Antecedents, correlates, and psychological consequences of group cohesion in youth sport: a systematic review

Antecedentes, correlatos y consecuencias psicológicas de la cohesión grupal en el deporte juvenil: una revisión sistemática

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Abstract

Introduction: Group cohesion is an important construct for athletes' performance and positive sport experiences. Its social effects may be particularly relevant during adolescence, a developmental stage characterized by greater susceptibility to social influence. However, systematic evidence specifically addressing group cohesion in youth sport remains limited.
Objective: To identify the psychological constructs associated with group cohesion in youth sport teams through a systematic review.
Methodology: The PRISMA protocol guided the review. Searches were conducted in PubMed, Web of Science, SciELO, PsycINFO, and SPORTDiscus. Studies involving athletes aged 12–18 years were included. Methodological quality was assessed, and 49 studies were included from 3,099 records identified.
Results: Carron's conceptual model was the predominant theoretical framework (n = 46). Across studies, 43 psychological constructs were investigated, with coach leadership (n = 7), basic psychological needs satisfaction and motivation (n = 7 each), coach-initiated motivational climate (n = 6), and collective efficacy (n = 5) being the most frequently examined.
Discussion: The findings indicate that group cohesion is associated with diverse individual and group-level psychological constructs, with particular emphasis on leadership, motivational climate, psychological needs, motivation, and collective efficacy. However, evidence remains fragmented across constructs.
Conclusions: Future research should increase the number of investigations addressing each construct, expand methodological diversity, and improve sampling procedures. Greater attention should also be given to the use of instruments specifically validated for youth sport populations.

Keywords

Adolescence; cohesion; group dynamic; team sport; young athletes.

Resumen

Introducción: La cohesión grupal es un constructo importante para el rendimiento de los atletas y para la promoción de experiencias deportivas positivas. Sus efectos sociales pueden ser particularmente relevantes durante la adolescencia, una etapa del desarrollo caracterizada por una mayor susceptibilidad a la influencia social. Sin embargo, la evidencia sistemática centrada específicamente en la cohesión grupal en el deporte juvenil sigue siendo limitada.
Objetivo: Identificar los constructos psicológicos asociados con la cohesión grupal en equipos deportivos juveniles mediante una revisión sistemática.
Metodología: El protocolo PRISMA orientó la revisión. Se realizaron búsquedas en las bases de datos PubMed, Web of Science, SciELO, PsycINFO y SPORTDiscus. Se incluyeron estudios con atletas de 12 a 18 años. Se evaluó la calidad metodológica y se incluyeron 49 estudios de los 3.099 registros identificados.
Resultados: El modelo conceptual de Carron fue el marco teórico predominante (n = 46). En los estudios se investigaron 43 constructos psicológicos, siendo el liderazgo del entrenador (n = 7), la satisfacción de las necesidades psicológicas básicas y la motivación (n = 7 cada uno), el clima motivacional promovido por el entrenador (n = 6) y la eficacia colectiva (n = 5) los más examinados.
Discusión: Los resultados indican que la cohesión grupal se relaciona con diversos constructos psicológicos individuales y grupales, con especial énfasis en el liderazgo, el clima motivacional, las necesidades psicológicas, la motivación y la eficacia colectiva. Sin embargo, la evidencia sigue siendo fragmentada entre los diferentes constructos.
Conclusiones: Las futuras investigaciones deberían aumentar el número de estudios que aborden cada constructo, ampliar la diversidad metodológica y mejorar los procedimientos de muestreo. También debería prestarse mayor atención al uso de instrumentos específicamente validados para poblaciones de deportistas jóvenes.

Palabras clave

Adolescencia; cohesión; deporte de equipo; dinámica grupal; atletas jóvenes.

Introduction

Sport is fundamentally shaped by group dynamics. The interaction between teams, coaching staff, and even frequently encountered opponents suggests that the sport environment is inherently collective. This group-based characteristic highlights the importance of social factors and their effects on athletes (Petersen et al., 2019). In this context, the sport team emerges as the most immediate and potentially influential social group (Evans et al., 2013). The actions, changes, and processes that occur within and between groups, known as group dynamics (Forsyth, 2014), have received considerable attention in both scientific and applied contexts. Among the constructs examined within group dynamics, group cohesion has represented a major focus of interest over the past 40 years, standing out as the most frequently investigated construct (Eys et al., 2025; Petersen et al., 2019; Spink, 2020). This issue may be particularly relevant in youth sport, where group experiences and interpersonal relationships are especially salient during development (Eys & Brawley, 2018).

The most widely accepted definition of group cohesion refers to "a dynamic process that is reflected in the tendency for a group to stick together and remain united in the pursuit of its instrumental objectives and/or for the satisfaction of member affective needs" (Carron et al., 1998, p. 213). This definition derives from the conceptual model proposed by Carron (1982), which distinguishes between task and social dimensions of cohesion. Social cohesion refers to the extent to which team members interact with one another and feel attracted to their group, fostering interpersonal relationships and satisfying needs for social belonging. Task cohesion, in contrast, refers to the extent to which members remain united in pursuing performance-related objectives and work together toward team goals (Benson et al., 2016; Carron et al., 1998). Carron's conceptual framework further proposes that environmental, personal, leadership, and team factors may act as antecedents of cohesion, whereas individual and group outcomes may represent its consequences. Thus, the model provides not only a definition of cohesion but also a framework for understanding the multiple factors that may contribute to, or result from, this group process.

The operationalization of this conceptual model in sport was initially supported by the development of the Group Environment Questionnaire (GEQ) by Carron et al. (1985). Although the instrument comprises four dimensions (group integration-task, group integration-social, individual attractions to the group-task, and individual attractions to the group-social) subsequent research indicated that its structure and items may not be equally appropriate across different populations (Eys et al., 2009; Eys & Brawley, 2018; Schütz et al., 1994). These concerns were particularly relevant when the instrument was applied to populations that differed from the adults for whom it was originally developed, leading to adaptations for different cultural, developmental, and sport contexts (Carron & Spink, 1993; Estabrooks & Carron, 2000; Heuzé & Fontayne, 2002; Leo et al., 2015; Martin et al., 2012; Nascimento Junior et al., 2012).

Such concerns are particularly important when considering youth athletes, as adolescence represents a developmental period characterized by substantial changes in social relationships, group experiences, and perceptions of belonging (Coleman et al., 2021; Eys & Brawley, 2018; Eys et al., 2019). Eys et al. (2009) reported that young athletes may have difficulty understanding some items developed for adults and suggested that developmental characteristics could influence how cohesion is perceived. In response to these concerns, the authors developed the Youth Sport Environment Questionnaire (YSEQ), specifically designed for youth sport. The authors found that young athletes did not clearly distinguish between individual attractions to the group and group integration, whereas the distinction between social and task aspects was readily identified. These findings suggested that the way cohesion is structured and perceived may differ across developmental stages, reinforcing the importance of examining cohesion in youth sport as a population-specific phenomenon rather than simply extrapolating evidence from adult athletes. The resulting instrument therefore assessed two dimensions, social cohesion and task cohesion, and provided a measure specifically aligned with the developmental characteristics of youth sport.

Following the development and availability of a population-specific measure, research on cohesion in youth sport teams expanded (Benson et al., 2016; Spink, 2020), contributing to a broader and increasingly diverse body of evidence on its associated factors and potential consequences. Since then, studies have examined a wide range of factors associated with cohesion, including psychological characteristics,

interpersonal processes, leadership, motivational variables, and outcomes at both individual and group levels. This growing body of research suggests that cohesion may be relevant to multiple aspects of young athletes' experiences. However, the evidence remains fragmented across different psychological constructs, theoretical perspectives, methodological approaches, measurement instruments, and sport contexts. Consequently, despite the increasing number of studies (Petersen et al., 2019; Spink, 2020), it remains difficult to determine which factors are consistently associated with cohesion and which individual or group outcomes are most strongly related to it, as the existing literature has not yet been comprehensively and systematically organized according to the antecedents, correlates, and consequences of group cohesion in youth sport.

This fragmentation is particularly relevant because evidence derived from adult athletes cannot necessarily be generalized to youth populations (Eys & Brawley, 2018). Developmental differences may influence how young athletes perceive their teammates, coaches, group membership, interpersonal relationships, and collective goals (Coleman et al., 2021; Weinberg & Gould, 2017). Therefore, understanding cohesion in youth sport requires an evidence base that considers the specific characteristics of this population rather than relying primarily on findings established with adults. A systematic synthesis of research involving youth athletes may consequently provide a more accurate understanding of the factors associated with cohesion and the outcomes with which it is related.

