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Standing out from the crowd: Identifying the traits and behaviors that characterize high-quality athlete leaders

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Objectives: An emerging body of evidence indicates that, in addition to the coach, athlete leaders within a team are vital for a sports team's success. Sports teams are therefore keen to know which attributes are distinctly characteristic of high-quality leaders on and off the field. The present study aims to shed more light on this question.

Method: A wide variety of traits and leadership behaviors was assessed in a sample of 776 athletes, stratified across gender, competitive level, and four sports. The leadership quality of each of the athletes (ie, as task, motivational, social, and external leader) was determined on the basis of the perceptions of teammates using social network analysis.

Results: Findings revealed that leadership behaviors outweighed personality traits in distinguishing high-quality leaders from others on and off the field. Providing identity leadership that creates, embodies, advances, and embeds a collective sense of "us" in their teams was found to be a particularly important leadership behavior that characterized high-quality leaders both on and off the field.

Conclusion: The fact that leadership behaviors were important predictors of high-quality athlete leadership (and more important predictors than traits) suggests that leaders are not just born, but can also be made. Our findings therefore highlight the clear need for leadership development programs to target the behaviors that we identified as important predictors of leadership.

KEYWORDS

identity leadership, leader attributes, leader selection, leadership quality, peer leaders, shared leadership

1 | INTRODUCTION

The importance of having good leaders has been recognized throughout history, in society at large, and in sports teams more specifically. While leadership research in sport has previously focused mainly on the team coach, the last decade has seen a growing body of research that highlights the important role played by the leadership of athletes within the team: athlete leaders. Mike Krzyzewski, head coach of the men's basketball team at Duke University, highlights this point: "Talent is important. But the single most important ingredient after you get the talent is internal leadership. It is not the coaches as much as one single person or people on the team who set higher standards than that team would normally set for itself".[1] More specifically, both the presence of athlete leaders in the team and their leadership quality have been associated with team members identifying more strongly with their team, being more motivated, and having greater confidence in the team's ability. Furthermore, teams with high-quality leaders are characterized by greater task and social cohesion, greater

resilience when facing setbacks, and ultimately better team performance (for a review on athlete leadership, see Cotterill and Fransen[2]).

Given the potential for athlete leaders to have a positive impact on team success, sports teams are eager to know which individuals display the required and desired characteristics and behaviors to be effective leaders.[2] The present study aims to shed more light on this question by identifying the personality traits and behaviors that distinguish high-quality athlete leaders from their less able counterparts. In light of the abundance of different theories of leadership in this domain (eg, the review by Dinh et al[3] identified more than a hundred of leadership theories that can be classified into 66 domains), for the purposes of this analysis we decided to focus on a select number of key theories.

Over time, approaches to leader identification have focused on either the personality traits or the behaviors of effective leaders. Early leadership studies adopted a trait approach, embracing the idea that leadership is rooted in the personality of a person. The idea here is that certain individuals have special enduring innate characteristics that make them great leaders and that it is precisely these characteristics that differentiate them from non-leaders and allow them to stand out from the crowd.[4] In this vein, three examples of widely used questionnaires in organizational and sports settings that seek to identify the key personality traits of leaders are as follows: (a) the *Big Five taxonomy*[5]; (b) the *Myers-Briggs Type Indicator* (MBTI[6]); and (c) the *Leader Trait Questionnaire*.[7] We include each of these instruments in the present study in order to explore their distinctive power as predictors of high-quality athlete leadership. More information on these measurements can be found in the Section 4 below.

Yet while the trait approach to leadership is very influential, a number of scholars have noted that its focus on stable traits makes it difficult either to explain or to produce changes in leadership behavior.[8] As an alternative, these scholars have argued that leadership can be learned and developed by teaching effective leadership behaviors. In what follows, we discuss four behavioral approaches that have been applied in the sports context and are seen as having the potential to provide insight in the leadership behaviors of athlete leaders. Again, each of the relevant behaviors will be assessed in our study to explore their potential to predict high-quality leadership. The first of these is the *transformational leadership theory*.[9] Being one of the best-known theories of leadership in the domain of sport, this theory asserts that leaders have most impact on their followers when they adopt a leadership style that is inspiring, developmental, value-based, and intellectually stimulating. Second, over the last 5 years, the *social identity approach to leadership* has been increasingly deployed by sport scientists to explain the effectiveness of coaches and athlete leaders.[10] This approach asserts that leaders are effective to the extent that they succeed

in making team members think, feel, and behave as members of the same team (ie, as "us" and "we," in terms of a social identity), rather than as separate individuals (ie, as "me" and "I," in terms of a personal identity). Third, in an attempt to integrate both positive and negative leadership styles within one theoretical framework, Redeker et al[11] developed a *leadership circumplex* (LC) that distinguishes between eight leadership styles (coaching, inspirational, directive, authoritarian, distrustful, withdrawn, yielding, and participative) that are hypothesized to be differentially predictive of leader effectiveness. As with most other theories of leadership, these three approaches were developed (and have primarily been validated) in organizational contexts and have only recently been applied to sporting contexts. One exception is the *Peer Sport Leadership Behavior Inventory* (PSLBI[12]), which encompasses eight leadership behaviors that athlete leaders can demonstrate: motivation, character, creative/intelligent, committed/focused, problem-solving, compassionate, responsible/mature, and physically/technically skilled. For more information on these measures, we again refer readers to the Section 4 below.

1.1 | Where previous literature falls short

Although previous research has identified a wide range of leader attributes, four specific limitations can be noted. First, previous studies have tended to focus either on personality traits[13,14] or on behaviors[15] as characteristic of leaders—looking at these separately but not alongside each other. Traits and behaviors have therefore rarely been compared within the same study sample. This relates to complaints arising from the fact that researchers' primary concern is to create new models of leadership without attempting to compare and contrast the validity of existing theories.[16,17] Because no research has been conducted in a sports context to examine both traits and behaviors simultaneously, we have no insight into their relative importance when it comes to predicting leadership quality. An exception is the meta-analysis of research in organizational contexts by Derue et al.[17] Although most of the studies included in this meta-analysis focused on just one trait or behavior, the authors examined the predictive power of multiple traits and behaviors. On the basis of their findings, they concluded that leader behaviors explain more variance in leadership effectiveness than leader traits. However, recent studies using twins identified a specific genotype associated with the tendency to occupy a leadership position.[18] The authors estimated that this heritable factor accounted for 24% of the variance in leadership role occupancy. So while environmental influences explain much more variance, this suggests that genetic influences (of a form associated with personality traits) are worthy of investigation.

Bearing this in mind, a key goal of the present research is to examine the capacity for different leadership theories to explain high-quality athlete leadership.

Second, most studies to date have assessed whether an individual is seen as a leader, rather than assessing the quality of their leadership. In other words, players are typically asked to judge the leader in their team (eg, the captain), regardless of whether this person is (or is seen as) a particularly good or bad leader. The quality of leadership is, however, more decisive for a leader's effectiveness than the mere fact that he/she is (seen as) a leader. Along these lines, research suggests that the characteristics that determine leader status and leader quality are different. For example, while extraversion and narcissism have been shown to be important for team members to emerge as leaders, they are not predictive of their actual effectiveness in that role.[4,19]

Third, most studies have focused on athlete leadership in general, without paying attention to the different roles that leaders can occupy.[20-22] However, more recently, researchers have differentiated between four different leadership roles that players can occupy. Two of these are the on-field leadership roles as task leader and motivational leader, two are the off-field leadership roles of social leader and external leader.[23,24] Full definitions of these leadership roles are presented in Table 1. Given that these four leadership roles are clearly distinct (eg, providing tactical instructions on the field vs resolving a team conflict in the dressing room), it is likely that leaders need to embody different leader attributes in order to excel in these different spheres of role-related activity.

