
Bibliometric Analysis: Mapping Research Trends On Team Cohesion In Sports

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Abstract

This study presents a bibliometric analysis of research trends on team cohesion in sports. Data were retrieved from the Scopus database, covering 288 journal articles published between 1992 and 2024. The analysis examined publication trends, citation patterns, influential articles, leading journals, and keyword structures. The findings indicate a significant increase in research output after 2016, with a peak in 2024, highlighting team cohesion as a key psychosocial construct associated with performance, group dynamics, and athlete functioning. Keyword mapping identified four major thematic clusters: performance, group dynamics, methodology, and athlete characteristics. This study provides a comprehensive overview of the intellectual structure of team cohesion research and offers directions for future studies and practical applications in sport psychology.

Keywords: *team cohesion, sports psychology, sports performance, athletes, bibliometric analysis.*

INTRODUCTION

Team sports performance is increasingly understood as the result of interactions between physical, technical, and psychosocial factors. Among these, team cohesion has emerged as a central construct influencing team functioning and performance outcomes. Cohesion refers to a dynamic process reflecting the tendency of team members to remain united in achieving shared goals and maintaining interpersonal relationships (Senécal et al., 2008). Previous studies consistently demonstrate a positive relationship between team cohesion and performance, particularly through task cohesion, which directly supports coordination and goal achievement. However, cohesion is shaped by multiple factors, including leadership, communication, trust, and interpersonal relationships within the team (Smith et al., 2013; Mach et al., 2010). Despite extensive research, the literature remains fragmented across different perspectives. Therefore, this

study aims to conduct a bibliometric analysis to systematically map research trends, influential studies, and thematic developments in team cohesion research in sports.

This study seeks to answer the following research questions:

Q1. How has the number of publications on team cohesion in sports developed from 1992 to 2024?

Q2. What are the publication and citation trends in this field?

Q3. Who are the most productive authors, institutions, and countries?

Q4. Which journals contribute most to the literature?

Q5. What are the main research themes and emerging directions in team cohesion studies?

METHODS

Research Design

This study employed a bibliometric analysis approach to systematically map and evaluate the development of research on team cohesion in sports. Bibliometric analysis is widely used to examine scientific publications through quantitative techniques, including citation analysis, keyword mapping, and network visualization, to identify trends, patterns, and research structures within a specific field (Pritchard, 1969).

Data Source And Database Selection

The data used in this study were obtained from the Scopus database, covering publications from 1992 to 2024. Scopus was selected due to its status as one of the largest and most comprehensive abstract and citation databases of peer-reviewed literature, providing high-quality and standardized metadata suitable for bibliometric analysis (Donthu et al., 2021). Compared to other databases such as Google Scholar or PsycINFO, Scopus offers more consistent indexing, refined search filtering, and structured bibliographic data, which enhance the reliability and accuracy of bibliometric mapping.

Search Strategy

The literature search was conducted using the following Boolean search syntax in the TITLE-ABS-KEY field: TITLE-ABS-KEY ("team cohesion" AND ("sport" OR "team sport" OR "athlete" OR "sports performance"))*. This strategy

was designed to capture relevant studies focusing on team cohesion within sports contexts while ensuring specificity and relevance of the retrieved publications.

To ensure data quality and relevance, the following criteria were applied
Inclusion Criteria: Articles published between 1992–2024; Documents categorized as journal articles; Publications written in English; Articles indexed in the Scopus database; Studies focusing on team cohesion in sports context. Exclusion Criteria: Non-article documents (e.g., books, book chapters, conference proceedings, editorials); Articles not directly related to sports or team cohesion; Duplicate records; Articles with incomplete bibliographic data. After applying these criteria, a total of 288 journal articles were included in the final dataset.

