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Psychological Safety in Sport: Mapping the Intellectual Structure and Emerging Research Fronts—A Bibliometric Analysis

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ABSTRACT

Purpose: Existing reviews clarify psychological safety in sport, but the connections among its intellectual foundations and research topics remain insufficiently mapped. This study examined that structure, treating psychological safety as the focal construct, athlete voice as expressing concerns or suggestions, and interpersonal climate as the surrounding relational conditions.

Method: Web of Science Core Collection and Scopus were searched on 1 October 2026 using psychological-safety, voice/silence, interpersonal-climate and sport terms. Of 774 records, 251 duplicates were removed. Screening for publication type, substantive relevance and sport context excluded 418 records; a final eligibility audit excluded nine, leaving 96 articles and reviews. Performance analysis described publication growth and contributions. Keyword co-occurrence mapped topics, reference co-citation examined intellectual foundations, bibliographic coupling explored research fronts, and country networks described collaboration.

Results: Seventy-three publications (76.0%) appeared in 2024–2026, indicating rapid recent growth within the retrieved corpus. Psychological safety was the leading author keyword (n=49), followed by mental health and wellbeing (n=11 each), coach-athlete relationship (n=10), and leadership (n=8). These connections locate the field at the intersection of relational processes and athlete welfare. Organizational psychological-safety research and sport-specific leadership studies formed prominent intellectual foundations. Explicit athlete-voice keywords had limited visibility at the selected threshold; this does not establish that voice is unimportant or absent from the studies.

Conclusion: The analysis adds a structural perspective to existing evidence syntheses. Psychological safety organizes the mapped literature; athlete voice and interpersonal climate are related perspectives, not equally developed independent domains. Relational keywords provide indirect indicators of climate rather than a validated climate measure. Research fronts remain exploratory and threshold-dependent. Future work should distinguish these constructs and examine their relationships through longitudinal and multilevel research.

Keywords: Psychological safety; athlete voice; interpersonal climate; sport; bibliometric analysis

ÖZET

Sporda Psikolojik Güvenlik: Entelektüel Yapının ve Gelişen Araştırma Alanlarının Bibliyometrik Analizi

Amaç: Mevcut derlemeler sporda psikolojik güvenliği kavramsal olarak açıklasa da alanın entelektüel temelleri ile araştırma konuları arasındaki bağlantıların haritalanması gerekmektedir. Bu çalışma söz konusu yapıyı incelemektedir. Psikolojik güvenlik odak kavram, sporcu sesi endişe veya önerilerin ifade edilmesi, kişilerarası iklim ise bu ifadeleri çevreleyen ilişkisel koşullar olarak ele alınmıştır.

Yöntem: Web of Science Core Collection ve Scopus, 1 Ekim 2026 tarihinde psikolojik güvenlik, ses/sessizlik, kişilerarası iklim ve spor terimleriyle taranmıştır. Ulaşılan 774 kayıttan 251 tekrar çıkarılmıştır. Yayın türü, konuyla doğrudan ilişki ve spor bağlamı bakımından değerlendirilen kayıtların 418'i elenmiştir. Son uygunluk denetiminde dokuz kayıt daha

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çıkarılarak 96 makale ve derleme analize alınmıştır. Performans analiziyle yayın artışı ve katkılar betimlenmiştir. Anahtar kelime eş-oluşumuyla konular, ortak atıfla entelektüel temeller, bibliyografik eşleşmeyle araştırma yönelimleri ve ülke ağlarıyla uluslararası iş birliği incelenmiştir.
Bulgular: Yayınların 73'ünün (%76,0) 2024–2026 döneminde yayımlanması, elde edilen veri setindeki yakın dönem büyümesini göstermektedir. En sık kullanılan yazar anahtar kelimesi psikolojik güvenliktir (n=49). Bunu mental sağlık ve iyi oluş (her biri n=11), antrenör-sporcu ilişkisi (n=10) ve liderlik (n=8) izlemiştir. Bu bağlantılar, alanın ilişkisel süreçler ile sporcu refahının kesişiminde geliştiğini göstermektedir. Örgütsel psikolojik güvenlik araştırmaları ve spora özgü liderlik çalışmaları, belirgin entelektüel temelleri oluşturmuştur. Sporcu sesini açıkça adlandıran anahtar kelimelerin seçilen eşikteki görünürlüğü sınırlıdır; bu durum, sesin önemsiz olduğunu veya çalışmalarda ele alınmadığını kanıtlamaz.
Sonuç: Analiz, mevcut kanıt sentezlerine literatürün bağlantı yapısını gösteren tamamlayıcı bir bakış sunmaktadır. Haritalanan literatür psikolojik güvenlik etrafında örgütlenmektedir; sporcu sesi ve kişilerarası iklim, eşit düzeyde gelişmiş bağımsız alanlar değil, ilişkili bakış açılarıdır. İlişkisel anahtar kelimeler, iklimin doğrulanmış bir ölçümünü değil, dolaylı göstergelerini sunmaktadır. Araştırma yönelimleri keşifsel ve eşiklere duyarlıdır. Gelecek araştırmalar bu kavramları ayırt ederek aralarındaki ilişkileri boylamsal ve çok düzeyli desenlerle incelemelidir.
Anahtar Kelimeler: Psikolojik güvenlik; sporcu sesi; kişilerarası iklim; spor; bibliyometrik analiz

INTRODUCTION

Psychological safety refers to a shared perception that a social environment is sufficiently safe for interpersonal risk taking, including admitting mistakes, asking for help, expressing disagreement, or raising concerns without an expectation of humiliation or punishment (Edmondson, 1999). The construct emerged from organizational research, where it was linked to learning behaviour, information exchange, and adaptive team functioning. Subsequent reviews have shown that psychological safety is not simply the absence of conflict or discomfort; it concerns whether individuals believe that candid participation is socially permissible when the interpersonal consequences of speaking are uncertain (Edmondson & Lei, 2014; Newman et al., 2017). This organizational account provides a starting point for sport research, but its emphasis on interpersonal risk should be distinguished from broader claims about psychological health or protection from every adverse experience.

