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Mapping the landscape of physiotherapy research productivity in Nigeria, 1972 to 2022: a descriptive bibliometric overview

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ABSTRACT

Background: Bibliometric analysis provides a systematic approach for evaluating research productivity and impact within a scientific discipline. Despite global growth in physiotherapy research, data on Nigerian affiliated publications remain limited. This study assessed publication trends, productivity, and institutional contributions in Nigerian physiotherapy research over five decades.

Methods: A bibliometric review was conducted via Harzing's Publish or Perish software. Searches were performed on November 19, 2023, using predefined search strings applied in PubMed and adapted for Google Scholar, with publications restricted to the period 1972 to 2022. Retrieved records were exported to Microsoft Excel for deduplication, cleaning, and screening based on predefined eligibility criteria. The final dataset was analyzed using descriptive bibliometric methods in SPSS, including publication counts, citation frequencies and institutional productivity.

Results: A total of 2,732 publications from 407 authors across 82 Nigerian institutions were identified (1972–2022). Publication output increased steadily after 2003. Male authors contributed 2,085 publications and female authors 647. Total citations were 33,670, with the most cited studies addressing musculoskeletal disorders and grip strength. The most productive journal was the Nigerian Journal of Medical Rehabilitation. Top authors included Mbada CE, Onigbinde AT, and Balogun JA. The top 10 institutions accounted for 92.8% of publications, led by Obafemi Awolowo University, University of Ibadan, and University of Lagos. Keywords focused on low-back, physical activity, pain, stroke, exercise, and musculoskeletal conditions.

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Conclusion: This study provides a comprehensive bibliometric overview of Nigerian affiliated physiotherapy research across five decades, highlighting substantial growth in research output and a high concentration of productivity within a small number of institutions. The findings offer evidence to inform research capacity development, institutional collaboration, and strategic planning to strengthen physiotherapy research in Nigeria.

BACKGROUND

The physiotherapy profession in Nigeria has experienced significant growth in recent years, driven by increased recognition and demand for its services. The growing awareness among the public and healthcare stakeholders about the role of physiotherapy in promoting health and facilitating rehabilitation has led to a higher demand for physiotherapy interventions. This has provided opportunities for physiotherapists to expand their practices and serve a larger population. The establishment of new physiotherapy departments in educational institutions has also contributed to the growth of the profession by producing more trained professionals. Professional associations and regulatory bodies have actively promoted the profession and ensured adherence to standards and ethics. The physiotherapy profession in Nigeria has a rich history that dates back to 78 years ago. The profession was introduced in 1945 by two British chartered physiotherapists (Miss Manfield and Mr Williams) who were employed by the Nigerian national government[1]. Their primary objective was to provide treatment to wounded and disabled Nigerian soldiers returning from World War II and establish a physiotherapy training program. They started a three-year diploma program at the Royal Orthopaedic Hospital, which is now known as the National Orthopaedic Hospital, Igbobi. Over the years, scholars have documented the history of physiotherapy in Nigeria, shedding light on its origins and development [1,2]. Today, physiotherapy has become an integral part of the healthcare system in Nigeria, with significant contributions to the well-being of patients and the advancement of the profession. The evolution of physiotherapy education in Nigeria from diploma programs to degree programs reflects a growing recognition of the importance of standardized training and higher education in the profession. Initially introduced at Igbobi, the program transitioned to universities such as University of Ibadan (UI), University of Lagos (UNILAG), and Obafemi Awolowo University offering Bachelor of Science (BSc) degree programs in physiotherapy. The curriculum has shifted towards the United States' education and practice model to enhance the quality of education and meet the changing healthcare needs. This transition signifies the professionalization of physiotherapy in Nigeria, providing opportunities for specialization and advanced practice. Ongoing monitoring and evaluation of educational programs will ensure their relevance and contribute to the professional growth of physiotherapists, enabling them to deliver high-quality care in Nigeria's healthcare landscape.

