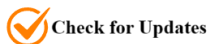


A Bibliometric Analysis of Research on Extracurricular Sports Activities and Attitudes

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Academic Editor: Akan Bayrakdar

Received: 28.07.2025

Accepted: 25.09.2025

Published: 30.09.2025

Citation: Nergiz, S., Bayköse, N., & Şahin, F. (2025). A bibliometric analysis of research on extracurricular sports activities and attitudes. *Journal of Sport for All and Recreation*, 7(3), 539-556. <https://doi.org/10.56639/jsar.1752330>

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Abstract: To reveal research trends, conceptual structures, influential authors, geographical distributions and collaboration networks in the field by conducting a bibliometric analysis of scientific publications on extracurricular sporting activities and attitudes. 153 documents published in the Web of Science database between 1980 and 2024 were examined. The data were analyzed with VOSviewer and Bibliometrix R programs. 'Attitudes', 'children', 'sport' were the most frequently used terms. The USA, Australia, the United Kingdom and Kanada stood out as the most effective countries. Extracurricular sports activities and attitudes have become an increasingly popular area of interest in the literature. This study contributes to understanding the current structure and future research directions in the field.

Keywords: Attitude, extracurricular sports activities, parent, bibliometric analysis.

1. Introduction

Physical education and sports, defined as an indispensable component and complement of education, not only contribute to the development of socially and culturally competent individuals but also play a crucial role in fostering healthy members within society. In contemporary educational paradigms, physical education holds a significant position in promoting the holistic development of individuals—physically, mentally, socially, and emotionally. This discipline is intrinsically linked with sports, forming an inseparable and mutually reinforcing relationship. Enhancing both physical and mental well-being, and fostering strong willpower, physical education and sports are regarded as fundamental elements. Moreover, they serve as powerful tools in activating an individual's latent abilities and creative potential (Akgül et al., 2012).

The most important activities for school-aged youth—who are in their most dynamic period and constantly energetic—are sports activities that can be carried out both within and outside the school. These activities allow students to spend their free time productively, channel their energy in a positive direction, protect themselves from harmful habits, enhance their knowledge, skills, and talents, and reduce stress (Durmuş, 2020). This is because the formal curriculum may not fully encompass all aspects of education that students need. To address these deficiencies and further support students in line with educational goals, extracurricular activities play a vital role. Through such activities, the limitations of traditional academic programs can be mitigated; students' physical and mental needs can be met, personality development can be fostered, and experiential learning opportunities can be provided for dealing with real-life challenges (Karslı, 2006).

Today, it is observed that when teachers and parents do not guide children toward extracurricular sports activities, children are more likely to engage in negative behaviors and adopt harmful habits (Köse, 2013). According to Coakley (2003), within the framework of critical theory, it is emphasized that families play a decisive and influential role in the child's participation in leisure-time sports activities. It is also evident that during both pre-adolescence and post-

adolescence periods, lifestyle choices are shaped significantly with parental approval (Yilmaz, 2016). Today, adolescent individuals are able to participate in a wide range of social activities according to their interests and preferences, including school-based sports activities, academic clubs, community-based sports programs, music and arts programs, and faith-based initiatives. Adolescents' success in these activities, along with the opportunities to build positive relationships with peers through participation, plays a significant role in motivating and sustaining their involvement (Busseri et al., 2006; Shannon, 2006).

The early years of adolescence, particularly middle school, represent a critical period during which students have the greatest opportunity to engage in extracurricular activities. This stage is especially important in terms of the behaviors and habits students develop, and it plays a key role in predicting their level of participation in such activities during the next educational stage—high school (Villarreal, 2012). According to research, student participation in school-based extracurricular activities tends to peak during mid-adolescence (Villarreal, 2012). However, as students progress to higher grade levels, participation begins to decline and eventually stabilizes at a certain level (Simpkins et al., 2011).

Considering the benefits of children and adolescents participating in extracurricular sports activities, parents' attitudes toward sports activities gain particular importance. In this context, the absence of a bibliometric study analyzing scientific publications related to extracurricular sports activities and attitudes is considered a notable gap in the literature. As a study designed around the theme of sports activities and attitudes, the current research is expected to contribute to addressing this deficiency in the field. Furthermore, bibliometric data obtained from scientific documents published on this topic can be used to determine the popularity and developmental trends of the subject, identify the most productive elements in the field (such as authors, institutions, and countries), and describe the statistical characteristics of these publications.

2. Materials and Methods

2.1. Research Model

This study is a descriptive research that examines scientific publications in the field of extracurricular sports activities and attitudes toward sports through bibliometric analysis. The aim of this research is to conduct a bibliometric investigation of articles written on extracurricular sports activities and sports-related attitudes. Bibliometric analysis is a systematic approach based on information science that enables the quantitative evaluation of the literature. Bibliometrics facilitates the use, historical development, collection, and interpretation of relevant statistics of studies published in journals and books (Yersüren & Özel, 2020). This model was chosen to reveal developmental trends in the literature, key contributors, conceptual structures, and patterns of international collaboration. The study employed a comprehensive data analysis by combining both performance analysis (such as publication counts, citation counts, and author productivity) and scientific mapping techniques (including keyword co-occurrences, citation networks, and collaboration maps).

2.2. Data Collection Process and Criteria

- Database: Web of Science Core Collection
- Years: 1980 – 2024
- Document Type: Article, review, book chapter, papers
- Language: English
- Search Date Range: December 2024
- Keywords:
 - “Attitude” and (“sport” or “physical activity” or “children” or “parents”)

The obtained records were screened to remove irrelevant and duplicate documents, resulting in a final selection of 153 academic papers for analysis.

2.3. Scope and Limitations of the Study

The study was limited to 153 academic documents published in the Web of Science database between 1980 and 2024 and indexed using specific keywords. Other databases, languages, and unpublished theses were not included. Analyses were conducted using VOSviewer and Bibliometrix R software.

2.4. Data Set and Scope

The 153 documents included in the analysis originate from a total of 122 different sources, including journals, conference proceedings, and book chapters. The publications span the years 1980 to 2024, with the most commonly used languages being English and abstracts translated into English. The data were exported in .bib and .csv formats and included in the analysis process. Both the volume of academic output and the scientific impact of this production were comprehensively examined within the scope of the study.

2.5. Software Used

The following software tools were used for data processing and visualization:

- Bibliometrix R Package (with the Biblioshiny interface): Publication and citation analyses, author productivity, word cloud, thematic mapping, dendrogram, and collaboration analyses.
- VOSviewer: Visualization of citation networks, keyword clusters, and country and institution collaboration networks.
- Excel & SPSS: Raw data organization, table creation, and frequency calculations.

2.6. Ethical Approval

Research involving data collection methods such as surveys, interviews, focus groups, observations, or experiments, as well as studies that include the experimental or scientific use of humans or animals, clinical trials, or retrospective analyses containing personal data, require approval from an ethics committee. However, bibliometric studies that rely solely on open-access and publicly available data do not fall within this scope and therefore do not require ethics approval.

3. Results

In this section, the concepts of sports activities and attitudes toward sports were analyzed using the bibliometric analysis method. The findings obtained are presented in this chapter.

Table 1. Bibliometric Summary of Scientific Production in the Field of Sports Activities and Attitudes toward Sports (1980–2024)

Description	Results	Description	Results
MAIN INFORMATION ABOUT DATA		AUTHORS	
Timespan	1980:2024	Authors	620
Sources (Journals, Books, etc)	122	Authors of single-authored docs	11
Documents	153	AUTHORS COLLABORATION	
Annual Growth Rate %	3.64	Single-authored docs	11
Document Average Age	9	Co-Authors per Doc	4.36
Average citations per doc	21.19	International co-authorships %	13.07
References	6073	DOCUMENT TYPES	
DOCUMENT CONTENTS		Article	143
Keywords Plus (ID)	479	article; early Access	8
Author's Keywords (DE)	470	article; proceedings paper	2

The analyzed bibliometric dataset encompasses a total of 153 academic documents published between 1980 and 2024. These documents appeared across 122 different sources (journals, books, etc.). An average annual growth rate of 3.64% indicates a steady increase in academic production on the topic over time. The average age of the documents is 9 years, suggesting that the research area remains current. The average number of citations per document was calculated as 21.19, demonstrating a significant contribution of the publications to the field's literature. Additionally, a total of 6,073 citations further support this finding.

According to the content analysis, the number of Keywords Plus included in the documents is 479, while the number of author-assigned keywords is 470. This indicates a high level of conceptual diversity and terminological richness within the research field.

When examining the author profile, a total of 620 different authors contributed to the studies; among them, only 11 produced single-authored publications. This indicates that collaborative publishing is dominant in the research field. Indeed, the average number of authors per document is 4.36. The rate of international co-authorship is noteworthy at 13.07%, suggesting that the field is globally widespread and open to international academic collaborations.