Fourth, given that most studies have examined relatively small samples of leaders that are homogeneous in terms of gender, competition level, and sports, they have not been able to examine whether the attributes of leaders vary as a function of gender, level of competition, or sport. Nevertheless, the few studies that have explored such differences suggest that leader attributes do not generalize across these variables. For example, Rylander et al[13] showed that measures derived from the Big Five subscales were differentially predictive of leader effectiveness at different levels of sporting competition.

1.2 | The present research

By addressing the shortcomings of previous work, the present study aims to identify the underlying personality traits and behaviors that distinguish high-quality athlete leaders from their less effective counterparts. This approach differs from previous work in five key ways. First, by assessing both personality traits and leadership behaviors simultaneously, we are able to estimate their relative importance as distinctive predictors of high-quality athlete leaders.

Second, instead of focusing on leadership emergence as the outcome variable, we focus instead on the quality of leadership—as previous research has demonstrated that this is more closely linked to team effectiveness.[25] More specifically, we focus on athletes' leadership quality as perceived by other team members, as it is the perceptions of others that will ultimately determine whether, and with what degree of enthusiasm, team members follow their leader.[26] Indeed, for this reason perceived

TABLE 1 The definition of the four leadership roles occupied by athlete leaders[23]

Leadership role	Definition
Task leader	A task leader is in charge on the field; this person helps the team to focus on the team goals and helps in tactical decision making. Furthermore, the task leader gives teammates tactical advice during the game and gives them guidance if necessary
Motivational leader	The motivational leader is the biggest motivator on the field; this person encourages teammates to go to any extreme; this leader also puts fresh heart into athletes who are discouraged. In short, this leader steers all the emotions on the field in the right direction in order to maximize team performance
Social leader	The social leader has a leading role off the field; this person promotes good relations within the team and cares about having a good team atmosphere, for example, in the dressing room, on the bus, or during social activity. Furthermore, this leader helps with conflicts between teammates off the field. This leader is a good listener and is trusted by teammates
External leader	The external leader is the link between the team and the people outside the team; this leader is the representative of the team when dealing with the club management. If communication is needed with media or sponsors, this person will take the lead. This leader will also communicate the views of the club management to the team, for example, regarding sponsoring, club events, and contracts

leadership quality is a much better proxy for leader effectiveness than leaders' self-reports or the observations of third parties (see the work of Peters and Haslam[27] for a discussion).

Third, instead of focusing only on the team captain, we assess the leadership quality of all players in a team. Previous research has shown that informal athlete leaders, rather than the captain, are often perceived as the best leaders.[23] To derive a complete picture of the leadership quality and distribution within a team, it is therefore essential to gauge the leadership quality of all team members.

Fourth, instead of assessing players' leadership quality in general, we distinguish between players' leadership quality on task, motivational, social, and external leadership. As noted above, this is because the expertise required for each of the four leader roles is very different—encompassing strategic knowledge to provide task guidance, enthusiasm to motivate teammates, empathic qualities to resolve conflicts, and communicative skills to deal with the press. As such, we are able to shed new light on the differential characteristics that can be used to discriminate high-quality leaders depending on their specific role.

Finally, we use a stratified sample of both male and female sports teams, playing sport at high and at low competitive levels, and in four different sports. This stratification allows us to gain more insight into the ways in which these discriminating attributes differ as a function of leader gender as well as level and type of sport.

Given the exploratory nature of the study and the lack of previous research of this type (ie, including such a broad battery of leadership traits and behaviors and such a diverse sample), no a priori hypotheses were developed. However, on the basis of previous work, we expected that all the constructs that we measured would be associated with greater leader effectiveness.

2 | METHODS

We conducted two separate studies because combining all personality traits and all behaviors into a single study would have led to an overly lengthy questionnaire. Although Study 1 and Study 2 assessed different personality traits and behaviors, the same procedure was followed and both studies assessed participants' leadership quality on the four leadership roles. Both studies adopted a cross-sectional design with questionnaires being administered at the end of the season (to ensure that team members had enough time to develop an informed understanding of their teammates' leadership quality).

2.1 | Procedure

Study 1 and Study 2 used the same procedure to recruit participants. In both studies, we aimed for a random stratified sample of 32 sports teams in the four major team sports in Flanders (ie, soccer, volleyball, basketball, and handball). Within each sport, we aimed for an equal distribution between male and female teams (ie, four male teams and four female teams in each sport). Finally, within each of these categories, we aimed for an equal contribution of teams from the highest leagues of the competition (ie, national level) and teams of the lower competition leagues (ie, provincial or regional leagues). In order to obtain this stratified total sample of 64 teams, 130 coaches were invited via email to participate in our study, resulting in a response rate of 49%.

After approval from the coach, a research assistant went to a training session of each team, explained the purpose of the study, and asked all players if they were willing to participate in the study. Confidentiality of responses was guaranteed, and participants were told that they had the opportunity to withdraw participation at any time. After giving informed consent, players completed the questionnaire. The research assistant was present to answer potential questions. Upon completion, all questionnaires were assembled in a closed envelope by the researcher. APA ethical standards were followed in the conduct of both studies, and approval was obtained from the ethical committee of the first author's university. No rewards were given for participation in the study, except for a report by email with the general study findings (ie, the characteristic attributes of high-quality leaders in the different leadership roles).

2.2 | Participants

2.2.1 | Study 1

The 32 teams in this study encompassed in total 392 players of whom there were 122 soccer players, 82 volleyball players, 70 basketball players, and 118 handball players. The response rate within the teams ranged from 81% to 100% ($M = 94.16\%$; SD = 8%). In total, 188 male players and 204 female players participated in the study, of whom 221 played at high level and 171 played at low level. The players were on average 23.58 years old (SD = 6.58) and had on average 14.61 years of experience in their sport (SD = 6.66).

2.2.2 | Study 2

The 32 teams that participated in the study encompassed 384 players, of whom 125 were active in soccer, 79 in volleyball, 64 in basketball, and 116 in handball. The response rate within the teams again ranged between 81% and 100%

($M = 95.0\%$; SD = 7%). An equal balance between male players and female players was obtained (ie, 192 players each). Furthermore, 207 players participated at high level, and 177 participants played at low level. Participants were on average 23.93 years old (SD = 6.05) and had on average 14.86 years of experience in their sport (SD = 6.64).

2.3 | Measures

2.3.1 | Perceived leadership quality

To obtain the most reliable measure of leadership quality, we chose to assess a player's leadership quality by taking into account the perceptions of all team members. This procedure is recommended in recent reviews of the field[2] and is preferred to using self-ratings or to focusing on formal leaders alone (eg, the team captain). Since being a leader does not automatically entail being a *good* leader (ie, being seen to display effective leadership), we chose to focus on leadership *quality*. The procedure for obtaining peer-rated assessment of leadership quality[28] was the same in both studies. After reading the definition of a task leader, participants rated the task leadership quality of each of their teammates on a scale from 1 (*very bad leader*) to 7 (*very good leader*) (ie, a single-item assessment). This procedure was repeated for motivational, social, and external leadership. To facilitate the process for participants, the names of all players in the team were filled out in advance based on a player list provided by the teams.