Data Analysis Techniques

The data used in this study were obtained from the Scopus database, covering publications from 1992 to 2024. Scopus was selected due to its status as one of the largest and most comprehensive abstract and citation databases of peer-reviewed literature, providing high-quality and standardized metadata suitable for bibliometric analysis (Donthu et al., 2021). Compared to other databases such as Google Scholar or PsycINFO, Scopus offers more consistent indexing, refined search filtering, and structured bibliographic data, which enhance the reliability and accuracy of bibliometric mapping. The collected data were analyzed using three main tools: Scopus, VOSviewer, and RStudio (Bibliometrix package). Scopus Analysis, Scopus was used to examine publication trends, including the number of publications per year and citation distribution, to identify the growth of research on team cohesion in sports. VOSviewer Analysis, VOSviewer was utilized to construct bibliometric networks, including: Keyword co-occurrence analysis; Cluster identification. Thematic mapping of research topics: This analysis helps identify relationships between research themes and the structure of knowledge in the field. Rstudio (Bibliometrix) Analysis, RStudio was used to perform: Citation analysis ; Co-authorship analysis; Source (journal) productivity analysis; Country and institutional contribution analysis.

The integration of these analytical techniques enables a comprehensive understanding of the intellectual structure, research trends, and development patterns in team cohesion studies.

Screening Procedure

The article selection process followed a systematic filtering procedure adapted from the PRISMA framework, including identification, screening, eligibility, and inclusion stages. Initially, all records retrieved from Scopus were screened based on titles and abstracts. Subsequently, full-text eligibility was assessed according to the inclusion and exclusion criteria until the final dataset of 288 articles was obtained.

RESULTS

Number of Articles in the Period 1992 to 2024

Based on a search of journal articles indexed in the Scopus database for the period 1992 to 2024, a total of 288 journal articles discussing team cohesion in sports were found. The development of the number of annual publications can be seen in the Articles per year graph, which illustrates the dynamics of team cohesion research over time.

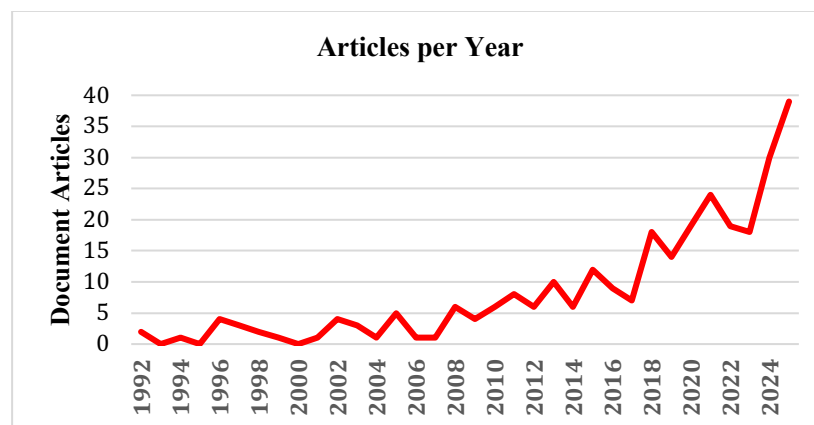


Figure 1. Annual Growth in Team Cohesion Publications in Sports.
Source: Scopus Database with Bibliometrics

Publication Trends

A total of 288 articles were identified. Research output remained low between 1992 and 2005, increased gradually between 2006 and 2015, and rose significantly after 2016. The highest number of publications was recorded in 2024 with 39 articles, indicating strong recent growth in the field.

Citation Analysis

The most cited article is Carron et al. (2002) with 442 citations, followed by Carron et al. (2010) with 215 citations. Citation counts among the top studies range from 78 to 442, indicating strong and sustained academic influence.

Most Productive Authors, Countries, and Institutions

In response to Q3, the analysis also identified the most productive contributors in team cohesion research. The findings indicate that several authors, particularly Carron, Eys, and Bray, are among the most influential and productive scholars in this field, as reflected in both publication frequency and citation impact. From a geographical perspective, research on team cohesion is predominantly concentrated in developed countries, particularly from United States, United Kingdom, Canada, Spain & Australia. These countries contribute the highest number of publications, indicating that team cohesion research is largely driven by institutions with strong traditions in sport psychology and sport science. The dominance of these countries also reflects the availability of research funding, advanced training systems, and established academic networks in sports science. However, this distribution suggests a research gap in developing regions, where team cohesion studies remain relatively limited.