Competitive sport provides a distinctive setting for this construct. Athletes operate within selection systems, performance hierarchies, public evaluation, injury risk, and relationships in which coaches and support staff often control opportunities, playing time, progression, and access to resources. These features can make interpersonal risk particularly consequential. Taylor et al. (2022) therefore cautioned against treating psychological safety as a concept that can be transferred uncritically from corporate settings to high-performance sport. The sport context requires attention to competitive norms, performance demands, coaching authority, and

the fact that challenge and discomfort may be necessary features of development without being equivalent to interpersonal threat. Recent Para sport evidence further shows that organizational procedures can themselves become interpersonal risk contexts: classification and reclassification experiences have been associated with communication quality, perceived fairness, trust, restricted athlete voice, and well-being, underscoring the importance of how authority is enacted within sport systems (Aydoğan & Tunç, 2026). The transfer problem is thus not whether sport should eliminate performance demands, but which interpersonal responses to mistakes, disagreement and disclosure are compatible with those demands. This distinction helps connect organizational learning research with sport-specific concerns about authority and welfare.

Relational studies suggest complementary routes through which psychological safety may operate in sport. Fransen et al. (2020) examined identity leadership among coaches, captains and informal athlete leaders, linking a shared team identity and psychological safety with team functioning and athlete well-being. Jowett et al. (2023), by comparison, focused on athletes' openness and conflict management in relation to psychological safety and coach-athlete relationship quality. The former foregrounds leadership within the team, whereas the latter examines communication within the coaching relationship. Both locate psychological safety within social interaction, but their questionnaire-based models do not by themselves establish causal direction. The closeness, commitment and complementarity emphasized in coach-athlete relationship research (Jowett & Ntoumanis, 2004) describe relationship quality; psychological safety adds the distinct question of whether athletes can disclose uncertainty, disagree or acknowledge errors without interpersonal penalty.

Athlete voice makes the behavioural implications of these relational processes more explicit. Voice concerns expressing suggestions, concerns or information intended to improve a collective setting; in sport, it may involve questioning training practices, raising welfare concerns or contributing to decisions. White and Rezania (2019) examined ethical leadership, accountability, athlete voice and performance, placing speaking up within coaches' leadership practices. Jowett et al. (2023) instead examined openness and conflict management alongside psychological safety and relationship quality. Read together, these studies connect leadership with opportunities for candid communication, while measuring different parts of that process. Voice is the act of expression; psychological safety concerns its anticipated interpersonal consequences. Consequently, evidence about openness or relationship quality should not

automatically be treated as direct evidence of athlete voice, and a lack of explicit voice terminology need not indicate that speaking up is absent.

In this study, interpersonal climate is used as an interpretive umbrella for the relational conditions surrounding interpersonal risk in sport, including coach-athlete interactions, communication, leadership, civility, and perceived support. It is not treated as a separately measured variable or as a synonym for psychological safety. Athlete voice concerns the expression of concerns or suggestions, whereas psychological safety concerns the perceived interpersonal consequences of such expression. The reported keyword findings provide indirect indicators of related relational topics, not a validated bibliometric measure of interpersonal climate. The three terms therefore have different roles in the present analysis: a focal perception of interpersonal safety, an expressive behaviour, and a contextual interpretive umbrella. Keeping these roles separate prevents a broad search strategy from being mistaken for three equivalent measures or three equally established research domains.

A second line of work connects psychological safety with mental health, well-being, and athlete welfare. Rice et al. (2022) developed and tested the Sport Psychological Safety Inventory, operationalizing mentally healthy environments, mental health literacy and low self-stigma. Walton et al. (2024), in contrast, proposed a theoretical account of how disclosure, reduced interpersonal harm and help-seeking might connect psychological safety with mental health. The inventory supplies a measurement approach, whereas the model specifies processes requiring empirical testing; neither makes psychological safety interchangeable with mental health. Compared with the leadership and relationship studies, these contributions place greater emphasis on disclosure and access to support. Research in youth and high-performance settings has also linked psychological safety with incivility, motivational climate, coaching behaviour, and broader indicators of athlete functioning (Kinoshita & Sato, 2023; Shanmugaratnam et al., 2025). Qualitative work further suggests that psychological safety in sport includes both on-field freedom to take performance-related risks and off-field freedom to raise concerns or speak openly (Cooke et al., 2025). Related work in combat sport indicates that attentional regulation and competitive anxiety are significantly associated with psychological well-being, providing adjacent evidence about athlete welfare rather than a direct test of psychological safety (Toktaş et al., 2026). Safeguarding research similarly emphasizes that power imbalances, high-performance expectations, and inadequate supervision can threaten athletes' physical, psychological, and social safety, while institutional policies and accessible reporting mechanisms are central to safer sport environments (Deniz, 2025).

Existing reviews address this conceptual and empirical diversity from different perspectives. Vella et al. (2024) combined a systematic review with concept analysis across 67 studies to clarify definitions, attributes, antecedents and consequences, treating psychological safety as a group-level construct perceived by individuals. Matsubara et al. (2026) focused on 27 primary studies in competitive sport and highlighted variation in definitions and measurement, while proposing an exploratory framework connecting health and excellence. These totals reflect different review scopes and eligibility criteria and should not be read as directly comparable estimates of the field's size. Together, the reviews explain what psychological safety may mean and how it has been studied. The remaining task addressed here is structural: to examine which intellectual foundations are cited together, how current publications connect through shared references, and where voice and relational topics sit within the retrieved literature.