2.3.2 | Leader attributes

To avoid an overly lengthy questionnaire, Study 1 and Study 2 included different variables of interest. However, each study included both personality traits and behaviors to allow for a comparison of their relative importance. Asking team members to rate each leadership attribute for every person in the team (as we did with the leadership ratings) would have caused our questionnaire to be far too long. Accordingly, in order to allow for a broad variety in personality traits and behaviors, we used self-assessment.

Personality traits
Study 1—Big Five Inventory (Big 5). Participants completed the 44-item Dutch translation of the Big Five Inventory, as developed and validated by Denissen et al.[29] All items were rated on Likert scales ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Scores derived from the Big 5 are grouped in five subscales: *Neuroticism* (8 items; eg, "I worry a lot"; $\alpha = .79$), *Extraversion* (8 items; eg, "I am talkative"; $\alpha = .80$), *Openness to Experience* (10

items; eg, "I like to reflect and play with ideas"; $\alpha = .73$), *Conscientiousness* (9 items; eg, "I do a thorough job"; $\alpha = .80$), and *Agreeableness* (9 items; eg, "I am considerate and kind to almost everyone"; $\alpha = .73$).

Study 2—Leadership Trait Questionnaire. Participants completed the Leadership Trait Questionnaire (LTQ[7]), including 14 personality traits that are considered important for leaders in general (eg, articulate, self-confident, trustworthy, and empathic). All items were rated on Likert scales ranging from 1 (*this trait does not describe me at all*) to 7 (*this trait describes me very well*).

Study 2—Myers-Briggs type indicator. The MBTI[6] includes 20 items where participants have to choose between two extreme statements (eg, "I behave energetically and love commotion" vs "I behave reservedly and love peace"). Responses are then combined into four dimensions, namely *Introversion vs Extraversion*, *Sensing vs Intuition*, *Thinking vs Feeling*, and *Judging vs Perceiving*, as explained in the introduction. Each of these dimensions has a score ranging between 0 (left extreme on the axis) and 5 (right extreme of the axis).

Diverging opinions about the MBTI's psychometric properties relate to the specific ways in which the questionnaire can be used. While MBTI was originally conceptualized as a tool to categorize people according to different types, there is a lack of psychometric support for the questionnaire's ability to differentiate between the distinct personality types.[30,31] However, when being used as a continuous measure of the extent to which people behave in ways consistent with the four dimensions (as in the present study), previous research has provided evidence of the convergent and discriminant validity of this instrument.[32] In particular, scores derived from the MBTI have been found to correlate with trait personality measures such as the Eysenck Personality Inventory[30] and the Big Five.[33] Furthermore, psychometric evaluation of the factor structure of scores derived from the MBTI has provided support for its construct validity[34] and satisfactory internal consistencies have been reported for the separate subscales.[6]

Leadership behaviors
Study 1—Peer Sport Leadership Behavior Inventory. The PSLBI[12] is a 49-item measure that reflects eight leadership dimensions specifically relevant to athlete leaders, namely *Motivation* (10 items; eg, "I lead by example"; $\alpha = .90$), *Character* (5 items; eg, "I am respected by my teammates"; $\alpha = .72$), *Creative and Intelligent* (5 items; eg, "In games and practices, I am creative in how I play"; $\alpha = .84$), *Committed/Focused* (5 items; eg, "I am completely focused in games"; $\alpha = .70$), *Problem-solving* (6 items; "My

teammates look to me for leadership in crucial matches"; $\alpha = .83$), *Compassionate* (6 items; eg, "My teammates would describe me as considerate"; $\alpha = .75$), *Responsible/Mature* (6 items; "I am organized in my preparation for practices"; $\alpha = .83$), and *Physically/Technically skilled* (5 items; "My teammates consider me a talented athlete"; $\alpha = .73$). All items were rated on a Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Study 1—Identity Leadership Inventory. The Identity Leadership Inventory (ILI), developed by Steffens et al,[35] is a 15-item measure that encompasses four dimensions of identity leadership: (a) *Identity prototypicality*—"Being one of us" (4 items; eg, "I am a model member of our team"; $\alpha = .84$); (b) *Identity advancement*—"Doing it for us" (4 items; eg, "I act as a champion for my team"; $\alpha = .82$); (c) *Identity entrepreneurship*—"Crafting a sense of us" (4 items; eg, "I create a sense of cohesion in my team"; $\alpha = .83$); and (d) *Identity impresarioship*—"Making us matter" (3 items; eg, "I create structures that are useful for my team"; $\alpha = .86$). All items were rated on a Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Study 2—Differentiated Transformational Leadership Inventory. The 27-item Differentiated Transformational Leadership Inventory (DTLI) was developed by Callow et al.[36] The transformational leadership behaviors are divided into seven dimensions: (a) *Individual consideration* (4 items; eg, "I recognize that different athletes have different needs"; $\alpha = .60$); (b) *Inspirational motivation* (4 items; eg, "I talk enthusiastically"; $\alpha = .75$); (c) *Intellectual stimulation* (4 items; eg, "I challenge my teammates to think about problems in new ways"; $\alpha = .83$); (d) *Fostering acceptance of group goals and promoting teamwork* (3 items; eg, "I get the team to work together for the same goal"; $\alpha = .77$); (e) *High-performance expectations* (4 items; eg, "I expect our team to achieve high standards"; $\alpha = .81$); (f) *Appropriate role model* (4 items; eg, "I lead by example"; $\alpha = .79$); and (g) *Contingent reward* (4 items; eg, "I give my teammates special recognition when they do very good work"; $\alpha = .81$). All items were rated on a Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Study 2—Leadership circumplex. The LC is a 64-item measure developed by Redeker et al.[11] The 64 items are grouped into eight leadership styles that can be positioned around a circumplex based on two axes, namely "agency" and "communion." The eight leadership styles each contain eight items and are (a) the *coaching* leadership style (eg, "I listen to what team members say"; $\alpha = .80$); (b) the *inspirational* leadership style (eg, "I see to it that team members have clear targets"; $\alpha = .76$); the *directive*

leadership style (eg, "I judge my teammates harshly"; $\alpha = .79$); (c) the *authoritarian* leadership style (eg, "I am dictatorial"; $\alpha = .89$); (d) the *distrustful* leadership style (eg, "I am suspicious"; $\alpha = .84$); (e) the *withdrawn* leadership style (eg, "I intervene too late when problems arise"; $\alpha = .74$); (f) the *yielding* leadership style (eg, "I am too soft"; $\alpha = .79$); and (g) the *participative* leadership style (eg, "I pay attention to the feelings of my team members"; $\alpha = .77$). All items were rated on a Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

2.4 | Data analysis

2.4.1 | Leadership quality

To identify the leadership quality of all players in the team in relation to the four leadership roles, previous research in sports contexts has measured *indegree centrality*.[28,37,38] In network terms, this is a node-specific measure (with nodes referring to the players) that captures the average strength of a node's incoming ties (ie, the average leadership quality of an athlete, as perceived by his or her teammates). Although the measure has become a standard measure of leadership quality in sport,[25,28] it does not take into account potentially confounding factors that might bias perceived leadership ratings.