Research productivity is a subject that attracts the attention of researchers[3], this is due to its connection to the intellectual wealth and economic progress of nations[4,5]. Intellectual wealth and economic progress of countries are intricately tied to the physical and psychosocial health and well-being of their citizens, which, in turn, is driven by research[6]. The measurement of research output is often reflected in the outcomes of scientific studies, which are disseminated through scholarly publications. Typically, the quantification of research productivity involves assessing the number of peer-reviewed articles published by academics and scientists affiliated with institutions such as universities and research institutes[7]. Among the commonly employed metrics for evaluating research productivity is the publication of articles in indexed databases, which serves as an indicator of excellence for academic institutions[8,9]. While several studies have examined various aspects of physiotherapy education and its evolution in Nigeria, including historical trends, the impact of medical practice and professional training, and future projections, there is a notable gap in the literature when it comes to research productivity and

its trends within the profession. Existing studies have focused primarily on the establishment of university-based physiotherapy degree programs and the overall development of the profession[1,10,11]. To the best of our knowledge, this study represents one of the first bibliometric analyses to systematically examine physiotherapy related research affiliated with Nigeria over a five decade period. By applying bibliometric techniques, this study provides a structured overview of the research landscape in Nigerian physiotherapy, highlighting patterns, trends, and the scholarly impact of publications produced by Nigerian affiliated physiotherapists between 1972 and 2022. By identifying areas of strength and gaps in research productivity, the findings offer insight into opportunities for capacity development, collaboration, and knowledge exchange within the profession. Ultimately, this work contributes evidence to inform strategies aimed at strengthening physiotherapy research output and impact in Nigeria.

METHODS

Data Sources and Search Strategy

All searches were conducted and saved on a single day, November 15, 2023, to minimise potential bias arising from daily database updates. Data extraction was performed using Harzing's Publish or Perish software (version 8)[12], which supports retrieval from both Google Scholar and PubMed. Searches were executed on November 19, 2023, and the date and time of each query were documented within the software. For Google Scholar, the maximum number of retrievable records permitted by Publish or Perish was applied, results were sorted by relevance, and citation counts were included. For PubMed, records were retrieved without citation filtering and sorted by publication date, in accordance with database functionality. All retrieved records from both databases were exported in CSV format for further processing.

A systematic search strategy was employed to identify relevant publications for this bibliometric study on research productivity among physiotherapy researchers in Nigeria between 1972 and 2022. The predefined search string was applied directly in PubMed and subsequently adapted for Google Scholar to account for differences in database syntax and search behaviour. The core search terms included ("physiotherapy" OR "physical therapy" OR "rehabilitation" OR "movement science" OR "physical rehabilitation" OR "manual therapy" OR "physiotherapeutic" OR "kinesiotherapy" OR "physical medicine" OR "therapeutic exercise" OR "exercise" OR "physio") AND ("Nigeria" OR "Nigerian"). Searches in both databases were restricted to publications within the 1972–2022 time frame.

Eligibility Criteria and Data Extraction

The selection criteria were predefined as follows: publications written in English; document types restricted to articles and review articles; publications within the 1972–2022 timespan; and articles authored by Nigerian physiotherapists affiliated with Nigerian academic, research, or hospital institutions. The extracted information included author details (names and identities), document title, year of publication, journal title, volume, issue, page numbers, and citation counts. Additional bibliographic variables exported included author affiliations, journal identifiers and publisher information. The flowchart presented in Figure 1 illustrates the systematic process used to identify and select eligible publications.

Data Management, De-duplication, and Screening

All records retrieved from Google Scholar and PubMed were merged and managed in Microsoft Excel prior to analysis. De-duplication was performed using predefined matching rules based on exact and near-exact matches of article titles, author names, year of publication, and digital object identifiers where available. Automated duplicate detection was supplemented by manual verification to minimize erroneous record removal, and the number of unique records remaining after de-duplication was documented. The de-duplicated dataset then underwent a structured screening

process, beginning with title and abstract screening to exclude publications that did not meet the predefined eligibility criteria, including non-relevant topics and non-article document types. Where required, full-text screening was performed, and reasons for exclusion at each stage were recorded with corresponding counts.

Data Cleaning and Harmonization

Following screening, bibliometric data cleaning and harmonization were conducted to ensure consistency across records retrieved from multiple databases. Author name disambiguation was performed by standardizing name formats and resolving variations in initials, spelling, and ordering through manual cross-checking. Institutional affiliations were harmonized by merging multiple spellings or naming variants of the same institution into a single standardized form. Journal titles were also standardized to resolve abbreviated and full-name inconsistencies. Records with missing or incomplete metadata were reviewed, and where key bibliographic fields could not be verified, such entries were retained but excluded from analyses requiring those specific variables.

Gender Classification and Sensitivity Analysis

Gender analysis was conducted as a supplementary component of the bibliometric assessment. Bibliometric databases do not provide verified gender metadata; therefore, gender assignment was performed using a manual, multi step verification approach. Initial classification was based on the first author's professional familiarity with the Nigerian physiotherapy research community, including direct academic interactions, mentorship relationships, institutional affiliations, and sustained scholarly engagement with many of the authors included in the dataset.

