

Original Article

Football Research in India: A Bibliometric Mapping of Trends, Themes, and Collaborations (2000-2025)

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Abstract - Football is considered the most popular sport in the world, but in India, the academic literature on football is still scattered, especially at the grassroots level. Although the number of academic articles on football in India has increased over the last decade, little attention has been paid to the grassroots economics, management structures, and long-term sustainability. In this context, the current study aims to fill the existing gap by carrying out a comprehensive bibliometric analysis of the existing literature on football in India, focusing on economics, management, development, and sustainability. Using the Scopus database, 960 peer-reviewed, open-access English-language journal articles published between 2000 and 2025 were analyzed using VOSviewer. Bibliometric analysis methods were applied to analyze publication patterns, country-level collaboration networks, co-authorship patterns, thematic mapping, and the evolution of research themes over time. The results show a significant increase in football-related studies in India since 2018, accompanied by a shift in thematic focus. Seven major research themes emerged, spanning governance and corporate responsibility, performance science and biomechanics, gender and health studies, youth and entrepreneurship, digital innovation, sustainability narratives, and pandemic-related disruption. The collaboration networks depict the continued dominance of Western research hubs; however, increasing participation has been observed from India and other Global South countries. The literature showcases a shift from macro-level policy discourse like governance, corporate social responsibility, and globalization to interdisciplinary applied areas such as performance, health, gender, technology, and digital engagement. By systematically mapping the intellectual landscape of football research in India, this study provides a structured foundation for future inquiry and offers evidence-informed insights to support grassroots football development.

Keywords - Bibliometric Analysis, Football, Scopus, Thematic Mapping, VOSviewer.

1. Introduction

Over the last few decades, football has not only turned out to be a sport but also a global cultural phenomenon and possesses enormous economic, social, and developmental consequences. Significant revenues are raised by major tournaments, professional leagues, and grassroots programs in terms of ticket sales, broadcasting rights, sponsorships, merchandising, and tourism, and thus such events play a significant role in supporting the local and national economies (Dobson and Goddard, 2011). In addition to economic influence, football has brought about community involvement, youth empowerment, and social inclusion, which is why it is a strategic priority among policymakers, sports administrators, and development organizations (Esson, 2016). Over the past ten years, the sport has experienced a flourishing fanbase in India with more participation in youth and amateur leagues, more interest in professional ones, and an increase in grassroots programs (FICCI, 2023). Regardless of this expansion, the opportunities of sport to generate jobs, improve sports infrastructure in the region, and support youth entrepreneurship are under-researched, especially within the

framework of systematic, evidence-based studies. Overall, studies in football have grown in various fields in the world through sports economics, sports management, soccer sociology, sports health, gender studies, and sports technology adoption. It has investigated the economic effect of large tournaments, monetary management of clubs, optimization of performance, injury reduction, and fan interaction through digital technologies (Crawford et al., 2021). Scholars have also shown interest in emerging economies, and studies on the impact of football on local development, youth employment, and social cohesion have been conducted (Esson, 2016). All this research work draws to light the multiple roles played by football, as well as shows that the vast majority of studies focus on elite leagues, big clubs, and international tournaments, thus leaving knowledge gaps about the processes at the grassroots and regional differences.

Football is broadly acknowledged as “the global game,” but in India, it is still a developing area of study, especially at the grassroots level. Though the number of research works has certainly grown in recent years, most of the studies concentrate on the highest-level leagues, professional



management, or sociocultural factors, thus neglecting the economic, organizational, and sustainability factors of amateur football (FICCI, 2023). Several studies have been conducted on the areas of sports economics, youth development, and club management in India and other emerging markets; however, no comprehensive mapping of the research trends, thematic clusters, and gaps in knowledge related to Indian football has been done. Specifically, the fields of local-level funding arrangement, club sustainability, governance apparatus, gender inclusion, and online presence at the grassroots level have been under-explored in scholarly literature. In addition, the global research would provide important insights, but the socio-economic and cultural environment of India would require a localized inquiry of the Indian football ecosystems to comprehend the special barriers and opportunities involved.

In order to fill in these gaps, this quantitative study will use a systematic bibliometric method to map the intellectual landscape of football research in India. Bibliometric analysis offers a numerical model to assess the publication patterns, important contributors and institutions, thematic cohort, and upcoming issues (Donthu et al., 2021). Despite the use of such techniques in the more extensive sports research, no previous study has dealt specifically with Indian grassroots football with the purpose of informing policy, investment, and developmental strategies. Through the analysis of 960 open-access, peer-reviewed English-language journal articles published between 2000 and 2025 in Scopus and VOSviewer, this paper aims to provide a systematic description of how the research, networks, and knowledge gaps develop. In that regard, the investigation aims to conduct an extensive bibliometric study of scholarly research on the topic of football in the Indian setting. In particular, it will attempt to explain the publication patterns over time, outline the key contributors and collaboration patterns, scale up the relevant topical cohorts entrenched in the corpus, and trace the development of research priorities within the specific developmental stages. The analysis of the existing body of knowledge through a methodical synthesis provides an overview of the intellectual architecture and internalizing directions of the football-related research in India. Placing the research on Indian football in the global and regional context, this research will help to comprehend the development path of the sport and the reality of the situation on the grassroots level.