Previous reviews have attempted to systematize scientific evidence on group cohesion using broader approaches, including investigations across different contexts (Casey-Campbell & Martens, 2009), as well as reviews specifically addressing sport and the relationship between cohesion and performance (Carron et al., 2002; Eys et al., 2015; Filho et al., 2014). However, these approaches provide limited insight into the specific body of evidence concerning youth sport. Petersen et al. (2019) examined which group dynamics constructs were most frequently investigated among young athletes, but cohesion was considered as one construct among several rather than as the primary focus of the review. Spink (2020), in contrast, reviewed representative research on cohesion in youth sport teams and its associations with psychological constructs. Nevertheless, the review did not employ a systematic review methodology, which may have limited the comprehensiveness and reproducibility of the evidence identified.

Moreover, previous reviews have characterized research on group cohesion in youth sport as an emerging field (Eys & Brawley, 2018; Eys et al., 2019; Spink, 2020), with substantially less attention devoted to youth populations than to adults (Spink, 2020). Although research in this area has expanded, the current evidence has not yet been comprehensively organized according to the theoretical framework most frequently used to conceptualize cohesion in sport. In particular, there remains a need to determine how the environmental, personal, leadership, and team factors proposed by Carron (1982) relate to cohesion in youth sport, as well as which individual and group outcomes have been investigated as potential consequences of cohesion. Identifying these patterns may help distinguish relatively consistent findings from isolated associations and reveal areas in which evidence remains limited or contradictory.

Taken together, these limitations indicate that a systematic synthesis is warranted not simply because research on youth sport cohesion is limited, but because the available evidence is dispersed across diverse constructs, samples, sports, theoretical approaches, and methodological designs. Organizing this evidence within an established conceptual framework can clarify the current state of knowledge, identify methodological and theoretical gaps, and provide a stronger basis for future research (Bakhsh et al., 2024; Trapé et al., 2025). Such a synthesis may also have practical relevance by identifying factors associated with more cohesive youth sport environments and outcomes that may be relevant to athletes' individual experiences and team functioning.

Accordingly, to address these gaps, the present study sought to identify, through a systematic review, the psychological constructs associated with group cohesion in youth sport teams. More specifically, this study aimed to: (a) characterize the studies according to their main methodological and contextual features, including sample characteristics, theoretical approaches, instruments, sports, and study locations; (b) organize and synthesize empirical findings in light of Carron's conceptual model of cohesion, grouping evidence according to antecedents of cohesion (environmental, personal, leadership, and team factors) and consequences (individual and group outcomes); and (c) identify the main correlates of cohesion reported in the literature and the limitations highlighted by previous studies, thereby identifying priorities for future research and providing implications for practice in youth sport.

Method

Protocol and Registration

The present systematic literature review was conducted in accordance with the guidelines of the PRISMA protocol (Page et al., 2021). The research procedures were previously registered in the International Prospective Register of Systematic Reviews (PROSPERO) under the identifier CRD42020207145.

Eligibility Criteria

Studies were required to meet the following eligibility criteria to be included in the review,: I) original, peer-reviewed studies that investigated the relationships between group cohesion and other psychological constructs in the sport context; II) samples composed of athletes aged 12 to 18 years (or with a mean age above 11 and below 19, in studies that included part of the sample outside this age range), characterizing the target population as youth sport;; III) studies employing a quantitative methodology (a methodological choice adopted to enable an objective synthesis of the data), including cross-sectional, longitudinal, experimental, retrospective, and prospective designs; IV) studies published from 2009 onward, considering the availability of a specific instrument for youth athletes (Eys et al., 2009) and the increase in the number of studies involving this population (Petersen et al., 2019; Spink, 2020) studies published in English, Portuguese, or Spanish; and VI) studies obtaining a minimum score of 20 points in the methodological quality assessment.

Information Sources

The searches were conducted in the PubMed (health sciences), Web of Science (interdisciplinary), SciELO (interdisciplinary), PsycINFO (psychology), and SPORTDiscus (sport sciences) databases. The searches were carried out independently by two researchers and considered studies published between 2009 and 2024, given the availability of a specific instrument designed to measure group cohesion in youth athletes. The searches were conducted in June 2024 and subsequently updated in January 2025.

Search Strategy

The search terms were defined based on a preliminary search conducted to identify the most commonly used terminology in studies investigating group cohesion in the sport context, considering original articles and previous systematic reviews. Terms specifically related to young athletes were not included in order to avoid restricting the search results, as the preliminary search indicated that studies that did not mention this population in their titles and/or keywords also included young athletes in their samples. Based on this preliminary search, the descriptors “cohesion,” “group dynamic,” and “team sport” were selected. In the construction of the search strings, the Boolean operators “AND” and “OR” were applied, as well as the wildcard character “*” in order to broaden the range of results retrieved. The search strings were applied in the advanced search tools of each database by two independent researchers. Table 1 presents the search strategies used for each database.

Table 1. Search syntaxes

Database	Search syntax
PubMed	((cohesion) OR (group dynamic*)) AND (team sport*)
PsycInfo	Any Field: cohesion OR Any Field: group dynamic* AND Any Field: team sport*
SciELO	(cohesion) OR (group dynamic*) AND (team sport*)
SPORTDiscus	cohesion OR group dynamic* AND team sport*
Web of Science	((ALL=(cohesion)) OR ALL=(group dynamic*)) AND ALL=(team sport*)

Selection Process

The results from each database were exported to the Rayyan® platform (Ouzzani et al., 2016), where the study selection process was carried out independently and blindly by two researchers. After removing duplicate records, titles and abstracts were screened, followed by full-text assessment. Any disagreements were resolved through consensus meetings.

Data Collection Process

A Microsoft Excel® spreadsheet was used to standardize data extraction from the articles included in the present review. The following information was extracted: a) authorship/year of publication; b) location of data collection; c) objective; d) study design; e) sample characteristics; f) data collection instruments; g) statistical methods; h) additional methodological comments (when necessary); i) main results; j) conclusions; and k) limitations. When the required information was not fully available in the article, the authors were contacted via email. The extracted data were organized into a summary table to facilitate the synthesis of findings across studies.

Synthesis Methods

The extracted data were synthesized narratively and grouped according to the antecedents, correlates, and consequences of group cohesion, as well as the main findings of the included studies. This approach enabled the identification of recurring patterns and differences across the evidence.

Study Risk of Bias Assessment

The quality of the selected studies was assessed independently by two researchers following the recommendations of Hawker et al. (2002). The methodological rigor of the studies was evaluated based on the scoring system proposed by the authors, which includes nine criteria (abstract and title; introduction and objectives; method and data; sampling; data analysis; ethics and bias; findings/results; transferability/generalizability; implications and usefulness). Each criterion was rated using a four-point scale: good, fair, poor, and very poor. Following the procedures adopted by Alves et al. (2021), the four categories of the Hawker et al. (2002) scale were converted into a numerical scale (1–4), allowing the evaluated studies to obtain a minimum score of nine points (very poor) and a maximum score of 36 points (good), indicating the methodological quality of the research. Studies with low methodological quality, defined as those scoring below 20 points, were excluded. Inter-rater agreement was assessed using the Bland–Altman test (Bland & Altman, 1986), supported by a t-test comparing the mean difference between evaluators against zero (0). For statistical significance testing, a significance level of $p < 0.05$ was adopted.