Bibliometric analysis addresses that task by combining publication indicators with maps of relationships among records (Zupic & Čater, 2015; Donthu et al., 2021). Co-citation identifies shared intellectual foundations, bibliographic coupling identifies publications drawing on similar references, keyword co-occurrence describes explicitly indexed topics, and collaboration networks show the geographical organization of contributions. Their combined use complements concept analysis and study-level evidence synthesis without replacing either. Citation prominence does not establish evidential quality, keyword proximity does not demonstrate a causal relationship, and bibliographic communities are exploratory groupings rather than validated psychological constructs. The contribution of the present study is therefore to make the organization of this literature visible and to identify connections that warrant closer substantive investigation.

Accordingly, this study examined sport literature centred on psychological safety, retrieved using a broader search that also covered voice and interpersonal climate using records from Web of Science Core Collection and Scopus. The analysis addressed five questions: (1) how has scientific production developed over time; (2) which sources, authors, institutions, and countries contribute most strongly; (3) which references form the intellectual base of the field; (4) which keyword connections and exploratory contemporary research themes are visible; and (5) how is international collaboration structured?

METHODS

Research Design

A bibliometric design was used to examine the development and structure of the literature. The analysis combined performance analysis with science mapping. Performance indicators described publication growth and contribution patterns, whereas network analyses examined relationships among keywords, cited references, documents, and countries. The overall workflow followed established recommendations for transparent bibliometric research (Zupic & Čater, 2015; Donthu et al., 2021).

Data Sources and Search Strategy

Web of Science Core Collection and Scopus were selected because both provide multidisciplinary bibliographic coverage and export the metadata required for citation and network analysis. Searches were completed on 1 October 2026. Equivalent concepts were used in both databases. The final Web of Science query was TS=(("psychological safety" OR "athlete voice" OR "speaking up" OR "organizational silence" OR "organisational silence" OR "athlete silence" OR "interpersonal climate") AND (sport* OR athlete* OR coach* OR "sport team*" OR "sport organization*" OR "sport organisation*")). The Scopus query used the same terms within TITLE-ABS-KEY. No lower publication-year boundary was imposed. The search returned 329 records from Web of Science and 445 from Scopus.

Eligibility, Deduplication, and Screening

Eligible records were peer-reviewed journal articles or reviews situated in an identifiable sport context and addressing psychological safety, athlete voice or silence, or a closely related interpersonal-climate process as a substantive element of the study. Athlete, coach, team, and sport-organization settings were eligible. Records were excluded when the search terms referred to non-sport work teams, healthcare, general education, academic employment, physical safety alone, vocal/voice physiology, or metaphorical uses of the word sport. Physical-education studies were retained only when the substantive context concerned organized sport rather than classroom teaching.

The two exports were combined and duplicates were identified first by normalized DOI and then by normalized title. This procedure removed 251 duplicate records and left 523 unique records. Screening of document type, title, abstract, author keywords, and contextual information excluded 418 records, leaving 105 for the final manual audit. Nine additional records were excluded during that audit, yielding 96 publications. The reported counts reconcile as 774 − 251 = 523; 523 − 418 = 105; and 105 − 9 = 96 (Table 1). The 105-to-96 transition was

verified against the supplied exclusion file: all nine excluded titles match the set difference exactly. Eight exclusions concerned education, physical-education teaching or academic employment rather than organized sport, and one concerned libraries. Individual titles, identifiers and recorded reasons appear in Supplementary S02. The initial 418 exclusions are reconciled numerically; their individual historical screening reasons were not available.

Table 1. Record identification and screening summary

Stage	Records (n)
Web of Science Core Collection records identified	329
Scopus records identified	445
Total records before deduplication	774
Duplicate records removed	251
Unique records screened	523
Records excluded after document-type and topical screening	418
Additional records excluded in final manual audit	9
Final bibliometric corpus	96

Data Preparation

DOIs were lowercased and stripped of URL prefixes. Titles were normalized for case, punctuation, accents and whitespace for exact matching. The supplied 96-record membership and its selected bibliographic values were retained; discrepancies were flagged rather than resolved through an undocumented database priority. Full author lists and affiliations were reconstructed from the corresponding selected raw record. Author counts refer to normalized name strings, not fully disambiguated persons. Institutional counts use document-level matching of the named institutions; country counts use affiliation countries, with UK constituent countries combined and spelling variants harmonized. Author keywords were normalized only for case, spacing, dashes, well-being/wellbeing and singular/plural coach-athlete relationship. Mental health and psychological well-being remained distinct. Supplementary dictionaries and assignment tables make these decisions explicit.

A retrospective audit and reproducible reanalysis were performed for this revision using the original 329 WoS and 445 Scopus records. DOI-then-title matching yielded 523 duplicate groups, accounting for 251 duplicates, and matched all 96 retained publications to raw records. S01 lists the full corpus; S02 records the nine final exclusions; S03–S05 document duplicate groups, source matching and comparisons across 12 metadata fields; S06 supplies the keyword dictionary. The field audit retains all observed source values, flags conflicts and distinguishes exact/whitespace matches from transformed or unmatched values. These are revision-stage audit outputs, not a recovered contemporaneous manual decision log. Values not needed for recalculated analyses were preserved from the supplied corpus rather than silently overwritten.

Bibliometric and Network Analysis

The revision analyses used Python 3.12.14, pandas 2.2.3, NumPy 2.3.5, Matplotlib, and the supplied graph_utils.py implementation of undirected weighted graphs and deterministic greedy modularity. Code, raw inputs, complete node/edge tables and figure-generation scripts are provided in the supplementary package. Counts use whole-document counting: each publication contributes once to each distinct keyword, cited reference or country. Annual counts retain the indexed year in the supplied corpus; online-first and issue years can differ from reference-list dates. The 2026 count is a partial year ending on 1 October 2026.