The results will be informative to policymakers, sports organizations, academicians, and investors interested in the development of football in a sustainable manner to encourage social, economic, and cultural value. Finally, the given study highlights the relevance of an interdisciplinary and systematized approach to the analysis of football research, as the gap between the world and the Indian context in terms of global knowledge and local implementation is bridged.

2. Methodology

This section elaborates on the research design adopted in this study, data sources, and search strategy. It also depicts the inclusion and exclusion criteria used along with the approach to analyze the data.

2.1. Research Design

The study follows a bibliometric approach to the systematic mapping and analysis of the intellectual terrain of the academic literature on football in the Indian context. Bibliometric analysis helps to conduct a quantitative analysis of the trends of publication, collaboration networks, and the development of topics within a certain range of academic output. Therefore, it is particularly suitable when it comes to identifying research patterns, their driving forces, and emerging areas of knowledge.

2.2. Data Source and Search Strategy

To examine the academic landscape of research on football in India, a structured search was conducted in the Scopus database. The following Boolean query was used:

ALL (football AND India) AND (LIMIT-TO (SUBJAREA , “BUSI”) OR LIMIT-TO (SUBJAREA , “ECON”) OR LIMIT-TO (SUBJAREA , “SOCI”) OR LIMIT-TO (SUBJAREA , “ARTS”)) AND (LIMIT-TO (DOCTYPE , “ar”)) AND (LIMIT-TO (LANGUAGE , “English”)) AND (LIMIT-TO (SRCTYPE , “j”)) AND (LIMIT-TO (PUBSTAGE , “final”)) AND (LIMIT-TO (OA , “all”)). This search string was designed to retrieve peer-reviewed journal articles related to football in the fields of social science, economics, arts, humanities, and business, published between 2000 and 2025. A total of 9283 documents were initially retrieved. The following filters were applied to refine the dataset:

Table 1. Inclusion Criteria

Inclusion Criteria	Inclusions	Number of results
Year Range	2000-2025	Filtered to 9283
Subject Areas	Social Science Economics/Econometrics/Finance Business/Management/Accounting Arts and Humanities	8708
Document Type	Journal articles only (“ar”)	2866
Publication Stage	Final publication (“final”)	2849
Source Type	Journals only (“j”)	2707
Language and Access	English and open access	Final dataset: 960 articles

2.3. Data Cleaning and Screening

The records retrieved were exported as CSV and screened manually to remove extraneous records (e.g., articles that only talked of India and did not focus on it). Bibliographic data such as authors, affiliations, keywords, abstracts, and citations were saved to be analyzed.

2.4. Analytical Framework

To conduct the bibliometric analysis, VOSviewer has been applied together with descriptive statistical methods. The analysis processes used in the study include investigating the annual publication patterns and citation patterns. It utilizes co-authorship analysis to visualize collaboration networks between countries and authors and keyword co-occurrence analysis to discover major thematic clusters. It also traces the thematic development over time in an overlay visualization.

Minimum threshold values were used in the construction of networks to ensure clarity and strength of analysis.

3. Results and Findings

This section presents the results of the bibliometric analysis. The findings are organized to highlight the trends in publication volume, geographical distribution of research output, and collaboration networks. It also elaborates on the top-cited studies, co-authorship networks, and thematic analysis based on keyword clusters. It visualizes the evolution of research in football over the past 15 years.

3.1. Growth of Publications in Indian Football Research

Year-wise publication trends are depicted in the figure below. It shows how academic literature has expanded over the last 15 years.