Results

Study Selection

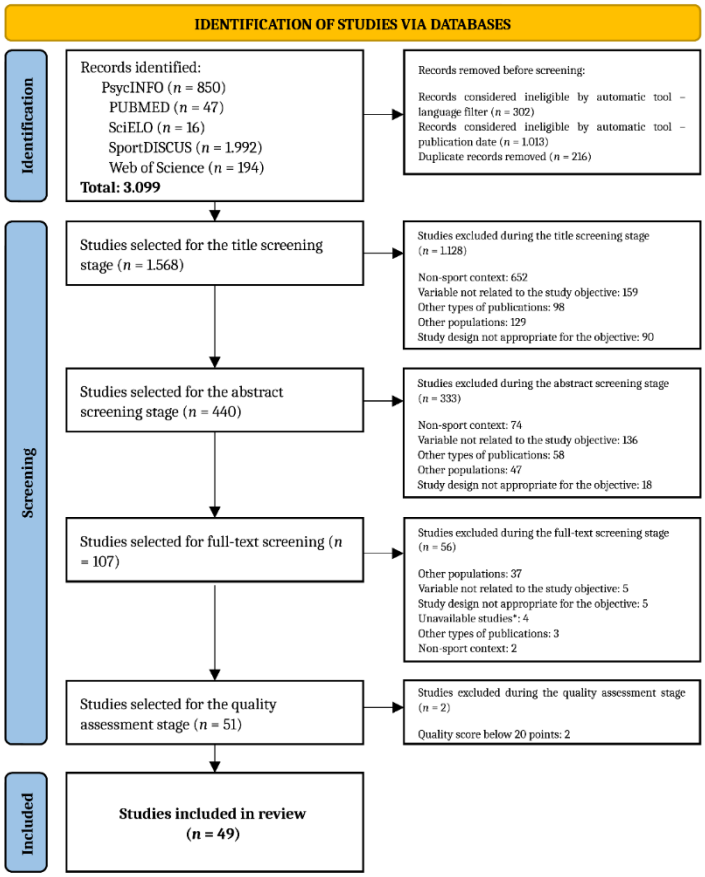
A total of 3,099 records were identified through searches conducted in the databases. Of these, 1,315 were excluded using the databases' automatic filters because they did not meet the criteria regarding publication period (n = 1,013) or language (n = 302). Subsequently, 216 duplicate studies were removed. During the selection process, 1,519 studies that did not meet the eligibility criteria were excluded, resulting in 49 articles included in the systematic review. Figure 1 presents the PRISMA flow diagram, detailing the procedures for the identification, selection, and inclusion of studies according to the established eligibility criteria.

Two studies were excluded due to low scores in the quality assessment (below 20 points). The studies included in the review presented quality scores ranging from moderate to high, starting at 25 points. The overall mean score was 32.1 (SD = 2.46). The Bland–Altman test indicated that the mean difference between the independent evaluations conducted by the reviewers was −0.118, suggesting that there was no statistically significant difference between the quality assessments (t = −0.9; p = 0.40). The mean quality score for each study is presented in Tables 5a and 5b in the Appendices.

Study Characteristics

Most studies investigated both sexes (n = 31; 63.2%), while 20.4% focused exclusively on male athletes (n = 10). In contrast, female athletes were examined exclusively in 8.2% of the studies (n = 4), the same proportion as that of studies in which participants' sex was not reported by the authors. In total, 13,824 athletes participated in the studies included in this review: 59.2% were male (n = 8,186), 36.4% were female (n = 5,036), and for 4.4% (n = 602) sex was not reported.

Figure 1. PRISMA flow diagram of the study selection process.



Note. *Studies that were not available in the databases and/or on the journals' websites were requested directly from the authors. No response was received in four of the requests sent to the authors.

Most studies were conducted in North America (*n* = 20; 40.8%) and Europe (*n* = 19; 38.7%), with Canada and Spain standing out as the countries with the highest number of studies, accounting for 15 and nine studies, respectively. Soccer was the most frequently investigated sport in research on youth group cohesion, appearing in 69.3% of the studies (*n* = 34), including 19 studies focused exclusively on soccer and 15 that examined soccer alongside other sports. Basketball (*n* = 17; 34.6%) and volleyball (*n* = 16; 32.6%) were the second and third most frequently investigated sports, respectively.

Regarding the methodological designs adopted, although some studies were developed in two phases (two studies with distinct methodologies), most employed a cross-sectional approach (*n* = 35; 71.4%). Prospective longitudinal designs were present in 28.5% of the studies (*n* = 14), and only one investigation used an experimental design. Correlation techniques were the most frequently used methods for data analysis (n = 33; 67.3%). Other commonly applied techniques included regression analyses (*n* = 18), structural equation modeling (*n* = 16), and factor analyses (*n* = 10). In total, 14 different data analysis approaches were identified across the studies.

The theoretical framework most widely adopted across the studies was Carron's conceptual model and its subsequent publications. Overall, 93.8% of the studies (*n* = 46) used concepts, theoretical structures, and/or instruments derived from this framework. Regarding the instruments used, 48.9% of the studies employed the Group Environment Questionnaire (GEQ) or its adaptations. In contrast, 44.8% of the studies used the Youth Sport Environment Questionnaire (YSEQ) or its adaptations, indicating that fewer than half of the studies employed an instrument specifically designed for the age group investigated. Only 6.1% of the studies (*n* = 3) did not use research instruments related to Carron's conceptual model. Two studies used multidimensional scales based on other theoretical models (López et al., 2012; Shang & Ku, 2018), whereas Tsai and Chang (2023) employed a self-developed instrument.

Results of Syntheses

According to Carron's conceptual model, the constructs identified in the present review were grouped into antecedent factors: environmental, personal, leadership, and team factors and outcomes: individual and group outcomes, as presented in Tables 2 and 3. In addition, correlates of cohesion were also identified and listed. Although these constructs were not classified as antecedents or outcomes within Carron's conceptual model, they demonstrated statistically significant relationships with cohesion, generally through correlational analyses (Table 4). The limitations reported in the studies were also compiled and presented in a separate section.

A total of 43 constructs were identified across the 49 studies included in the review. Coach leadership (*n* = 7) and the coach-initiated motivational climate (*n* = 6) were among the most frequently investigated constructs. Two constructs related to individual athlete characteristics also stood out in terms of the number of investigations: basic psychological needs satisfaction and different forms of motivation, both examined in seven studies each. At the group level, collective efficacy emerged as a prominent construct, appearing in five studies.

Antecedents of Cohesion

None of the studies investigated constructs related to environmental factors, revealing an important gap in the current literature. The greatest diversity of constructs examined was related to personal and team factors. Regarding personal factors, seven different constructs were investigated, and none of them were examined in more than one study. In the context of team factors, 12 antecedents of cohesion were identified, with peer motivational climate and socialization tactics appearing in more than one investigation. Table 2 presents the studies that addressed the antecedents of group cohesion.

Table 2. Distribution of the constructs investigated as antecedents of cohesion in the included studies, according to the classification of Carron's conceptual model

ANTECEDENTS OF GROUP COHESION
Environmental Factors
No results identified
Personal Factors
Self-determined motivation (Gaudreau et al., 2010)
Role clarity (Leo et al., 2020)
Social identity (Chamberlain et al., 2021)
Social connection (Taştan, 2022)
General belonging (Taştan, 2022)
Perfectionism (Freire et al., 2022a)
Achievement goal orientation (Freire et al., 2022b)
Leadership Factors
Coach leadership (n=6) (Price & Weiss, 2013; Kao et al., 2019; Baird et al., 2020; López-Gajardo et al., 2022; Kao et al., 2023; Tsai & Chang, 2023)
Coach-initiated motivational climate (n=5) (Horn et al., 2012; Eys et al., 2013; Iglesias et al., 2019; Chicau-Borrego et al., 2021; Weiss et al., 2021)
Peer leadership (n=4) (Price & Weiss, 2011; Paradis & Louguead, 2012; López et al., 2012; Price & Weiss, 2013)
Team Factors
Peer motivational climate (n=3) (McLaren et al., 2017; Durdubas et al., 2020[x]; Weiss et al., 2021)
Socialization tactics (n=2) (Leo et al., 2020; Chamberlain et al., 2021)
Cooperation (Leo-Marcos et al., 2011b)
Intragroup affect (Bruner et al., 2014a)
Intra-team communication (McLaren & Spink, 2016)
Effort (Spink et al., 2017a)
Team trust (Kao et al., 2019)
Teamwork (McEwan, 2020)
Intra-team conflict (Weiss et al., 2021)

The largest number of investigations on antecedents of cohesion was focused on leadership factors (*n* = 15), mainly involving three constructs, all examined in four or more studies. Coach leadership was addressed in six studies, making it the most frequently investigated antecedent of cohesion. Coach-initiated motivational climate and peer leadership were also examined, appearing in five and four studies, respectively.

Consequences of Cohesion

Individual outcomes were more prominent than group outcomes, both in terms of the number of studies (35 vs. 7) and the number of constructs investigated (22 vs. 4). Among the 22 constructs related to individual outcomes, basic psychological needs satisfaction was the most frequently examined (*n* = 6). Regarding group outcomes, among the four constructs investigated, collective efficacy and team satisfaction appeared in more than one study. Table 3 presents the studies that addressed the consequences of group cohesion.

Table 3. Distribution of the constructs investigated as consequences of cohesion in the included studies, according to the classification of Carron's conceptual model.