Baseline thresholds were at least three documents per keyword; at least five citing documents per cited reference and three co-citations per link; five shared references per coupled document pair; and two documents per country. These descriptive cut-offs reduce singleton noise and keep the maps legible, rather than representing statistical significance or optimal boundaries. Figures show all eligible keywords/countries, the 20 most frequent eligible cited references, and the 20 documents with the highest coupling weighted degree (ties broken by identifier). Sensitivity analyses tested keyword frequencies 2/3/4, reference frequencies 4/5/6 crossed with links 2/3/4, shared-reference thresholds 3/5/7, and country frequencies 1/2/3 (S10). Complete graphs, including isolates, were retained. Deterministic greedy modularity partitions of the full coupling graph are reported in S11; adjusted Rand indices compare partitions across thresholds (S14). Separately, five explicit lexical rules were applied to titles, abstracts and author keywords, allowing multiple themes per publication; matched expressions and evidence excerpts appear in S08–S09. These reproducible topic indicators are not independent expert coding and are not equated with network communities.

Global citation totals from different databases were not added. For internal citation networks, the raw reference list from the database selected in the supplied corpus was used; an alternate source was used only if that list was empty. WoS CR line boundaries were restored from the tagged export; Scopus reference boundaries were parsed separately from author-list separators. References were reconciled by normalized DOI, by normalized titles with a unique observed DOI, and by an unambiguous author-year bridge only where at most one title and one DOI were observed. Unresolved variants were retained separately; unparseable/anonymous strings were logged. S07 records each parsed reference and its canonical identity, alongside source-selection and exclusion logs. This conservative procedure may leave residual variants and source errors. One of the 96 publications lacked usable cited references and remains an isolated coupling node.

Ethical Considerations

The study used publicly available bibliographic metadata and did not involve human participants, identifiable personal data, or intervention procedures. Institutional ethics approval was therefore not required.

RESULTS

Characteristics of the Corpus and Annual Scientific Production

The final corpus comprised 96 publications indexed between 2013 and 2026. Reconstructed full author lists contained 347 authorship occurrences (3.61 per publication), represented by 284 literal name forms and 280 normalized forms. These forms were not fully disambiguated as individual persons. Twelve publications were single-authored and 84 multi-authored. DOI information was available for 92 publications (95.8%); usable cited-reference information was available for 95 publications.

Scientific production was sparse in the early years of the retrieved corpus and accelerated sharply after 2023. Fourteen publications appeared in 2024, 24 in 2025, and 35 in 2026 up to the search date. Thus, 73 of the 96 publications (76.0%) were published during 2024-2026. Figure 1 shows the annual distribution. The final 2026 count should not be interpreted as a completed calendar-year total.

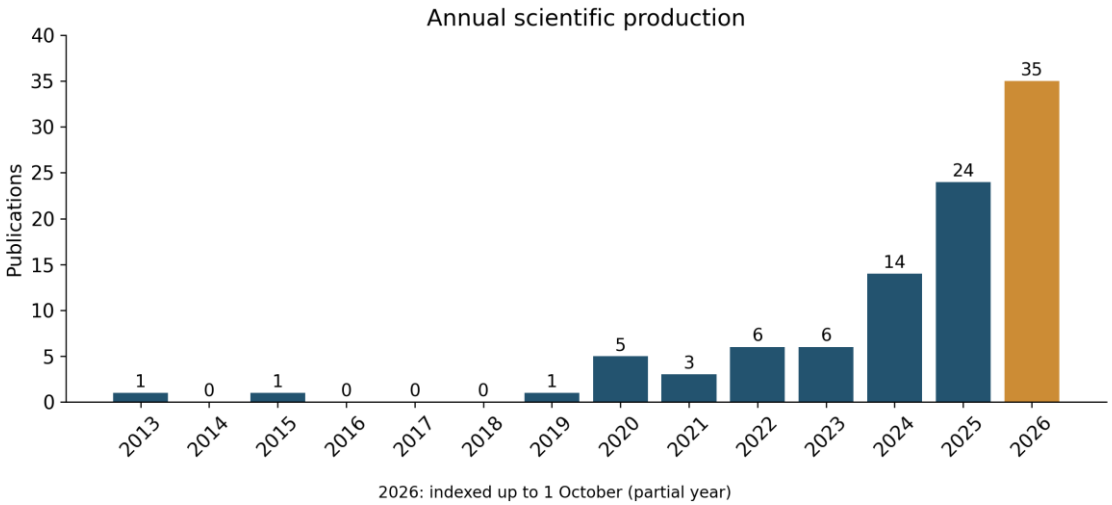

Figure 1. Annual scientific production in the final corpus, with all calendar years from 2013 to 2026 displayed. The years 2014, 2016, 2017, and 2018 have zero publications. The 2026 value covers publications indexed up to 1 October 2026.

Leading Publication Sources

The literature was distributed across sport psychology, coaching, sport management, and multidisciplinary psychology outlets. The International Journal of Sports Science and Coaching was the most productive source with eight publications, followed by Frontiers in Psychology with seven and Psychology of Sport and Exercise with six. The International Journal of Sport and Exercise Psychology and Journal of Physical Education and Sport each contributed five records. The leading sources are presented in Table 2.

Table 2. Most productive publication sources

Source	Publications (n)
International Journal of Sports Science and Coaching	8
Frontiers in Psychology	7
Psychology of Sport and Exercise	6
International Journal of Sport and Exercise Psychology	5
Journal of Physical Education and Sport	5
International Sport Coaching Journal	4
Sport, Education and Society	4
Journal of Sport Psychology in Action	3
Sports Coaching Review	2
Journal of Sports Sciences	2

Authors and Geographic Distribution

Sophia Jowett was the most productive author in the corpus with nine publications. Rosemary Purcell contributed five publications and Ender Şenel five. Courtney C. Walton, Vita Pilkington, Simon M. Rice, Philip Hurst, Olena Blynova, Ihor Popovych, Svenja Wachsmuth, İlhan Adiloğulları, Yuhei Kotani, Seiko Shirasaka, and Dave Collins each contributed three. At country level, the United Kingdom appeared in 29 publications, followed by the United States and Canada with 15 each, Australia with 11, and China with 10. Türkiye appeared in seven publications. Among the institutions tabulated, Loughborough University was represented in nine publications (n=9), followed by Orygen and the University of Melbourne (n=5 each) and Kherson State University (n=4). Table 3 summarizes the leading contributors.