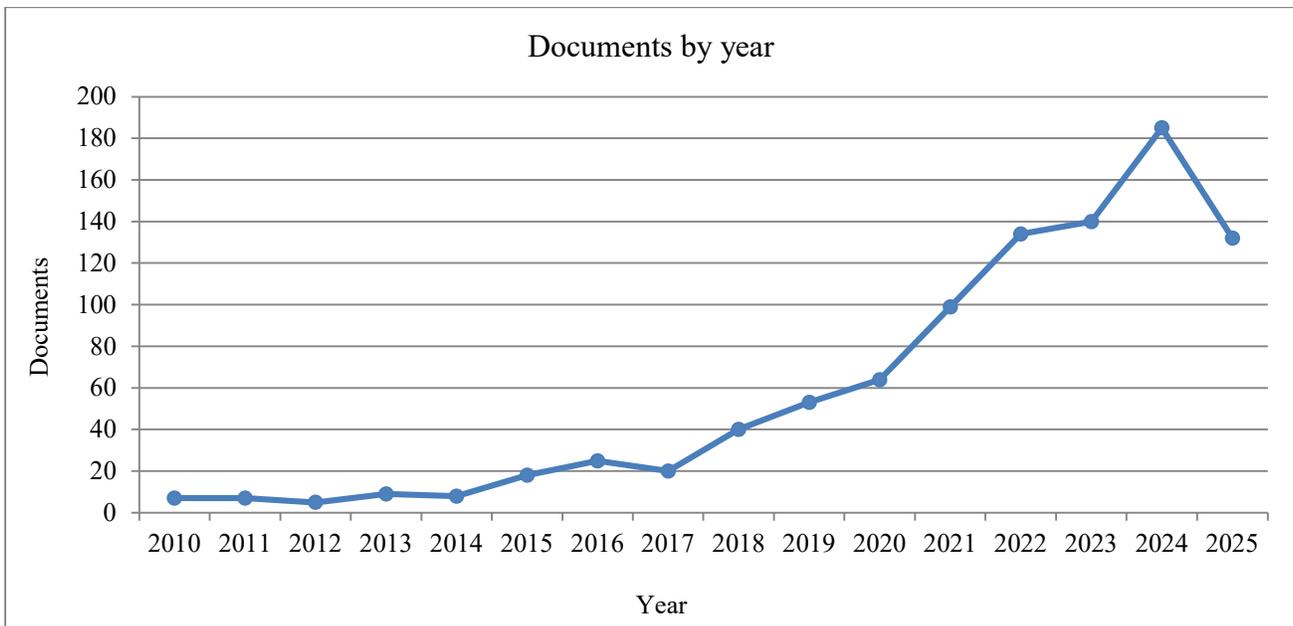


Fig. 1 Year-wise Distribution of Documents

The above graph depicts an increase in the volume of publications over a period of time due to the consistent progress and significance of the research domain. The count of documents published from 2010 to 2014 continues to be low, showing that the domain was still in its stages and had not yet picked up academically. An increase between 2015 and 2017 indicates an attempt to identify some key notions and discuss interdisciplinary relationships. Although a decline is seen in 2017, it still shows an upward trend overall. A steady trend of growth can be observed since 2018. In the same period, it is noticeable that the number of yearly publications is constantly increasing, which reflects the field’s recognition and the enlarging scope of studies within domains such as health, performance, development, and social impact. The most dramatic increase is from 2021 to 2024, in which the volume of publications rises sharply. This may reflect the

increased emphasis as a result of the wider international debate on physical exercise, the importance of mental health, the value of societal well-being, and the significance of sports in society following the pandemic. The observed drop in 2025 should be viewed carefully since it might be affected by data for that year instead of an actual decrease in research efforts. Overall, the trend suggests a transition from an emerging area of study to a well-established and actively researched field, with particularly strong growth in recent years.

3.2. Geographic Distribution and International Collaboration

The figures below depict the geographic concentration of academic output in terms of countries publishing the highest numbers of articles on football in India. It also elaborates on the collaboration networks within the countries.

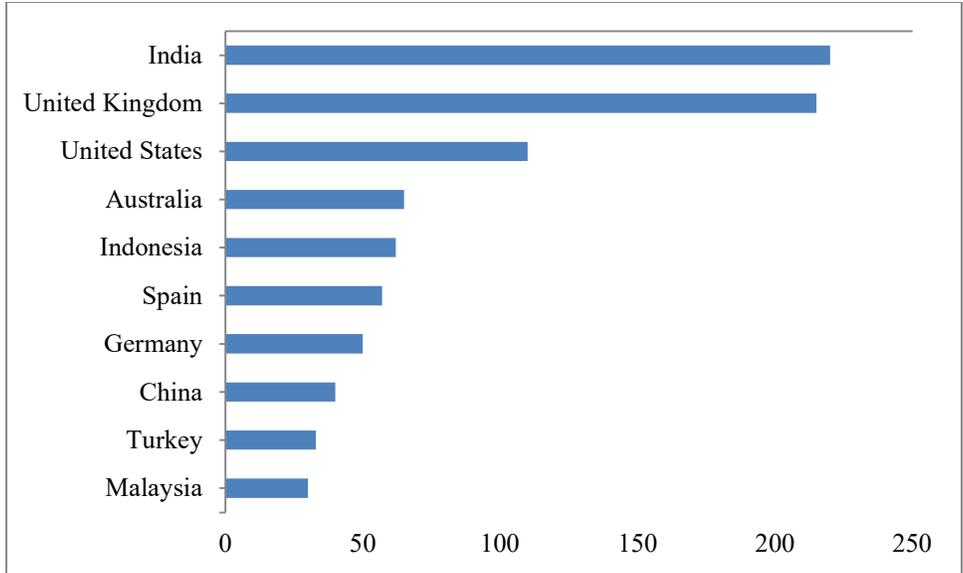


Fig. 2 Geographic Concentration of Academic Output

The global research landscape on football in India shows clear geographic variation. The maximum number of publications is found to be in India. The United Kingdom has published a similar number of articles on the research area between 2010 and 2015. The third in order is the United

States, followed by Australia and Indonesia. The fewest number of research articles are published by Malaysia, considering the top 10 contributing countries in the academic literature.