In terms of document types, the vast majority of publications (n = 143) are peer-reviewed articles. Additionally, there are 47 reviews, several book chapters, early access publications, and conference papers. This indicates that the scientific production in the field is largely based on original research, while there are also contributions in different formats, albeit in smaller numbers.

Table 2. Scientific Production and Average Article Citation Counts by Year

Year	Articles	Year	Articles	Year	Articles	Year	Articles
1980	1	1992	3	2003	1	2014	6
1981	0	1993	0	2004	3	2015	7
1982	1	1994	0	2005	2	2016	5
1983	0	1995	1	2006	1	2017	10
1984	0	1996	0	2007	3	2018	7
1985	0	1997	0	2008	3	2019	7
1986	0	1998	0	2009	3	2020	2
1987	0	1999	1	2010	6	2021	11
1988	0	2000	0	2011	3	2022	17
1989	0	2001	0	2012	3	2023	13
1990	1	2002	1	2013	9	2024	17
1991	0						

An analysis of the annual distribution of publications in the field of sports activities and attitudes toward sports reveals an increasing trend in scientific productivity over time. Between 1980 and 2003, the annual number of publications was generally low and nearly negligible. However, from 2004 onwards, there has been a steady rise in interest in this field, accompanied by a consistent increase in the number of publications. Especially since 2017, academic studies related to these concepts have gained significant momentum. The annual number of publications, which was 10 in 2017, increased in the following years, reaching 11 in 2021. Production levels of 17 in 2022, 13 in 2023, and 17 in 2024 indicate sustained high output, demonstrating the ongoing relevance and importance of this theme. These data support that the field of sports activities and attitudes toward sports has attracted increasing attention in the academic community in recent years, with a significant rise in scientific productivity in this area.

Examination of the annual scientific production data reveals a notable increase in studies related to sports activities and attitudes toward sports, particularly since 2020. This rise indicates that the field is interacting with current technological developments and highlights the growing necessity to investigate the impact of digital platforms on individuals' physical and psychological health. The rapidly increasing sedentary lifestyle prevalent in today's era poses a global health threat, underscoring the importance of sports activities and fostering positive attitudes toward sports as a solution to this problem. Furthermore, with the advancement of the digital age and the interaction through social platforms, awareness-related research has expanded across all scientific disciplines, and information disseminated via digital platforms spreads rapidly. One of the primary goals of sports awareness is to educate individuals and communities about attitudes toward sports, promote positive behaviors, and encourage their implementation. Furthermore, the global pandemic process, especially after 2020, may have further increased scientific interest in investigating children's and adults' participation in sports activities, parents' attitudes toward sports, and the effects of these activities on children. Therefore, this rise in scientific production appears to be directly related both to academic developments and societal needs.

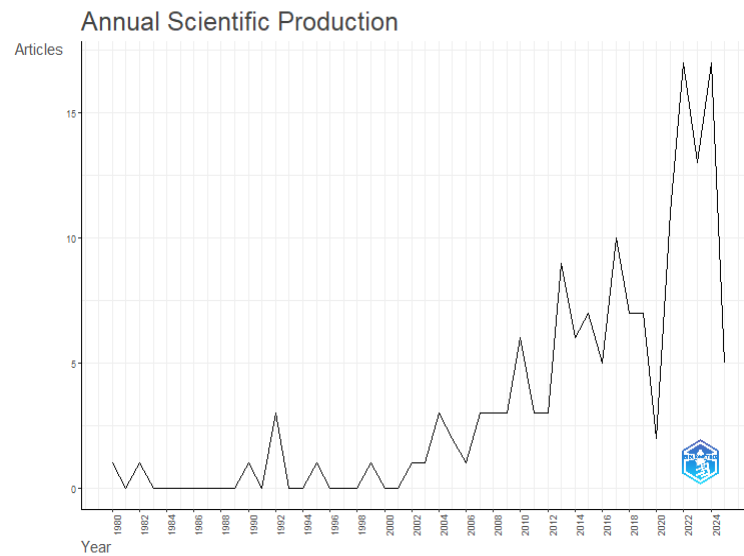


Figure 1. Distribution of Publications on Sports Activities and Attitudes Toward Sports by Year

Table 3. Average Citation Values of Publications on Sports Activities and Attitudes Toward Sports

Year	MeanTCperArt	N	MeanTCperYear	CitableYears
1980	11	1	0,24	46
1982	69	1	1,57	44
1990	15	1	0,42	36
1992	33,33	3	0,98	34
1995	17	1	0,55	31
1999	140	1	5,19	27
2002	145	1	6,04	24
2003	77	1	3,35	23
2004	127,33	3	5,79	22
2005	29,5	2	1,4	21
2006	38	1	1,9	20
2007	39	3	2,05	19
2008	45	3	2,5	18
2009	28,67	3	1,69	17
2010	70,67	6	4,42	16
2011	25,67	3	1,71	15
2012	14,67	3	1,05	14
2013	21,11	9	1,62	13
2014	15,83	6	1,32	12
2015	23,71	7	2,16	11
2016	24	5	2,4	10
2017	22,9	10	2,54	9
2018	22,57	7	2,82	8
2019	12,29	7	1,76	7
2020	3,5	2	0,58	6
2021	11,82	11	2,36	5
2022	4,18	17	1,04	4
2023	3	13	1	3
2024	0,82	17	0,41	2

A significant increase in academic interest in the concepts of sports activities and attitudes toward sports has been identified in recent years. However, it has been observed that this rise in the number of publications has not been accompanied by a corresponding increase in the average impact per article (i.e., the annual average number of citations).

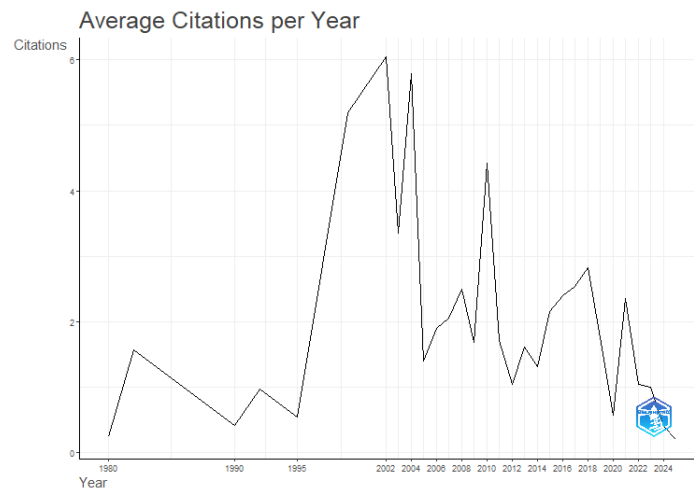


Figure 2. Average Citation Counts by Year for Publications on Sports Activities and Attitudes: An Impact and Trend Analysis

The analysis results illustrating the average citation counts of publications on sports activities and attitudes by year reveal the changes in interest and impact within the research field over time. The notably high average citation counts identified in 1995 and 2004 suggest that the studies published during these years generated significant impact within the field and served as foundational works for subsequent research. The observation of relatively low publication numbers alongside high average citations between 1995 and 1999 can be attributed to the influential nature of the studies conducted during that period.

In contrast, the low average citation counts observed in 2012 and especially in recent years (2021–2024) may indicate that current studies in the field have not yet been sufficiently evaluated, or that interest in previous topics has declined due to the emergence of new research directions.

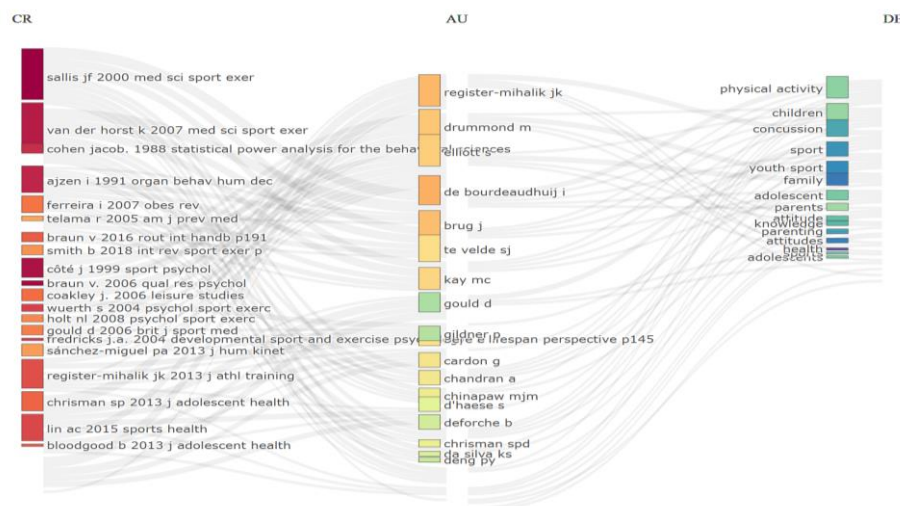


Figure 3. Three-Fields Plot Analysis in Studies on Sporting Activities and Attitudes Toward Sport: Most Cited Sources, Productive Authors, and Key Concepts

According to the Three-Fields Plot analysis, among the most cited sources in the field of Sportive Activities and Attitudes towards Sport, James F. Sallis (2000) stand out prominently. Authors such as Register Mihalik J.K. and Drummond M. are identified as some of the most productive contributors in this area. Keyword analysis reveals frequent usage of terms such as “physical activity,” “children,” and “sport.” This indicates that research in this field often focuses on the relationship between physical activity and sport, particularly in children.