In order to illustrate the nature of these confounding factors, we used the social relations model[39] as theoretical framework. Consider the following example.[40] Filip and Alex are members of the same soccer team. Filip perceives Alex to be great at providing tactical advice on the field and thus evaluates him favorably on the dimension of task leadership. Several possible explanations exist for the rating provided by Filip (here referred to as the perceiver) about Alex (ie, the target). First, Filip's rating of Alex could be the result of Filip's tendency to perceive everyone on his team as being good task leaders (ie, giving everyone high scores), which is termed a significant perceiver effect. When there is considerable variation between perceivers (ie, some team members tend to give high scores, whereas more critical team members tend to give low scores), this results in an assimilation bias that can be attributed to the rater.[41]

Second, Filip's appraisal of Alex could also be attributed to Alex's tendency to evoke similar ratings from all team members, which is termed a significant target effect. That is, many team members (not just Filip) might perceive Alex as a very good task leader. When raters consistently perceive a particular team member as a better task leader than others (ie, there is considerable target variance), then there is consensus in ratings, and this effect can be ascribed to the ratee (ie, the one who is being rated), rather than

to the rater. As Greguras[40] noted, this consensus is sometimes viewed as "true" variance with regard to the object of measurement.

Third, Filip's ratings of Alex may be caused by factors that are uniquely dyadic; that is due to the unique relationship between these two team members, which are termed relationship effects. These are effects that cannot be explained by either perceiver or target effects. For example, if Filip does not tend to give high scores in general, and Alex does not receive high scores in general, this would be indicative of a high relationship effect.

Starting from the social relations model as theoretical framework, we used the TripleR package[42] to decompose our leadership network data into the three above-mentioned effects, so that each team member received a specific score for the perceiver effect, the target effect, and the relationship effect. For this study, we were particularly interested in the target effect—that is the tendency for an individual to receive high leadership scores from other team members. Unlike indegree centrality, this measure controls for the tendency of others to give high scores (ie, the perceiver effect) and the particularities of the relationship with each of the other team members.

2.4.2 | Discriminant analysis

To identify the traits and behaviors that distinguish high-quality leaders from other players, we conducted a discrimination analysis for each of the four leadership roles in both Study 1 and Study 2. In order to conduct this analysis, we needed to dichotomize between high-quality leaders and others. Given that we were primarily interested in identifying high-quality leaders, we did not use the neutral point (ie, the mean target score of 0) as cut-off, but rather examined the 25% of athletes with the highest target scores (ie, the Top 25% of leaders, according to the perceptions of their teammates). We should note that the results of our discriminant analyses might vary according to the specific cut-off being used to indicate when an athlete is perceived as a high-quality leader (eg, Top 25%, Top 20%, Top 15.9% (ie, 1 SD), or Top 10%). Accordingly, Table 4 and Appendix S1 present the discriminant analyses for each of these different cut-offs. For the sake of parsimony, the other tables and appendices only present the results using the cut-off which included the Top 25% best athlete leaders.

Pearson coefficients in the resulting structure matrix of the discriminant analysis can also be understood as structure coefficients or discriminant loadings akin to factor loadings in a factor analysis. Generally, as with factor loadings, .30 is seen as the cut-off between important and less important predictor variables.[43] Accordingly, below, we will only present the variables that have a factor loading greater than or equal to .30. To calculate the number of original and cross-validated

grouped cases that were correctly classified, we allowed SPSS to take into account the observed group sizes in our sample to determine the prior probabilities of group membership. As recommended by Dytham,[44] this option should be taken if it cannot be guaranteed that unknown individuals have an equal chance of being in either group. Previous work indicated that only 8%-15% of the team members are usually perceived as leaders.[24] Consequently, random team members have more chance of being a low- or moderate-quality leader (defined as "others") than of being a high-quality leader. For this reason, we considered the observed group sizes for classification instead of assuming equal probabilities for all groups. This decision only affected the percentages of correct classification, but none of the other results.

3 | RESULTS

3.1 | The relationship between leader attributes and leadership quality

Table 2 presents the correlations between all investigated attributes (ie, both personality traits and behaviors) and the leadership quality on the four leadership roles, as perceived by the other team members. Focusing on the medium-to-high correlations (ie, larger than .30 according to the guidelines of Cohen[45]), we can see that with respect to personality traits, the more players saw themselves as extraverted, the greater their chances were of being perceived as a good task, motivational, social, and external leader. Furthermore, good task leaders also perceived themselves to be articulate and perceptive.

A variety of behaviors were also highly correlated with leadership quality. In particular, the four dimensions of the ILI were highly correlated (>.30) with leadership quality in all four roles. The same holds for all leadership styles presented in the Peer Sport Leadership Behavior Inventory (PSLBI). With respect to the DTLI, promoting teamwork and being an appropriate role model were highly correlated with leadership quality on the four roles. Finally, with respect to the LC, we can see that while the inspirational leadership style was positively correlated with being perceived as a good leader on all four leadership roles, the yielding and withdrawn leadership styles were negative predictors of good leadership.

3.2 | High-quality leaders vs others

3.2.1 | Predictors distinguishing between high-quality leaders and others

Table 3 presents the means and standard deviations of the different predictor variables for both the top 25%

TABLE 2 Correlations between each of the predictor variables and leadership quality on each of the four roles

	Task leadership quality	Motivational leadership quality	Social leadership quality	External leadership quality
Study 1				
Personality traits				
Big 5—Extroversion	.35***	.40***	.47***	.30***
Big 5—Neuroticism	−.14**	−.12*	−.09	−.11*
Big 5—Openness to experience	.09	.09	.08	.06
Big 5—Conscientiousness	.26***	.21***	.11*	.22***
Big 5—Agreeableness	−.03	.05	−.001	−.02
Leadership styles				
ILI—Crafting a sense of us	.35***	.36***	.33***	.32***
ILI—Being one of us	.36***	.33***	.30***	.38***
ILI—Doing it for us	.37***	.35***	.29***	.33***
ILI—Making us matter	.30***	.29***	.31***	.34***
PSLBI—Motivation	.45***	.44***	.34***	.39***
PSLBI—Compassionate	.28***	.32***	.28***	.23***
PSLBI—Skilled	.31***	.28***	.23***	.24***
PSLBI—Responsible	.31***	.26***	.18**	.27***
PSLBI—Problem-solving	.49***	.41***	.32***	.41***
PSLBI—Commitment-focused	.29***	.23***	.15**	.21***
PSLBI—Character	.40***	.37***	.32***	.36***
PSLBI—Creative-intelligent	.34***	.22***	.13*	.24***
Study 2				
Personality traits				
LTQ—Articulate	.30***	.29***	.27***	.27***
LTQ—Perceptive	.32***	.25***	.15**	.20***
LTQ—Self-confident	.19***	.17**	.12*	.14**
LTQ—Self-assured	.15**	.16**	.13*	.12*
LTQ—Persistent	.05	.07	.06	.06
LTQ—Determined	.18***	.17**	.16**	.15**
LTQ—Trustworthy	.20***	.21***	.16**	.15**
LTQ—Friendly	−.16**	−.07	−.04	−.09
LTQ—Outgoing	.14**	.20***	.24***	.15**
LTQ—Conscientious	.03	−.01	−.01	.004
LTQ—Diligent	.13*	.15**	.12*	.08
LTQ—Sensitive	−.13*	−.06	−.04	−.10
LTQ—Empathic	−.05	.02	.01	−.03
Dominant	.24***	.19***	.13*	.17**
MBTI—Extraversion vs Introversion	.30***	.29***	.29***	.24***
MBTI—Sensing vs Intuition	.14**	.07	.09	.18**
MBTI—Thinking vs Feeling	.12*	.06	.01	.08
MBTI—Judging vs Perceiving	.05	.01	−.08	.04
Leadership styles				
DTLI—Individual consideration	.24***	.26***	.22***	.16***
DTLI—Inspirational motivation	.20***	.25***	.22***	.14**