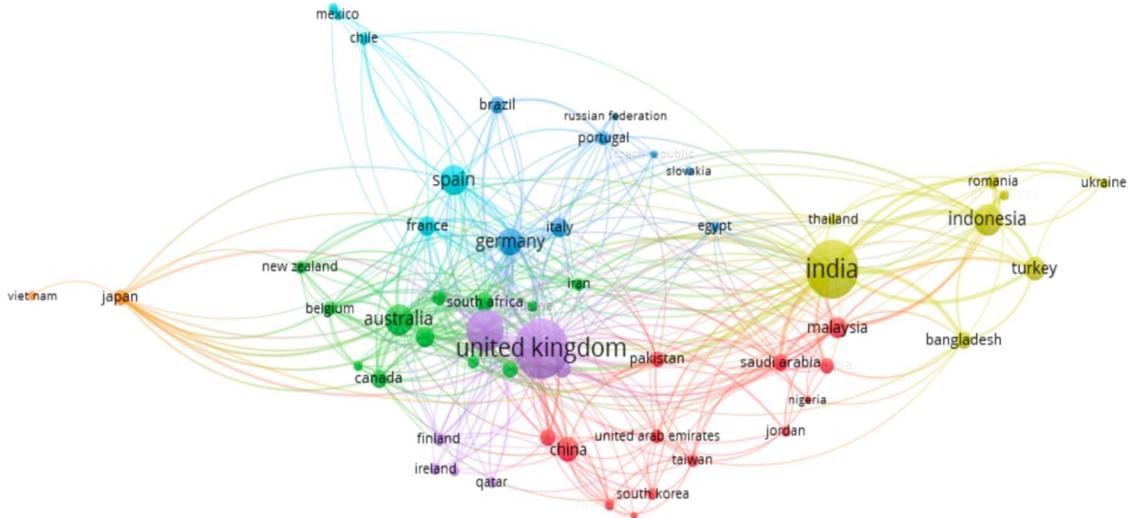


Fig. 3 Country-level collaboration network

Figure 3 above shows the global collaboration network within the literature, which describes how literature research output is distributed worldwide. Additionally, it shows how different countries collaborate through co-authoring network research. The chart highlights a number of countries that dominate central positions in the network, reflecting their significant influence and high levels of collaboration. The United Kingdom and the United States are prominent nodes in the network, having significant links to other countries, both within Europe and non-European countries. A group of

European countries, like Germany, Spain, France, and Portugal, is found to be clustered very closely together. This is likely due to the close regional cooperation and a unifying theme in the research. India is seen as a significant node in the Asian region and in an international Global South-oriented cluster comprising countries like Indonesia, Malaysia, Bangladesh, Turkey, and the Philippines. This indicates the increasingly research-intensive nature of work, coupled with internationalization from emerging economies on topics around development, health, and social aspects of sports.

Also, well-connected to the overall network are Australia, Canada, Japan, and New Zealand. The connections between these countries and other nations establish their consistent involvement in international collaborations. It is not the case that their connections represent their individual national research endeavors. Overall, it is found that the network reveals a globally connected research field with knowledge production concentrated in a few dominant countries; however, there is an increase in participation from various developing and emerging countries over the course of the period.

3.3. Author Collaboration and Influential Research Networks

The co-authorship network shows a structured and application-oriented body of football research, which is organized in interlinked thematic clusters.

These clusters are characterized not only by co-authorship relations but also by methodological similarities and research results, with some authors acting as bridges between different fields.

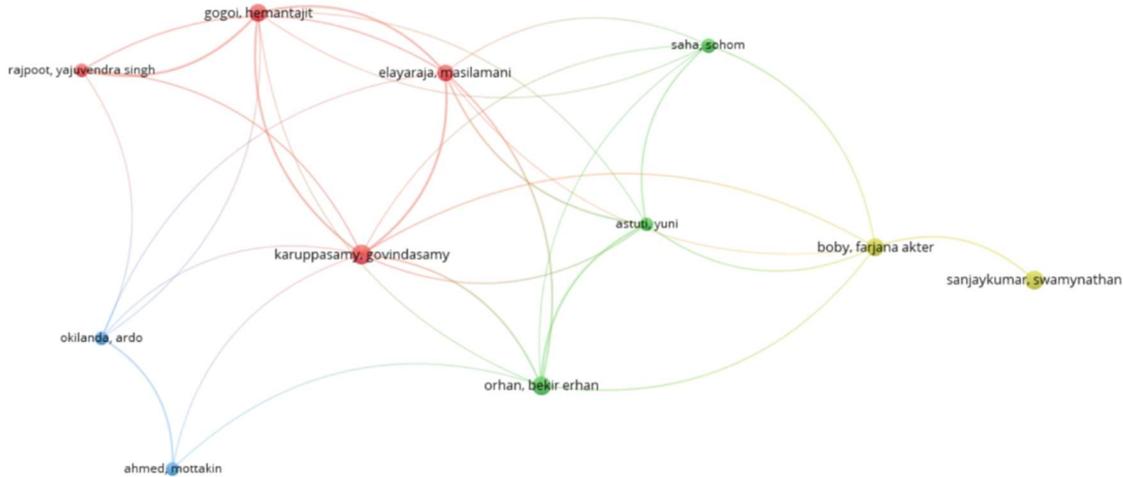


Fig. 4 Author’s Collaboration Network Chart

3.3.1. Performance Enhancement and Training Interventions

The central cluster, led by Karuppasamy, Govindasamy, Gogoi, Hemantajit, and Orhan, Bekir Erhan, is centered on improving football performance using training interventions. The studies in this cluster use experimental or quasi-experimental approaches to investigate the effects of specific training protocols on physiological and performance measures. For example, research on specific training interventions in soccer has shown statistically significant improvements in agility, sprint speed, and aerobic capacity after structured training programs designed according to football-specific requirements. In addition, studies using small-sided games with floater players have shown improved physical fitness results while maintaining tactical realism, suggesting that game-based training can successfully replace isolated physical exercise. The high level of collaboration among researchers in this cluster indicates continuous methodological development and knowledge accumulation in football performance science.

variables like core stability, hematological parameters, and strength training, which form the basis of performance improvement and injury prevention. Astuti et al. show that 12 weeks of planned core strength training results in significant improvements in balance, core stability, and the efficiency of functional movements in football players, underlining the importance of core muscle strength in force transmission and injury prevention. A related study focusing on platelet variables and physiological parameters in female athletes, including football players, offers an understanding of gender-related physiological responses to regular training loads. Even though this group of studies has a more specific theme than the core performance group, it uses standardized testing and intervention approaches, thus underlining its position within the larger performance-related research network.