CONSEQUENCES OF GROUP COHESION
Group Outcomes
Collective efficacy (*n*=3) (Leo-Marcos et al., 2011b; Leo et al., 2016; Sezer & Kocaekşi, 2018[x])
Peer motivational climate (*n*=2) (McEwan, 2020; Shang & Ku, 2018)
Peer motivational climate (McLaren et al., 2017)
Coach–athlete relationship (Freire et al., 2023)
Individual Outcomes
Basic psychological needs satisfaction (*n*=6) (Blanchard et al., 2009; Erikstad et al., 2018; Heuzé et al., 2018; Iglesias et al., 2019; Taylor & Bruner, 2012; Yildirim et al., 2024)
Burnout symptoms (*n*=2) (Pacewicz et al., 2020; Yildirim et al., 2024)
Anxiety (*n*=2) (Borrego et al., 2012; Wang et al., 2024)
Self-confidence (*n*=2) (Borrego et al., 2012; Wang et al., 2024)
Self-regulation (*n*=2) (Erikstad et al., 2018[x]; Taylor & Bruner, 2012)
Commitment (*n*=2) (Coleman et al., 2021; Leo-Marcos et al., 2011a)
Intention to return to the team (*n*=2) (Leo et al., 2020; Spink et al., 2017b)
Motivation (*n*=2) (Heuzé et al., 2018; Pacewicz et al., 2020)
Goal orientation (*n*=2) (Taylor & Bruner, 2012; Wang et al., 2024)
Satisfaction (Paradis & Louguead, 2012)
Adaptive experiences (Taylor & Bruner, 2012)
Role clarity (Bosselut et al., 2012)
Prosocial behavior (Bruner et al., 2014a)
Positive youth development (Bruner et al., 2014b)
Depressive symptoms (Nixdorf et al., 2016)
Effort (Spink et al., 2017a)
Sense of belonging (Spink et al., 2017b)
Peer connection (Pacewicz et al., 2020)
Positive mood (Foschiera et al., 2022)
Social values (Berengüí et al., 2022)
Resilience (López-Gajardo et al., 2022)
Vulnerability under pressure (López-Gajardo et al., 2022)

Note. [x] The construct was negatively related to cohesion.

Correlates of Cohesion

A total of 13 constructs were identified as correlates of group cohesion. However, they were not examined in the studies as antecedents or consequences, but rather as associated factors. Social conflict, collective efficacy, intrinsic motivation, and goal orientation were addressed in more than one investigation.

Table 4. Distribution of the constructs investigated as correlates of cohesion in the included studies.

CORRELATES OF GROUP COHESION
Social conflict (n=3) (Freire et al., 2022a; Freire et al., 2022b; López-Gajardo et al., 2022)
Collective efficacy (n=2) (McEwan, 2020; Price & Weiss, 2013)
Intrinsic motivation (n=2) (Heuzé et al., 2018; Pacewicz et al., 2020)
Goal orientation (n=2) (Berengüí et al., 2022; Iglesias et al., 2019)
Expectation of success (Marcos et al., 2012)
Commitment (McEwan, 2020)
Enjoyment (McEwan, 2020)
Extrinsic motivation (Pacewicz et al., 2020)
Basic psychological needs (Mosqueda et al., 2022)
Coach-initiated motivational climate (Mosqueda et al., 2022)
Motivation (Freire et al., 2023)
Satisfaction (Kao et al., 2023)
Coach leadership (Yildirim et al., 2024)

Main Limitations Reported in the Reviewed Studies

The most frequently reported limitation concerned the cross-sectional design, mentioned in 48.9% of the articles (n = 24). The authors highlighted the inability to draw causal inferences due to this type of design. Another important limitation was the limited generalizability of the investigated samples (n = 20; 40.8%), as these studies lacked variability in characteristics such as sex, type of sport, region, and age, thereby restricting data interpretation.

Additionally, 20.4% of the studies (*n* = 10) reported limitations related to sample size, including small samples (*n* = 7) or sample attrition during the study (*n* = 3). Complementing the issue of low sample diversity, 10 studies (20.4%) reported the inability to conduct multilevel analyses due to the homogeneous characteristics of the participants. The same proportion of studies (*n* = 10; 20.4%) mentioned limitations related to measurement instruments, such as scales with low reliability, instruments not validated for sport or youth sport contexts, or the partial use of validated instruments. A considerable number of articles (*n* = 9; 18.3%) also identified as a limitation the exclusive use of self-report questionnaires for data collection.

Discussion

This study sought to systematize the available evidence on group cohesion in youth sport, describing the main methodological and contextual characteristics of the literature. Additionally, the studies identified were analyzed in light of Carron's conceptual model6, considering the antecedents and consequences of cohesion, as well as the most frequently reported correlates. Furthermore, the main limitations highlighted by the studies were also examined. In light of these findings, it was possible to discuss the main patterns identified, the existing gaps in the literature, and the implications for future research and practice in youth sport. Because most studies used cross-sectional or other observational designs, the findings should be interpreted primarily as associations rather than causal effects. Given the limited longitudinal and experimental evidence, research in this area remains relatively incipient, and theoretical explanations should be distinguished from findings directly supported by the available evidence.

Study Characteristics

Most of the studies reviewed on group cohesion (80%) were conducted in North America, Europe, or both, a trend also observed in investigations addressing other constructs (Lochbaum & Sisneros, 2024; Rice et al., 2019). In addition to the greater economic support traditionally allocated to research in these regions, factors such as language of publication, leading institutions, disciplinary and editorial regimes, research agendas, and thematic priorities reinforce the predominance of publications originating from these continents (Marginson & Xu, 2023). This pattern becomes particularly evident when considering, for example, that no study conducted on the African continent was identified in the present review. This represents an important gap, as specific cultural contexts may influence aspects related to sport performance (Yang et al., 2024).

Although, in recent years, international collaboration strategies have contributed to an increasing number of investigations outside this traditional axis, further research is needed to address the specific characteristics of different regions and cultures. Attending to the context and level of sport competition, type of sport, and other local characteristics, rather than treating these contexts merely as sites for data collection (Boampong et al., 2024) or applying study designs based solely on models imported from other settings, is essential to ensure local sensitivity (Banda et al., 2025). Such approach would allow researchers to account for the particular behavior of constructs within specific cultural and sporting environments.

Another dominant aspect concerns the type of sport investigated, with soccer appearing in nearly 70% of the reviewed studies (*n* = 34). This pattern observed in research on group cohesion among youth athletes is not limited to publications in sport psychology (Vilarino et al., 2017), but is also evident across other areas of sport sciences, where soccer emerges as the most frequently investigated sport, in some cases with up to 60% more studies than other sports (Plakias, 2025). This tendency suggests a

clear research focus on popular and traditionally visible sports (Sheng et al., 2024), as researchers often seek to increase the generalizability of their findings (Yang et al., 2024).

However, this strong focus on soccer may introduce scientific biases if findings from this sport are incorrectly generalized to other sporting contexts (Çelik, 2023). In this regard, systematic reviews examining the relationship between intrinsic motivation and flow experiences have identified differences between individual and team sports, reinforcing the idea that psychological constructs do not operate uniformly across all sport contexts (Gasparin et al., 2025). Therefore, developing psychological frameworks based primarily on soccer may limit the external validity of findings, as the expression of constructs such as anxiety, motivation, and resilience may vary according to the cognitive, motor, social, and situational demands of each sport (e.g., precision sports vs. team sports) (Gasparin et al., 2025). In this sense, expanding research to include a wider range of types of sport is essential, as it promotes scientific equity, supports a broader understanding of sport-specific characteristics, contributes to the development of targeted interventions, and enables more appropriate generalizations.

When analyzing the theoretical frameworks employed in the included studies, there is a clear predominance of Carron's conceptual model. Of the 49 studies included in the review, 46 (93.8%) used concepts, theoretical structures, and/or instruments derived from this model. Previous researchers have consistently highlighted the prominence of Carron's theoretical framework in the study of group cohesion across various sport contexts (Coleman et al., 2021; Eys & Brawley, 2018; Eys et al., 2019; Spink, 2020). Thus, the large body of research on group cohesion may be related to the well-established nature of the theory and its associated measurement tools (Petersen et al., 2019). The stability in the use of this conceptual framework, together with its measurement instruments (also present in 46 studies), has likely influenced the field by encouraging the development of a coherent and cumulative body of literature (Eys & Brawley, 2018).

When examining the measurement instruments used, although most studies employed tools consistent with the theoretical framework, a limited use of instruments specifically designed for youth sport was observed. Considering the evidence suggesting that younger athletes' perceptions of group cohesion may not fully reflect the same patterns observed in adult samples (Eys et al., 2009), findings from studies involving youth athletes that used instruments designed for adult populations should be interpreted with caution. Furthermore, an important direction for future research involves the greater adoption of instruments specifically developed for youth populations, as well as the reexamination of research questions previously investigated using instruments with this methodological limitation. In addition, further validation and cross-cultural adaptation studies across different countries and sports are needed to ensure the contextual adequacy and psychometric robustness of these measures (Cid et al., 2022).

