

Assessing the impact of sports and team sports participation on mental health and empowerment at the individual and societal levels: Insights from a Scopus bibliometric analysis

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Abstract:

Introduction: This study comprehensively examined the impact of sports and team sports participation on mental health and empowerment at both the individual and societal levels, focusing on improvements in psychological attributes. A Scopus bibliometric analysis and narrative review were performed to explore this relationship, which has previously been insufficiently explored. **Materials and methods:** Documents were retrieved from the Scopus database using a specific Boolean expression. After reviewing titles and abstracts, 230 relevant documents were selected. Bibliometric analysis was performed using VOSviewer software, incorporating performance analysis and science mapping techniques, including co-authorship, co-occurrence, bibliographic coupling, and co-citation analyses. Then, a narrative review was performed to examine the key themes identified through the bibliometric analysis. **Results:** Co-occurrence analysis of author keywords revealed two primary research clusters: one focused on the connection between physical and mental health in sports, and the other on the empowerment benefits of sports participation for individuals and society. Co-citation analysis identified strong relationships among key authors in the field. Co-authorship analysis emphasized the importance of international collaboration in addressing complex issues in sports and mental health research. The narrative review found that sports participation generally has positive effects on mental health across diverse populations, including children, adolescents, and individuals with disabilities. Team sports are typically associated with greater psychosocial benefits than individual sports. Additionally, sports participation has been linked to improvements in cognitive function, emotional regulation, resilience, and social skills. **Discussion:** The findings highlight the crucial role of sports in promoting mental health and psychological empowerment. This study offers a comprehensive framework for understanding the impact of sports participation at both individual and societal levels. The insights gained can inform policies and interventions aimed at encouraging greater sports participation. Limitations include the reliance on a single database and the potential exclusion of relevant articles owing to the search criteria. **Conclusions:** This study provides valuable insights into the complex relationships between sports participation, mental health, and psychological empowerment. Future research should focus on longitudinal studies that track the effects of increased sports participation across diverse populations and types of sports.

Key Words: Psychosocial benefits; Cognitive function enhancement; Emotional regulation improvement; Resilience development; Social skills enhancement

Introduction

The effects of participation in sports activities, both for individuals and society, have been extensively explored by the scientific community. Regarding health, there is evidence that participating in sports significantly influences perceived health in adolescents, even when accounting for other health-related behaviors, psychological distress, and disease status (Thorlindsson et al., 1990). Sports participation appears to be related to better selection of subjective health outcomes, even in middle-aged men (Blake et al., 2023). Furthermore, data derived from a survey conducted by Logan et al. (2020) indicated that consistent participation in organized sports from middle school to high school and/or college is linked to a better cardiometabolic health profile during school years and higher physical activity levels at a 12-year follow-up. Finally, participation in active sports may enhance health awareness (Lamb et al., 1990).

Participation in sports also appears to affect an individual's cognitive functions such as executive function, working memory, inhibition, and shifting (McNeill et al., 2020). In a study conducted by Passarello et al. (2022), athletic students performed better than sedentary students on all cognitive tasks. Moreover,

participation in various types of physical exercise and sports activities may help mitigate the cognitive decline commonly seen in older adults and boost the cognitive reserve of the aging brain (Sogaard & Ni, 2018).

Additionally, sports seem to have a great impact on psychological and emotional levels, and the relevant literature is extremely rich and extensive. More specifically, it has been proposed for several decades that emotional well-being is positively linked to the level of participation in sports and vigorous recreational activities among adolescents (Steptoe & Butler, 1996). Moreover, there is consistent evidence that involvement in team sports is linked to enhanced social and psychological well-being (Andersen et al., 2019) and when it takes place during adolescence is positively associated with mental health during emerging adulthood (Clément et al., 2024).

Furthermore, it is recommended that the type of sports participation be significantly related to internalizing problems, particularly for boys, and, to a lesser degree, to externalizing problems and prosocial behavior (Moeijes et al., 2019). Malebo et al. (2007) demonstrated that students who actively participate in sports have significantly lower levels of several psychological factors, such as negative affect, somatic symptoms, symptoms of depression, and pessimistic life orientation, and significantly higher levels of positive affect, sense of coherence, purpose, autonomy, and self-efficacy beliefs. The positive effects of sports are evident, even in older populations, as demonstrated by Kim et al. (2020). The outcomes of older adults' sports participation include life satisfaction, depression, anxiety, stress, mood state, hedonistic values, socialization, competition, and personal psychological outcomes such as personal empowerment, self-confidence, self-esteem, and resistance to the negative view of aging. The beneficial effects of older adults' participation in sports activities have also been highlighted (Zimmer et al., 2021).

Considering that psychological empowerment, as well as the maintenance of high levels of mental health, have significant long-term positive effects on both individuals and society, through the study of relevant literature, participation in sports and team sports activities is one of the factors that could positively influence these indicators. We decided to further study and explore these aspects. Based on the aforementioned points, this research aimed to provide a comprehensive overview of the impact of sports participation on mental health and psychological empowerment through the improvement of psychological attributes by conducting a bibliometric analysis and subsequently a narrative review of the main topics that emerged through bibliometric techniques. It should be noted that the term "psychological attributes" refers to specific characteristics or properties associated with an individual's psychological and emotional state, personal traits, behavior and cognitive processes (Bach et al., 2020; Maul, 2013).