For authors whose gender could not be confidently determined through professional familiarity, additional verification steps were undertaken. These included systematic searches of publicly available online profiles, including institutional webpages, Google Scholar and ResearchGate profiles, and professional or academic social media platforms, to identify self-identifying information. Where ambiguity persisted after online verification, direct confirmation was sought through communication with co-authors who were familiar with the individuals concerned. Gender was assigned only when consistent confirmation was obtained through these verification steps.

Authors whose gender could not be confidently verified after the full verification process were classified as indeterminate and excluded from the gender specific analysis to minimize misclassification bias. To assess the robustness of the observed gender distribution, a sensitivity analysis was conducted by varying the treatment of authors with indeterminate gender classification, and the overall gender distribution patterns remained materially unchanged. Accordingly, findings from the gender analysis were interpreted cautiously and presented as descriptive rather than definitive.

Ethical Considerations

This study used bibliometric data obtained exclusively from publicly accessible sources, including Google Scholar and PubMed, and did not involve human participants or private data; therefore, ethical approval was not required. Gender analysis was conducted for descriptive purposes only using a cautious verification process based on professional knowledge, publicly available academic profiles, and scholarly confirmation, with no individual level reporting. To minimize ethical and misclassification concerns, authors whose gender could not be confidently verified were excluded, and all gender related findings were reported in aggregated form and interpreted cautiously

Data Analysis

Data analysis was conducted using descriptive and bibliometric techniques. Cleaned bibliometric data were analysed using SPSS to generate frequencies, percentages, and temporal trends in publication output and citation counts. Institutional productivity

was assessed by aggregating publications according to author affiliations, and rankings were generated based on total output.

Gender analysis was performed as a supplementary, descriptive analysis using the verified gender classifications described in the Methods, with results reported in aggregated form. Bibliometric indicators were used to describe research productivity and impact, including total publications and citation counts. Keyword co-occurrence

