 2005-2017 to females 2018-2025, the keywords have been : female; middle aged; male; aged; treatment outcome; exercise therapy/methods; adult; single-blind method; aged, 80 and over; severity of illness index; knee joint/physiopathology; activities of daily living; follow-up studies; osteoarthritis, knee/physiopathology/therapy; combined modality therapy; muscle strength; double-blind method; muscle strength/physiology; pain measurement/methods; patient satisfaction; resistance training/methods; self report with a weighted inclusion index of 0.77 and a stability index of 0.1. This index depicts a very high level of stability and it can be interpreted that the underlying population is very stable, with little to no change in its characteristics.

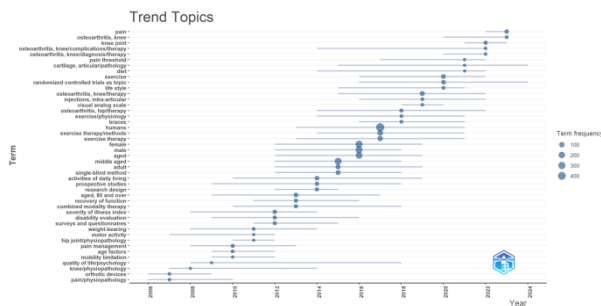


Figure 16: Trend topics based on author’s keywords.

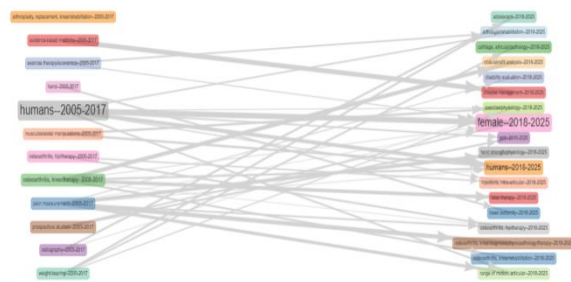


Figure 17: Thematic Evolution over the years from 2005-2025

Analysis of keyword co-occurrence

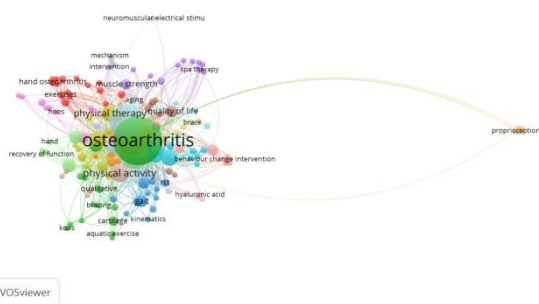


Figure 18: Co-occurrence of author keywords by VOSviewer using network visualization.

The minimum number of occurrences of an author keyword for utilization of VOSviewer was established at 2. Of the 653 keywords, 152 met the criteria. After completing the VOSviewer analysis, 19 distinct clusters were observed to have formed. Each cluster effectively demonstrates the interrelationship between individual topics. The software allows for the visualization of

bibliometric mapping through three distinct modalities. The visual representation of the network can be observed in Figure 18. The keywords were visually depicted as circles of varying colors, with their respective sizes directly corresponding to their frequencies within the titles and abstracts.

Consequently, the dimensions of the letters and circles were determined based on their respective frequencies of occurrence. The observed phenomenon reveals a higher frequency of occurrence for a given keyword when the dimensions of the letters and circles are increased. A corpus of 505 connected articles was used to find 152 keywords. The focus was on the empirical data from articles about rehabilitation in osteoarthritis. Figure 15 illustrates the clusters observed within each of the issue areas examined. The consistent coloration of each keyword signifies a strong correlation among them. The entities denoted by the terms “rehabilitation,” “evidence based medicine,” “strength training,” “osteoarthritis,” “joint pain,” and “hyaluronic acid” exhibits a common chromatic attribute, signifying their interconnectedness and cohesive categorization. Based on the data presented in Figure 15, it can be observed that the keywords “osteoarthritis,” “exercise,” “knee,” “pain,” “knee osteoarthritis,” and “rehabilitation” exhibit varying frequencies and total link strengths. Specifically, “osteoarthritis” appears 147 times with a total link strength of 141, “exercise” occurs 73 times with a total link strength of 255, “knee” is present 48 times with a total link strength of 181, “pain” is found 43 times with a total link strength of 153, “knee osteoarthritis” is mentioned 59 times with a total link strength of 149, and “rehabilitation” is referenced 35 times with a total link strength of 115. Based on the obtained results, it is evident that exercise plays a pivotal role in osteoarthritis and specifically research studies are focused on rehabilitation in knee osteoarthritis.

Limitations:

Unlike traditional reviews, this study uses a bibliometric tool that gives a more quantitative and detailed picture of research focus, trends, and collaborations, and provides better insights into the evolving future of osteoarthritis rehabilitation. However, it should be noted that there are some limitations: first, only publications in the PubMed database were included, and non-English



publications and those without free full texts were excluded, which could lead to publication bias; second, the literature retrieved by the database search was not screened or organized, which could have resulted in the inclusion of literature that is not closely related to this field, leading to false-positive results. Furthermore, the frequent citations in some review articles may have contributed to bias rather than original research. Notwithstanding these drawbacks, the study's conclusions offer a more thorough analysis of the literature on osteoarthritis rehabilitation, which may provide insightful information for present and upcoming studies in this area. The study excluded articles published in other years and concentrated on those published between 2005 and 2025. Other datasets (e.g., Web of Science or Scopus) can be the subject of more thorough investigation. It should be mentioned, last but not least, that bibliometric research will direct researchers and highlight knowledge shortages.

6. Conclusion:

Overall, it was found that the number of papers in the field of rehabilitation in osteoarthritis has been rapidly increasing. Australia and the United States is the pioneer and most influential in this field, with most of the highest publishing institutions located in the United States. China is catching up and needs to increase the impact of its papers and strengthen global cooperation. Journal analysis found that “Osteoarthritis and Cartilage” and the “BMC Musculoskeletal Disorders” are the most prominent sources for rehabilitation in osteoarthritis research within 2005–2025 producing articles of notable significance. Clustering analysis of keywords found that the important research focuses are “female,” “pain,” and “knee osteoarthritis,” which reflect the research foundation of this field. Future research should focus on topics such as “females”, “knee osteoarthritis”, which have been identified as the forefront of this field. These timely analytical results provide a new perspective on the rehabilitation in osteoarthritis, help researchers choose appropriate publishing journals, find potential collaborators, understand hotspots and frontiers, and promote the development of this field. Nevertheless, several constraints were present within the scope of this investigation. Specifically, only English-language publications spanning the temporal interval from 2005 to 2025 were encompassed in this comprehensive

examination. Furthermore, the selection of keywords was predicated on our acquaintance with the scholarly body of work, potentially influencing the overall quantity and diversity of the articles under scrutiny. Future research work from the other parts of the world e.g Indian population may bring out a diverse perspective on various aspects of research on rehabilitation in osteoarthritis. Upcoming studies may be focused on novel developments like integration of telerehabilitation, virtual reality and sensor based home exercise programs in osteoarthritis with more concentration on the female population with knee arthritis which are the trending areas.

Conflict of Interest: There is no conflict of interest.

Funding: None

Ethical Approval: This bibliometric study does not involve a research protocol requiring approval by an institutional review board or ethics committee.

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