Bibliometric analysis is a widely used and systematic approach for examining and interpreting extensive scientific data, as it allows scientists to unravel the developmental intricacies of a particular discipline and highlight the emerging trends within that area (Donthu et al., 2021). Bibliometric analysis has been utilized in numerous studies to date, covering a wide range of research interests pertaining to various fields and areas (Ahmad & Slots, 2021; Chiu & Ho, 2007; Ellegaard & Wallin, 2015; Martínez-Benítez & Becerra-Patiño, 2023; Plakias, Tsatalas, Mina, Kokkotis, Flouris, et al., 2024; Van Nunen et al., 2018).

In the field of sports, bibliometric analysis has been widely used to conduct relevant research. For example, Park and Jeon (2023) analyzed the psychological skills training for athletes in sports, Sheikhhoseini (2024) studied the recent trends in psychology in early life exercise and physical activity, Öner (2023) dealt with the psychology of paralympic athletes, Baharuddin et al. (2024) investigated the mental health of athletes, Baier-Fuentes et al. (2020) focused on emotions and sport management, while Khoo et al. (2021) focused on sport and exercise psychology research from the Asian and South Pacific region. Although the use of bibliometric analysis appears to be quite extensive in research fields related to sports and psychology, a review of the relevant literature does not seem to have identified any studies that have examined the impact of participation in sports and team sports on mental health and empowerment through the improvement of psychological attributes.

To address the existing gap in knowledge regarding the impact of sports and team sports participation on mental health and empowerment, this study employed a comprehensive approach combining bibliometric analysis and narrative review. The research was necessitated by the lack of a holistic understanding of how sports, particularly team sports, influence psychological attributes and mental well-being. Despite the growing interest in sports psychology, the interplay between sports participation, mental health, and empowerment remains inadequately explored, especially in the context of team dynamics.

To tackle this complex issue, we conducted a two-phase study. First, a Scopus bibliometric analysis was performed to identify key trends, influential publications, and emerging themes in the field. This quantitative approach provided a bird's-eye view of the research landscape and highlighted areas requiring further investigation. Subsequently, we carried out a narrative review of the key topics identified through bibliometric analysis. This qualitative phase allowed for a deeper exploration of the nuances and contextual factors that influence the relationship between sports participation, mental health, and empowerment. By integrating these methodologies, we aimed to provide a more comprehensive and nuanced understanding of the subject matter, addressing the limitations of previous studies, which have often focused on isolated aspects of this multifaceted relationship.

Materials and Methods

The documents used in the current paper were retrieved from the Scopus database on July 23, 2024, using the BOOLEAN expression ("participation in sports" OR "participation in team sports" OR "joining in sports" OR "joining in team sports" OR "engagement in sports" OR "engagement in team sports") AND (stress OR "panic attack" OR "mental health" OR anxiety OR depression OR "well-being" OR "quality of life") AND (psychology OR psychological OR emotional). The search was conducted using the article title, abstract, and keywords. The initial search yielded 250 documents; after reviewing the titles and abstracts, 20 documents were excluded because they were not relevant to the topic. All types of documents were considered, provided that their subjects were related to the mental health and psychological attributes of people involved in team and individual sports.

Performance analysis and science mapping techniques were utilized to conduct bibliometric analysis. The performance analysis included calculating the yearly number of documents and identifying the most cited authors and sources. The science mapping techniques consisted of a co-authorship analysis, which investigated collaborations through co-authored documents with countries as the unit of analysis. Additionally, co-occurrence analysis explored the frequency of two or more keywords appearing together in the same documents using author keywords as the unit of analysis. Bibliographic coupling measures the extent to which multiple sources cite the same documents with sources as the unit of analysis. Finally, co-citation analysis examines how often two or more authors are cited together in other documents, using cited authors as the unit of analysis.

The CSV file obtained from Scopus was imported into VOSviewer for bibliometric analysis. VOSviewer, developed by Nees Jan Van Eck and Ludo Waltman from Leiden University (Van Eck & Waltman, 2010), is designed for generating and examining maps derived from network data and it investigates relationships like co-authorship, co-occurrence, citation, bibliographic coupling, and co-citation (Arruda et al., 2022). The data were also entered into the Numbers application on Mac software and were visualized in a chart. Finally, it should be noted that ChatGPT was utilized for English language editing (Kim, 2023).

Results

Bibliometric analysis

Performance analysis

The total number of documents on the effects of sports and team sports participation on mental health and psychological attributes was 230. Figure 1 shows the annual number of documents. In the early years (1975-2007), there were few publications, and they mostly ranged between one and two per year. It could be said that this particular research field has not begun to be explored by the scientific community. Between 2008 and 2013, the total number of publications increased slightly; however, they were still in single digits. From 2013 onward, the number of publications began to increase, with 2022 recording the highest number of published articles, reaching 30. This rapid increase indicates a surge in scientific interest in the effects of participation in sports activities on mental and psychological levels.