Importantly, although these findings indicate the widespread use of Carron's conceptual model and its associated measurement instruments, this predominance should be interpreted in light of the review's eligibility criteria, particularly the 2009 temporal cutoff and the inclusion of quantitative studies only, which may have favored the identification of research grounded in this theoretical framework. Nevertheless, the pattern observed is consistent with previous reviews highlighting the longstanding prominence of Carron's model in the sport cohesion literature.

The characteristics of the studies analyzed point to the need for a more diverse research agenda in the study of group cohesion in youth sport. Future investigations should expand the geographical and cultural representativeness of samples, include a wider range of sports, and explore theoretical perspectives that complement Carron's model. In addition, greater use of longitudinal and experimental designs is warranted, alongside prioritizing the development, validation, and cross-cultural adaptation of instruments specifically designed for young athletes. These advances may contribute to a more contextualized understanding of group cohesion and strengthen the applicability of evidence to research and practice in youth sport.

Antecedents of Cohesion

Carron's conceptual model identifies environmental factors as the first category of antecedents of group cohesion. Factors related to contractual responsibility and organizational orientation compose this category. In the present review, no studies were identified that examined the relationship between group cohesion and environmental factors, suggesting an important avenue for research in youth sport cohe-

sion. Recently, Fasey et al. (2022), in a study involving coaches and sport directors, identified relationships between organizational resilience and group cohesion. According to the authors, higher perceptions of organizational resilience, defined as continuous psychosocial processes that allow elite sport organizations to detect changes and rapidly adapt while protecting their structure and strengthening resources to cope with adversities and transitions, generate improved organizational climate, communication, and perceptions of safety among athletes, factors that may positively influence group cohesion. Therefore, empirically testing these potential relationships, particularly in youth sport, represents an important direction for future research. Additionally, dimensions of organizational climate (e.g., support, fairness, communication), athletes' sense of security regarding their contracts, and uncertainty about their future with the team may also constitute relevant avenues for future studies.

With regard to personal factors, a diversity of constructs was observed across investigations (n = 7). Although no construct was examined in more than one study, certain thematic proximities can be identified. Motivational factors, such as self-determined motivation (Gaudreau et al., 2010) and achievement goal orientation, particularly task-oriented goals (Freire et al., 2022b), were associated with group cohesion and appeared in two studies. Both studies used cross-sectional designs; therefore, these findings indicate an association rather than a temporal or causal relationship. These findings suggest that the promotion of cohesion may be fostered through the development of task-oriented motivational environments that emphasize effort, collaboration, and learning, rather than environments based on comparison between athletes.

The importance of athletes' psychological bonds with the group was also reflected in studies examining social identity (Chamberlain et al., 2021), social connection, and general belonging (Taştan, 2022). Creating environments in which athletes feel socially connected and experience a stronger sense of belonging may be associated with stronger perceptions of being meaningful members of the group, recognizing the importance of their specific roles within the team, which has been associated with higher levels of group cohesion. However, as these relationships were identified primarily in observational studies, their direction remains uncertain.

Another antecedent identified in youth sport cohesion was perfectionism oriented toward effort, as athletes exhibiting this profile demonstrated higher levels of group cohesion (Freire et al., 2022a). This finding suggests that athletes who display higher levels of discipline and commitment to collective goals tend to perceive their teams as more cohesive. Furthermore, a clear understanding of individual responsibilities (role clarity) was also shown to be associated with perceptions of unity in collective objectives (Leo et al., 2020). Taken together, these findings reinforce that cohesion is a multidimensional construct sensitive to a variety of factors. Although the studies investigating personal antecedents of group cohesion offer relevant insights and converging evidence, the limited number of constructs examined and the fact that most were investigated in single studies with specific samples restrict broader generalizations. This indicates that research on personal antecedents of cohesion should be expanded, both to confirm existing findings and to extend theoretical and applied knowledge in this field.

In contrast to personal factors, team-level constructs, although diverse, were examined in more than one study. Peer motivational climate, for example, was addressed in three investigations. McLaren et al. (2017) and Weiss et al. (2021) found that a task-oriented peer motivational climate was associated with higher perceptions of group cohesion. These findings were based on observational evidence and therefore do not establish that motivational climate causes changes in cohesion. Similarly, Durdubas et al. (2020) identified a decrease in group cohesion as ego-oriented peer motivational climate increased. As this study used a semirandomized controlled design, it provides stronger evidence regarding potential intervention effects than the observational studies in this section.

Reinforcing the importance of social elements for cohesion, socialization tactics were another team-related factor examined in more than one investigation. Leo et al. (2020) identified positive associations between socialization tactics and cohesion, indicating that when teams facilitate athletes' integration into the group, athletes experience stronger feelings of unity and alignment with the team. This finding was corroborated by Chamberlain et al. (2021). According to these authors, tactics such as veteran mentoring, social inclusion, and communication strategies represent factors associated with group cohesion (Chamberlain et al., 2021; Leo et al., 2020). Given the observational nature of these studies, however,

these associations should not be interpreted as evidence of causal effects. Together, motivational climate and socialization tactics may represent relevant targets for promoting group cohesion, with future studies needed to compare their relative effectiveness.

Finally, the antecedent factors of group cohesion that received the greatest number of investigations were leadership factors (*n* = 15). Unlike personal and team factors, which showed considerable diversity in the constructs examined, studies on leadership focused on only three constructs: coach leadership (*n* = 6), coach-initiated motivational climate (*n* = 5), and peer leadership (*n* = 4). The larger number of studies examining the same constructs points to greater consistency in the findings. Coach leadership emerged as the most frequently investigated antecedent and was positively associated with cohesion in all studies, highlighting the importance of coaches and their leadership practices for team unity. A similar pattern was observed for coach-initiated motivational climate (*n* = 5), which was also positively associated with cohesion across all studies. These results highlight the central role of the coach in athletes and their psychosocial and sport outcomes. This centrality has also been reported in previous studies. Leadership behaviors, including guidance, instruction, support, and influence over athletes, as well as the provision of support, encouragement of autonomy, and clear communication through an appropriate motivational climate, position the coach as one of the most influential figures in athletes' experiences (Yang et al., 2024).

These findings are further supported by recent investigations (Agnew & Pill, 2025; López-Hernández et al., 2025; Purnomo et al., 2024; Woodhead et al., 2024), which reinforce the importance of the coach's role in athletes' development and experiences. It is also important to note that this pattern was observed specifically among youth athletes in the present review. One possible theoretical explanation is that young athletes may be particularly susceptible to social influences during this developmental stage (Usenik & Kranjec, 2025; Walton et al., 2024). However, this explanation was not directly tested by the studies included in the present review. Consequently, the importance of the coach becomes even more pronounced in this population, supporting the need for future investigations to focus on leadership factors and motivational climates that most strongly contribute to group cohesion, as well as on the development of strategies that promote healthy leadership practices and supportive motivational environments within youth sport teams.

The characteristics of the studies examining the antecedents of group cohesion point to several directions for future research. Greater attention should be given to environmental factors, which remain largely unexplored in youth sport, as well as to personal and team-level factors that have received limited and often isolated investigation. Future studies should also examine the relative contribution of motivational climates, socialization processes, and different forms of leadership to group cohesion, particularly considering the central role of coaches identified in the literature. Longitudinal and experimental designs may further clarify the direction and mechanisms underlying these relationships and support the development of evidence-based strategies to foster healthy leadership practices, supportive motivational environments, and cohesive youth sport teams.

Consequences of Cohesion

In his conceptual model, Carron (1982) identifies two categories of cohesion outcomes: individual outcomes and group outcomes. When analyzing the constructs examined as consequences of cohesion, most refer to individual outcomes, with studies on basic psychological needs satisfaction clearly predominating (n = 6).

There was consensus among the studies regarding the positive associations of higher levels of group cohesion on the components of basic psychological needs, namely autonomy, competence, and relatedness (Blanchard et al., 2009; Erikstad et al., 2018; Heuzé et al., 2018; Iglesias et al., 2019; Taylor & Bruner, 2012; Yildirim et al., 2024), although some studies identified this relationship only for social cohesion (Erikstad et al., 2018; Iglesias et al., 2019). These findings suggest that greater team unity is associated with higher levels of athletes' perceived psychological needs satisfaction. According to Yildirim et al. (2024), factors promoted by cohesion, such as improved communication, trust, motivation, and identification with the team, help explain this relationship. These mechanisms, however, represent the authors' interpretation of the relationship rather than causal mechanisms established across the reviewed studies. Thus, higher levels of cohesion may be associated with more positive experiences in youth sport (Heuzé et al., 2018). Although basic psychological needs satisfaction is the most frequently

investigated individual outcome associated with cohesion, further research is needed to clarify the mechanisms underlying this association and to determine whether social cohesion and task cohesion differ in their predictive strength. Such directions represent important avenues for future investigations.