(Continues)

TABLE 2 (Continued)

	Task leadership quality	Motivational leadership quality	Social leadership quality	External leadership quality
DTLI—Intellectual stimulation	.30***	.25***	.21***	.21***
DTLI—Promoting teamwork	.38***	.42***	.37***	.31***
DTLI—High-performance expectations	.20***	.17**	.09	.15**
DTLI—Appropriate role model	.41***	.36***	.32***	.35***
DTLI—Contingent reward	.22***	.29***	.26***	.20***
LC—Inspirational	.35***	.29***	.23***	.27***
LC—Coaching	.17**	.23***	.23***	.16**
LC—Participative	−.03	.05	.06	.003
LC—Yielding	−.31***	−.28***	−.30***	−.29***
LC—Withdrawn	−.23***	−.21***	−.19***	−.23***
LC—Distrustful	−.08	−.13*	−.13*	−.10
LC—Authoritarian	.17**	.10	.08	.10
LC—Directive	.29***	.21***	.16**	.21***

***$P < .001$;

**$P < .01$;

*$P < .05$.

high-quality leaders and others in Studies 1 and 2. This table also includes an F-statistic, derived from the Wilk's Lambda to test for equality of group means. This measure reflects each independent variable's capacity to discriminate between high-quality leaders and other players before the actual model is created. As can be seen from Table 3, high-quality task, motivational, social, and external leaders had distinctive levels of a range of personality traits and behaviors.

The on-field leaders differentiated themselves by their problem-solving capacities (ie, providing leadership in stressful situations), their motivational skills, and their character (ie, being popular and respected by teammates). Furthermore, they were characterized by strong identity leadership skills, such as their prototypicality (ie, being one of us—also recognized in their appropriate role modeling [DTLI]), their identity advancement (ie, doing it for us), and their identity entrepreneurship (ie, crafting a sense of us—also recognized in their talent to promote teamwork [DTLI]). While these attributes were also important in discriminating the high-quality leaders off the field, here other attributes came to the fore. For example, athletes who did not adopt a yielding or withdrawn leadership style were perceived as better external leaders by their teammates.

3.2.2 | Most decisive predictors for identifying high-quality leaders

In the interests of clarity and parsimony, it is useful to know which of the personality traits and/or behaviors were most

decisive in distinguishing high-quality leaders from others when including all leadership attributes simultaneously in the analysis. As the results of our analyses might vary according to the specific cut-off being used to indicate high-quality leaders, Table 4 presents the results of our discriminant analyses for the cut-off of the Top 25% best leaders (according to the target-specific effect scores), while Appendix S1 presents the results of the discriminant analyses using three additional cut-offs (ie, Top 20%, Top 15.9% [ie, 1 SD], or Top 10%). More specifically, these tables present the structure matrices for each of the leadership roles in both studies. These matrices show the correlations of each predictor variable with the discriminate function of each leadership role (ie, restricted to the relevant predictors with structure coefficients higher than .30).

While Table 4 and Appendix S1 present the general results of Study 1 and Study 2, the other appendices provide more insight into differences between male and female teams, high- and low-level competitive teams, and the four different sports, for task leadership (Appendix S2), motivational leadership (Appendix S3), social leadership (Appendix S4), and external leadership (Appendix S5). For the sake of parsimony, these appendices only present the results using the cut-off of the Top 25% best athlete leaders. It should be noted that the percentages of explained variance by the discriminant functions (R^2, measured as the squared product of the canonical correlation) in these category-specific analyses ranged between 14% and 72%, implying that there were factors other than those included in these studies that can assist in distinguishing between high-quality leaders and other players.

TABLE 3 Means of all attributes for the 25% highest-quality athlete leaders and others, with ANOVA's testing the differences between both

	Task leadership			Motivational leadership			Social leadership			External leadership		
	High-quality leaders	Others	F (1,362)	High-quality leaders	Others	F (1,362)	High-quality leaders	Others	F (1,362)	High-quality leaders	Others	F (1,362)
Study 1												
Personality traits												
Big 5—Extroversion	5.37	4.91	18.83***	5.42	4.89	25.89***	5.43	4.89	25.99***	5.37	4.92	17.73***
Big 5—Neuroticism	3.34	3.71	10.94**	3.48	3.66	2.81	3.50	3.65	1.65	3.51	3.65	1.54
Big 5—Openness to experience	4.10	4.05	0.21	4.08	4.05	0.09	4.07	4.05	0.03	4.04	4.07	0.10
Big 5—Conscientiousness	5.01	4.50	26.27***	4.90	4.53	13.19***	4.82	4.56	6.04*	4.83	4.56	6.41*
Big 5—Agreeableness	5.02	5.02	0.001	5.09	4.99	1.29	5.02	5.01	0.01	4.98	5.02	0.20
Leadership styles												
ILI—Crafting a sense of us	4.98	4.47	22.88***	5.04	4.45	31.31***	4.97	4.47	21.47***	4.94	4.49	16.87***
ILI—Being one of us	4.79	4.15	31.21***	4.81	4.14	34.69***	4.78	4.16	29.29***	4.78	4.16	28.34***
ILI—Doing it for us	5.45	4.89	27.75***	5.46	4.88	30.09***	5.37	4.91	17.07***	5.37	4.92	16.68***
ILI—Making us matter	4.35	3.81	14.85***	4.41	3.79	19.65***	4.47	3.77	24.86***	4.42	3.79	19.51***
PSLBI—Motivation	5.00	4.30	45.90***	5.04	4.28	54.78***	4.90	4.33	28.25***	4.93	4.33	31.13***
PSLBI—Compassionate	5.28	4.94	15.68***	5.31	4.92	20.32***	5.29	4.93	16.60***	5.24	4.95	10.82**
PSLBI—Skilled	5.00	4.46	24.36***	5.02	4.44	27.54***	4.92	4.48	14.62***	4.92	4.49	14.56***
PSLBI—Responsible	4.93	4.36	21.82***	4.95	4.34	25.42***	4.82	4.39	11.47**	4.86	4.39	14.78***
PSLBI—Problem-solving	4.81	3.86	69.10***	4.77	3.87	59.76***	4.58	3.94	27.62***	4.66	3.92	37.72***
PSLBI—Commitment-focused	5.33	4.89	16.09***	5.33	4.90	15.93***	5.19	4.94	4.84*	5.21	4.94	5.76*
PSLBI—Character	5.12	4.44	45.76***	5.09	4.45	40.11***	5.02	4.48	27.11***	5.06	4.47	31.44***
PSLBI—Creative-intelligent	5.02	4.36	33.72***	4.87	4.40	15.45***	4.73	4.45	5.25*	4.87	4.42	13.91***
Study 2												
Personality traits												
LTQ—Articulate	5.29	4.74	16.09***	5.24	4.76	11.79**	5.22	4.76	11.81**	5.29	4.74	16.66***
LTQ—Perceptive	5.44	4.84	18.96***	5.33	4.87	10.51**	5.14	4.93	2.43	5.36	4.86	12.97***
LTQ—Self-confident	4.98	4.35	13.20***	4.99	4.36	13.43***	4.68	4.44	1.85	4.92	4.37	10.70**
LTQ—Self-assured	4.54	4.11	5.78*	4.60	4.10	7.94**	4.40	4.15	2.06	4.53	4.11	5.52*
LTQ—Persistent	5.49	5.20	3.68	5.48	5.20	3.18	5.43	5.21	2.21	5.44	5.19	2.87
LTQ—Determined	5.38	4.90	12.39***	5.29	4.93	6.39*	5.19	4.96	2.87	5.26	4.94	5.42*