3.3.2. Conditioning, Biomechanics, and Physiological Foundations

A tightly knit group of studies, including Astuti, Yuni, Siby, Deepak, Ahmed, and Mottakin, deals with the physiological and biomechanical principles that form the basis of football performance. The studies in this group focus on

3.3.3. Psychological Well-Being and Mental Health in Football

A clear-cut group of studies, led by Ahmed, Mottakin, and Orhan, and Bekir Erhan, examines the psychological aspects of football participation, especially when faced with external stress. The studies in this group focus on stress, anxiety, and depression among footballers during times of disruption, specifically the COVID-19 pandemic. The results show that football players experience high levels of stress and depression during the lockdown phases, highlighting the

the highest sense of identification and unity, especially in collectivist societies, have been known to achieve positive performance results (Butalia et al., 2025). The association between national diversity and performance is a complicated one. For example, while the dominance of a single nationality might limit performance initially, diversity might eventually foster it after some threshold is achieved. This suggests that diversification along national identities might positively influence performance (Tovar, 2020). Shows of enthusiasm, especially when rendered during national anthems, have been linked with improved performance. In addition, some groups display higher enthusiasm and cohesion within these situations; hence, they are more likely to be successful, especially during critical periods of the competition (Slater et al., 2018). A good example of how football can be a derivative of and impact nationalism is through the sport of football in Italy.

Change from an exclusive pastime to a ubiquitous phenomenon demonstrates football as a factor in reflecting socio-political trends and popularizing regional nationalism (Fiorenza, 2025). Conversely, while identity generates better performance, performance can also give rise to exclusion or amplify unfavorable stereotypes or stereotypes revolving around masculinity in sports. Duality further underscores the need for a sophisticated understanding of identity dynamics within football (Steinfeldt & Steinfeldt, 2012)

3.4.2. Youth, Innovation and the Business of Football

The combination of youthfulness, creativity, and football illustrates an engaging condition in which young athletes not only participate in athletics but also foster entrepreneurial skills and creative mechanisms. The interrelation between the two can be understood through participation in youth athletics that could create an opportunity for entrepreneurship, in addition to the creative strategies utilized in the enhancement of football. Taking part in competitive sports during teenage years is found to have considerable correlations with later entrepreneurial success, especially in solo activities (Pervun et al., 2022). Promising young sportspeople often exhibit entrepreneurial tendencies, which confirm that sports from a young age improve one with essential skills such as leadership and perseverance. The sports sector, e.g., football, faces challenges such as a reduced supply of officials and calls for novel solutions through design thinking to improve referee recruitment and retention (Pierce et al., 2021).

Various football clubs or organizations are progressively adopting creative methods to enhance performance and effectiveness, like a shift from traditional to entrepreneurial approaches in football (EFOPOB, 2023). In Ghana, young people utilize football for economic progress, as they view the game as a business venture through the transfer and ownership of players and clubs, respectively (Esson, 2016). This is a reflection of a larger trend that football serves not only as a game but also as a tool of personal and social growth. Even

though there is an emphasis on young talent and innovations within football, which present positive outcomes, it is paramount to consider the disadvantages involved. This includes the commercialization of young athletics, which could detract from the fundamental values of involvement and association.

3.4.3. Health, Physiology, and Gender Studies in Football

The meeting ground of health, physiology, and gender studies in the sport of football has highlighted considerable knowledge on the unique challenges that women players face. From the various studies conducted, physiological changes, the menstrual cycle, dietary needs, and injury risk factors have been identified as key factors to consider. Understanding the various factors is of paramount importance in enhancing the performance of female players. Female football players may have a greater body fat percentage, together with lower levels of lean body mass, compared to their male counterparts. This influences their speed, strength, and endurance (Xu et al., 2025). Performance gaps generally decrease when data is matched with physiological measures, reinforcing the requirement for tailored assessment approaches. However, the performance influence of the phases of the menstrual cycle is debatable, given that studies have been inconclusive regarding the influence on performance.

A requirement to carry out more thorough research, including both biological and sociological aspects, is emphasized to clarify the understanding of such effects (Hamed-Hamed et al., 2024). The high energy demand of the sport needs detailed nutritional planning to prevent nutritional deficiencies that could compromise health and performance (Santos et al., 2019). Nutritional evaluation and planning are advised to meet the specific needs of women athletes (Santos et al., 2019). The number of injured women athletes, especially those who suffered from ACL injuries, is on the increase due to biological and physiological factors. The need for the development of injury prevention strategies based on sex is imperative; the current protocols available do not adequately support female athletes (John et al., 2011). While the focus on women's football continues to increase, an essential findings gap has been identified around the psychosocial and societal influences contributing to the participation of women in the sport (Sanmiguel-Rodríguez & Arufe-Giráldez, 2019). This finding further highlights the need for an extensive approach in the assessment and analysis of health, gender, and football.