Emotional-related outcomes also stood out in studies examining the consequences of cohesion, with constructs such as anxiety (*n* = 2), self-regulation (*n* = 2), self-confidence (*n* = 2), non-clinical symptoms of burnout/depression (*n* = 3), and vulnerability under pressure (*n* = 1), among others, being identified. Cohesion was associated with lower levels of non-clinical depressive symptoms, suggesting a protective function (Nixdorf et al., 2016). In contrast, for burnout symptoms, both included studies indicated that the associations of cohesion were indirect, occurring through basic psychological needs satisfaction (Yildirim et al., 2024) or through feelings of connection with teammates and self-determined motivation (Pacewicz et al., 2020).

The findings also suggest positive associations of cohesion on anxiety, both somatic and cognitive (Borrego et al., 2012; Wang et al., 2024). However, this relationship appears to be more clearly expressed among male athletes (Borrego et al., 2012), highlighting the need for further investigations examining potential sex differences and their explanatory mechanisms. Overall, the observed associations suggest that higher levels of cohesion may be related to lower pre-competitive anxiety, as it promotes self-confidence through emotional support, increased collective efficacy, and the development of an internal environment of trust and security (Wang et al., 2024). These factors may contribute positively to the emotional development of young athletes (Taylor & Bruner, 2012).

Additional constructs, such as perceived support and assistance in managing performance-related emotions, may foster an environment in which athletes develop a greater capacity for effective emotional regulation, thereby helping to explain self-regulation as an individual outcome of cohesion (Taylor & Bruner, 2012). Although there are strong indications of a positive relationship between these variables, the literature also presents conflicting findings. Erikstad et al. (2018) did not identify a relationship between social cohesion and self-regulation, and furthermore observed a negative effect of task cohesion. According to the authors, an excessive emphasis on results and fear of failure, which may be present in teams with high levels of task cohesion, could inhibit self-regulatory processes.

The discrepancies in findings and the limited number of investigations suggest the need for further studies examining the relationship between group cohesion on the self-regulation in youth athletes. Erikstad et al. (2018) offer relevant recommendations, such as the use of more robust analytical methods, including mediation and moderation analyses, the exploration of additional antecedents and consequences of cohesion that may influence this relationship, and the examination of how this relationship manifests in different contexts. Longitudinal designs and intervention-based studies are also recommended (Wang et al., 2024). Finally, investigating the underlying mechanisms through which cohesion may be related to emotional and self-regulatory processes represents another important direction for future research.

When examining group-level outcomes of cohesion, a total of seven studies were identified. The primary focus was on collective efficacy (Leo-Marcos et al., 2011b; Leo et al., 2016; Sezer & Kocaekşi, 2018) and team satisfaction (McEwan, 2020; Shang & Ku, 2018). Both constructs have also been investigated as antecedents of group cohesion, suggesting the possibility of a reciprocal or circular relationship between them. In the case of collective efficacy, Leo-Marcos et al. (2011b) reported an association between cohesion and collective efficacy in a cross-sectional study. Conversely, Leo et al. (2016) used a longitudinal design to examine the direction of this relationship and reported that cohesion emerged as a stronger predictor of collective efficacy than the reverse. Taken together, these studies indicate an association between cohesion and collective efficacy, while the longitudinal findings provide greater support for temporal ordering than the cross-sectional evidence. In both cases, the evidence suggests that youth athletes who perceive greater social and task unity within their teams tend to demonstrate stronger confidence in the group's collective capabilities, highlighting the importance of higher levels of cohesion. Accordingly, future investigations may focus on developing methods that help coaches enhance group processes, thereby fostering the development of cohesion. Given the limited number of studies examining the relationship between cohesion and collective efficacy, future research should also emphasize the investigation of causal relationships, the use of more robust analytical techniques, the examination of mediating and moderating effects, and the inclusion of more diverse samples.

The findings related to team satisfaction may be considered preliminary. In their study involving elite and non-elite youth athletes, Shang and Ku (2018) reported that cohesion was a significant predictor of satisfaction only among elite athletes. For this group in particular, partnership and unity among teammates were identified as key factors contributing to higher levels of satisfaction. The authors also noted that the results observed among non-elite athletes differed from those reported in previous studies involving other populations. McEwan (2020) identified relationships between cohesion and satisfaction. However, in the analytical model used, cohesion functioned as a mediator between teamwork and athlete satisfaction, with task cohesion demonstrating a stronger mediating effect. Thus, when athletes perceive that the team works collaboratively, they tend to perceive greater team unity, which in turn is associated with greater satisfaction with group performance. Because the study was prospective but observational, the mediation model provides evidence of an indirect statistical relationship rather than definitive evidence of a causal mechanism. Considering the limited number of studies, as well as the differing findings and analytical models employed in these two investigations, there is clearly a need for further research. The authors themselves recommend several directions for future research, including qualitative studies aimed at exploring these relationships in greater depth, studies across different sport settings (e.g., elite vs. non-elite) to identify factors influencing the cohesion–satisfaction relationship, and longitudinal designs to examine how these relationships evolve over the course of a season.

The characteristics of the studies examining the consequences of group cohesion point to several directions for future research. Further investigations should clarify the mechanisms through which cohesion may be related to individual outcomes, particularly psychological needs satisfaction, emotional processes, and self-regulation, while examining whether task and social cohesion differ in their effects. Longitudinal and intervention-based designs, together with mediation and moderation analyses, may help clarify the direction and mechanisms underlying these associations. At the group level, future research should further investigate the potentially reciprocal relationships between cohesion, collective efficacy, and team satisfaction, using more robust designs and diverse sport contexts. Such approaches may contribute to a more comprehensive understanding of how group cohesion is related to both individual and collective experiences in youth sport.

Limitations of the Studies

Nearly half of the studies included in the review (n = 24) reported the cross-sectional design as a methodological limitation, a common feature in sport science research (Lynch et al., 2020). Findings derived from cross-sectional studies should be interpreted with caution, as the absence of temporal sequencing, the high risk of reverse causality, and the limited control of confounding factors represent some of the key limitations associated with this type of design (Pérez-Guerrero et al., 2024). Accordingly, cross-sectional findings should be interpreted as associations rather than causal effects, whereas longitudinal, prospective, and experimental designs provide stronger evidence regarding temporal ordering and causality.

However, changing the research design is not always a feasible option. Therefore, researchers must adopt strategies to mitigate the limitations inherent to cross-sectional studies. Initially, the formulation of the research problem should avoid addressing issues related to causality or causal effects. Similarly, the careful selection of measurement tools and data collection strategies is essential, with particular attention to measurement quality and to the sensitivity of the instruments used. Data analysis should be conducted rigorously, employing robust multivariate models. When possible, the triangulation of evidence with other research designs may further contribute to improving study quality. Finally, the discussion of results should explicitly address potential confounding effects and biases associated with the study design (Lynch et al., 2020; Pérez-Guerrero et al., 2024).

Issues related to the study samples were also highlighted as important limitations. Small sample sizes were common across investigations. For example, 18 studies were conducted with samples of fewer than 200 athletes, which limits the generalizability of the findings. Additional limitations included sample attrition (Bruner et al., 2014a; Chamberlain et al., 2021; Erikstad et al., 2018) and low sample variability (Bosselut et al., 2012; Freire et al., 2022a; Leo et al., 2020; López-Gajardo et al., 2022; Price & Weiss, 2011), both of which hinder data analysis and restrict the possibility of conducting multilevel analyses. Collecting data directly within the sport environment is often challenging, as it may interfere with athletes' routines and consequently discourage their participation. In this sense, it is important to design data collection protocols that align with the schedules and demands of athletes and coaching

staff, ensuring that procedures are as minimally intrusive as possible and conducted in close coordination with coaches. Such strategies may facilitate greater athlete participation in research without negatively affecting their training and competitive activities (Stellingwerff et al., 2025).

The methodological characteristics and limitations identified across the studies highlight the need for greater methodological rigor in future research on group cohesion in youth sport. Whenever feasible, longitudinal and experimental designs should be prioritized to strengthen temporal inference and reduce the risk of reverse causality. When cross-sectional designs are necessary, researchers should employ rigorous measurement and analytical strategies and explicitly consider potential sources of bias and confounding. Future studies should also seek larger and more diverse samples, minimize attrition, and adopt data collection procedures that are compatible with the routines of athletes and coaching staff. These strategies may improve the robustness, generalizability, and ecological validity of findings while facilitating more sophisticated analyses of group cohesion in youth sport..