(Continues)

TABLE 3 (Continued)

	Task leadership			Motivational leadership			Social leadership			External leadership		
	High-quality leaders	Others	F (1,362)	High-quality leaders	Others	F (1,362)	High-quality leaders	Others	F (1,362)	High-quality leaders	Others	F (1,362)
LTQ—Trustworthy	5.51	4.92	18.02***	5.42	4.95	11.34***	5.27	4.99	4.11*	5.31	4.98	5.79*
LTQ—Friendly	5.26	5.46	2.01	5.35	5.43	.34	5.38	5.42	.09	5.29	5.47	1.71
LTQ—Outgoing	5.63	5.22	7.07**	5.68	5.20	9.30**	5.51	5.25	2.93	5.60	5.24	5.73*
LTQ—Conscientious	4.76	4.62	0.74	4.61	4.67	0.10	4.57	4.69	0.53	4.63	4.68	0.08
LTQ—Diligent	5.69	5.35	5.55*	5.76	5.33	9.19**	5.58	5.39	1.91	5.56	5.42	1.14
LTQ—Sensitive	5.09	4.85	3.12	4.94	5.06	0.78	4.92	5.07	1.22	4.80	5.12	5.35*
LTQ—Empathic	4.98	5.00	0.03	4.96	5.00	0.07	4.88	5.03	1.16	4.94	5.02	0.24
Dominant	4.73	3.96	17.64***	4.55	4.03	7.80**	4.26	4.11	0.62	4.63	3.99	12.47***
MBTI—Extraversion vs Introversion	3.55	2.81	17.50***	3.55	2.81	17.01***	3.48	2.82	14.16***	3.57	2.81	18.78***
MBTI—Sensing vs Intuition	3.70	3.31	6.53*	3.51	3.37	0.81	3.57	3.35	2.07	3.68	3.32	5.54*
MBTI—Thinking vs Feeling	2.67	2.38	2.74	2.70	2.37	3.52	2.39	2.47	0.19	2.62	2.39	1.81
MBTI—Judging vs Perceiving	3.21	2.79	5.29	3.10	2.83	2.07	2.78	2.93	0.76	3.09	2.84	1.93
Leadership styles												
DTLI—Individual consideration	5.57	5.19	18.10***	5.60	5.19	20.96***	5.46	5.22	7.22**	5.49	5.22	9.68**
DTLI—Inspirational motivation	5.15	4.80	10.10**	5.18	4.79	13.06***	5.04	4.84	3.50	5.08	4.83	5.68*
DTLI—Intellectual stimulation	4.67	4.17	19.03***	4.53	4.22	6.91**	4.43	4.24	2.55	4.55	4.21	8.84
DTLI—Promoting teamwork	5.47	4.73	42.46***	5.48	4.74	42.18***	5.37	4.76	29.08***	5.33	4.78	23.10***
DTLI—High-performance expectations	5.47	5.03	13.04***	5.42	5.05	9.53**	5.17	5.12	0.18	5.46	5.04	12.40***
DTLI—Appropriate role model	5.16	4.35	46.39***	5.09	4.37	34.26***	4.84	4.44	10.42**	5.08	4.38	34.77***
DTLI—Contingent reward	5.99	5.56	15.97***	6.10	5.53	28.67***	5.96	5.56	13.66***	5.93	5.57	11.72**
LC—Inspirational	4.59	4.05	30.87***	4.55	4.06	24.93***	4.37	4.11	7.05**	4.59	4.04	31.50***
LC—Coaching	5.51	5.25	8.44**	5.54	5.24	12.13**	5.44	5.27	4.06*	5.48	5.26	6.68*
LC—Participative	5.15	5.17	0.02	5.21	5.15	0.42	5.14	5.17	0.14	5.09	5.19	1.13
LC—Yielding	3.60	4.11	17.73***	3.59	4.11	18.36***	3.60	4.12	19.22***	3.42	4.18	43.09***

(Continues)

TABLE 3 (Continued)

	Task leadership			Motivational leadership			Social leadership			External leadership		
	High-quality leaders	Others	F (1,362)	High-quality leaders	Others	F (1,362)	High-quality leaders	Others	F (1,362)	High-quality leaders	Others	F (1,362)
LC—Withdrawn	3.25	3.65	14.52***	3.28	3.64	11.51**	3.34	3.62	7.42**	3.16	3.68	27.18***
LC—Distrustful	2.46	2.66	2.85	2.39	2.68	5.86*	2.41	2.68	5.38*	2.45	2.67	3.38
LC—Authoritarian	3.13	2.78	6.02*	2.99	2.83	1.24	2.96	2.83	0.81	3.12	2.78	5.68*
LC—Directive	4.30	3.83	18.78***	4.20	3.86	8.97**	4.08	3.89	2.90	4.29	3.84	17.16***

***P < .001;
**P < .01;
*P < .05.

Task leadership

The most characteristic attributes for perceived high-quality task leaders were self-reported leadership behaviors—in particular, four subscales of the PSLBI (ie, problem-solving, motivation, character, and creative-intelligent), all four subscales of the ILI (ie, prototypicality, advancement, entrepreneurship, and impresarioship), two subscales of the DTLI (ie, promoting teamwork and appropriate role model), and one subscale of the LC (ie, inspirational leadership). With respect to personality traits, being extraverted was the most important distinguishing characteristic for high-quality task leaders, followed by being articulate and perceptive (LTQ). These findings held regardless of which cut-off was used to identify when athletes were perceived as high-quality leaders (ie, Top 25%, Top 20%, Top 15.9%, or Top 10%).

Based on the more fine-grained results presented in Appendix S2 some differences can be noted between male and female teams, between teams active at high and low competitive levels, and between the four sports. For example, while the absence of yielding and withdrawn leadership styles were characteristic for female task leaders, these characteristics were not relevant for male leaders. Moreover, while the four identity leadership subscales were very important in discriminating high-quality task leaders at a high competitive level, only the subscale of identity prototypicality (ie, being one of us) was relevant at a low competitive level. Furthermore, despite the important discriminating role of extraversion in general, this attribute was not relevant in low-level teams, in soccer teams, and in basketball teams. Despite these few exceptions, we can conclude that the above-mentioned characteristics were able to distinguish high-quality task leaders in both male and female teams, active at high and low competitive level, and across four sports, although the relative contribution of the predictor variables varied.