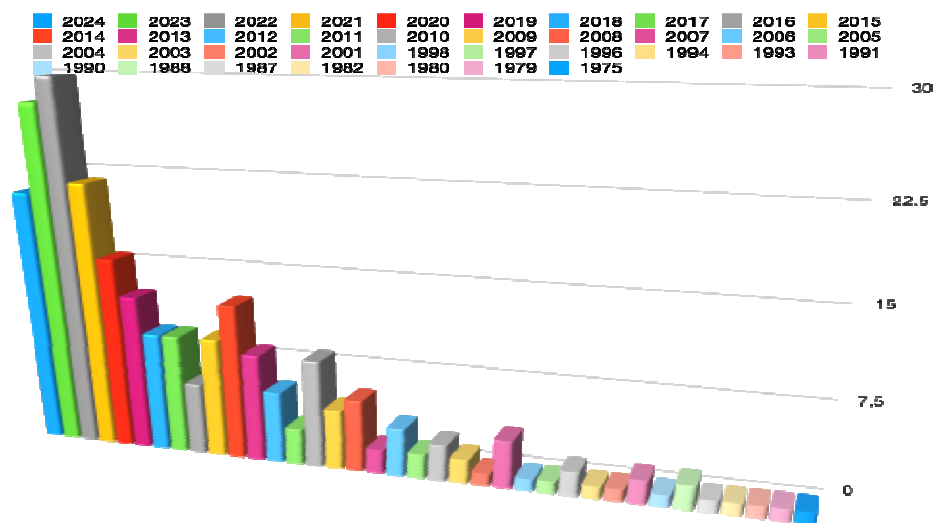


Figure 1. Annual number of documents on the effect of sports participation on mental health and psychological attributes.

Table 1 lists the 19 authors who published a minimum of two related documents sorted by the number of citations. Leading the list are Eime, Rochelle M., Harvey, Jack T., and Payne, Warren R., each with 3 documents and a total of 1,778 citations. They are followed by Charity, Melanie J., and Young, Janet A., each with 2

documents and 1,713 citations. Vella Stewart A. has two documents and 145 citations, while Dezateux and Carol have two documents and 138 citations. The remaining authors recorded a double-digit number of citations.

Table 1. Top 19 authors based on citations.

N	Author	Documents	Citations
1	Eime, Rochelle M.	3	1778
2	Harvey, Jack T.	3	1778
3	Payne, Warren R.	3	1778
4	Charity, Melanie J.	2	1713
5	Young, Janet A.	2	1713
6	Vella, Stewart A.	2	145
7	Dezateux, Carol	2	138
8	Kondo, Katsunori	2	68
9	Kondo, Naoki	2	68
10	Arce, Constantino	2	33
11	de Francisco, Cristina	2	33
12	Boelens, Mirte	2	17
13	Jansen, Wilma	2	17
14	Raat, Hein	2	17
15	Smit, Michel S.	2	17
16	Krustrup, Peter	2	12
17	Hidajat, Tarissa	2	7
18	Khan, Asaduzzaman	2	7
19	Tešanović, Gorana	2	1

Table 2 lists the 24 sources that have published a minimum of two related documents, sorted by the number of citations. Leading the list are the journals "International Journal of Behavioral Nutrition and Physical Activity" with 3 documents and 1792 citations in total, "European Child and Adolescent Psychiatry" with two documents and 419 citations in total. Following them are "Pediatrics" (two documents, 161 citations), "Bmc Public Health" (five documents, 156 citations), and "Journal of Science and Medicine in Sport," which have also contributed to a significant number of publications.

Table 2. Top 24 sources based on citations.

N	Source	Documents	Citations
1	International journal of behavioral nutrition and physical activity	3	1792
2	European child and adolescent psychiatry	2	419
3	Pediatrics	2	161
4	Bmc public health	5	156
5	Journal of science and medicine in sport	2	122
6	Frontiers in psychology	5	120
7	Archives of disease in childhood	2	117
8	Plos one	5	101
9	International journal of environmental research and public health	10	95
10	International journal of qualitative studies on health and well-being	3	69
11	Journal of adolescent health	3	69
12	PM & R	2	67
13	Journal of sports medicine and physical fitness	2	46
14	Journal of sports sciences	2	37
15	European journal of pediatrics	2	24
16	Frontiers in public health	4	18
17	Scandinavian journal of medicine and science in sports	2	15
18	Sports	2	15
19	Journal of physical education and sport	3	12
20	Current psychology	2	11
21	Frontiers in sports and active living	2	11
22	Revista de psicologia del deporte	7	11
23	Bmc psychology	2	0
24	Journal of community and applied social psychology	2	0

Science mapping

Figure 2 depicts the co-authorship network analysis with countries as the unit of analysis. Only the countries that were connected to each other were used. Additionally, they used only countries with at least four published documents. From the analysis, 17 countries emerged, and the network consisted of three clusters, each highlighted in different colors (blue, green, and red) to indicate groups of countries that frequently collaborate. The node size reflects the number of publications by country, whereas the connecting lines represent co-authorship links between countries. The red cluster consists of Belgium, Canada, Denmark, Germany, Switzerland, and the United Kingdom, which has 39 publications in total, the highest number of publications among all. The green cluster included Australia, China, Japan, the Netherlands, South Korea, and the United States, with the latter appearing in the top position, accounting for 53 publications. Finally, the blue cluster

includes Israel, Italy, Norway, Spain, and Sweden, with Italy positioning in the first place with nine relative documents.