Table 4. Most Productive Academic Journals and Publication Counts in the Field of Attitudes Toward Sport and Sportive Activities

Sources	Articles
BMC PUBLIC HEALTH	7
INTERNATIONAL JOURNAL OF BEHAVIORAL NUTRITION AND PHYSICAL ACTIVITY	3
INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH	3
JOURNAL OF SAFETY RESEARCH	3
JOURNAL OF SPORT AND HEALTH SCIENCE	3
PSYCHOLOGY OF SPORT AND EXERCISE	3
SPORT PSYCHOLOGIST	3
CHILDREN-BASEL	2
CURRENT PSYCHOLOGY	2
EDUCATIONAL PSYCHOLOGY	2
FRONTIERS IN PUBLIC HEALTH	2
INTERNATIONAL JOURNAL OF SPORT PSYCHOLOGY	2
INTERNATIONAL JOURNAL OF SPORTS SCIENCE & COACHING	2
JOURNAL OF APPLIED SPORT PSYCHOLOGY	2
JOURNAL OF CHILD AND FAMILY STUDIES	2
JOURNAL OF HUMAN SPORT AND EXERCISE	2
JOURNAL OF PEDIATRICS	2
RESEARCH QUARTERLY FOR EXERCISE AND SPORT	2
SCIENCE OF GYMNASTICS JOURNAL	2
SPORT EDUCATION AND SOCIETY	2
ACADEMIC PEDIATRICS	1
ADDICTION	1
AGGRESSIVE BEHAVIOR	1
AMERICAN JOURNAL OF HEALTH PROMOTION	1
APPLIED NEUROPSYCHOLOGY-CHILD	1
ARCHIVES OF BUDO	1
ARYA ATHEROSCLEROSIS	1
AUSTRALIAN DENTAL JOURNAL	1
BEHAVIORAL SCIENCES	1
BIOMED RESEARCH INTERNATIONAL	1
BMC PEDIATRICS	1
BMC RESEARCH NOTES	1
BMC SPORTS SCIENCE MEDICINE AND REHABILITATION	1
BMJ OPEN	1
CARDIOLOGY IN THE YOUNG	1
CLINICAL AND EXPERIMENTAL EMERGENCY MEDICINE	1
CLINICAL AND EXPERIMENTAL OPTOMETRY	1
CLINICAL JOURNAL OF SPORT MEDICINE	1
COMMUNICATION & SPORT	1
COUNSELLING & PSYCHOTHERAPY RESEARCH	1
CUREUS JOURNAL OF MEDICAL SCIENCE	1
EARLY CHILDHOOD EDUCATION JOURNAL	1
EDUCATION SCIENCES	1
ETR&D-EDUCATIONAL TECHNOLOGY RESEARCH AND DEVELOPMENT	1
EUROPEAN JOURNAL OF THERAPEUTICS	1
EUROPEAN PHYSICAL EDUCATION REVIEW	1
EUROPES JOURNAL OF PSYCHOLOGY	1
FRONTIERS IN SPORTS AND ACTIVE LIVING	1
HEALTH AND QUALITY OF LIFE OUTCOMES	1
HEALTH COMMUNICATION	1
HEALTH EDUCATION & BEHAVIOR	1
HEALTH PSYCHOLOGY	1
IDO MOVEMENT FOR CULTURE-JOURNAL OF MARTIAL ARTS ANTHROPOLOGY	1
INTERNATIONAL JOURNAL OF BEHAVIORAL DEVELOPMENT	1
INTERNATIONAL JOURNAL OF BEHAVIORAL MEDICINE	1
INTERNATIONAL JOURNAL OF DEVELOPMENTAL DISABILITIES	1
INTERNATIONAL JOURNAL OF DRUG POLICY	1
INTERNATIONAL JOURNAL OF EATING DISORDERS	1
INTERNATIONAL JOURNAL OF EDUCATIONAL DEVELOPMENT	1
INTERNATIONAL JOURNAL OF INJURY CONTROL AND SAFETY PROMOTION	1
INTERNATIONAL JOURNAL OF MENTAL HEALTH AND ADDICTION	1

INTERNATIONAL JOURNAL OF NURSING STUDIES	1
INTERNATIONAL JOURNAL OF SPORT POLICY AND POLITICS	1
INTERNET JOURNAL OF ALLIED HEALTH SCIENCES AND PRACTICE	1
JMIR MHEALTH AND UHEALTH	1
JMIR PEDIATRICS AND PARENTING	1
JOURNAL OF ADOLESCENT HEALTH	1
JOURNAL OF APPLIED SPORT MANAGEMENT	1
JOURNAL OF ATHLETIC TRAINING	1
JOURNAL OF CHILD - COÇUK DERGİSİ	1
JOURNAL OF CHILD NEUROLOGY	1
JOURNAL OF COGNITIVE ENHANCEMENT	1
JOURNAL OF ENVIRONMENTAL AND PUBLIC HEALTH	1
JOURNAL OF EPIDEMIOLOGY AND COMMUNITY HEALTH	1
JOURNAL OF ETHNIC AND MIGRATION STUDIES	1
JOURNAL OF GAMBLING STUDIES	1
JOURNAL OF HEALTH COMMUNICATION	1
JOURNAL OF PARK AND RECREATION ADMINISTRATION	1
JOURNAL OF PERSONALITY	1
JOURNAL OF PHYSICAL ACTIVITY & HEALTH	1
JOURNAL OF PHYSICAL EDUCATION RECREATION AND DANCE	1
JOURNAL OF PRIMARY CARE AND COMMUNITY HEALTH	1
JOURNAL OF PUBLIC HEALTH-HEIDELBERG	1
JOURNAL OF SCHOOL HEALTH	1
JOURNAL OF SCHOOL NURSING	1
JOURNAL OF SPORT & EXERCISE PSYCHOLOGY	1
JOURNAL OF SPORT MANAGEMENT	1
JOURNAL OF SPORT PSYCHOLOGY	1
JOURNAL OF SPORTS SCIENCES	1
JOURNAL OF YOUTH STUDIES	1
LEISURE SCIENCES	1
LEISURE STUDIES	1
MİR ROSSİ-UNIVERSE OF RUSSIA	1
NICOTINE & TOBACCO RESEARCH	1
ORTHOPAEDIC JOURNAL OF SPORTS MEDICINE	1
PEDAGOGICS PSYCHOLOGY MEDICAL-BIOLOGICAL PROBLEMS OF PHYSICAL TRAINING AND SPORTS	1
PEDIATRIC EMERGENCY CARE	1
PEDIATRIC EXERCISE SCIENCE	1
PEDIATRICS	1
PERSONALITY AND INDIVIDUAL DIFFERENCES	1
PHYSICAL EDUCATION AND SPORT PEDAGOGY	1
PHYSICIAN AND SPORTSMEDICINE	1
PLOS ONE	1
PSYCHOLOGICAL REPORTS	1
PSYCHOLOGY OF WOMEN QUARTERLY	1
PUBLIC HEALTH	1
PUBLIC HEALTH NUTRITION	1
QUALITATIVE RESEARCH IN SPORT EXERCISE AND HEALTH	1
RESEARCH IN SPORTS MEDICINE	1
REVISTA DE CERCETARE ŞI INTERVENȚIE SOCIALĂ	1
REVISTA DE PSICOLOGIA DEL DEPORTE	1
SAGE OPEN	1
SCANDINAVIAN JOURNAL OF MEDICINE & SCIENCE IN SPORTS	1
SEIZURE-EUROPEAN JOURNAL OF EPILEPSY	1
SOCIOLOGY OF SPORT JOURNAL	1
SPORT ETHICS AND PHILOSOPHY	1
SPORT IN SOCIETY	1
SPORTS-SCIENTIFIC TECHNICAL JOURNAL OF SCHOOL SPORT PHYSICAL EDUCATION AND PSYCHOMOTRICITY	1
SPORTS HEALTH-A MULTIDISCIPLINARY APPROACH	1
SUSTAINABILITY	1
VOLTA REVIEW	1
WIENER KLINISCHE WOCHENSCHRIFT	1

"BMC PUBLIC HEALTH" stands out as the journal with the highest number of publications, featuring (7 articles). "INTERNATIONAL JOURNAL OF BEHAVIORAL NUTRITION AND PHYSICAL ACTIVITY" (3 articles) and "INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH" (3 articles).