Motivational leadership

For high-quality motivational leaders, the most distinguishing attributes were motivation and problem-solving (PSLBI), the four identity leadership subscales (ILI), promoting teamwork, and appropriate role modeling (DTLI). Although contingent reward (ie, providing teammates with positive feedback when they are performing well) also emerged as a discriminating characteristic of high-quality motivational leadership when using the cut-offs of Top 25% and Top 20%, this was no longer the case when using a more confined definition of high-quality motivational leadership (eg, Top 10%). Personality traits and individual differences that further distinguished between motivational leaders and others were the scores derived from the extraversion subscale (Big 5 and MBTI) as well as being articulate, self-confident, and trustworthy (LTQ).

TABLE 4 The discriminate function of each leadership role, using the cut-off value of the top 25% best target-specific effect scores (social relations model analyses) to identify the high-quality athlete leaders

Study 1

	Task leadership quality	Motivational leadership quality	Social leadership quality	External leadership quality
R^2	.22	.22	.17	.16
% of original grouped cases correctly classified	81.0	78.2	78.4	77.1
% of cross-validated grouped cases correctly classified	78.3	74	76.7	76.5

Task — Predictor variables	r	Motivational — Predictor variables	r	Social — Predictor variables	r	External — Predictor variables	r
PSLBI—Problem-solving	.81	PSLBI—Problem-solving	.77	ILI—Being one of us	.64	PSLBI—Problem-solving	.74
PSLBI—Motivation	.66	PSLBI—Motivation	.74	PSLBI—Motivation	.63	PSLBI—Character	.68
PSLBI—Character	.66	PSLBI—Character	.63	PSLBI—Problem-solving	.62	PSLBI—Motivation	.68
PSLBI—Creative-intelligent	.57	ILI—Being one of us	.59	PSLBI—Character	.62	ILI—Being one of us	.64
ILI—Being one of us	.55	ILI—Crafting a sense of us	.56	Big 5—Extraversion	.60	ILI—Making us matter	.53
ILI—Doing it for us	.51	ILI—Doing it for us	.55	ILI—Making us matter	.59	Big 5—Extraversion	.51
Big 5—Conscientiousness	.50	PSLBI—Skilled	.52	ILI—Crafting a sense of us	.55	ILI—Crafting a sense of us	.50
PSLBI—Skilled	.48	Big 5—Extraversion	.51	ILI—Doing it for us	.49	ILI—Doing it for us	.49
ILI—Crafting a sense of us	.47	PSLBI—Responsible	.50	PSLBI—Compassionate	.48	PSLBI—Responsible	.47
PSLBI—Responsible	.46	PSLBI—Compassionate	.45	PSLBI—Skilled	.45	PSLBI—Skilled	.46
Big 5—Extraversion	.42	ILI—Making us matter	.44	PSLBI—Responsible	.40	PSLBI—Creative-intelligent	.45
PSLBI—Commitment	.39	PSLBI—Commitment	.40			PSLBI—Compassionate	.40
PSLBI—Compassionate	.39	PSLBI—Creative-intelligent	.39			Big 5—Conscientiousness	.31
ILI—Making us matter	.38	Big 5—Conscientiousness	.36				
Big 5—Neuroticism	−.32						

Study 2

	Task leadership quality	Motivational leadership quality	Social leadership quality	External leadership quality
R^2	.28	.24	.22	.26
% of original grouped cases correctly classified	84.2	83.6	76.7	80.9
% of cross-validated grouped cases correctly classified	76.7	75.2	71.0	73.3

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TABLE 4 (Continued)

Study 2

Task leadership quality		Motivational leadership quality		Social leadership quality		External leadership quality	
Predictor variables	**r**	**Predictor variables**	**r**	**Predictor variables**	**r**	**Predictor variables**	**r**
DTLI—Appropriate role model	.58	DTLI—Promoting teamwork	.59	DTLI—Promoting teamwork	.53	LC—Yielding	−.61
DTLI—Promoting teamwork	.54	DTLI—Appropriate role model	.53	LC—Yielding	−.41	DTLI—Appropriate role model	.53
LC—Inspirational	.46	DTLI—Contingent reward	.49	DTLI—Contingent reward	.38	LC—Withdrawn	−.47
LTQ—Trustworthy	.40	LC—Inspirational	.43	MBTI—Extraversion vs introversion	.36	LC—Inspirational	.47
LTQ—Articulate	.39	DTLI—Individual consideration	.39	LTQ—Articulate	.36	DTLI—Promoting teamwork	.43
LTQ—Perceptive	.39	MBTI—Extraversion vs introversion	.38	DTLI—Appropriate role model	.31	LTQ—Articulate	.39
DTLI—Intellectual stimulation	.38	LC—Yielding	−.37			MBTI—Extraversion vs introversion	.37
LC—Directive	.37	LTQ—Articulate	.36			LC—Directive	.37
Dominant	.36	LTQ—Self-confident	.35			LTQ—Perceptive	.33
MBTI—Extraversion vs introversion	.36	LTQ—Trustworthy	.34			DTLI—High-performance expectations	.32
LC—Yielding	−.34	DTLI—Inspirational motivation	.32			DTLI—Contingent reward	.31
DTLI—Individual consideration	.33	LTQ—Perceptive	.31			Dominant	.31
DTLI—Contingent reward	.33	LTQ—Outgoing	.30				
LTQ—Self-confident	.31						
DTLI—High-performance expectations	.31						
LC—Withdrawn	−.31						

Note: Only predictor variables with correlations greater than or equal to .30 are listed.

The more detailed analyses in Appendix S3 revealed that the main findings with respect to the characteristic leadership behaviors (ie, the motivation and problem-solving subscales of PSLBI, the four ILI subscales, and the promoting teamwork and appropriate role model subscales of the DTLI) held for both male and female teams, active at high and low competitive level, across the four sports. With respect to the personality traits, some differences emerged. For example, while male motivational leaders were characterized by being extraverted and articulate, female motivational leaders excelled in being self-confident and trustworthy. Furthermore, while being articulate and trustworthy were discriminating traits at a high competitive level, motivational leaders in low-level teams were instead characterized by their self-confidence.

Social leadership
In line with the other leadership roles, high-quality social leaders could be distinguished from other team members on the basis of their identity leadership skills (ILI) and their motivation and problem-solving skills (PSLBI). In addition, the character subscale of PSLBI (ie, being popular and respected by teammates) contributed to identification of these leaders, as well as being compassionate and responsible (PSLBI). Study 2 added that, regardless of the specific cut-off being used, promoting teamwork (DTLI) was the most important predictor variable in discriminating high-quality social leaders. Characteristic personality traits were extraversion (Big 5, MBTI) and being articulate (LTQ).

The more fine-grained analyses in Appendix S4 indicate that the main findings (ie, the discriminating potential of identity leadership, problem-solving and motivation skills, character, promoting teamwork, and extraversion) held for both male and female teams at high and at low competitive level. Despite this general consistency, some minor differences emerged. For example, while being articulate was an important trait for high-quality social leaders in male teams and in teams active at a high competitive level, this was not the case for social leaders in female or low-level teams.

External leadership
High-quality external leaders could be identified by their problem-solving abilities, their character (ie, being respected by teammates), their motivational skills (PSLBI), their identity leadership (all four subscales of ILI), and their ability to be an appropriate role model and promote teamwork (DTLI). Study 2 also indicated that the absence of yielding and withdrawn leadership styles was an important predictor of being perceived as a high-quality external leader. With respect to personality traits, being articulate was perceived as an important attribute to represent the team well toward external parties.