Table 3. Leading authors, countries, and institutions

Category	Entity	Publications (n)
Author	Sophia Jowett	9
Author	Rosemary Purcell	5
Author	Ender Şenel	5
Author	Courtney C. Walton	3
Author	Vita Pilkington	3
Country	United Kingdom	29
Country	United States	15
Country	Canada	15
Country	Australia	11
Country	China	10
Country	Türkiye	7

Category	Entity	Publications (n)
Institution	Loughborough University	9
Institution	Orygen	5
Institution	University of Melbourne	5
Institution	Kherson State University	4

Author-Keyword Co-occurrence

Psychological safety was the dominant author keyword, occurring in 49 publications. Mental health appeared in 11, wellbeing in 11, coach-athlete relationship in 10, and leadership in eight. Elite sport and coaching each occurred five times, while performance and collective efficacy occurred four times. Eighteen keywords met the minimum occurrence threshold of three publications, producing a network of 18 nodes and 50 links (Figure 2).

Table 4. Most frequent author keywords

Keyword	Occurrences (n)
Psychological safety	49
Mental health	11
Wellbeing	11
Coach-athlete relationship	10
Leadership	8
Elite sport	5
Coaching	5
Performance	4
Collective efficacy	4
Safe sport	3
Athlete burnout	3
Athlete welfare	3
Social support	3
Communication	3

The keyword network connects psychological safety with mental health, wellbeing, coach-athlete relationship, leadership, performance and collective efficacy. Interpersonal climate is represented indirectly by coach-athlete relationship (10 documents), leadership (8), coaching (5), communication (3) and social support (3); these are not interchangeable measures of one construct. Lexical topic assignments and matched evidence for all 96 publications are supplied in S08–S09. Athlete voice occurs twice and student-athlete voice once as author keywords; neither independently reaches the baseline threshold. When the keyword threshold changes from 2 to 3 to 4, network size changes from 47 to 18 to 9 nodes and from 138 to 50 to 26 links. Thus, peripheral topics depend on the display threshold; absence from a map is not evidence of conceptual absence.

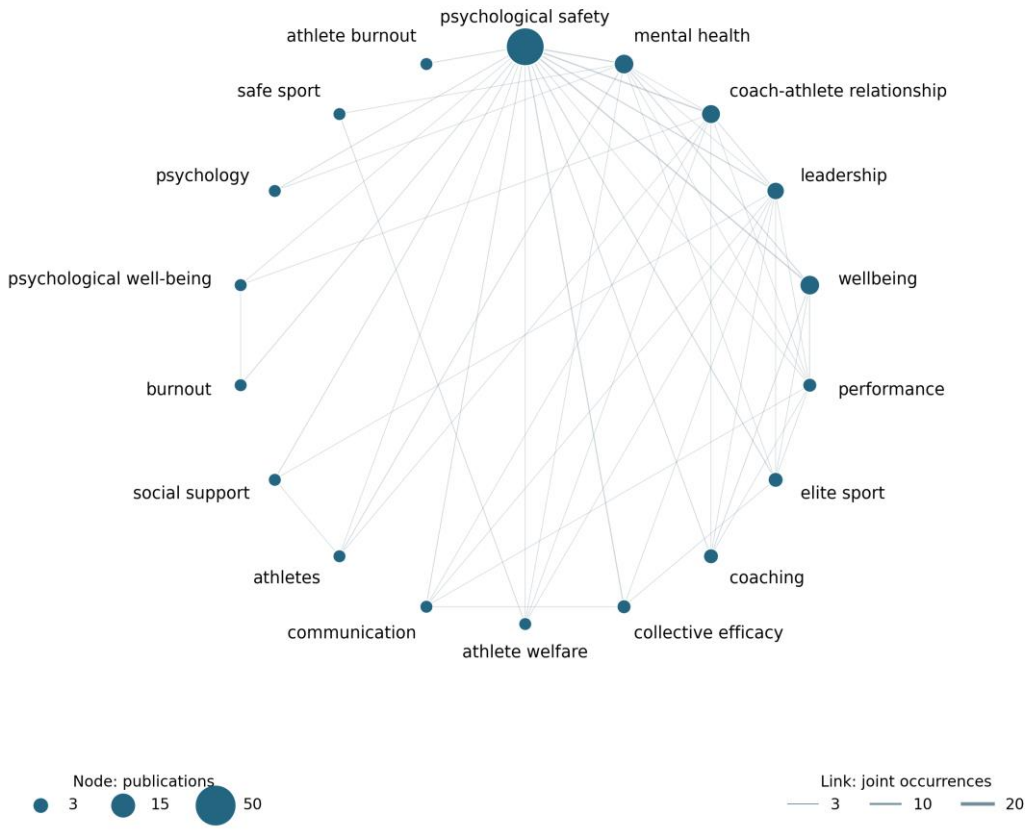

Figure 2. Author-keyword co-occurrence: frequency ≥3, 18 nodes, 50 links. Node area = 40 + 12f points², where f is document frequency; line width = 0.3 + 0.10w points, where w is joint document frequency. Numerical legends show examples. Circular position and the uniform colour carry no thematic meaning. Complete frequencies and edges are supplied.