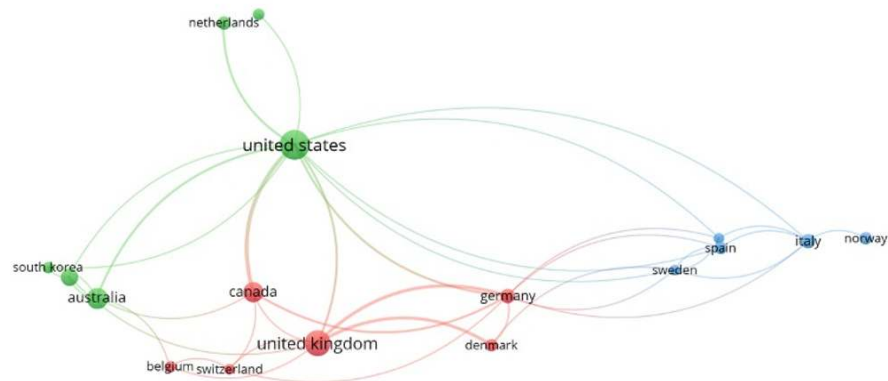


Figure 2. Co-authorship network analysis using countries as the unit of analysis.

Figure 3 illustrates the bibliographic coupling analysis using sources as the unit of analysis. The minimum number of documents for a source was two, and the minimum cluster size consisted of five items, while only the sources that were connected to each other were used. The network consisted of four different clusters of journals based on their citation patterns and thematic connections. The red cluster consists of journals that focus primarily on psychology. Some of the journals listed in this cluster are “Bmc Psychology”, “Current Psychology”, “Frontiers in Psychology, and “Frontiers in Public Health”. As can be easily discerned from the titles of these journals, they publish articles related to factors and data in the field of psychology. The green cluster includes journals such as “Frontiers in Sports and Active Living”, “Journal of Sport Sciences”, “International Journal of Behavioral Nutrition and Physical Activity, and the Scandinavian Journal of Medicine and Science in Sports”. These journals focus mainly on sports, physical activity, performance, and the application of basic principles to improve athlete well-being. Blue cluster features journals like "Archives of Disease in Childhood," "European Journal of Pediatrics," and "Journal of Adolescent Health". These journals appear to focus on sports and the effects of participation in athletic activities on children, adolescents, and young adults. Finally, the yellow cluster consists of journals such as European Child and Adolescent Psychiatry”, “International Journal of Environmental Research and Public Health, “and “Journal of Physical Education and Sport”. These journals cover a wide range of topics, examining psychological and psychiatric issues as well as matters related to public health, athletic activities, and physical health.

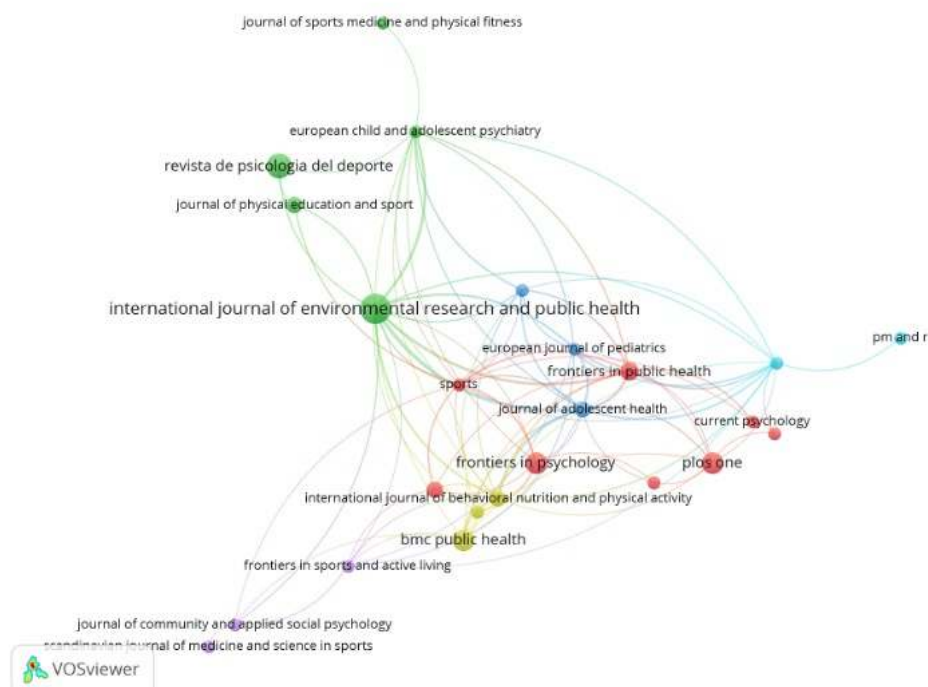


Figure 3. Bibliographic coupling using sources as the unit of analysis.

The co-citation analysis presented in Figure 4 illustrates the network of frequently cited authors within the field of mental health and sports participation. The minimum number of citations of an author was set at 20 documents, and only the items that were connected to each other were used. Each node symbolizes the authors, and the node size indicates the number of citations they have received. In the network visualization, the lines between nodes represent co-citation relationships, showing how frequently pairs of authors are cited together. In our analysis, Carless D. had a higher total link strength of 1386, while the total links were 11.