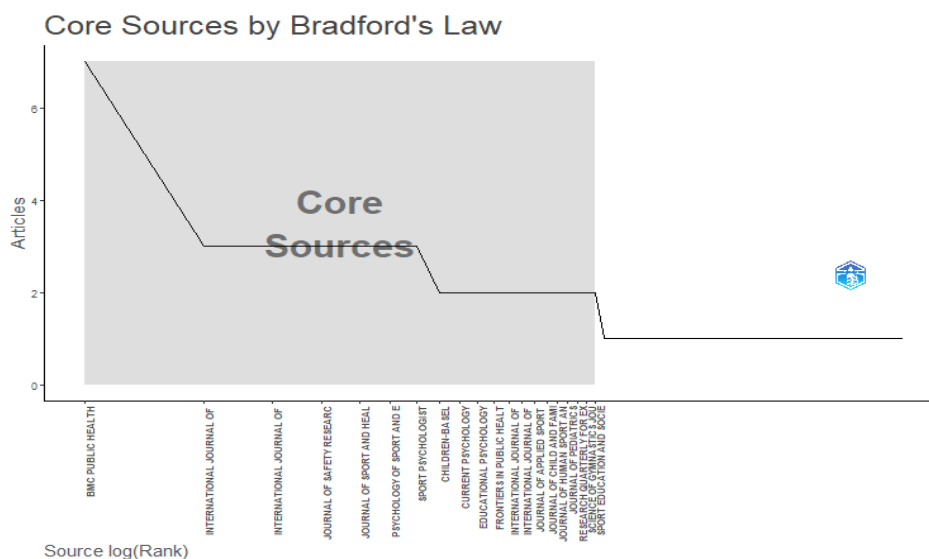


Figure 4. Analysis of Journal Distribution of Scientific Production in the Field of Attitudes Toward Sports and Sportive Activities Within the Scope of Bradford's Law

The analysis conducted within the scope of Bradford's Law reveals that scientific production in the field of attitudes towards sport and sporting activities is concentrated in specific journals. The results indicate that the literature in this area is primarily generated by a select "core journal group." Within this context, BMC PUBLIC HEALTH emerges as the most prolific journal, contributing the highest number of publications to the field, with a total of 7 articles. This journal covers a broad range of subfields related to physical activity in an interdisciplinary manner and frequently publishes research related to sporting activities.

While production is concentrated in the primary source, the remainder of the literature is distributed more sparsely across numerous journals. This pattern aligns with Bradford's predicted distribution model, indicating that knowledge production clusters around a limited number of core sources, whereas the remaining publications provide more marginal contributions.

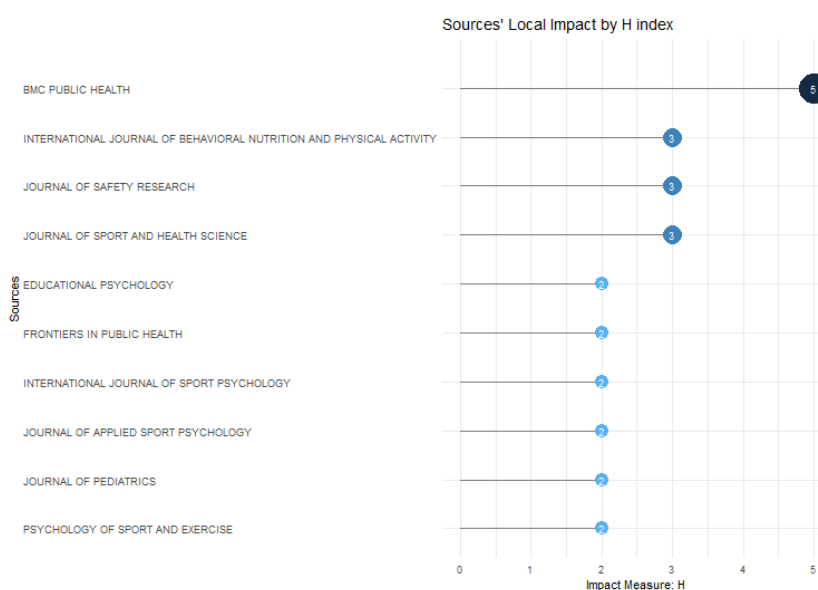


Figure 5. Scientific Impact in the Field of Attitudes Toward Sport and Sportive Activities: Local Impact of Sources Based on H-Index

According to the Sources Local Impact by H-Index table, the journal with the highest impact in the literature is BMC Public Health (H-index = 5), followed by International Journal of Behavioral Nutrition and Physical Activity (H = 3) and Journal of Sport and Health Science (H = 3). These journals stand out both in terms of publication volume and citation levels in studies related to physical activity and attitudes toward sport, thereby shaping the direction of the literature and contributing significantly to knowledge production.

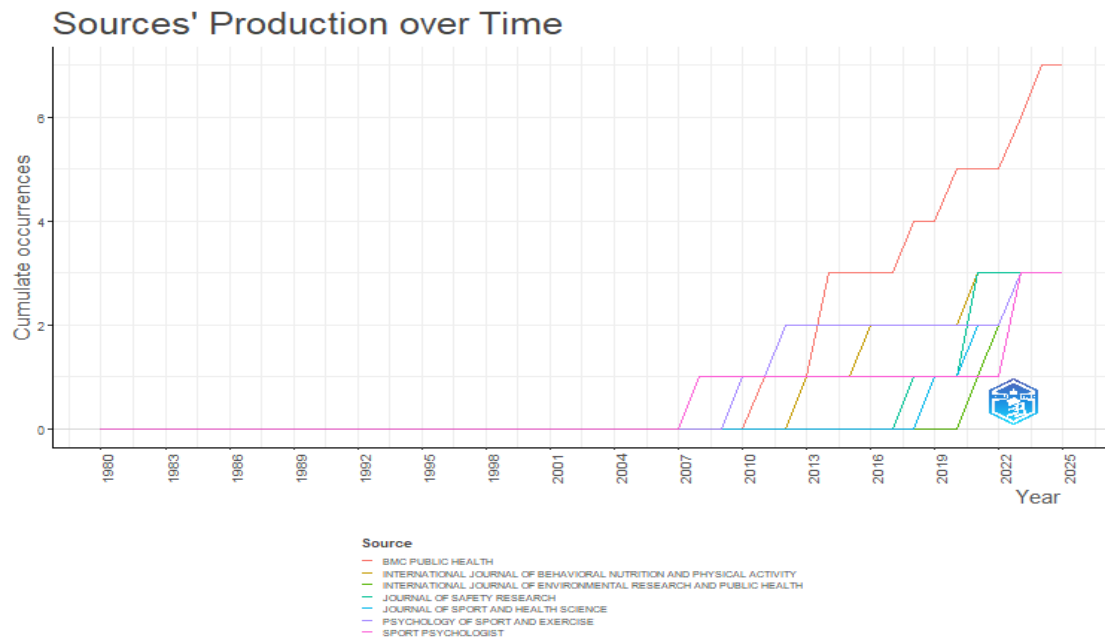


Figure 6. Intersection of Scientific Interest: Recent Increase in Publications in the Physical Activity Literature

In recent years, an increase in the number of publications has been observed, particularly in the journals BMC Public Health and International Journal of Behavioral Nutrition and Physical Activity. This trend indicates a growing interest of these journals in studies focused on physical activity and attitudes toward sport, highlighting the field as an emerging research trend.

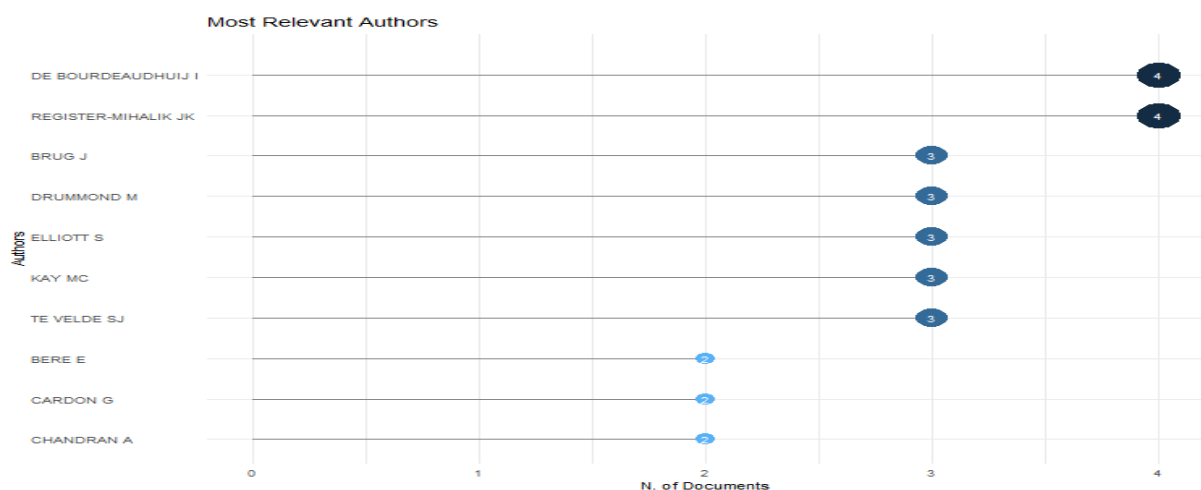


Figure 7. Leading Researchers in the Field of Sportive Activities and Attitudes Towards Sport: Publication Density and Scientific Contributions

When examining the Most Relevant Authors graph, De Bourdeaudhuij and Register Mihalik JK stand out as the most prolific authors in the field of sport activities and attitudes toward sport. These researchers are among the frequently cited names in the literature, having established the theoretical foundations of the field and contributed with applied studies. In this context, the graph reveals the leading researchers and the concentration of production in the area, helping to identify the fundamental building blocks of the literature.