Table 1. Top 10 Most-Cited Articles On Team Cohesion in Sports

Author	Article Title	Year of Publication	Journal	Total Citations	Citations per Year
Carron, Albert V, Colman, Michelle M, Wheeler, Jennifer, Stevens & Diane E	Cohesion and Performance in Sports: a Meta Analysis	2002	Journal of Sport and Exercise Psychology	442	18,42
Albert V. Carron, Steven R. Bray, & Mark A. Eys	Team Cohesion and Team Success in Sport	2002	Journal of Sport Sciences	215	8,96

Author	Article Title	Year of Publication	Journal	Total Citations	Citations per Year
Callow, Nichola, Smith, Matthew Jeffery, Hardy, Lew, Arthur, Calum A, Hardy & James	Measurement of Transformational Leadership and Its Relationship with Team Cohesion and Performance Level	2009	Journal of Applied Sport Psychology	208	12,24
March, Merce, Dolan, Simon L, Tzafirir & Shay S	The Differential Effect of Team Members' Trust on Team Performance: the Mediation Role of Team Cohesion	2010	Journal of Occupational and Organizational Psychology	167	10,44
Jowett, Sophia, Chaundy & Victoria	An Investigation into the Impact of Coach Leadership and Coach – Athlete Relationship on Group Cohesion	2004	Journal of Group Dynamics	154	7,00
Hodge, Ken P, Henry, Graham, Smith & Wayne	A Case Study of Excellence in Elite Sport Motivational Climate in a World Champion Team	2014	The Sport Psychologist	127	10,58
Smith, Matthew Jeffery, Arthur, Calum A, Hardy, James, Callow, Nichola, Williams & David	Transformational Leadership and Task Cohesion in Sport: the Mediating Role of Intra-team Communication	2013	Psychology of Sport and Exercise	120	9,23
Sénécal, Julie, Loughead, Todd M, Bloom & Gordon A	A Season-Long Team-Building Intervention: Examining the Effect of Team Goal Setting on Cohesion	2008	Journal of Sport and Exercise Psychology	109	6,06

Author	Article Title	Year of Publication	Journal	Total Citations	Citations per Year
Aoyagi, Mark W, Cox, Richard H, McGuire & Richard T.	Organizational Citizenship Behavior in Sport: Relationships with Leadership, Team Cohesion, and Athlete Satisfaction	2008	Journal of Applied Sport Psychology	86	4,78
De Backer, Maarten, Boen, Filip, Ceux, Tanja, De Cuyper, Bert, Høigaard, Rune, Callens, Fien, Fransen, Katrien, Vande Broek & Gert	Do Perceived Justice and Need Support of the Coach Predict Team Identification and Cohesion? Testing Their Relative Importance among Top Volleyball and Handball Players in Belgium and Norway	2011	Psychology of Sport and Exercise	78	5,20

Table 1 presents the top 10 most-cited articles on team cohesion in sports. The most cited study is Carron et al. (2002) with 442 citations (18.42 citations/year), followed by Carron et al. (2010) with 215 citations (8.96/year) and Callow et al. (2009) with 208 citations (12.24/year). Overall, citation counts range from 78 to 442, indicating strong and sustained academic influence. Across these studies, task cohesion consistently shows a stronger and more direct relationship with performance compared to social cohesion. In addition, team cohesion is influenced by multiple factors, including transformational leadership, communication, trust, coach–athlete relationships, and perceived fairness. Several studies also highlight that cohesion acts as a mediating mechanism, linking leadership, trust, and team processes to performance outcomes. Methodologically, cohesion is commonly measured using standardized instruments such as the Group Environment Questionnaire (GEQ), supporting the reliability of findings across studies. Furthermore, evidence indicates that cohesion can be enhanced through structured interventions, particularly team goal-setting programs, which significantly improve

team unity and cooperation over time. Overall, these findings confirm that team cohesion is a key psychosocial construct in team sports, playing a central role in performance, team dynamics, and athlete experience.