3.4.4. Digital Platforms and Sustainable Development Narratives

Digital platforms act as a key player in developing the Sustainable Development Goals by enabling integration, amplifying communication, and paving the way for inclusive action among all stakeholders. These platforms harness cutting-edge technologies to meet the challenges at the global level, hence acting as catalysts for building public-private

partnerships and reaching out to different groups of end-users for sustainable development. The subsequent sections detail the main contributions digital platforms make to sustainable development narratives. Digital platforms enhance collaboration among government, businesses, and non-profits, which is crucial for achieving Sustainable Development Goals (SDGs) (Bordoloi et al., 2024). They improve transparency and resource distribution, enabling more effective responses to issues like poverty and climate change. Technologies such as AI, IoT, and blockchain are instrumental in improving service delivery and fostering innovation across sectors like education and healthcare (Ariansyah et al., 2024). Blockchain, in particular, enhances financial inclusivity and supports sustainable urban planning.

Digital storytelling serves as a powerful tool for promoting environmental consciousness, engaging audiences through innovative media like social media and gamification (Channa et al., 2025). This approach not only raises awareness but also inspires behavioral change towards sustainability. Despite the benefits, challenges such as unequal access to digital technologies and ethical concerns regarding data privacy persist (Ariansyah et al., 2024). Addressing these issues is essential for maximizing the potential of digital platforms in sustainable development. On the other hand, although digital tools provide many benefits, the danger of making existing inequalities worse cannot be ignored. There is, therefore, a need for all communities to benefit from technological development in the sustainability arena.

3.4.5. Globalization, Governance, and Corporate Responsibility in Football

One thing to note is the effect that globalization has on governance and Corporate Social Responsibility (CSR) in the world of football. The relationship between global and local governance systems plays a critical role in addressing issues related to CSR, especially in developing countries. The following are the major components of CSR in the world of football, including its execution and the effect of globalization. CSR initiatives have now become fundamental for football clubs to enhance their corporate reputation and address the current global concerns about the labor practices of football clubs (Naz & Bögenhold, 2020). The literature points out five thematic areas of CSR in football: governance and implementation, barriers and drivers, perceptions and impacts, measurement, and communication (Rith & Spinelli, 2024). Effective approaches to CSR require a balance between top-down methods that often do not take into consideration the needs of the regions and bottom-up methods that include marginalized groups (Naz & Bögenhold, 2020). The management of CSR in football is likewise affected by value chains and governance systems, particularly in South Asia, where child labor is an issue (Lund-Thomsen & Nadvi, 2010).

FIFA's regulations regarding its governance have come under fire for not corresponding to its ethical principles, which

have promoted skepticism (Zeidan & Fauser, 2017). Local industrial clusters might enhance the strengths of CSR adherence through cooperative undertakings, which could result in improved monitoring and governance results (Lund-Thomsen & Nadvi, 2010). Globalization has led to increased focus on labor practices within football supply chains. It has forced the need to establish robust CSR structures to ensure ethical compliance (Memari et al., 2024). While the rise of CSR codes for international brands has spawned a multibillion-dollar compliance industry, such practices often become superficial answers rather than real solutions (Naz & Bögenhold, 2020).

3.4.6. Pandemic-Era Social and Technological Disruption Influencing Football

The recent COVID-19 pandemic has tremendously impacted the football world, especially regarding social interactions and technological development in the sport. For instance, due to the restrictions that prohibited the attendance of fans at football matches, digital media have been employed to create engaging experiences, thereby illustrating the use of digital media in the consumption of football (Crawford et al., 2021). Subsequently, the digital revolution in football research has been born, aiming to investigate the evolving relationship between technology and football culture post-pandemic (Lawrence & Crawford, 2021).

Due to the absence of live games, the significance of digital content was recognized, compelling clubs to explore ways of keeping their fans engaged. Football communities were resilient; that is, they adapted by changing their modes of engagement and supporting fans. (Hicham, 2022) The pandemic expedited the adoption of digital technologies to deliver virtual experiences to fans, thus maintaining their loyalty to their respective clubs (Aghajani & Javani, 2022). Teams explored income streams through online mediums, which minimized the financial effects of unused arenas (Chmielewski, 2023). The pandemic has prompted beneficial shifts in football but has also revealed weaknesses in the sport's financial framework, leading to worries about enduring viability and the possibility of future interruptions.

3.4.7. Biomechanics and Athletic Performance Metrics in Football

Significant contributions of biomechanics towards the enhancement of performance metrics are seen through various studies that investigate the various relationships between physical qualities and performance metrics, along with emerging technologies. The connection of biomechanics with modern technologies such as IoT and biochemical sensors has revolutionized the collection of performance data. The Internet of Things and biochemical sensors have the capability to provide essential biomechanical information, with a focus on areas that are capable of producing forces, for instance, feet and legs, which remain essential in enhancing energy efficiency in football players. Experimental research shows

that these technologies produce precise performance measurements, including speed profiling during races such as sprints, which are more effective than traditional manual practices (Liang, 2025). Research has shown some significant differences in American football athletes' performances by looking at their positions. For example, skill players were found to have greater jump height and reaction strength than heavier players. Evaluation of body composition data, such as body fat percentage and lean body mass, also assists in the improvement of athlete profiles towards maximal performance (Butcher-Mokha et al., 2024).

Current research has revealed that lower body stiffness has a positive correlation with certain performance measures, where a stiffer body was noted to have a significant impact on

improved outcomes in sprinting, agility, and jumping (Kalkhoven & Watsford). This suggests that the mechanical properties of muscle have an effect on sports performance, thereby reiterating the importance of customized training for the improvement of muscle stiffness. Even as progress in assessing performance using biomechanics indicates positive results, it is essential to note the nuances in responding to training as an individual and the potential impact of external factors affecting performance results, such as training techniques and environments (Kelley et al., 2020)

3.5. Temporal Evolution of Research Themes

The evolution of research in the study area is shown through the network visualization chart. It maps the time periods in which the research has been undertaken.