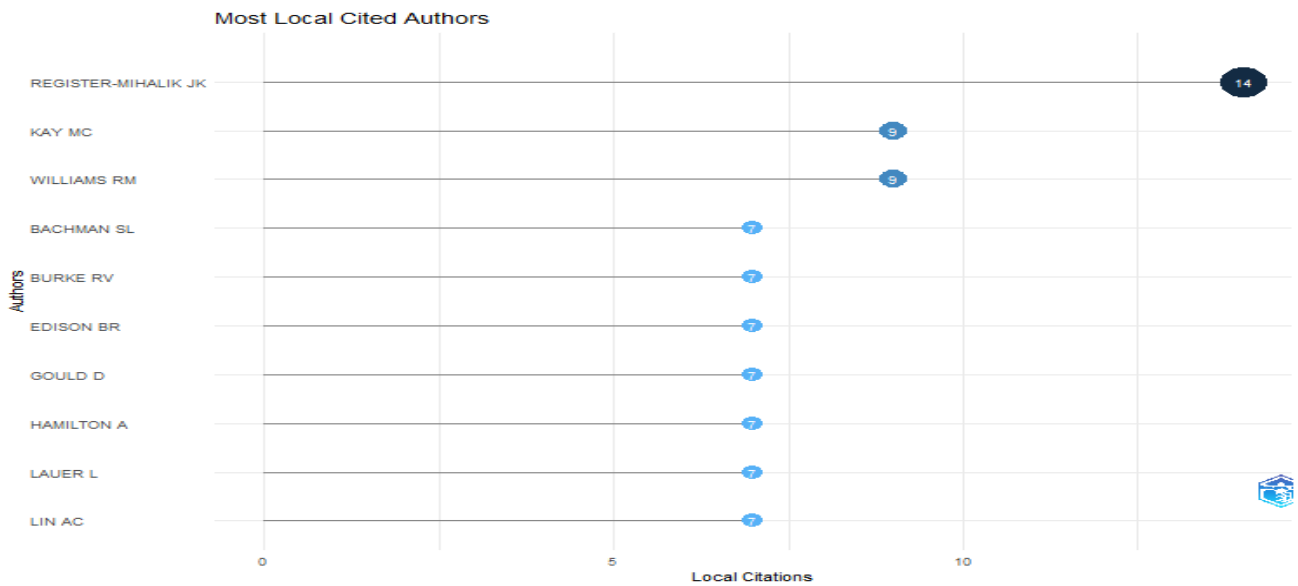


Figure 8. The Position of High-Impact Authors in the Literature: Local Citation Analysis at the Intersection of Sportive Activities and Attitudes

Among the prominent authors highlighted in the figure are REGISTER-MIHALIK JK., KAY MC., and WILLIAMS RM. These researchers have significantly contributed to the development of the field both in terms of theoretical frameworks and methodological approaches. Their studies, particularly on physical activities and attitudes toward sport, have guided subsequent research. The frequent citations they receive indicate not only their high publication volume but also the substantial impact and influence of their work within the literature.

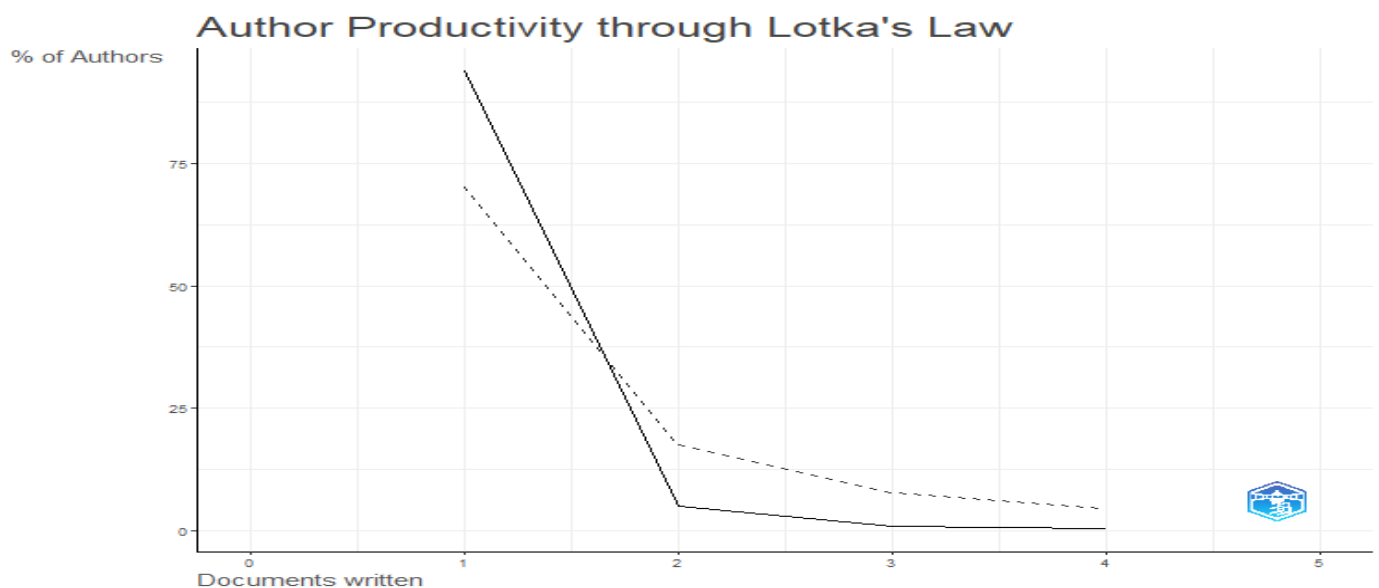


Figure 9. Author Productivity in the Context of Lotka's Law: Scientific Publication Distribution in the Field of Sportive Activities and Attitudes Towards Sport

According to the figure, the productivity of authors publishing on attitudes towards sport within the field of sportive activities aligns with Lotka's Law. Lotka's Law states that the majority of scientific output is produced by a small number of authors, while a large number of authors contribute with only one or two publications. As seen in the graph, authors with a single publication constitute the majority. This indicates that there are many researchers who contribute sporadically to the field, whereas only a few authors consistently produce regular publications. Notably, the number of authors with two or more publications sharply decreases. This pattern demonstrates that the production structure of the field is consistent with classical scientific production dynamics.

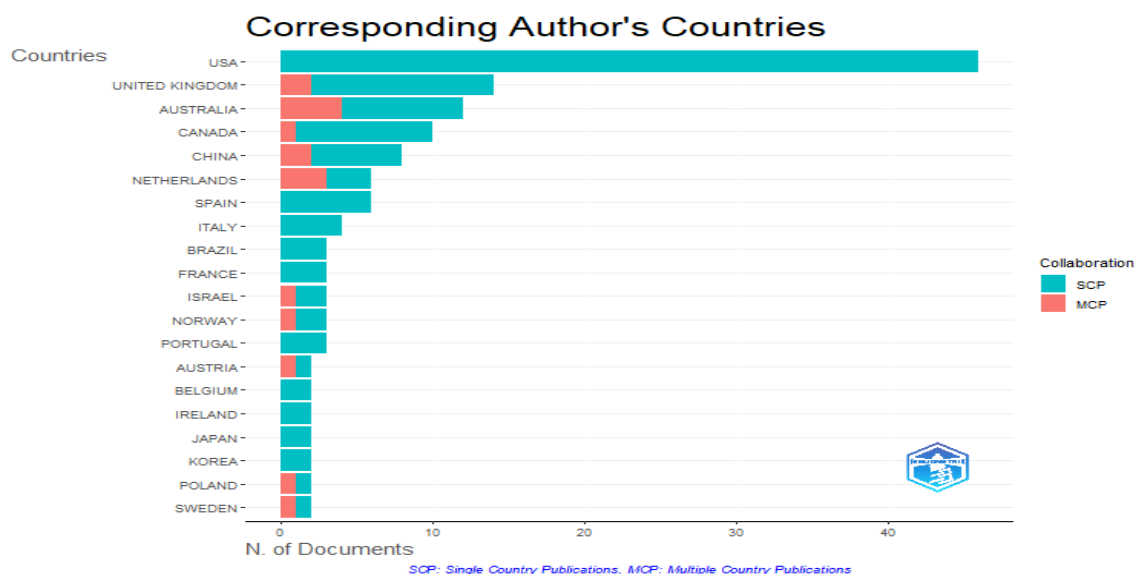


Figure 10. Country-Based Scientific Productivity: Global Publication Distribution in the Field of Sportive Activities and Attitudes Towards Sports

According to the figure, the countries producing the most publications in this field include the United States, the United Kingdom, Australia, and Kanada. Universities and researchers in these countries have demonstrated high scientific productivity in investigating the benefits of physical activity, attitudes toward sport and exercise, and their effects on physical and psychological health.