Cited-Reference Co-citation Structure

The full baseline co-citation graph contained 66 references and 479 links (reference frequency ≥5; co-citation frequency ≥3). Figure 3 displays the 20 most frequent eligible references, not the entire graph. Edmondson (1999) was cited by 56 corpus documents; Fransen et al. (2020), 44; Vella et al. (2024), 42; Jowett et al. (2023), 29; Gosai et al. (2023) and Newman et al. (2017), 28 each; Rice et al. (2022), 24; Edmondson and Lei (2014), 23; and Taylor et al. (2022), 16. These are internal corpus counts after reference reconciliation. Across the nine threshold combinations, full graphs ranged from 47 to 110 nodes and 276 to 1324 links. The 20 highest weighted-degree references remained the same set, although graph density and peripheral connectivity changed.

The network shows two especially important intellectual lines. One is rooted in the organizational psychological-safety literature, particularly Edmondson's team-learning model and later syntheses. The other is sport-specific and links identity leadership, coach-athlete

relationships, high-performance environments, athlete mental health, and safe-sport concerns. Their dense interconnection indicates that the sport literature has not developed independently of the original organizational construct; rather, it has progressively adapted and tested it within sport-specific relational and performance contexts.

Smittick et al. (2019), also labelled in Figure 3, examined coach incivility, psychological safety, and team performance in women's basketball. This reference provides an explicit connection between interpersonal conduct and the sport-specific intellectual base.

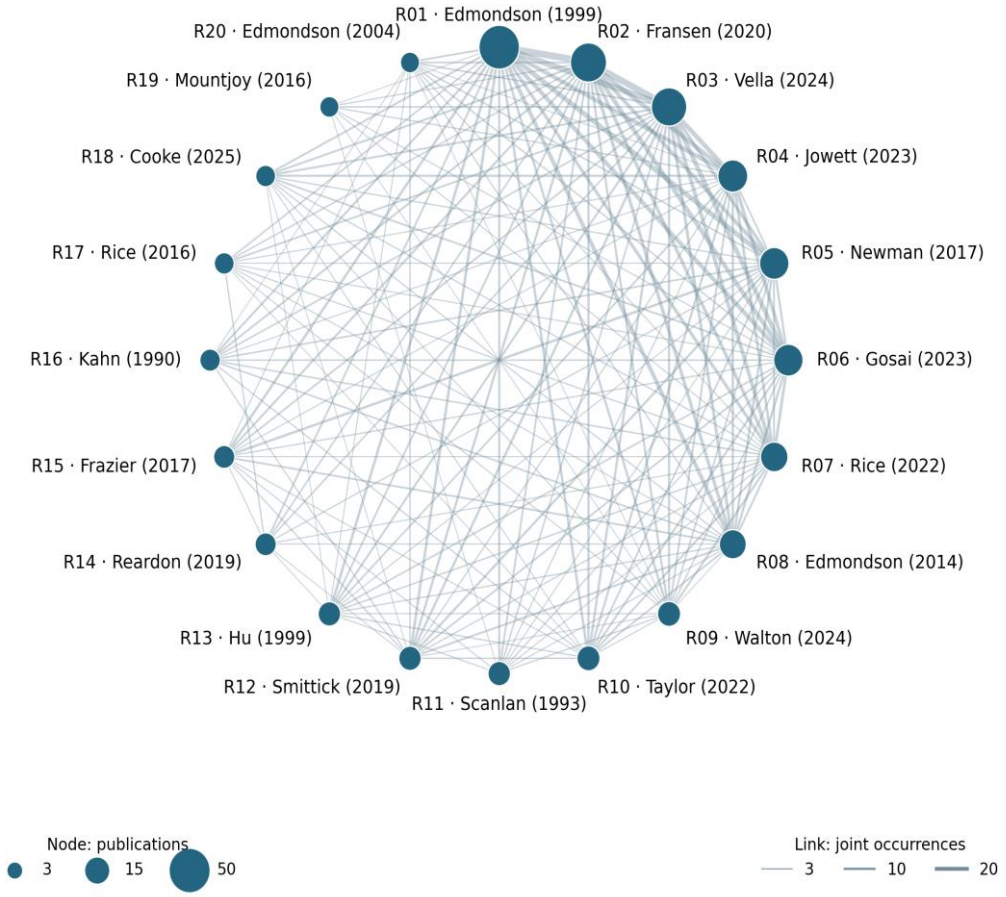

Figure 3. Twenty highest-frequency references in the baseline co-citation graph (frequency ≥5; links ≥3). Reference IDs R01–R20 resolve to full source strings and canonical identities in S13; years on labels follow the exported reference metadata and may differ from final issue years. Node area = 40 + 12f points²; line width = 0.3 + 0.10w points. Legends quantify citing-document frequency and joint citing-document frequency. Position and colour do not designate communities.

Bibliographic Coupling and Contemporary Research Fronts

Bibliographic coupling was used to identify contemporary publications that draw on similar reference bases. Documents sharing at least five references were linked, and the 20 documents

with the highest weighted connectivity are displayed in Figure 4. The strongest areas of overlap involved work on coach behaviour and coach-athlete relationships, psychological safety in football academies and talent-development environments, athlete mental health and help-seeking, coaching climate, leadership, burnout, and high-performance welfare.

At the five-reference threshold, the full coupling graph contained 96 nodes, 568 links, 36 connected components and 33 isolates. Greedy modularity produced 39 communities, including singleton isolates; the largest contained 21, 16, 13 and 9 documents. S11 provides every publication's community, while S08 provides separate, overlapping lexical themes with evidence. At thresholds 3 and 7, the graphs contained 1220 and 217 links, respectively; 18/20 and 19/20 of the baseline top-20 documents were retained. However, adjusted Rand indices against baseline community membership were only 0.393 and 0.428 across all 96 nodes (S14). Core document prominence is therefore relatively persistent, but research-front boundaries are threshold-sensitive and must not be described as validated stable clusters.