Team cohesion itself is influenced by several key factors, such as transformational leadership, effective communication within the team, trust between members, the quality of the coach-athlete relationship, and perceptions of fairness and psychological support. These factors do not work in isolation but are interrelated in shaping team dynamics and integration, both in terms of tasks and social relationships. In addition, research also shows that cohesion can be strengthened through systematic psychological interventions, particularly through a team goal setting approach, which has been proven to help increase team unity and cooperation. Conceptually, team cohesion can be seen as an important psychological mechanism for understanding performance variations, the stability of interactions within teams, and the quality of athletes' experiences. Therefore, cohesion is a relevant variable to continue to be studied in research and applied in sports psychology practice, especially in efforts to understand and improve overall team performance.

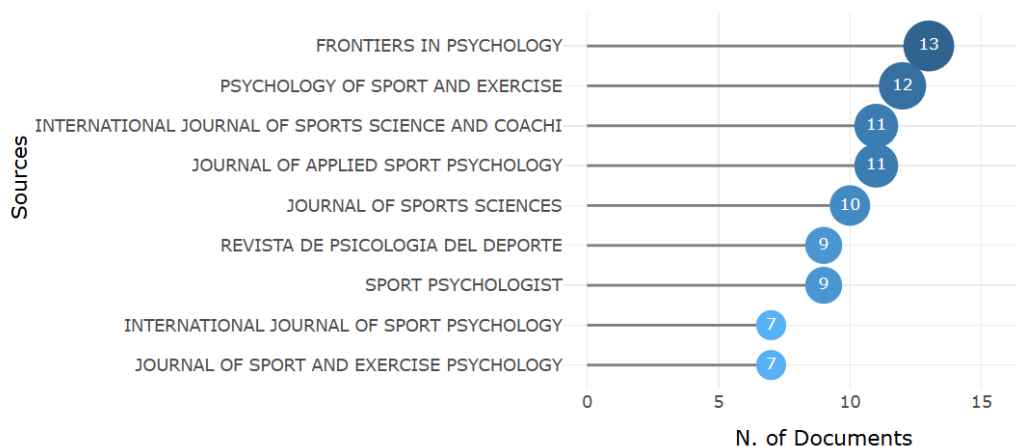


Figure 2. Productive Journals Publishing on Team Cohesion in Sports.
Source: Scopus Database with Bibliometrics.

The most productive journal is *Frontiers in Psychology* (13 articles), followed by *Psychology of Sport and Exercise* (12) and *Journal of Applied Sport Psychology* (11). These journals contribute significantly to the development of team cohesion research.