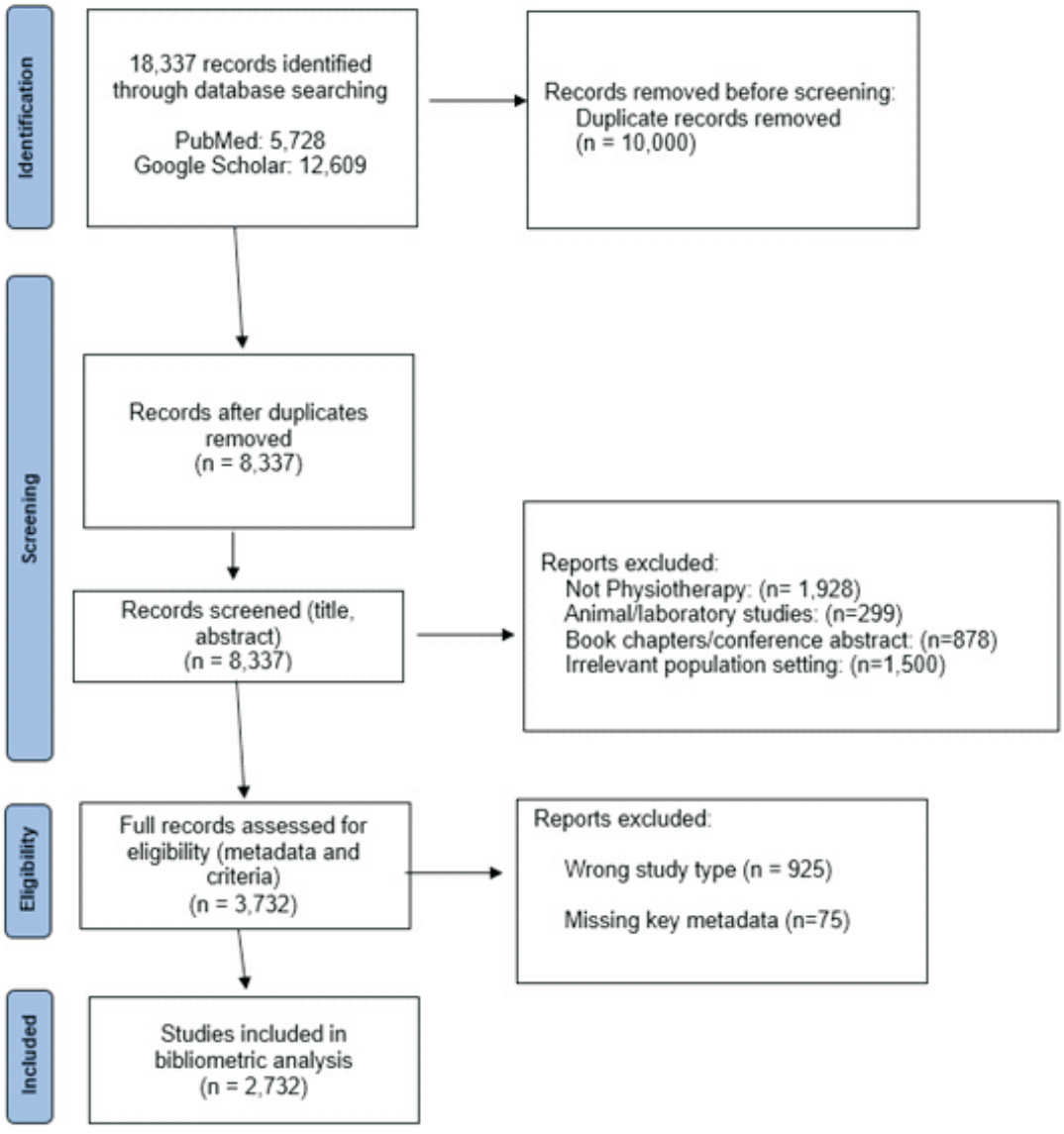


Figure 1: Flow chart for the bibliometric analysis

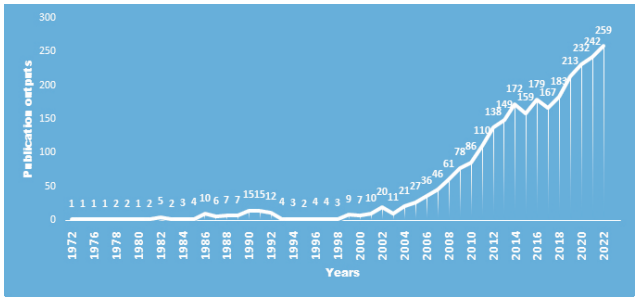
RESULTS

According to figure 1, 18,337 records were initially identified (5,728 from PubMed and 12,609 from Google Scholar), of which 10,000 duplicates were removed, leaving 8,337 records for title and abstract screening. During this stage, 4,605 records were excluded for reasons including non-physiotherapy focus, animal or laboratory studies, book chapters or conference abstracts, and irrelevant population settings. This resulted in 3,732 records being assessed for eligibility. At the eligibility stage, 1,000 records were excluded due to wrong study type (n = 925) or missing key metadata (n = 75), leaving a final dataset of 2,732 studies included in the bibliometric analysis.

Annual growth trend

The sample in this study is comprised of a total of 2,732 physiotherapy-related publications collected in Nigeria by 407 authors affiliated with 82 institutions in 30 states, which were published in 923 journals. There were 308 males and 99 females. The male contributors published 2,085 articles, while females authored 647 articles. The distribution of publication numbers by year, presented in Figure 2, shows a relatively upward trend, indicating steady development. From 1972 to 2003, the number of annual publications remained low. From 2004 to 2022, the number of annual publications began to grow rapidly, although there was a slight decline in volatility in 2015 and 2017

Figure 2: Trends in the number of publications (1972–2022)



Analysis of co-cited references: Most cited papers

There were a total of 33,670 citations according to this study. As shown in Table 1, the top three references with the most cited publications were "Work-related musculoskeletal disorders among nurses in Ibadan, South-west Nigeria: a cross-sectional survey", "Grip strength: effects of testing posture and elbow position" and "Work-related musculoskeletal disorders among Nigerian physiotherapists".

Table 1: Most cited Publications by Nigerian Physiotherapists (first author)

Rank	References	Article title	Year	Cites
1	Tinubu et al	Work-related musculoskeletal disorders among nurses in Ibadan, South-west Nigeria: a cross-sectional survey	2010	624
2	Balogun et al	Grip strength: effects of testing posture and elbow position	1991	407
3	Adegoke et al	Work-related musculoskeletal disorders among Nigerian physiotherapists	2008	327
4	Owoeye et al	Efficacy of the FIFA 11+ warm -up programme in male youth football: a cluster randomized controlled trial	2014	270
5	Adedoyin et al	A Prevalence and pattern of hypertension in a semi urban community in Nigeria	2008	189
6	Balogun et al	Age related changes in balance performance	1993	178
7	Mbada et al.	Knowledge, attitude and techniques of breastfeeding among Nigerian mothers from a semi-urban community	2013	173
8	Abdullahi et al	Neurological and musculoskeletal features of COVID -19: A systematic review and meta-analysis.	2020	167
9	Gbiri et al	Stroke Management: Informal caregivers' burden and strain of caring for stroke survivors	2015	166
10	Balogun et al	The effects of a wobble board exercise training program on static balance performance and strength of lower extremity muscles	1992	156
11	Nwuga	Relative therapeutic efficacy of vertebral manipulation and conventional treatment in back pain management	1982	150
12	Adedoyin et al	Musculoskeletal pain associated with the use of computer systems in Nigeria	2005	140
13	Akinpelu et al	Prevalence and pattern of symptomatic knee osteoarthritis in Nigeria: A community-based study	2009	139
14	Adeniyi et al	Depression and physical activity in a sample of Nigerian adolescents: levels, relationships and predictors	2011	124