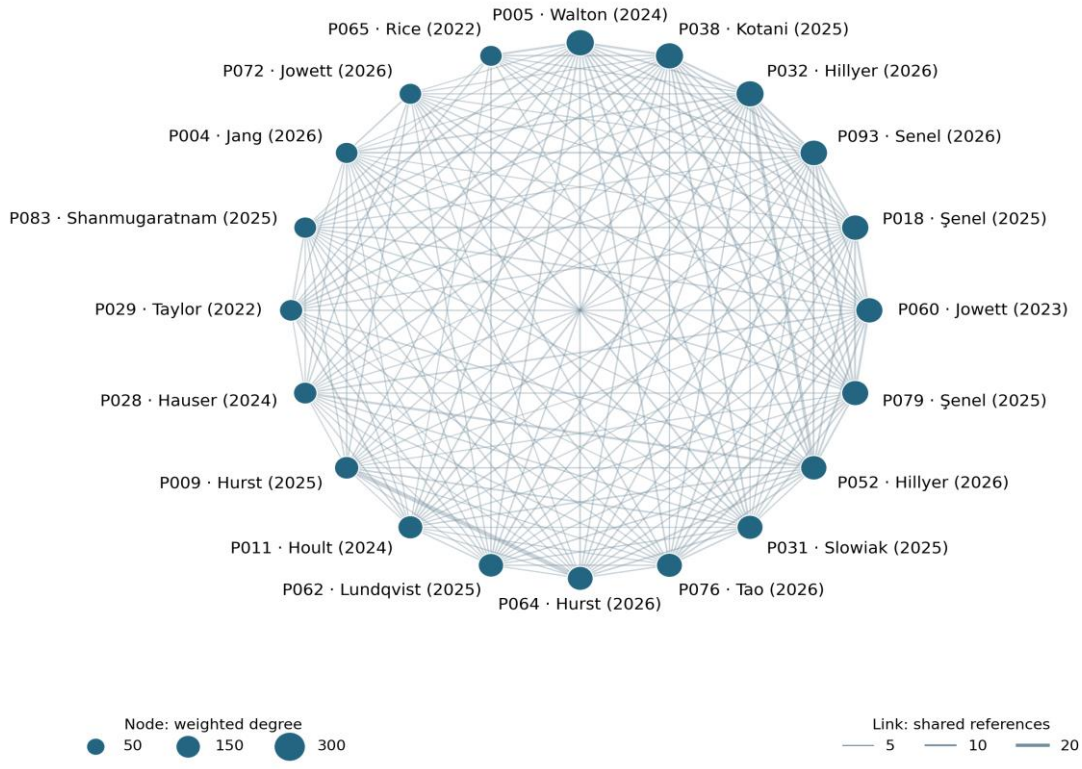

Figure 4. Top 20 documents ranked by weighted degree in the full coupling graph (shared references ≥5). Each label includes a unique P identifier linked to the title and DOI in S01/S13. Hillyer's 2026 papers are P032/P052; Şenel's 2025 papers are P018/P079. The two Hurst 2026 papers are P046/P064 (S12); P046 is outside the recalculated top-20 display. Node area = 60 + d points², where d is full-graph weighted degree; link width = 0.3 + 0.10w points, where w is shared references. Circular position and colour do not encode theme membership.

International Collaboration

Seventeen countries met the two-publication threshold, producing 27 collaboration links. The United Kingdom appeared in 29 publications and connected to 10 other eligible countries; Canada and the United States each appeared in 15, and Australia in 11. Links of at least three joint publications were: United States–United Kingdom (3); Canada–United Kingdom (3); United Kingdom–Brazil (3). At country thresholds 1, 2 and 3, network sizes were 33, 17 and 13 nodes, with 52, 27 and 20 links, respectively. These whole counts are non-exclusive: one publication can contribute to several countries.

The collaboration pattern reflects both the concentration of publication activity and the location of influential research groups. The United Kingdom operates as the main international bridge, while Canada also connects several otherwise distinct national clusters. China, Japan, and Ukraine contribute meaningful publication volume but occupy more peripheral positions in the cross-national collaboration structure of this corpus.

Figure 5. International collaboration network (country frequency ≥2): 17 nodes and 27 links. Node area = 40 + 12f points², where f is publications; line width = 0.3 + 0.10w points, where w is jointly authored publications. Country assignments and all edges are supplied. The numerical legends quantify both encodings; position and colour do not identify clusters.

DISCUSSION and CONCLUSION

The bibliometric profile shows a field that has moved from a small, dispersed literature to a rapidly expanding area of sport research. More than three quarters of the publications in the final corpus appeared between 2024 and 2026. This concentration is consistent with the recent shift from conceptual discussion toward sport-specific measurement, empirical testing, and applied work. The development of the Sport Psychological Safety Inventory (Rice et al., 2022), the systematic synthesis by Vella et al. (2024), and the subsequent scoping review by Matsubara et al. (2026) mark important stages in this maturation. The current analysis adds a structural view by showing how those developments are positioned within the wider network of authors, references, concepts, and international collaborations.

Psychological safety is not merely the most frequent keyword; it is the main connective construct in the conceptual network. Its strongest links with mental health, wellbeing, coach-athlete relationship, leadership, and collective efficacy indicate that researchers are using the concept to address both performance and welfare questions. This dual positioning is important in sport. Psychological safety does not imply a low-challenge environment. The more relevant issue is whether demanding environments permit interpersonal risk without humiliation, retaliation, or loss of standing. Taylor et al. (2022) emphasized this contextual distinction, and more recent sport-specific work has increasingly treated psychological safety as compatible with high standards when communication, role expectations, and interpersonal conduct are appropriately managed.