Keywords Analysis Of Team Cohesion Research

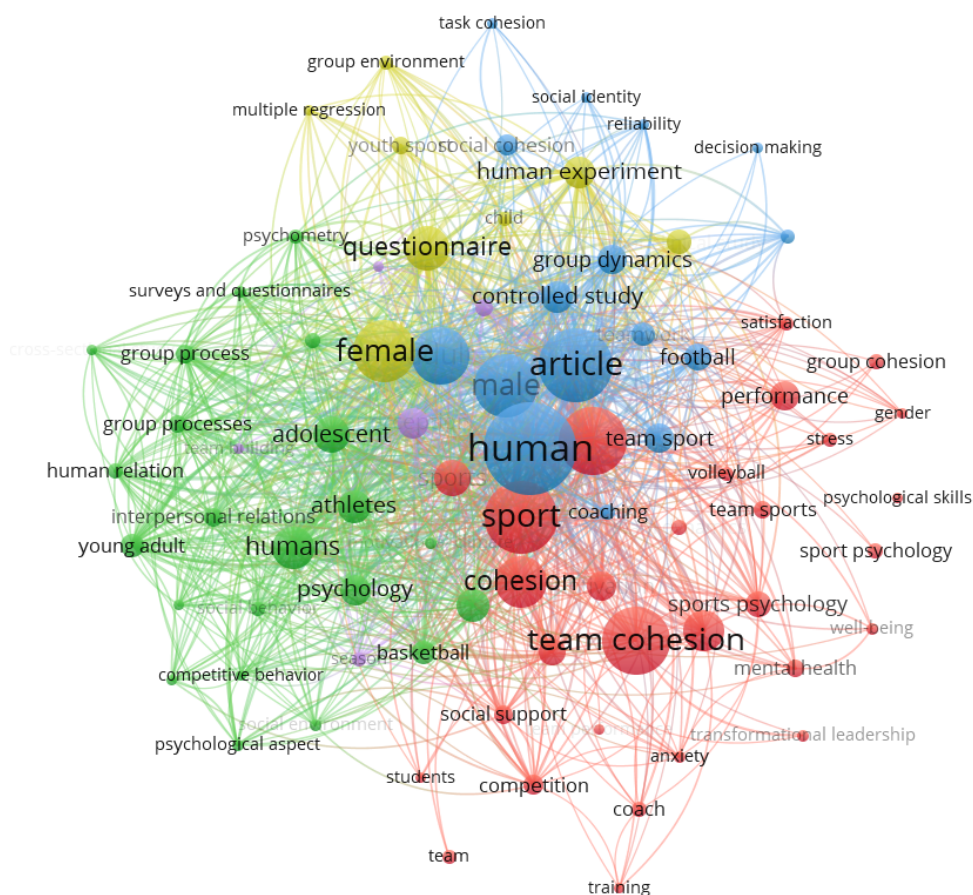


Figure 3. Topics Related to Team Cohesion Research in Sports

Source: Scopus Database with Bibliometrics

Keyword analysis provides an overview of the main themes, research focus, and emerging topics in team cohesion studies within sports. As shown in Figure 3, the bibliometric mapping generated using VOSviewer visualizes the relationships between keywords based on their frequency and co-occurrence. Node size represents keyword frequency, while colors indicate thematic clusters. The analysis identifies four main clusters. The red cluster represents the core theme linking *team cohesion*, *performance*, and *sports psychology*, highlighting cohesion as a key factor in team performance. The green cluster focuses on *group dynamics* and *interpersonal relationships*, emphasizing the role of social interaction and support in cohesion development. The blue cluster reflects *methodological approaches*, including measurement and validation of cohesion using quantitative instruments.

The yellow cluster represents *athlete characteristics*, indicating that most studies focus on adolescent and young adult populations. Overall, the mapping confirms that team cohesion is a central construct connecting performance, psychological processes, and social dynamics in team sports. Current trends indicate increasing attention toward the integration of cohesion with leadership, communication, and psychological interventions, while gaps remain in longitudinal studies and diverse athlete populations.

DISCUSSION

The findings confirm that team cohesion is a central psychosocial construct in team sports, particularly in its relationship with performance. Task cohesion demonstrates a stronger and more direct association with performance compared to social cohesion, supporting previous findings (Carron et al., 2002). Team cohesion is shaped by multiple interrelated factors, including leadership, communication, trust, and interpersonal relationships. Leadership influences cohesion through interaction patterns, while trust and relational quality serve as foundational elements in building team unity. The results also indicate that cohesion is not static but can be developed through structured interventions. Team goal-setting programs have been shown to significantly enhance cohesion, demonstrating that cohesion can be systematically improved through psychological training.

However, several research gaps remain. Most studies focus on adult athletes, while younger and older populations are underexplored. In addition, longitudinal studies are still limited, restricting understanding of how cohesion develops over time. From a practical perspective, coaches should focus on strengthening task cohesion through clear goal setting, effective communication, and trust-building strategies. Sport practitioners are encouraged to integrate cohesion-based interventions into training programs to improve both performance and team functioning.

CONCLUSION

This study provides a comprehensive bibliometric overview of team cohesion research in sports, highlighting its growing importance as a key psychosocial factor influencing performance. The findings show a significant increase in research

activity, particularly after 2016. This study provides a comprehensive bibliometric overview of team cohesion research in sports, highlighting its growing importance as a key psychosocial factor influencing performance. The findings show a significant increase in research activity, particularly after 2016. Practically, team cohesion should be developed through structured interventions, including goal setting, leadership strategies, and communication enhancement. Future research should focus on longitudinal designs and diverse athlete populations to better understand the development of cohesion over time.

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