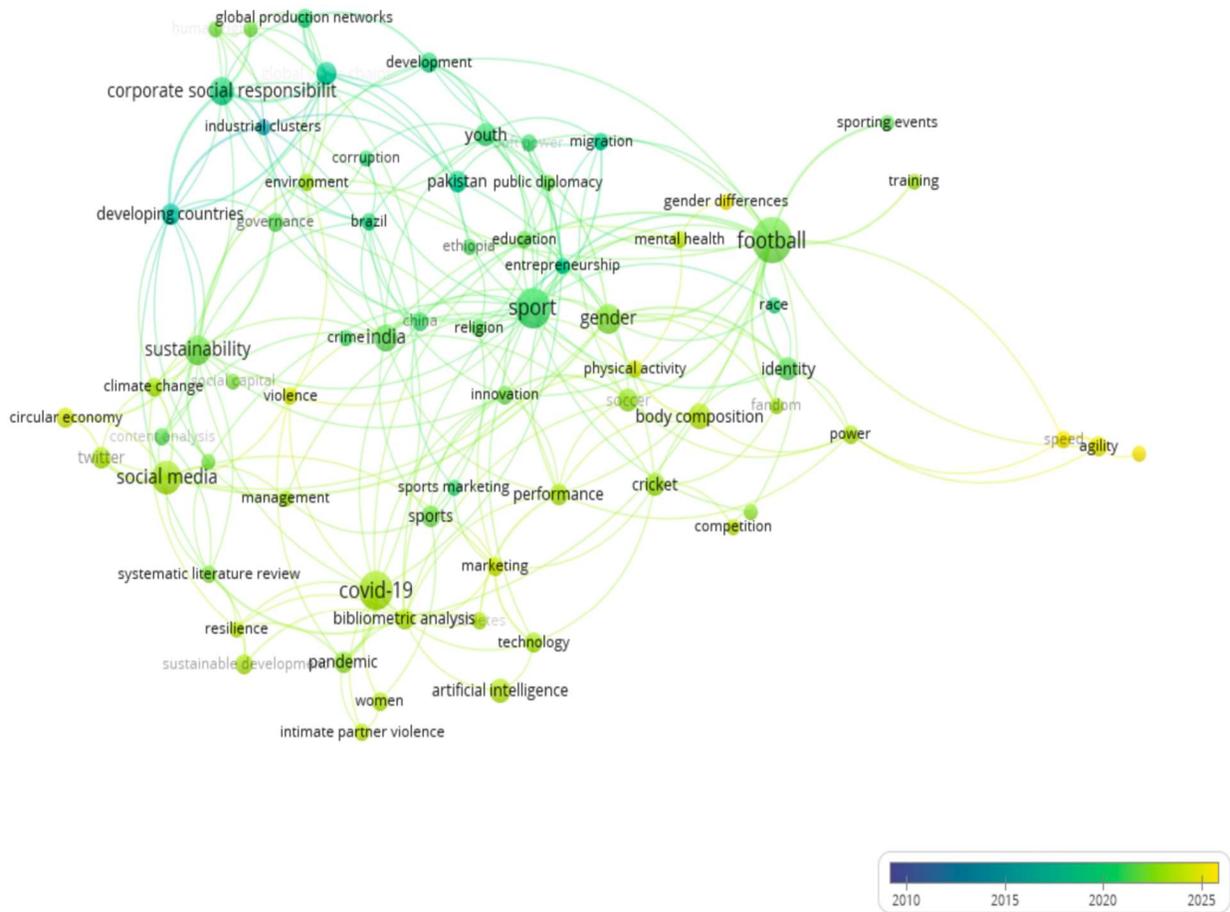


Fig. 6 Trend analysis

The above figure is an overlapping visualization of keyword co-occurrence, and the color of the node corresponds to the average year of publication of the study related to the topic. The darker the shade in a node, the earlier the topic; on the other hand, the lighter shades represent more recent topic trends, with a yellow hue. Past research centered its themes on such topics as corporate social responsibility, corporate governance, sustainability, developing countries, and social

media tends to feature mostly darker and mid-range shades of color. This indicates that the study of sports management was initially focused on general or broader socio-economic issues. Over time, the focus outgrows its orientation towards theoretical and purely theoretical topics in favor of more application-oriented and multidisciplinary topics. Words like “sport,” “gender,” “physical activity,” “football,” “performance,” and “body composition” appear as key terms

in the center of the diagram and are colored in newer shades. This is due to their centrality to the diagram, reflecting their ability to connect earlier development-oriented topics with newer topics like performance. Meanwhile, the most recent research trends can be seen among the bright, yellow-colored nodes, which include COVID-19, artificial intelligence, technology, bibliometric analysis, speed, agility, and power. All these emerging research topics showcase the trend of analyzing data, technology integration, and optimization for performance while responding to the disruptions brought by COVID-19. On an overarching level, the overlay visualization reflects the evident temporal progression in the literature. From the aforementioned visualization tool, it is evident that the research has moved from a more conceptual and policy-based discussion to a more niche, quantitative, and technologically influenced model of research.