Top Journals and most productive authors

A total of 921 journals published 2,372 physiotherapy-related articles in Nigeria between 1972 and 2022, with 108 journals publishing more than five articles. Among the top 10 journals, the Nigerian Journal of Medical Rehabilitation led with 93 publications, followed by the African Journal of Physiotherapy and Rehabilitation Sciences (82) and the Nigerian Quarterly Journal of Hospital Medicine (68). Notably, most of these top journals are Nigeria-based, reflecting a preference for local dissemination of research findings. Similarly, the analysis of authorship revealed the most productive researchers in the field. Mbada CE was the most prolific author with 111 publications, a total of 3,272 citations, and an h-index of 30, followed by Onigbinde AT (64 publications, 655 citations, h-index 12) and Balogun JA (57 publications, 3,813 citations, h-index 31). These results highlight a concentration of both research output and citations among a few leading authors and suggest a strong but still developing research culture within Nigerian physiotherapy.

Table 2: Top 10 Journals and Most Productive Authors in Nigerian Physiotherapy Research (1972–2022)

Rank	Top Journals (No. of Publications)	Country	Top Authors (No. of Publications)	Citations	h-index	i10-index
1	Nigerian Journal of Medical Rehabilitation (93)	Nigeria	Mbada CE (111)	3,272	30	65
2	African Journal of Physiotherapy and Rehabilitation Sciences (82)	Nigeria	Onigbinde AT (64)	655	12	18
3	Nigerian Quarterly Journal of Hospital Medicine (68)	Nigeria	Balogun JA (57)	3,813	31	71
4	African Journal of Biomedical Research (59)	Nigeria	Odole AC (57)	1,715	25	46
5	Hong Kong Journal of Physiotherapy (56)	China	Ojoawo AO (49)	237	9	7
6	Sports Medicine Journal/Medicina Sportivâ (53)	Romania	Akinpelu AO (47)	1,685	27	43
7	Physical Therapy (52)	USA	Adeniyi AF (46)	2,187	22	45
8	African Journal of Medicine and Medical Sciences (51)	Nigeria	Akodu AK (46)	898	15	19
9	South African Journal of Physiotherapy (48)	South Africa	Abdullahi A (45)	867	15	21
10	Journal of Nigeria Society of Physiotherapy (36)	Nigeria	Gbiri CA (44)	1,055	16	21

Institutions analysis

A total of 2,732 publications were produced by 82 institutions in Nigeria. The top 10 institutions contributed 2,563 publications, representing 92.8% of the total output. Among these, the top three institutions, Obafemi Awolowo University with 616 publications, University of Ibadan with 526 publications, and University of Lagos with 377 publications, accounted for 1,519 publications, indicating a strong concentration of research productivity within a few leading universities.

Table 3: The top 10 institutions with the most publications

Rank	Institutions	Frequency	Percent
1	Obafemi Awolowo University	616	22.5
2	University of Ibadan	526	19.2
3	University of Lagos	377	13.8
4	Bayero University	286	10.4
5	University of Nigeria	280	10.2
6	University of Maiduguri	236	8.6
7	Nnamdi Azikiwe University	149	5.4
8	University of Benin	37	1.4
9	Federal Medical center, Abeokuta	31	1.1
10	Olabisi Onabanjo University Teaching Hospital	25	0.9

Keyword analysis

Among 3620 keywords, the frequency of occurrence was set to at least 20. The keywords appearing at a high frequency within these documents are low-back (609), physical-activity (566), pain (485), stroke (366), exercise (278),

quality of life (174), musculoskeletal (155), knee (141), osteoarthritis (122), functional (110), and so on.