Then, it was Douglas K, with a total link strength of 1257 and six links, followed by Sparkes A.C. with a total link strength of 1202 and 10 links. These three authors are highly prolific and have significantly contributed to the scientific community through their publications, some of which are collaborations among themselves related to the field of mental health and participation in athletic activities (Carless & Douglas, 2011; Carless & Douglas, 2008; Carless & Douglas, 2009; Carless & Douglas, 2016; Sparkes & Douglas, 2007; Carless & Sparkes, 2008; Carless et al., 2014).

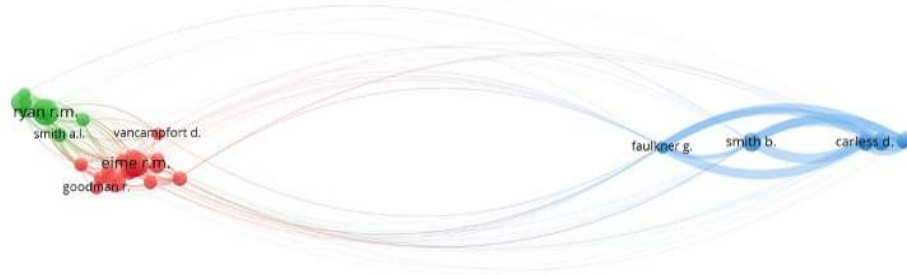


Figure 4. Network visualization of the co-citation analysis using authors as the unit of analysis.

The network shown in Figure 5 was created from a co-occurrence analysis using author keywords as the unit of analysis, while the minimum number of occurrences of a keyword was two. The minimum cluster size consisted of 20 items, and for the analysis, only keywords that were connected to each other were used. Table 2 lists all the items within each of the two clusters. Based on the items in each cluster, the red cluster was labeled “Physical health and mental health in sports and team sports, and the green cluster was labeled “sport and team sport participation and empowerment of society and individuals”. These clusters align with the topics analyzed in the subsequent narrative review.

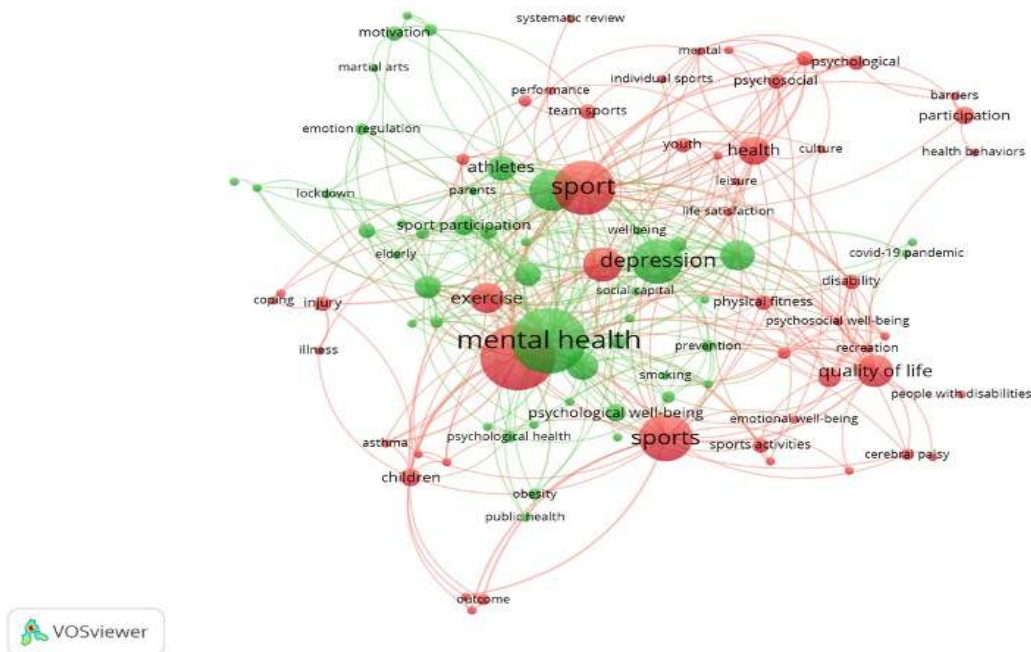


Figure 5. Co-occurrence analysis using author keywords as the unit of analysis.

Red cluster (51 items): Physical health and mental health in sports and team sports	Green cluster (46 items): Sport and team sport participation and empowerment of society and individuals
Adolescents, asthma, barriers, cerebral palsy, children, college students, congenital heart disease, coping, coping strategies, culture, disability, emotional well-being, exercise, extracullicular, football, haemophilia, health, health behaviors, health status, illness, individual sports, injury, leisure, life satisfaction, mental, outcome, participation, people with disabilities, performance, physical activity, physical exercise, physical fitness, psychological, psychosocial, psychosocial well-being, qualitative, quality of life, recommendations, recreation, rehabilitation, self-esteem, soccer, social, sport, sports, sports activities, sports participation, systematic review, team sport, team sports, youth	Adolescence, adolescent, anxiety, athletes, burnout, college student, covid-19, covid-19 pandemic, depression, elderly, emotion regulation, engagement, extracullicular activities, gender differences, health behavior, lockdown, low back pain, martial arts, mental health, motivation, obesity, parents, pediatric, physical health, positive youth development, prevention, psychological health, psychological well-being, psychosocial health, public health, review, running, smoking, social capital, sport motivation, sport participation, sports involvement, sports psychology, stress, students, suicide, university students, well-being, wellbeing, youth sport

Narrative review

Physical health and mental health in sports and team sports

The relationship between physical and mental health in sports and team sports has been widely explored by numerous studies covering a broad range that pertains to both the general population and specific demographic groups. Various findings from the conducted studies are extremely interesting and delve into how participation in sports and team sports activities can affect mental and physical health.