The prominence of coach-athlete relationship research provides a relational explanation for this pattern. Jowett et al. (2023) showed that openness and conflict management can support psychological safety and, through it, relationship quality. The co-citation and coupling networks place this work close to studies of leadership, communication, and flourishing, suggesting that psychological safety is increasingly being understood as part of the everyday relational climate rather than as an isolated individual perception. The continued presence of Jowett and colleagues across productive-author and network analyses further indicates that the coach-athlete relationship literature has become one of the principal routes through which psychological safety is being localized to sport.

McLaren and Spink (2022) examined psychological safety as a boundary condition in the communication–cohesion relationship in team sport. Their study is relevant to the relational

interpretation of this literature because it explicitly connects psychological safety with communication and cohesion, without treating these constructs as interchangeable.

Athlete voice is less developed. Although voice was central to the search strategy and appears in relevant studies, it did not reach the minimum co-word threshold as a standardized keyword. This should not be interpreted as evidence that voice is unimportant. Rather, the literature often addresses voice indirectly through openness, communication, raising concerns, help-seeking, safeguarding, or relationship quality. White and Rezania (2019) provided a direct examination of athlete voice in relation to ethical leadership, while Jowett et al. (2023) described psychologically safe environments in which athletes can speak openly and manage disagreement. The bibliometric pattern indicates an opportunity for future studies to treat athlete voice as a distinct construct and test its antecedents and consequences alongside psychological safety. This interpretation is also consistent with Para sport classification research, where restricted athlete voice, distrust, and difficulty discussing classification openly have been reported when procedures are experienced as opaque, inconsistent, or difficult to contest (Aydoğan & Tunç, 2026).

The intellectual structure also shows a productive but incomplete transfer from organizational psychology. Edmondson (1999) was the most frequently cited reference within the corpus and remains the principal foundational anchor, while Newman et al. (2017) and Edmondson and Lei (2014) continue to organize the broader theoretical base. At the same time, sport-specific sources now occupy prominent positions. Fransen et al. (2020) was the most frequently cited sport-specific reference, and work by Vella et al. (2024), Taylor et al. (2022), Rice et al. (2022), Jowett et al. (2023), and Gosai et al. (2023) forms a dense sport-specific core. This pattern indicates conceptual continuity with the original construct alongside an increasingly sport-specific evidence base addressing power relations, selection systems, competitive pressures, relational processes, and athlete welfare.

The exploratory thematic reading suggests convergence among mental health and help-seeking, talent-development environments, leadership, burnout, welfare, and safeguarding. The explicit lexical assignment table makes these readings traceable, while the sensitivity analysis shows that community boundaries remain dependent on threshold choice. Walton et al. (2024) proposed a direct theoretical connection between psychologically safe environments and mental health, while Cooke et al. (2025) identified both on-field and off-field manifestations of psychological safety in coaches' and athletes' accounts. Shanmugaratnam et al. (2025) linked motivational climate with wellbeing, resilience, and psychological safety. These lines of work

suggest that the field is moving beyond the question of whether psychological safety matters and toward questions of how it is produced, how it is experienced, and which outcomes it shapes in different sport systems. Related evidence broadens this applied picture: safeguarding scholarship in youth sport foregrounds power imbalances and reporting structures as organizational conditions of athlete safety (Deniz, 2025), while research in combat sport links competitive anxiety and attentional processes with psychological well-being (Toktaş et al., 2026).

The geographic results reveal a limitation in the knowledge base. The United Kingdom, United States, Canada, and Australia account for a substantial share of publications and occupy central positions in collaboration networks. Such concentration can accelerate conceptual development, but it may also narrow the cultural and organizational assumptions embedded in measurement and theory. The meaning of speaking up, challenging authority, disclosing distress, or managing interpersonal conflict is likely to vary across coaching cultures and governance systems. The emerging contributions from China, Türkiye, Japan, Ukraine, and other settings are therefore important, but broader cross-cultural designs are still needed.

Several limitations remain. Coverage is restricted to WoS and Scopus, and 2026 is incomplete. Corpus membership reflects contextual screening; individual historical reasons for the first 418 exclusions and the contemporaneous manual merge decision log were unavailable. The nine final exclusions are documented, and a new retrospective audit, executable revision scripts, raw inputs, dictionaries and complete analysis outputs are supplied. Keyword-based and lexical topic classifications depend on authors' terminology and are not expert-validated content coding. Author-name normalization does not establish unique personal identity. Reference parsing and conservative matching may leave residual variants or metadata errors; DOI matching reduces but does not eliminate this risk. Missing references can weaken observed coupling. Database citation totals were not pooled. Threshold checks support persistence of prominent core documents but not stable community boundaries; the reported fronts should be treated as exploratory.

In conclusion, research on psychological safety in sport is expanding rapidly and is becoming increasingly sport-specific. The field is anchored in organizational psychological-safety theory but now draws strongly on coach-athlete relationship research, leadership, mental health, athlete welfare, and high-performance sport. Psychological safety functions as a central bridge across these areas. Athlete voice, by contrast, remains a smaller and less standardized stream despite its conceptual relevance. The most useful next step is not simply to produce more

studies using the psychological-safety label, but to specify the relational and organizational mechanisms through which athletes decide whether to speak, remain silent, disclose difficulty, question decisions, or take interpersonal risks in different sporting environments.

• Suggestions

Future research should examine athlete voice and silence as explicit outcomes of psychological safety rather than relying only on general communication or relationship measures.

• Longitudinal, multilevel, and dyadic designs are needed to distinguish stable team climate from temporary perceptions and to examine how coaches, athletes, peers, and organizations jointly shape psychological safety.

• Measurement work should test the invariance and cultural validity of sport-specific psychological-safety instruments across countries, competition levels, genders, age groups, and individual versus team sports.

• Applied studies should evaluate whether leadership development, feedback practices, conflict-management routines, safeguarding procedures, and formal athlete-representation mechanisms change psychological safety and voice over time.

• International collaboration should be extended beyond the currently dominant Anglophone networks so that theoretical claims are not based primarily on a narrow set of sport systems.

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