Final Considerations

To the best of current knowledge, the present review is the first to employ a systematic methodology to analyze the psychological constructs associated with group cohesion in youth sport. The results reported here provide valuable insights for coaches, athletes, and researchers regarding how the strength of group unity may both influence and be influenced by other factors.

Regarding the antecedents of cohesion, the investigation of environmental factors appears to represent an important direction for future research, as no studies addressing these constructs were identified. Within personal factors, there is also a clear need for further investigation, since no construct was examined in more than one study, which limits the generalizability and confirmation of the findings. In relation to team factors, peer motivational climate and socialization tactics were associated with group cohesion in more than one investigation. Coach leadership emerged as the most frequently investigated antecedent of cohesion and was associated with cohesion in all identified studies. Coach-initiated motivational climate and peer leadership were also examined among team-related factors. With regard to the consequences of cohesion, a greater number of investigations focused on individual outcomes, particularly basic psychological needs satisfaction, which was the most frequently investigated construct and showed positive associations with group cohesion in all studies, with stronger evidence for social cohesion. Among group-level outcomes, the largest number of studies focused on collective efficacy.

Carron's conceptual model appears to be the main theoretical foundation for research on group cohesion in youth sport, a pattern that has also been observed in studies involving adult athletes. At the same time, several limitations were identified across the studies, particularly the frequent use of cross-sectional designs, sample-related issues, and limitations associated with the measurement instruments employed. Additionally, approximately 80% of the studies were conducted in North America and Europe, while soccer emerged as the most frequently investigated sport. All these aspects should be considered in future investigations in order to overcome these limitations and further expand the theoretical foundation of research on group cohesion.

Some limitations of the present review should also be acknowledged. First, although the search strategy was developed based on a preliminary search and relevant terminology, the search syntax may have resulted in the omission of potentially eligible studies. Second, the temporal delimitation adopted in the review was justified by the development and availability of the Youth Sport Environment Questionnaire (YSEQ), which provided a specific measure of group cohesion for youth athletes, however, this criterion may have excluded earlier seminal studies that contributed to the theoretical development of group cohesion. Third, grey literature was not included, which may have resulted in the exclusion of relevant evidence that had not been published in peer-reviewed journals. Finally, the restriction to quantitative studies may have limited the identification of evidence from qualitative investigations, particularly regarding athletes' subjective experiences and the contextual processes underlying group cohesion. These limitations should be considered when interpreting the scope of the evidence synthesized in the present review and when designing future systematic investigations.

Furthermore, considering the factors associated with cohesion in youth sport and their importance for team satisfaction and collective efficacy (e.g., McEwan, 2020 and Sezer & Kocaekşi, 2018), the implementation of structured teambuilding programs aimed at promoting cohesion, performance, and sport participation would be beneficial. Such programs should focus particularly on environmental and structural factors (e.g., role clarity and leadership), as well as team processes (e.g., communication and cooperation, Paradis & Martin, 2012). For example, Tassi et al. (2023) implemented an eight-week program with youth soccer players, based on principles of cooperation and organization, promoting team values aligned with collective performance and encouraging role acceptance, collaborative rule creation, and problem-solving in training situations involving high levels of interaction and cooperation. This program demonstrated positive results in variables such as communication, interaction, collective efficacy, and team performance. Therefore, the development of such teambuilding programs is recommended as a strategy to promote athlete satisfaction and prevent dropout among youth athletes.

Indeed, social factors are inherent both to sport and to human behavior, but they appear to be particularly important during adolescence, when they have a greater potential to influence multiple aspects of athletes' life satisfaction and performance. In this context, group cohesion, understood as a measure of the quality of athletes' social relationships within their teams, both in the social and task dimensions, becomes an important focus of attention due to its capacity to interact with numerous psychological and sport-related variables. Investigating cohesion specifically within the youth sport context is therefore an important task for sport sciences, and, as highlighted in the present review, many research avenues remain to be explored.

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Appendices

Table 5a. Authors, sample data, sport modalities, instruments, investigated variables, and quality assessment of the studies included in the review (*n* = 1-25/49)

Nº	Authors	Sample data	Modalities	Instruments	Investigated variables	QA
1	Blanchard et al., 2009	207 (72♀; 122♂; 9NR); 16-22; 18 *sd* 1.17	Basketball	GEQ (Carron et al., 1985)	Basic psychological needs (cons.+)	33.5
2	Gaudreau et al., 2010	66 (45♀; 21♂); 14-24; 15.83 *sd* 2.10	Various (3)	GEQ adapt. France (Heuz´et al., 2002)	Self-determined motivation (ant.+)	34
3	Price & Weiss, 2011	191♀; 14-18; 16.09 *sd* 0.98	Soccer	GEQ adapt. (Moran et al., 2006)	Peer leadership (ant.+)	32
4	Leo-Marcos et al., 2011a	867 (58♀; 809♂); 11-16; 13.25 *sd* 1.78	Soccer	GEQ adapt. Spain (Garcia-Calvo et al., 2006)	Commitment (cons.+)	35
5	Leo-Marcos et al., 2011b	235♂; 15-19; 17.02 *sd* 0.75	Soccer	GEQ adapt. Spain (Garcia-Calvo et al., 2006)	Collective efficacy (cons.+); Cooperation (ant.+)	31.5
6	Paradis & Louguead, 2012	205 (119♀; 86♂); 13-17; 15.01 *sd* 1.27	Soccer; Basketball	YSEQ (Eys et al., 2009)	Peer leadership (ant.+); Satisfaction (cons.+)	35
7	Bosselut et al., 2012	162 (120♀; 42♂); 12-18; 15 *sd* 1.64	Various (4)	YSEQ (Eys et al., 2009)	Role clarity (cons.+)	34
8	López et al., 2012	136; 13-24	Various (4)	MSGI Adapt. (Garcia, 2006)	Peer leadership (ant.+)	32.5
9	Taylor & Bruner, 2012	133♂; 11-18; 14.2 *sd* 1.79	Soccer	YSEQ (Eys et al., 2009)	Basic psychological needs (cons.+); Goal orientation (cons.+); Self-regulation (cons.+); Leadership skills (cons.+)	33.5
10	Horn et al., 2012	351 (188♀; 163♂); 16-18; 16.35 *sd* 0.55	Various (8)	GEQ (Carron et al., 1985)	Coach-initiated task motivational climate (ant.+)	35
11	Borrego et al., 2012	366 (44♀; 322♂); 17.14 *sd* 1.6	Soccer	GEQ adapt. Portugal (Cruz et al., 1997)	Anxiety (cons.-); Self-confidence (cons.+)	33.5
12	Marcos et al., 2012	146♂; 15-19; 16.9 *sd* 60.76	Soccer	GEQ adapt. Spain (Iturbe et al., 2010)	Expectation of success (corr.+)	33
13	Price & Weiss, 2013	412♀; 14-18; 15.9 *sd* 0.98	Soccer	GEQ (Carron et al., 1985)	Collective efficacy (corr.+); Peer leadership (ant.+); Coach leadership (ant.+)	32.5
14	Eys et al., 2013	997 (532♀; 465♂) 13-17; 15.26 *sd* 1.20	Various (32)	YSEQ (Eys et al., 2009)	Coach-initiated task motivational climate (ant.+); Competence (ant.+)	35
15	Bruner et al., 2014a	329 (81♀; 248♂); 15.88 *sd* 1.25	Various (6)	YSEQ (Eys et al., 2009)	Intragroup affect (ant.+); Prosocial behavior (cons.+)	35
16	Bruner et al., 2014b	424 (157♀; 267♂); 15.74 *sd* 1.26	Various (7)	YSEQ (Eys et al., 2009)	Positive youth development (cons.+)	34
17	Nixdorf et al., 2016	199; 14.96 *sd* 1.56	Various (7)	GEQ adapt. Germany (Ohlert et al., 2012)	Depressive symptoms (cons.-);	27
18	Leo et al., 2016	146♂; 15-18 anos; 16.96 *sd* 0.76	Soccer	GEQ adapt. Spain (Iturbe et al., 2010)	Collective efficacy (cons.+)	32
19	McLaren & Spink, 2016	139 (75♀; 64♂); 13-17; 14.7 *sd* 1.7	Soccer	YSEQ (Eys et al., 2009)	Intra-Team Communication (ant.+)	34
20	McLaren et al., 2016	189; 10-17; 13.12 *sd* 1.97	Soccer	YSEQ (Eys et al., 2009)	Peer-Initiated Task Motivational Climate (ant.+/cons.+)	33
21	Spink el al., 2017a	92 (76♀; 16♂); 12-16; 12.92 *sd* 0.96	Soccer	YSEQ (Eys et al., 2009)	Effort (ant.+/cons. +)	29.5
22	Spink el al., 2017b	156 (113♀; 43♂); 12-16; 13.3 *sd* 1.1	Soccer	YSEQ (Eys et al., 2009)	Belonging (cons.+); Intention to return to the team (cons.+)	31.5
23	Sezer & Kocaekşi, 2018	250 (70♀; 180♂); 15.10 *sd* 1.16	Various (3)	YSEQ adapt. Turkey (Sezer et al., 2018)	Collective efficacy (cons.-)	26.5
24	Heuzé et al., 2018	264 (114♀; 143♂; 7NR); 13-18; 15.5 *sd* 1.4	Various (8)	YSEQ adapt. France (Dubuc et al., 2010)	Basic psychological needs (cons. +); Intrinsic motivation (corr.+);	32
25	Erikstad et al., 2018	332♂; 12-14; 13.5 *sd* 0.5	Soccer	YSEQ adapt. Norway (Høigaard et al., 2018)	Basic psychological needs (cons.+); Self-regulation (cons.-);	30.5