DISCUSSION

This study provides a **descriptive bibliometric overview** of the research publication output of physiotherapy researchers in Nigeria from 1972 to 2022. The results of this study show that there was a substantial continuous significant increase in the number of scientific productivity over the 10 years between 2008 and 2017. Using data from PubMed and Google Scholar, we found out m that Nigerian physiotherapists published 2732 articles. The number of publications using decades by these authors had gradually increased over the years except from 1992-2011. There were 11 articles in the first decade (1972-1981), 74 articles were published in the second decade (1982-1991), 58 articles from 1992-2001, 496 articles from 2002-2011 which represent fourth decade while a tremendous burst of articles (2092) were published from 2012 to 2022. From these results, it is inferred that Nigerian physiotherapists are increasingly aware of publishing more articles in recent years (Years, 2012-2022: n=2092) and have enhanced their research competencies gradually to raise their scientific output compared to other previous years. Distinguishing itself from previous research, this study explores physiotherapy research trends in Nigeria and Africa over 50 years, offering a broader perspective compared to studies that analyzed shorter periods [13-16].

A total of 33,670 citations was reported from our study from 1972-2022. In comparison with other studies, Littman *et al.* analyzed the research output of 45 physical therapy faculty in the southeastern US from 2000 to 2016 using their curriculum vitae. The range of publications and the citations of these faculty was observed as 0 to 43, and 0 to 943, respectively[17]. Further, Italian physiotherapists published 1083 articles with 13,373 citations in the Scopus database from before 1995 to 2016[14]. This study revealed that 488 articles published by Indian physiotherapists in Web of Science (WoS) from 1999 to 2018 secured only 2419 citations. Besides, Sturmer *et al.* found that 222 articles were published by Brazilian physical therapy researchers in WoS in 2010, which had a total of 1805 citations[13]. Another study from Indian that Indian physiotherapists published only 65 articles with 171 citations up to the year 2010 in Web of Science[18]. The gender differences observed in physiotherapy research output, with males contributing a higher number of publications than females, reflect a complex interplay of systemic factors within academic and research environments. This is however in contrast to previous studies conducted in high- and upper-middle-income countries[19-22]. Notably, a prior study in the field of oral and maxillofacial surgery found no gender difference in research productivity[23]. Historical gender disparities in leadership roles, limited representation of women in higher-ranking positions, and reduced opportunities for mentorship contribute to lower research productivity among females. Work-life balance challenges, particularly for women with caregiving responsibilities, further impact publication quantity. Unequal research funding and resource distribution favoring male researchers amplify gender variations in productivity. Implicit biases in evaluation processes affect the visibility and acknowledgment of female researchers, influencing overall research output. Male researchers' extensive networks and collaborative opportunities contribute to higher publication rates.

This study reveals a significant trend where Nigerian-based journals notably claimed top positions among the first ten journals featuring articles by physiotherapists in Nigeria, spanning various disciplines within physiotherapy research. While journals from the United States, China, Romania, and South Africa had a minority representation, the dominance of Nigerian-based journals can be attributed to factors aligning with local context, addressing community-specific

challenges. This local resonance makes these journals preferred for disseminating research within the national community. Factors such as accessibility, familiarity, and a perception of peer-review processes being attuned to the Nigerian healthcare system contribute to this preference. Literature suggests that the selection of journals for publication is influenced by various factors, encompassing journal prestige, impact factor, peer-review quality, acceptance rates, readership size and engagement, potential article publishing charges, and the overall reputation within the scientific community[24-26]. Collaborative research projects within the Nigerian physiotherapy community further elevate the prominence of local journals, reinforcing their impact and recognition. Notably, the inclusion of journals from other countries underscores global engagement, reflecting a desire to contribute to the broader physiotherapy discourse and showcase diverse research perspectives from Nigeria.

This study observed the top 10 physiotherapy authors with the range of total citations from 237 to 3,813 and h-index from 9 to 31. Mbada CE, had the highest number of articles as first author and affiliated to a Nigerian institution/hospital (n=111, h-index=30, total citation=3,272) while Balogun JA had the highest h-index of 31 and total citation of 3,813. In comparison, a previous study by Man *et al.* found that four Hong Kong physiotherapy professors had a median h-index of 30.5 and their average total number of citations was 2930[15]. In another study, Brazilian physical therapy researchers had a median h-index of 3, according to Web of Scence[13]. Vercelli *et al.* reported that the mean h-index of 363 Italian physiotherapists was 2.2, which ranged from 0 to 16; mean citations per author were observed as 58[14].