The process of engaging in sports activities and the enthusiasm with which one participates appear to be sufficient to highlight the positive effects of sports, both in terms of mental and physical health. A survey of 277 bachelor's degree students from three higher educational institutions in Ukraine revealed that sports games create the highest emotional engagement during physical education classes. In turn, this engagement positively influences the development of physical and mental health (Bazylchuk et al. 2024). Furthermore, participation seems to have long-term effects that extend over time. It is suggested that sports participation during childhood and early adolescence is positively associated with mental health in late adolescence. More specifically, a performance sports profile of one year or more was linked to better mental health in late adolescence compared to no years of participation in performance sports (Doré et al., 2019). Furthermore, the earliest possible participation in sports activities is associated with stronger and more effective engagement in sports for a longer period (Côté et al., 2020; Coté et al., 2009; Côté et al., 2009).

As mentioned above, several studies that have been conducted have focused on investigating the different effects of participation in either team or individual sports activities on mental health. In a study conducted by Khan et al. (2022) it was found that participating in team sports may offer mental health benefits for both genders, whereas non-team sports might be more advantageous for boys compared to girls. Similarly, Hoffmann et al. (2022) indicated that participation in team sports is linked to fewer mental health problems than participation in individual sports is. These findings, align with previous research suggesting that team sports may be beneficial in supporting the mental health of children and adolescents. According to the above, Boelens et al. (2022) revealed that participation in team sports, school clubs, and extracurricular and community activities, both sporting and non-sporting, showed positive effects on mental health outcomes. Lastly, it has been proven that club-based or team-based sports are linked with better health outcomes compared to individual activities, likely due to the social aspects of participation (Eime et al., 2013), and when youth sports programs satisfy the basic needs of the participants, they have positive implications on youth mental health (Bean et al., 2021).

It seems that the relationship between mental health and participation in sports activities extends to those who engage in sports at the amateur level. As it turns out, participation in sports affects both mental and physical health, with corresponding positive consequences in other broader areas as well. Gísladóttir et al. (2013) in their research showed that participation in sports clubs has a positive impact on adolescents. In particular, those who participate in sports not only perceive themselves as having better mental and physical shapes but also believe they can achieve success in other areas, such as their studies.

Moreover, participation in sports has positive effects on specific population groups facing particular mental and physical health issues. Specifically, adolescents with autism and other developmental disabilities face a higher risk of experiencing mental health problems and reduced engagement in activities. Involvement in sports can be particularly beneficial for the mental health of adolescents facing disabilities (Wiggins et al., 2024). Furthermore, enhancing access to sports and physical activity may prove beneficial for the mental health of people with cerebral palsy (CP), as demonstrated by Cribb et al. (2023). In particular, the likelihood of anxiety, depression, behavioral disorders, and attention-deficit/hyperactivity disorder (ADHD), which fall under the umbrella of mental health, decreases when children participate in sports or regular physical activity. Finally, engaging children with disabilities (CWD) in physical activities, including adaptive or therapeutic sports and recreation, promotes inclusion, reduces deconditioning, optimizes physical functioning, improves mental health and academic performance, and enhances overall well-being (Murphy et al., 2008).

Regarding participation in sports activities by individuals facing health issues and the resulting consequences that arise from them, it seems that even children with congenital heart disease may experience mental health improvements, such as a more enhanced sense of their subjective health status, self-esteem, and overall behavior due to participation in sports clubs (Moons et al., 2006). Dakic et al. (2023) conducted a study to explore the lived experiences of women experiencing pelvic floor (PF) symptoms in sports or exercise settings. They found that health issues significantly restricted participation and emerged as negative emotions. Additionally, the use of pain-avoidance coping strategies reduced the social and mental health benefits usually linked to sports or exercise in symptomatic women. Finally, the culture within the sporting environment affected whether these women chose to continue or stop exercising.

Furthermore, it appears that participation in sports served as a protective factor for mental health, even during the COVID-19 pandemic, as evidenced by research conducted by Kim (2024), which used a sample of nursing college students in Korea. Regarding the COVID-19 pandemic, Mladenović et al. (2021) indicated that engagement in sports significantly moderated the relationship between negative emotion regulation and negative reactivity, with professional athletes showing lower negative reactivity than non-athletes and recreational athletes. The aforementioned seems to enhance emotional balance and consequently mental health, especially during crises such as the COVID-19 lockdown. However, in another study, participation in sports activities was not found to have protective effects on mental health issues for participants during the COVID-19 pandemic (Laurier et al., 2021). Lastly, it appears that athletes reported experiencing significantly higher psychological distress, greater difficulties managing sports and studies, and challenges with sleep and recovery during the second phase of the pandemic compared to the first phase of the full lockdown (Lim et al., 2024).