Legend: ♂ = male; ♀ = female; NR = not reported; *sd* = standard deviation; QA = quality assessment; GEQ = Group Environment Questionnaire; YSEQ = Youth Sport Environment Questionnaire; MSGI = Multidimensional Sport Cohesion Instrument; cons. = consequence of group cohesion; ant. = antecedent of group cohesion; corr. = correlate of group cohesion; "+" = variable significantly and positively associated with group cohesion; "-" = variable significantly and negatively associated with group cohesion; "x" = variable not significantly related to group cohesion.

Table 5b. Authors, sample data, sport modalities, instruments, investigated variables, and quality assessment of the studies included in the review (*n* = 26-49/49)

Nº	Authors	Sample data	Modalities	Instruments	Investigated variables	QA
26	Shang & Ku, 2018	403 (129♀; 274♂); 13-18;	NR	Cohesion Scale (Wu; Cheng, 2003)	Team satisfaction (cons.+)	31.5
27	Iglesias et al., 2019	175 (65♀; 110♂); 12-26; 15.5 *sd* 2.8	Soccer	GEQ adapt. Spain (Iturbe et al., 2010)	Basic psychological needs (cons.+); Coach motivational climate (ant.+); Goal orientation (corr.+)	29.5
28	Kao et al., 2019	597 (258♀; 339♂); 18.33 *sd* 2.86	Volleyball	GEQ (Carron et al., 1985)	Transformational coach leadership (ant.+); Team trust (ant.+);	31
29	Durdubas et al., 2020	74♂; 16.23 *sd* 1.40	Basketball	GEQ adapt. Turkey (Ocel et al., 2006)	Goal orientation (ant.-); Peer motivational climate (ant.+);	34.5
30	McEwan, 2020	178 (27;151♂); 17.3 *sd* 8.3	Various (8)	YSEQ (Eys et al., 2009)	Teamwork (ant.+); Team satisfaction (cons.+); Enjoyment (corr.+); Commitment (corr.+); Collective efficacy (corr.+)	34.5
31	Leo et al., 2020	172♂; 14-18; 18.35 *sd* 4.71	Soccer	GEQ adapt. Spain (Leo et al., 2015)	Role clarity (ant.+); Socialization tactics (ant.+); Intention to return to the team (cons.+)	34.5
32	Pacewicz et al., 2020	276♀; 13-18; 14.9 *sd* 1.4	Soccer	YSEQ (Eys et al., 2009)	Burnout symptoms (cons.-); Self-determined motivation (cons.+); Peer connection (cons.); Extrinsic motivation (corr.+); Intrinsic motivation (corr.+)	34
33	Baird et al., 2020	71NR; 14-24	Hockey	YSEQ (Eys et al., 2009)	Transformational coach leadership (ant.+)	29.5
34	Coleman et al., 2021	606 (192♀; 414♂); 10-19; 14.4	Various (6)	YSEQ (Eys et al., 2009) and YSEQ adapt. Spain	Commitment (cons.+)	30.5
35	Chicau-Borrego et al., 2021	153♂; 12-16; 14.6 *sd* 1.1	Soccer	GEQ adapt. Portugal (Borrego et al., 2021)	Coach motivational climate (ant.+)	30.5
36	Chamberlain et al., 2021	243 (68♀; 175♂); 13-17; 14.6 *sd* 1.2	Hockey	YSEQ (Eys et al., 2009)	Socialization tactics (ant.+); Social identity (ant.+);	33.5
37	Weiss et al., 2021	235♀; 14-18 anos; 16.3 *sd* 0.9	Volleyball	YSEQ (Eys et al., 2009)	Coach motivational climate (ant.+); Peer motivational climate (ant.+); Intra-team conflict (ant.-)	32.5
38	Mosqueda et al., 2022	237 (119♀; 118♂); 12-17; 12.2 *sd* 1.2	Various (4)	GEQ adapt. Spain (Castilho et al., 2017)	Basic psychological needs (corr.+); Coach motivational climate (corr.+)	32
39	Taştan 2022	344 (115♀; 229♂)	Various (3)	GEQ adapt. Turkey (Ocel et al., 2006)	Social connection (ant.+); General belonging (ant.+)	25
40	Freire et al., 2022a	413 (186♀; 227♂); 16.0 *sd* 0.8	Various (4)	YSEQ adapt. Brazil (Nascimento-Junior et al., 2018)	Perfectionism (ant.+); Group conflict (corr.-)	32.5
41	Freire et al., 2022b	413 (186♀; 227♂); 14-17; 16.0 *sd* 0.8	Various (4)	YSEQ adapt. Brazil (Nascimento-Junior et al., 2018)	Goal orientation (ant.+); Group conflict (corr.-)	33
42	Foschiera et al., 2022	81 (19♀62♂); 15.8 *sd* 1.0	Various (4)	GEQ adapt. Brazil (Nascimento-Junior et al., 2012)	Positive Mood Profile (cons.+)	32.5
43	Berengüí et al., 2022	401♂; 9-19; 14.64 *sd* 2.2	Soccer	GEQ adapt. Spain (Iturbe et al., 2010)	Social values (ant.+); Goal orientation (corr.+)	32.5
44	López-Gajardo et al., 2022	301 (32♀; 283♂); 13-18; 15.7 *sd* 1.3	Soccer; Volleyball	GEQ adapt. Spain (Leo et al., 2015)	Transformational coach leadership (ant.+); Resilience (cons.+); Vulnerability under pressure (cons.-); Group conflict (corr.-)	32
45	Freire et al., 2023	301 (165♀; 136♂); 14-17; 16.0 *sd* 0.8	Various (4)	YSEQ adapt. Brazil (Nascimento-Junior et al., 2018)	Coach–athlete relationship (cons.+); Motivation (corr.+)	32.5
46	Kao et al., 2023	377 (121♀; 256♂); 17.3 *sd* 0.9	Basketball	GEQ adapt. Taiwan (Kao et al., 2019)	Transformational coach leadership (ant.+); Satisfaction (corr.+)	28
47	Tsai & Chang, 2023	222 (154♀; 68♂)	Various (6)	Self-developed instrument	Coach leadership style (ant.+)	25.5
48	Wang et al., 2024	298 (222♀; 76♂); 16-24 (18.4 *sd* 3.0)	Handball	GEQ adapt. China (Ma 2004)	Self-confidence (cons.+); Goal orientation (cons.+); Somatic anxiety (cons.-)	33.5
49	Yildirim et al., 2024	252♂; 13-15 (14.5 *sd* 0.6)	Soccer	GEQ adapt. Turkey (Ocel et al., 2006)	Basic psychological needs (cons.+); Burnout (cons.-); Life satisfaction (cons.+); Mental health (cons.+); Coach leadership (Corr.+)	35

Legend: ♂ = male; ♀ = female; NR = not reported; *sd* = standard deviation; QA = quality assessment; GEQ = Group Environment Questionnaire; YSEQ = Youth Sport Environment Questionnaire; MSGI = Multidimensional Sport Cohesion Instrument; cons. = consequence of group cohesion; ant. = antecedent of group cohesion; corr. = correlate of group cohesion; "+" = variable significantly and positively associated with group cohesion; "-" = variable significantly and negatively associated with group cohesion; "x" = variable not significantly related to group cohesion.