Dash *et al.* stated that the keywords are one of the three pillars of a biomedical research article. Using the right keywords would augment the article being found by other researchers as these are used by abstracting and indexing services[27]. Hence, this study revealed the top 10 keywords that occurred in various articles. It was observed that the keyword "low-back" had the highest frequent keyword followed by physical activity, pain and stroke.

LIMITATIONS

The reliance on PubMed and Google Scholar as primary databases for data collection may be considered a limitation of this study. While these platforms provide access to a substantial number of articles, it is acknowledged that the study did not utilize Scopus or Web of Science (WoS), which are widely recognized and frequently used for bibliometric analysis. Scopus and WoS offer comprehensive coverage of academic literature and are known for their robust indexing systems. Therefore, the decision to focus on PubMed and Google Scholar may limit the breadth and depth of the study's bibliometric analysis, potentially excluding relevant articles that are exclusively indexed in Scopus or WoS.

Also, relational bibliometric techniques can provide insights into collaboration structures and thematic clustering, this study intentionally focused on descriptive indicators of research productivity and impact. Future studies may extend this work by incorporating network-based analyses.

CONCLUSION

The field of physiotherapy in Nigeria is still emerging and advancing in terms of both the quantity and quality of research, leading to advancements in scientific knowledge. The scholarly output of physiotherapy researchers in Nigeria, as revealed by this study, demonstrates clear trends. It is also noteworthy that Nigerian physiotherapists predominantly published their articles in domestic journals. While this signifies a commendable quantity of contributions, there is a need to boost to the dissemination of research findings in international journals. This strategic shift towards increased representation in global journals aims not only to amplify global recognition but also to broaden the impact, contributing to the advancement and visibility of Nigerian

physiotherapy research on the world stage.

RECOMMENDATIONS

Future investigations could explore identifying the factors, both individual and institutional, that influence the research productivity of Nigerian physiotherapists. Furthermore, fostering awareness and offering assistance for Nigerian physiotherapists to publish in well-regarded international journals holds the potential to amplify the recognition of their research outcomes. A synergistic collaboration between local and international platforms can play a pivotal role in achieving a more exhaustive and influential portrayal of Nigerian physiotherapy research within the global scientific stage.

What is already known on this topic

- Physiotherapy in Nigeria has a long history and has gradually developed from diploma to degree programs, contributing to healthcare delivery and rehabilitation.
- Research productivity among Nigerian physiotherapists has been limited, with few bibliometric analyses conducted in Nigeria.

What this study adds

- This bibliometric analysis provides a comprehensive overview of 2,732 physiotherapy publications by Nigerian researchers from 1972–2022, highlighting publication trends, authorship, and institutional contributions.
- Male physiotherapists contributed more publications than females, revealing a persistent gender gap in research productivity.
- Nigerian physiotherapists predominantly publish in local journals, suggesting the need for greater international dissemination to enhance global impact.

Declarations

Ethics approval and consent to participate
Not applicable

Consent for publication
Not applicable

Availability of data and material
Available on reasonable request

Competing interests
The authors declare no competing interests.

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Authors' contributions

AOF made substantial contributions to the conception and design of the study. DDA, BO, MOO AND MOI participated in the data collection. AOF analyzed and interpreted the data. AOF, MOO and ACO revised the article critically for important intellectual content. The authors read and approved the final manuscript.

Clinical Trial

Not applicable.

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REFERENCES

1. Oyeyemi A. Fifty years of physiotherapy in Nigeria: trends, perspectives and future direction. *J Niger Soc Physiother*. 2009;17:30–5.
2. Oshin TA. Physiotherapy in Nigeria: yesteryears, presently and in the next millennium. *Nat PhysioNews*. 2011;1:8–9.