3.6. Research Gaps Identified from Bibliometric Analysis

A number of conspicuous gaps in the corpus of Indian football scholarship have been determined through bibliometric analyses. Despite the proliferation of publications and thematic variety, the literature on the subject still remains largely wanting in avenues of discussing the economics of grassroots football and the governance of local clubs, including the matters of club funding, financial sustainability, and the models of school-community partnerships. The literature on women's football is disproportionately focused on the physiological and biomedical aspects, while socio-economic, cultural, and institutional factors, i.e., facility access, media presence, career patterns, and family contribution, are still underrepresented. The co-authorship and collaboration network studies reveal that the domestic research collaboration is fragmented, and intellectual production is highly concentrated in a few overseas research centers, which restricts the production of insights that are specific and relevant to the local context. Also, the high proportion of cross-sectional and experimental research highlights a lack of longitudinal and mixed-method research that can help track the dynamics of policies, institutions, and developmental trajectories over time. Although the literature is rich in thematic content, there is a glaring gap in applied and policy-based research that would translate the empirical research into practical recommendations to Indian football ecosystems. These insights therefore outline the obvious research priorities: the urgency of interdisciplinary, longitudinal, and context-based studies to strengthen evidence-based development, especially in grassroots and women's football.

4. Discussion

The bibliometric review of Indian football studies over the last fifteen years shows the extensive growth and spread of research topics. Since 2015, the quantity of publications has grown significantly (and sharply after 2020), as the scholarly focus on sports and the rise of football as a multifaceted social, economic, and cultural phenomenon have become more

important. These changes signify a shift in the macro-level policy and governance discourse to more practical and interdisciplinary areas like performance science, biomechanics, health, digital engagement, sustainability, and the adaptations related to pandemics. Thus, the Indian football scholarship seems to be more and more oriented to the international trends in the research, and, at the same time, it deals with the locally determined developmental issues.

The networks of scholarly collaboration offer a heterogeneous representation of the research environment. Despite the fact that India has been one of the major nodes in the Global South, research collaborations in the country are still largely fragmented, and the generation of knowledge is still concentrated among a few well-established international research centres. Also, although studies on women's football are on the rise, the literature available mainly dwells on physiological and biomedical dimensions, and the sociocultural, economic, and institutional dimensions have been under-explored.

Another interesting observation is related to the organization of research collaboration networks. Even though India is present in the international research world, numerous publications are connected to international collaborations, as opposed to strong institutional collaboration in the country. These trends have been witnessed in other developing research ecosystems where the academic capacity is still underdeveloped. There should also be greater inter-cooperation of universities, sports institutes, and governing bodies, including football federations, which would go a long way to enhance knowledge production and research that specifically targets local developmental issues. In general, the result indicates that despite an expanding field and growing diversity, knowledge integration, local collaborative efforts, and applied research face structural constraints.

The trends that are observed in this work are also related to the general tendencies in the research of global sports. Similar growths in interdisciplinary scholarship that incorporates health sciences, sociology, technology, and management views have been documented in bibliometric studies of the sport management and sports science literature. Nevertheless, in contrast to the European and South American football research, where a large amount of literature is devoted to economic aspects of professional leagues, club finances, fans, and governance systems, the Indian literature seems to be more about performance science, health, and physiological training. This gap can be attributed to the rather young nature of the institutional development of Indian football research, where scientific performance research has developed faster than either economic or governance-based scholarship.

These results indicate that interdisciplinary and longitudinal methods should be used in future research to coordinate economics, governance, gender studies, sports

science, and digital innovation. They also have serious implications for the sports policy and research priorities in India. The lack of emphasis on grassroots football economics, the sustainability of a community club, and the systems of youth development point to the fact that the most important aspects of the football ecosystem are not investigated appropriately.

The latter are especially important in such new football markets in which grassroots involvement and institutional support influence the development of talent in the long term. Future studies are advised to adopt a mixed-method or longitudinal design, including bibliometric understanding with field-based empirical exploration, including clubs, academies, and grassroots programs. Enhancing the national cooperation and contextually specific problems (especially, the problems of grassroots football and women's involvement) may help to make the academic work more practical and enable the translation of analytical knowledge into practical policies and strategies at the club, policymaking, and investment levels.

5. Conclusion

This research is a systematic mapping of the intellectual field of football research in India between 2000 and 2025, showing that there has been significant growth in the number of publications in the field since 2015 and that there has been

a shift in the themes of its discussion, with a focus on applied and interdisciplinary fields of research, including performance science, health, digital engagement, sustainability, and pandemic-related adaptations. The networks of collaboration reveal that domestic research is still divided, with the creation of knowledge concentrated inside a small number of global centers, whereas the paradigms of key focus, such as the economics of grassroots football, the sustainability of clubs, sociocultural and institutional issues of women's involvement, and practical and policy research-focused studies, are still underdeveloped. These results demonstrate the importance of interdisciplinary, longitudinal, and context-sensitive research that would help to recognize the practical challenges on the ground, enhance domestic cooperation, and foster inclusivity, especially for women athletes. The scope is, however, limited to English-language, open-access journal articles in Scopus and, therefore, may not represent any regional studies, policy reports, grey literature, or qualitative information about practitioners or local clubs; also, the bibliometric search technique can only capture the pattern of publications and their themes but cannot provide a detailed insight into the program-level challenges, sociocultural barriers, or the experience of players and coaches. In the future, the research could utilize a variety of data sources and qualitative or longitudinal studies to fill in these insights and shape the evidence-based solutions to sustainable football development in India.

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