Country Scientific Production

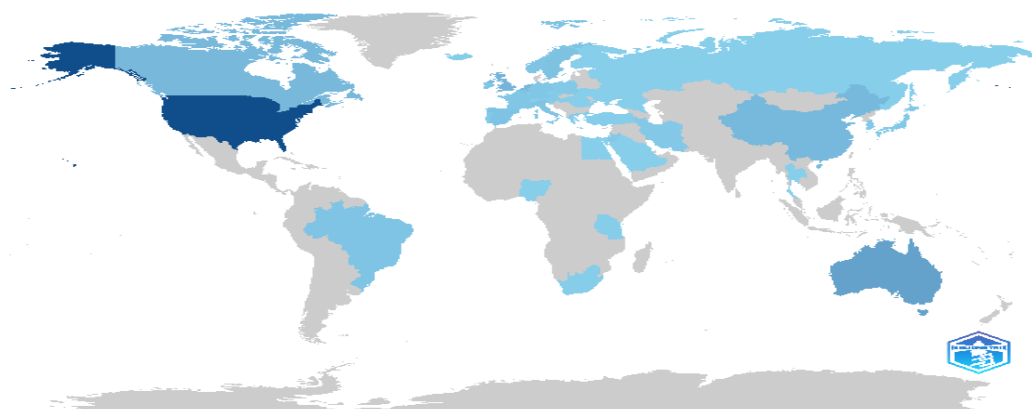


Figure 11. Geographical Distribution and Regional Development Dynamics in Attitude-Themed Physical Activity Research

Dark Blue Color: The United States (USA) stands out as the country with the highest scientific publication output in this field. **Medium Blue Color:** Countries such as Australia, the United Kingdom (UK), and Kanada follow the USA and are notable for producing a significant number of publications. **Light Blue Color:** Many European countries (such as the Netherlands, Italy, Spain, Switzerland), some Asian countries (such as China), and countries from South America like Brazil exhibit a moderate level of scientific publication output.

The United States stands out as the leading country in scientific publication output by a wide margin. This phenomenon can be attributed to the country's established research tradition in the field of sports sciences and its robust academic infrastructure. Other English-speaking countries with active research centers in sports sciences, such as the United Kingdom, Australia, and Kanada, also distinguish themselves through significant publication production. In Europe, countries like the Netherlands, Germany, Italy, and Spain contribute at a moderate level. In Asia, the rising number of publications from China is noteworthy, indicating a growing interest in the field within the country.

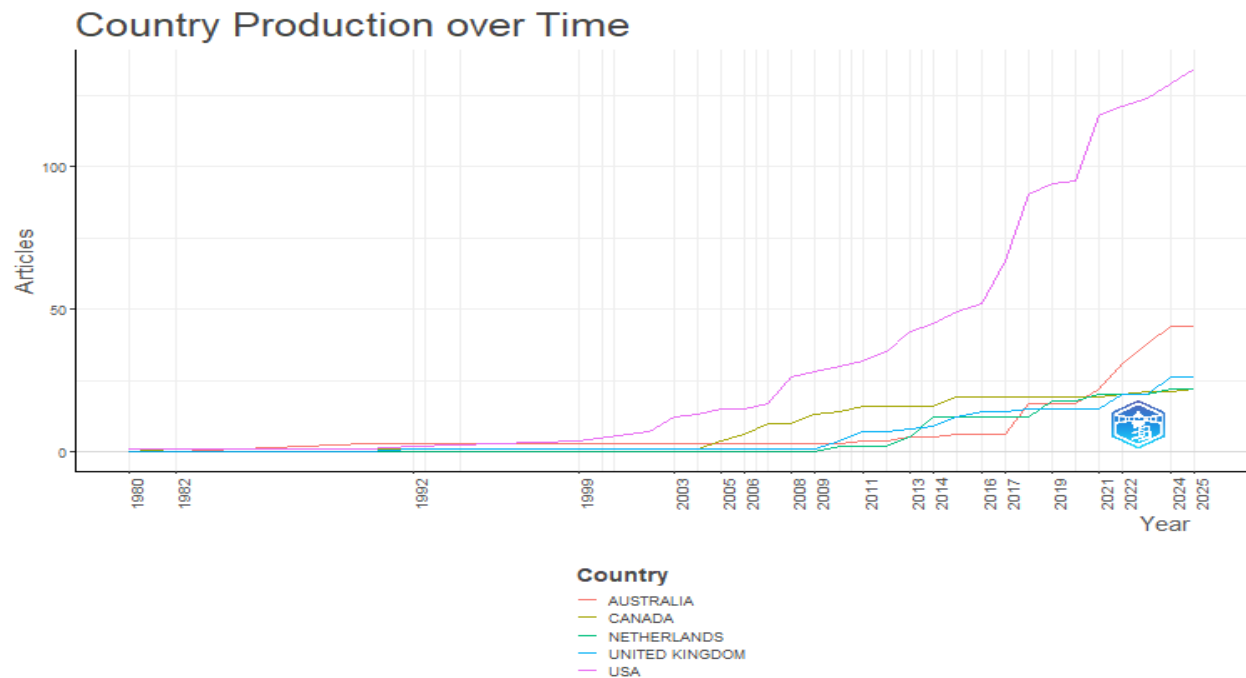


Figure 12. Global Increase in Publications Since 2020: Emerging Research Trends in the Field of Physical Activity and Attitudes

The significant increase in the number of publications from the United States since 2016 demonstrates the country's reinforced leadership in this field. This rise may reflect the strong interest of research centers and scholars in the U.S. regarding the subject. The United Kingdom's steady and continuously growing publication output suggests that the country possesses a sustainable research ecosystem in this area. Similarly, Australia's upward trend indicates an increasing contribution to the field. Overall, the observed growth in publication output among selected countries since 2020 highlights the expanding interest in the concept of attitudes within the domain of Physical Activity, as well as the acceleration of scientific research in this area.

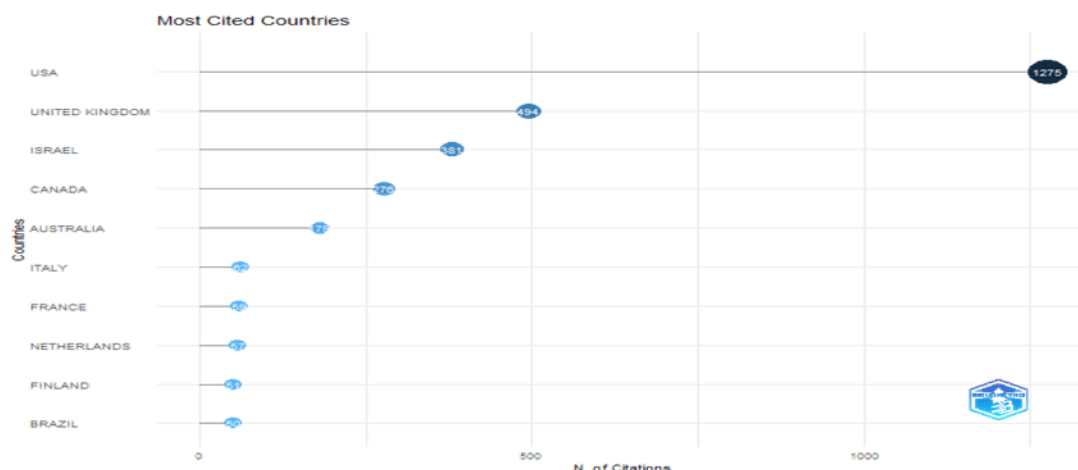


Figure 13. Scientific Visibility and Citation Performance: An Examination of the Impact of Selected Countries on the Literature

The United States hosts the most influential research in this field, evidenced by its high citation count (1,275). This indicates that studies from the U.S. resonate internationally and are frequently referenced. The United Kingdom follows with 494 citations, trailing behind the U.S. Israel (381 citations) and Kanada (276 citations) receive a relatively high number of citations compared to their publication volumes, suggesting that research from these countries also holds significant scientific value.