3. Folayan MO, El Tantawi M, Shamsoddin E, Martínez-Pérez GZ. Gender differences in dentistry and oral sciences research productivity by researchers in Nigeria. *Front Oral Health*. 2023;4:1059023. doi:10.3389/froh.2023.1059023
4. Wang EC. R&D efficiency and economic performance: a cross-country analysis using the stochastic frontier approach. *J Policy Model*. 2007;29:345–60. doi:10.1016/j.jpolmod.2006.12.005
5. Jaffe K, ter Horst E, Gunn LH, Zambrano JD, Molina G. A network analysis of research productivity by country, discipline, and wealth. *PLoS One*. 2020;15(5):e0232458. doi:10.1371/journal.pone.0232458
6. Veenhoven R. Well-being in nations and well-being of nations. *Soc Indic Res*. 2009;91:5–21. doi:10.1007/s11205-008-9323-7
7. Beerkens M. Facts and fads in academic research management: the effect of management practices on research productivity in Australia. *Res Policy*. 2013;42(9):1679–93.
8. Albers S. What drives publication productivity in German business faculties? *Publication Productivity*. 2015;67(1):6–33. doi:10.1007/BF03396921
9. Heng K, Hamid MO, Khan A. Factors influencing academics' research engagement and productivity: a developing countries perspective. *Issues Educ Res*. 2020;30(3):965–87.
10. Eni G. The genesis of university-based physiotherapy degree in Nigeria: the experience and challenges of the first graduate. http://www.nigeriaphysio.net/media/archive1/docs/Genesis_of_UniversityBased_Physiotherapy_Education_in_Nigeria.pdf. Accessed 25 December 2025.
11. Balogun JA, Aka P. A descriptive study of the professionalization milestones of the twelve major occupations in Nigeria. https://www.researchgate.net/publication/283667005_A_Descriptive_Study_of_the_Professionalization_Milestones_of_the_Twelve_Major_Occupations_in_Nigeria_Joseph_Balogun_and_Philip_Aka. Accessed 25 December 2025.
12. Harzing AW. *Publish or Perish*. 2007. https://harzing.com/resources/publish-or-perish. Accessed 25 December 2025.
13. Sturmer G, Viero CC, Silveira MN, et al. Profile and scientific output analysis of physical therapy researchers with research productivity fellowship from the Brazilian National Council for Scientific and Technological Development. *Braz J Phys Ther*. 2013;17(1):41–8.
14. Vercelli S, Ravizzotti E, Paci M. Are they publishing? A descriptive cross-sectional profile and bibliometric analysis of the journal publication productivity of Italian physiotherapists. *Arch Physiother*. 2018;8(1):1.
15. Man DWK, Tsang WSF, Lu EY, Tsang HWH. Bibliometric study of research productivity in occupational therapy and physical therapy/physiotherapy in four Western countries and five Asian countries/regions. *Aust Occup Ther J*. 2019. doi:10.1111/1440-1630.12608
16. Manuelraj P, Mohamed I. Bibliometric analysis of physical therapy researchers with research exposure in Saudi Arabia. *Libr Philos Pract (e-journal)*. 2020;4067.
17. Littman MA, Sonne JW, Smith GV. Research productivity of doctor of physical therapy faculty promoted in the southeastern United States. *Med Educ Online*. 2017;22(1):1368849.
18. Subbarayalu AV, Peter M, Idhris M, Prabaharan S, Sakthivel M, Raman V, et al. Visualizing highly cited scientific output of Indian physiotherapists: a bibliometric study. *F1000Res*. 2020;9:207. doi:10.12688/f1000research.22390.2
19. Bendels MHK, Müller R, Brueggmann D, Groneberg DA. Gender disparities in high-quality research revealed by Nature Index journals. *PLoS One*. 2018;13(1):e0189136.
20. Simon L, Candamo F, He P, Karhade DS, Pirooz Y, Spinella MK, et al. Gender differences in academic productivity and advancement among

dental school faculty. *J Womens Health (Larchmt)*. 2019;28(10):1350–4.

21. Kiziltan Eliacik B, Karahan M. Gender differences in academic productivity within pediatric dentistry departments in Turkey. *J Dent Indones*. 2021;28(3):139–45.
22. Haag DG, Schuch HS, Nath S, Baker SR, Celeste RK, Thomson WM, et al. Gender inequities in dental research publications: findings from 20 years. *Community Dent Oral Epidemiol*. 2022.
23. Burke AB, Cheng KL, Han JT, Dillon JK, Dodson TB, Susarla SM. Is gender associated with success in academic oral and maxillofacial surgery? *J Oral Maxillofac Surg*. 2019;77(2):240–6.
24. Bahadoran Z, Mirmiran P, Kashfi K, Ghasemi A. Scientific publishing in biomedicine: how to choose a journal? *Int J Endocrinol Metab*. 2020;19. doi:10.5812/ijem.108417
25. Tazegul G, Etcioglu E, Emre E, Özlü C. Factors affecting the journal choice for manuscript submission: a qualitative study on Turkish medical researchers. *J Inf Sci*. 2022. doi:10.1177/01655515221100724
26. Mondal S, Juhi A, Kumari A, Dhanvijay A, Mittal S, Mondal H. Peer review in scientific publishing: current practice, guidelines, relevancy, and way forward. *Cosmoderma*. 2023. doi:10.25259/csdm_35_2023
27. Dash M. Three pillars of a biomedical research article: the title, abstract and keywords. *J Health Spec*. 2016;4(3):186–9