However, participation in sports activities can, in some cases, be associated with negative effects, especially in specific population groups such as elite athletes. In particular, they face unique stressors that can elevate the risk of mental health problems, such as intense training regimens, overtraining, challenging competition, and high-pressure lifestyle and identity crises (Schinke et al., 2018). An important issue in the field of sports is the frequent occurrence of injuries observed in elite sports. Injuries or illnesses can be significant stressors for athletes, potentially leading to mental health symptoms and disorders (Putukian, 2022). Walton et al. (2024) investigated the key factors that may contribute to the mental health of Elite Young Adults (EYAs). These specific factors include coping patterns; relationships with peers, parents, and coaches; organizational culture; performance pressures; and access to mental health services. In the literature, injured athletes appear to experience both physical and psychological distress following their injuries, which significantly affects their mental health. During the rehabilitation process, they can benefit greatly from specialized interventions that will assist them in enhancing their mental health, pain tolerance, and awareness (Mohammed et al., 2018).

Regarding injured athletes, there were negative associations between injury and quality of life, especially in the life satisfaction domain, followed by bodily pain, physical component score, physical and social functioning, and vitality. All of the above, in turn, contributed to the fluctuation in mental health levels, which showed a negative association with general health. Numerous studies have indicated a negative relationship between injury and quality of life domains in adult athletes (Moreira et al., 2014). It is also highlighted that there are many gaps and training is needed to understand the complexity of mental health issues in sports (Prior et al., 2024).

In conclusion, as indicated in the literature, participation in sports and team sports can lead to significant changes in mental health, which are primarily positive. It has been found that these effects extend not only to the general population or to those who engage in sports at an amateur level. Even individuals facing physical or mental health issues can benefit from participation in sports and team sports. Moreover, mental health can be positively influenced by involvement in sports and team sports, even in cases where external and uncontrollable factors, such as the COVID-19 pandemic, may affect an individual's mental health. Finally, some negative consequences, such as emotional burden, have been identified, but these mainly concern professional athletes and not the general or specific populations that may participate in sports.

Sport and team sport participation and empowerment of society and individuals

The relationship between sports and team sports participation and the related outcomes on the empowerment of society and individuals through the improvement of psychological attributes have been explored in depth. Various studies have investigated the psychological mechanisms that are influenced by participation in sports and team sports, focusing on the micro level of individual athletes. Moreover, many studies have focused on the broader impact of participation in sports and team sports at the macro-level of society as a whole.

Regarding psychological effects on individual athletes, Fang (2024) indicated that children exhibit significant psychological improvement through sports participation. In particular, they presented better cognitive ability, emotional stability, willpower, and personality development than the control group. Additionally, they demonstrated higher social adaptability, better communication strategies and more harmonious interpersonal relationships. These findings underscore the importance of early participation in sports games to enhance psychological health and resilience in preschool children. Conversely, Vella et al. (2015) demonstrated that

children who drop out of sports and do not participate in organized activities experience greater psychological difficulties and significant social and emotional problems.

Regarding the outcomes of sports and team sports participation, Rodriguez et al. (2022) revealed that it helps emotional regulation, resilience, cognitive function, and the treatment of psychological disorders. Furthermore, it appears that sports trigger neurochemical changes, improve brain functions, such as memory and learning, and help combat cognitive decline. Finally, they highlighted that participating in sports enhances mood, manages stress, and develops social skills. Jugl et al. (2023) examined psychological outcomes, including self-esteem and mental well-being, which significantly improved with participation in sports programs.

Participating in sports and team sports helps individuals increase their self-awareness and effectively eliminate negative emotions, such as anxiety and depression, and it serves as a way to prove their worth. Through psychological transfer, students motivate themselves towards their goals. It seems that sports participation enhances self-confidence, which positively impacts studies, work, and life. Engagement in sports fosters awareness, improves psychological adjustment, encourages correct self-perception, develops optimism, enhances resilience, and promotes students' overall psychological well-being (He et al., 2022). Moreover, sports participation and exercise seem to have a positive effect on self-esteem and quality of life in individuals with disabilities (Laferrier et al., 2015).

Regarding the effects of participation in sports activities, both in society as a whole and in the development of social skills, the research findings have provided extremely interesting perspectives. Khan et al. (2023) investigated the long-term relationship between sports participation and the psychosocial well-being of Australian children. They found that sustained involvement in sports, especially team sports, was linked to improved psychosocial well-being. Similarly, Eather et al. (2023) proved that team sports may offer stronger and additional benefits for social well-being throughout adulthood compared to individual sports.

On a general level, Griffiths et al. (2023) investigated the value of sport and physical activity to society, exploring populations in Aotearoa New Zealand. Specifically, for Māori, the findings showed a significant effect of engagement in sports on social and community development by fostering social capital and strengthening cultural identity. The benefits derived from team sports engagement on a societal level include emotional social support, a sense of belonging, higher self-esteem, social networks, and social interaction (Andersen et al., 2019).

Participation in sports activities is beneficial for society by helping individuals improve behaviors that could negatively impact society as a whole. More specifically, Kunitoki et al. (2023) validated the connection between sports participation and dimensional psychopathology in youth. Their findings align with those of previous studies that have associated team sports participation with reduced levels of psychopathology in young people. Moreover, according to their findings, this relationship strengthens with increasing years of exposure. Similarly, Jugl et al. (2023) demonstrated a moderating effect of participation in sports programs on crime-related outcomes. Participants in their study demonstrated a significant reduction in aggressiveness and antisocial behavior through sports engagement. Sports programs appear to be effective strategies for crime prevention. Furthermore, participation in sports has been identified as a crucial factor that helps build resilience in young people who have experienced numerous Adverse Childhood Experiences (Norris & Norris, 2021), and participating in sports activities has also proven to be extremely beneficial for individuals suffering from post-traumatic stress disorder (PTSD) (Dickinson, 2021). Lastly, sports participation may even affect suicidal ideation, as there is some evidence suggesting that sports participation can lower suicide rates at a societal level, even though this is an issue that needs to be further investigated (Andriessen & Krysinaka, 2009).