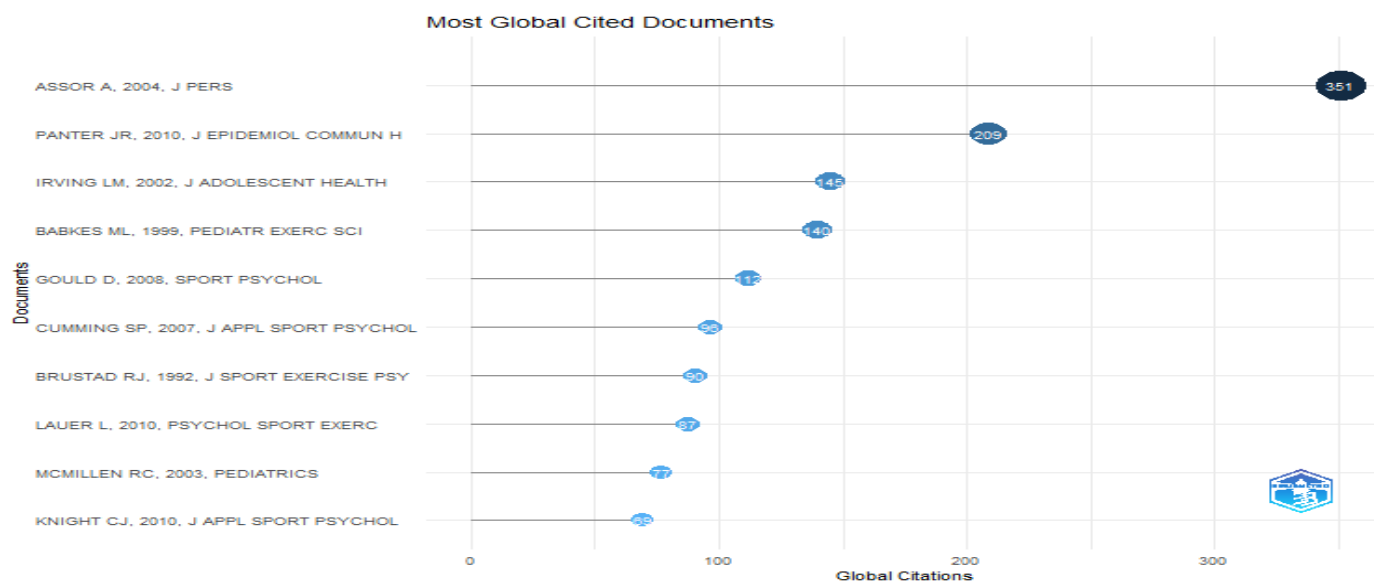


Figure 14. Publications Prominent in Terms of Scientific Impact: Citation Leaders in the Literature on Sports Activities and Parental Attitudes

The study by Assor et al. (2004) published in the Journal of Personality, is the most cited publication, with 351 citations. This indicates that the study has played a key role in shaping the conceptual framework of the field and serves as a fundamental reference point for subsequent research. The publication by Panter et al. (2010) in the Journal of Epidemiology, with 209 citations, is identified as another highly influential work in the field. Although the citation counts of the other publications presented in the graph are modest, they still represent important studies that focus on and contribute to different aspects of the field.

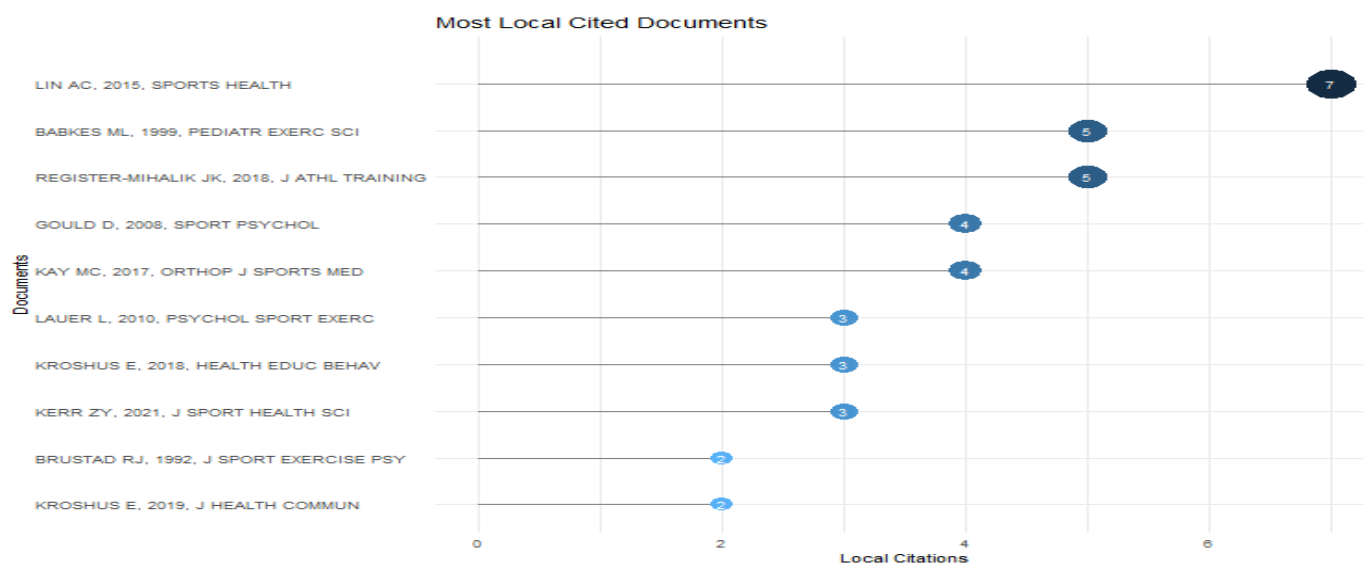


Figure 15. Local Citation Analysis: Key Publications Shaping the Field and Their Impact on the Internal Literature

The study by Lin et al. (2015) published in Sports Health in 2015, stands out as the most frequently cited publication within our database, receiving 7 local citations. This indicates that the study is frequently utilized by researchers within the field. The 1999 publication by Babkes et al. (1999) in Pediatric Exercise Science (5 local citations) and the 2018 study by Register Mihaljik et al. in the Journal of Athletic Training (5 local citations) have also received citations within the field. Notably, despite its relatively older publication date, Babkes et al. (1999) work continues to be cited, underscoring its lasting impact. Although the other publications shown in the graph have fewer local citations, these studies have also contributed to the advancement of the field and have been referenced by other researchers.

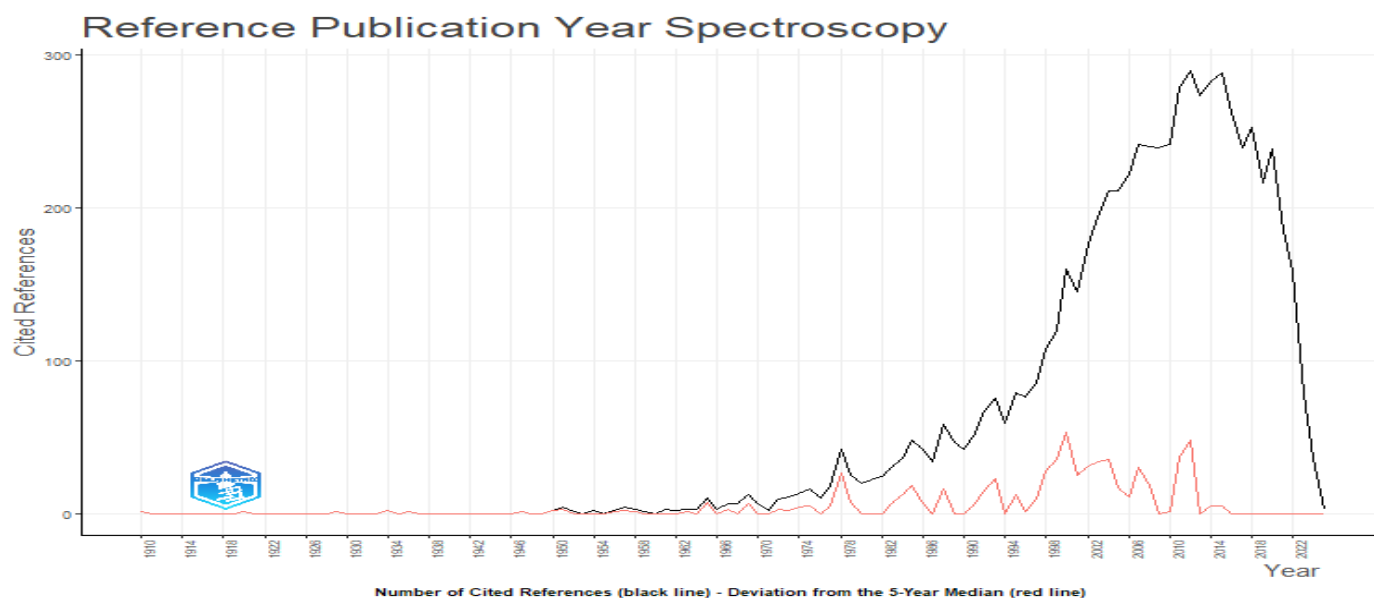


Figure 16. Distribution of Cited Publications by Year

The literature base in the field is largely founded on recent studies. The graph clearly shows an increase in citation counts beginning around the year 2000, reaching its peak during the 2010s. The notably high citation count observed in 2014 may indicate that research at that time focused heavily on current sources in literature reviews or that a significant accumulation of literature had been established in the field. Consequently, research in this area is primarily built upon knowledge produced over the last twenty years and maintains a strong connection with the contemporary literature.

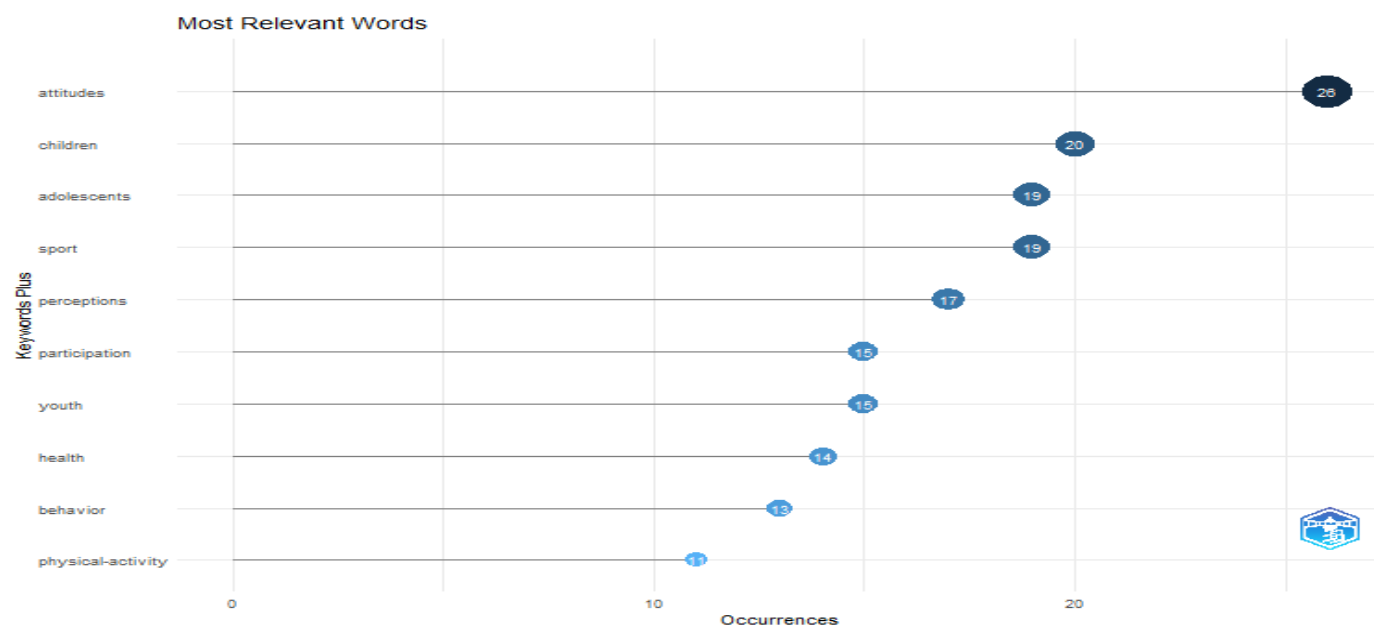


Figure 17. Key Focus Areas of the Literature Based on the Most Frequently Used Keywords

The high frequency of the keywords "attitudes" and "children" indicates that the studies primarily focus on understanding children's attitudes and behaviors. The frequent use of the keywords "adolescents" and "sport" further confirms that research in this area particularly examines the attitudes of children and adolescent individuals toward sports and physical activity from an early age. The prominence of the terms "perceptions" and "participation" highlights that the importance of engaging in physical activity and the perceptual impact of sports on children constitute significant research domains. Additionally, the similar frequency of the keywords "impact" and "performance" suggests that studies are exploring the effects of social media on individuals' exercise and sports performance.



Figure 18. Word Cloud Analysis: Thematic Distribution of Research Topics

The word cloud of publications focused on attitudes in the field of sports activities indicates that the research primarily centers on the interaction between “attitudes,” “children,” “adolescents,” and “sport.” Terms such as “perceptions,” “participation,” and “youth” emphasize that the studies concentrate on children and adolescents, examining their attitudes toward sports.

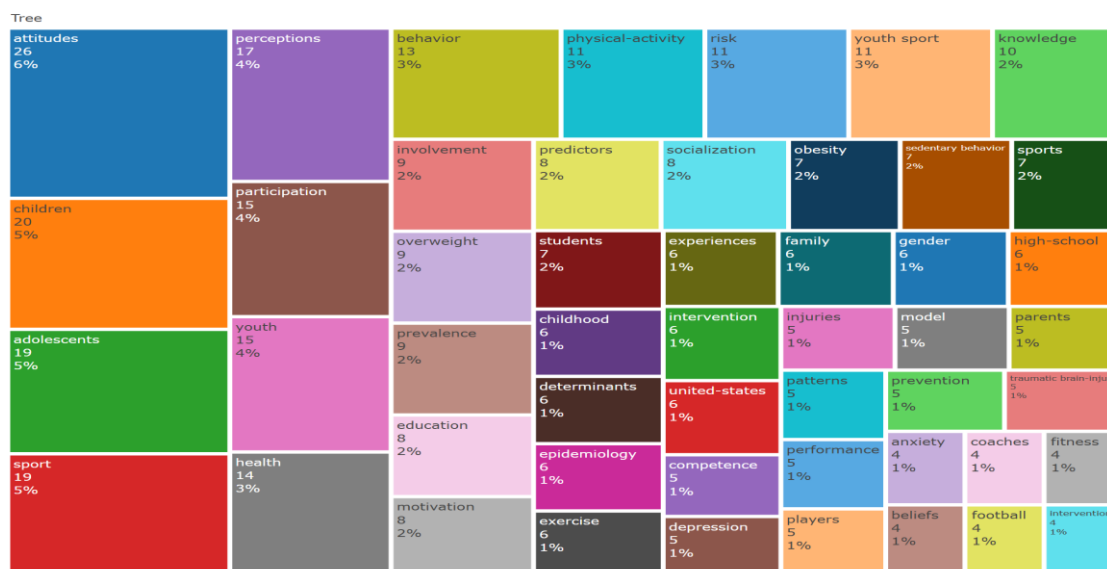


Figure 19. Word Tree Map Analysis of Attitude-Themed Publications

The word tree map illustrating the frequency of terms in attitude-themed publications within the field of sports activities visualizes the core research topics in a hierarchical structure. The largest areas are occupied by the terms “attitudes” and “children,” clearly indicating that these concepts form the central focus of the research. The considerable presence of the keywords “adolescents” and “sport” further confirms that studies in this field intensely examine the interaction of attitudes toward sport, particularly among adolescent individuals.

Other notable large areas in the tree map include the terms “perceptions,” “participation,” “health,” “behavior,” “physical activity,” and “youth sport,” indicating that the research addresses various subthemes such as perceptual and behavioral dimensions, the role of physical activity, and its effects on health. This visualization clearly presents the main outlines of the research and their relative significance.

4. Conclusions

This study conducted a bibliometric analysis of academic publications focused on sports activities and attitudes published between 1980 and 2024. Analyzing 153 documents retrieved from the Web of Science database revealed a significant development in the field over the years, with a notable increase in the number of publications particularly after 2016.

The findings indicate that knowledge production is concentrated around certain core journals, such as BMC Public Health. Author analyses identified individuals like REGISTER-MIHALIK JK. and KAY MC. as prominent figures in terms of both productivity and impact.

Keyword analyses revealed that themes such as attitudes, physical activity, sport, children, and youth dominate the literature. Conceptual maps and citation networks demonstrated that the field has developed within a multidisciplinary and multifaceted structure. Citation analyses highlighted both classic and recent studies as forming the intellectual foundation of the literature. In conclusion, this bibliometric analysis systematically elucidates the overall structure, leading contributors, and dynamics of scientific production focused on sports activities and attitudes.

While this study reveals general trends in sporting activities and attitudes toward sports, gaps in the field present opportunities for further research. It is recommended that interdisciplinary studies be expanded, particularly by integrating concepts such as parental attitudes, barriers, social interactions, life satisfaction, social adaptation, and motivation into children's participation in sports activities. Research that bridges the gap between the health and social sciences will enable the development of new and comprehensive models to better understand the multidimensional nature of sports activities.

Author Contributions: Conceptualization: S.N., N.B.; Methodology: S.N.; Software: S.N.; Validation: F.Ş., N.B., S.N.; Formal Analysis: S.N.; Investigation: F.Ş.; Resources: N.B.; Data Curation: S.N.; Writing—Original Draft Preparation: F.Ş.; Writing—Review & Editing: S.N.; Visualization: N.B.; Supervision: S.N.

Financial Support: No financial support was received from institutions and/or institutions during the preparation and writing of this study.

Declaration of Data Availability: The data is publicly available.

Acknowledgments: We would like to thank all participants who took part in the study.

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