Finally, regarding specific population groups that face particular challenges, the literature review found moderate-to high-quality evidence indicating that team sports have positive effects on social functioning in children and adolescents with neuromotor impairments (NMI), even in physical and psychological factors. Accordingly, it seems reasonable that team sports can be recommended as an intervention or supplementary therapy for children and adolescents (Kuttan et al., 2023).

Discussion

In this study, we conducted a comprehensive Scopus bibliometric analysis and narrative review to explore the effects of sports and team sports participation on the mental health and empowerment of society and individuals through the improvement of psychological attributes. Our main findings revealed two significant research clusters from co-occurrence analysis using author keywords as the unit of analysis (Figure 5): one highlighting the strong link between physical and mental health and the other focusing on the empowerment benefits of sports and team sports at both individual and societal levels. These findings not only emphasize the critical role sports play in promoting mental health but also offer a novel and holistic understanding of psychological empowerment derived from sports and team sports, contributing meaningfully to the field of sports psychology research.

The co-citation analysis, which shows close connections between authors like Carless D., Douglas K., and Sparkes A.C. (Figure 4), underscores the importance of collaboration for advancing knowledge. This agrees with earlier claims that collaboration and networking help in productivity and advancement of science (Adelowo et al., 2023; Plakias, Tsatalas, Mina, Kokkotis, Kellis, et al., 2024; Xiao & Prompanyo, 2023). It is worth noting that the co-authorship analysis, using countries as the unit of analysis (Figure 2), also proves that international

partnerships are essential for addressing complex, cross-cultural issues in sports and mental health. Furthermore, this strong network of co-authorship highlights the value of interdisciplinary approaches to investigating the interaction between psychology and sports, confirming the strong interaction between them (Muniandy & Elumalai, 2023). As highlighted by bibliographic coupling using sources as the unit of analysis, this relationship between psychology and sports also incorporates knowledge from other disciplines, such as education, pediatrics, and public health.

Regarding the strengths of the research, it is important to note that through this specific bibliometric analysis and narrative review, a dynamic framework is provided to maximize knowledge concerning the impact of participation in sports and team sports activities on both the mental health and empowerment of individuals and society. Considering the data obtained, governments, sports clubs, sports authorities, and mental health services can implement policies and interventions that encourage an increasing portion of the population to participate in organized sports. To our knowledge, this is the first study to combine bibliometric analysis and narrative reviews to investigate this issue. Existing published research that applies the above techniques in the field of sports and psychology has dealt with different topics and has delved into other perspectives. Additionally, we ensured the validity and reliability of this specific bibliometric analysis by selecting a reliable database and ensuring that the final studies included were relevant to the topic. Furthermore, the use of VOSviewer software ensures the transparency of the research, as it provides clear visualization of the data and the relationships between the studies, facilitating the understanding and reproducibility of the results by other researchers. These processes ensure that the findings of the bibliometric analysis are trustworthy and can support our final conclusions (Passas, 2024).

In terms of research limitations, it is important to acknowledge that some articles may have been excluded from the final bibliography because of the application of the specific Boolean expression used for the final search. If these articles were included, they might have offered additional insights into the topic being examined. In addition, the bibliometric method was conducted using only one database. In this study, we used the Scopus database, which limits the scope of the literature reviewed. Other relevant studies published in databases such as PubMed, Web of Science, and Google Scholar may have been excluded, potentially leading to incomplete representation of the research landscape. Although Scopus is a highly regarded database, the inclusion of additional databases could have provided a broader and more comprehensive view of the subject matter. However, this is ultimately unavoidable in any type of literature review, especially in bibliometric methodology, as including every relevant article from all possible sources would be impractical. Future studies could expand the search across multiple databases to ensure a more thorough review of the literature.

Conclusions

In conclusion, we conducted a comprehensive bibliometric analysis and narrative review to explore the impact of participation in sports and team sports on mental health and empowerment of society and individuals through the improvement of psychological attributes. Complex relationships have been revealed between mental health and psychological empowerment outcomes through joining sports and team sports. The findings of this study can be used to design interventions that could lead to improvements at both the micro- and macro-social levels by enhancing participation in sports and team sports activities. Furthermore, coaches, sports scientists, and sports officials can use these findings to create more comprehensive inclusion programs for both the general and specific population groups in sports activities, aiming to maximize the mental health of participants and benefit them in terms of improving their psychological attributes. Additionally, society as a whole should be the final recipient who will benefit the most from such interventions. Future research should focus on longitudinal studies that systematically and specifically track the changes resulting from the enhancement of sports and team sports activities on mental health as well as on the empowerment of society and individuals. It would be particularly useful to include diverse populations and different types of sports activities to generalize the findings that will emerge, which can then be applied in practice.

Conflicts of interest: The authors declare no conflict of interest.

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