Appendix S5 revealed that the main discriminating attributes (ie, problem-solving abilities, character, and all four identity leadership subscales) were able to discriminate high-quality external leaders in both male and female teams, at high and at low level, and in all four sports. Appropriate role modeling emerged as a discriminating attribute in male and female teams, at high and at low level, but only in volleyball and handball. Promoting teamwork, on the other hand, was important for high-quality external leaders in basketball and volleyball, while external leaders in soccer teams were identified by the absence of yielding and withdrawn leadership styles.

4 | DISCUSSION

In sports teams, it is not only the coach, but also the other leaders within a team who have an impact on the team's effectiveness.[2] Given the ever-growing pressure to perform, selecting and appointing the right leaders has become a critical process for sports teams. As a result, the historical debate about how to identify high-quality leaders is today, more than ever, a trending topic. While previous studies have focused largely on only one leadership theory or one set of leadership traits or behaviors,[17] the aim of the present research was to integrate and contrast different leadership theories in order to provide more insight into the quest for the ideal athlete leader. Moreover, rather than examining leadership in general, we distinguished between four leadership roles that athletes can occupy: the role of task and motivational leader on the field and the role of social and external leader off the field.

4.1 | The distinct profile of high-quality athlete leaders

In order to determine which leadership attributes were most decisive in distinguishing high-quality leaders, we adopted an integrated perspective that simultaneously examined the predictive power of a broad range of different leadership traits and behaviors using discriminant analysis. An important observation is that while some personality traits (in particular, extraversion and being articulate) emerged as important predictors, it was mainly leadership behaviors that were most predictive in distinguishing high-quality athlete leaders.

4.1.1 | Discriminating leadership behaviors

Addressing ourselves more closely to the question of which leadership behaviors best distinguish the high-quality

athlete leaders, the following conclusions can be drawn based on the results of the discriminant analyses (presented in Table 4).

Peer sport leadership behaviors
The measure derived from the problem-solving subscale (PSLBI) was situated in the top three predictors for the leadership quality in all four leadership roles. However, some items included in this subscale are better proxies for leadership in general than for the specific problem-solving abilities. Example items are "My teammates look to me for leadership in crucial matches" and "I'm the glue that keeps the team together and playing its best." Being a proxy for leadership in general rather than specifically assessing problem-solving abilities could also explain the large correlations between scores derived from this subscale and scores derived from the other subscales of PSLBI (ie, r's ranging between .48 and .75; all P's $< .001$). As such, the observed discriminant ability of this subscale might have been a methodological artifact and partially caused by overlap between the content of this subscale and the construct of leadership itself.

The measure derived from the motivation subscale (PSLBI) also emerged as a distinguishing attribute of high-quality leaders across the four leadership roles. A closer look at the content of this subscale revealed that here too some of the items covered broader leadership abilities rather than strictly motivational skills. Some items also addressed identity leadership skills—for example, items such as "My teammates know I always put the team first" (representing identity advancement), "I lead by example," and "I'm a great role model because of my training habits" (both representing identity prototypicality). Indeed, bivariate correlations between scores derived from the motivation subscale and those derived from the four subscales of identity leadership range between $r = .59$ and $r = .70$ (all P's $< .001$). Given this significant content overlap with identity leadership, we will focus on identity leadership in our discussion below.

It is noteworthy that the measure derived from the character subscale (PSLBI) also emerged as one of the discriminating attributes of high-quality leaders on the four leadership roles. The items of the character subscale point to leaders being popular and admired and respected by their teammates. This finding corroborates previous research which has highlighted the importance of an athlete leader being trusted and respected by other team members[46] and being central in the team's social network.[2] In this, our findings add to the extant literature that being trusted and respected by teammates is important, not just in general, but for each of the four leadership roles. This means that if a coach happens to select a leader who is not respected by their teammates, then that leader's potential to be effective is likely to be severely compromised. Accordingly, it is important for coaches to involve their players in the decision-making process when selecting

team leaders. Ideally too, these leadership perceptions would be integrated and visualized in a leadership network of the form provided by Shared Leadership Mapping technology.[28] The resulting networks map the leadership structure in the team across each of the four roles and can be used by coaches to identify those players who are perceived as best leaders in a specific role by their teammates.

Transformational leadership behaviors
Previous research has highlighted the general value of transformational leadership behaviors in sport.[36] The present research adds to this by indicating that promoting teamwork and being an appropriate role model (DTLI) emerged as the most discriminating attributes for high-quality leaders. This was a finding that held for task, motivational, social, and external leaders. Looking more closely at the content of the subscale "promoting teamwork," we observe that its three items focus on "encouraging athletes to be team players," "getting the team to work together for the same goals," and "developing a strong team attitude and spirit among athletes." The content of this subscale thus closely aligns with identity entrepreneurship (ie, crafting a sense of us). Similarly, the transformational leadership behavior of being an appropriate role model (assessed with items such as "I am a good role model for my teammates" and "I guide my teammates by setting a good example") is closely related to the concept of identity prototypicality. It is thus possible that the content overlap with identity leadership is responsible for these subscales' discriminating power to predict high-quality leadership in the four roles.

Identity leadership behaviors
The previously highlighted overlap in content with the identity leadership scales already points to the capacity for identity leadership behavior to differentially identify high-quality leaders. Indeed, all four dimensions of identity leadership emerged in the discriminating set of attributes for high-quality task, motivational, social, and external leaders. In other words, no matter which leadership role leaders fulfilled, in order to be perceived as a good leader, they have to embody, create, advance, and embed a collective sense of "we" and "us" in their teams. More specifically, our study demonstrated that high-quality leaders perceived themselves as being prototypical for the group. This finding aligns with previous work indicating that good leaders set an example for their teammates in terms of what it means to be a member of the team (eg, by working hard during practice, games, and off-season).[46] Furthermore, the high-quality leaders in our study clearly put the team's interests at heart (ie, identity advancement). These findings are in line with previous work indicating that social leaders offer support to their teammates, contribute to the team harmony, and ensure teammates are involved and included

in team events.[24] Furthermore, high-quality leaders in our study distinguished themselves by their identity entrepreneurship (ie, crafting a sense of us). This finding corroborates the findings of previous experimental research which shows that leaders who cultivate a sense of shared team identity are able to produce positive changes in teammates' team confidence and performance.[47,48] Finally, high-quality leaders distinguished themselves by their identity impresarioship behavior. This finding aligns with previously observed importance of leaders securing material outcomes (eg, resources, support, and recognition) for the team.[24] Moreover, while previous research has pointed to the general importance of behaviors that foster shared identity for leadership (without using the overarching theoretical framework of the social identity approach to leadership), the findings of our study indicate that each of the four specific identity leadership dimensions is essential when it comes discriminating high-quality athlete leaders both on the field (as task or motivational leaders) and off the field (as social and external leaders).

4.1.2 | Discriminating personality traits

Although leadership behaviors made the largest contribution in discriminating high-quality leaders from their less effective counterparts, our findings suggest that personality traits are not irrelevant. More specifically, in line with a previous meta-analysis of personality and leadership[4] showing that extraversion emerged as the most consistent correlate of leadership, extraversion was also the most important personality trait for discriminating high-quality task, motivational, social, and external leaders. While this meta-analysis reported a correlation between extraversion and leadership of .25 in organizational settings, our findings indicate that this link might even be stronger in sports settings (with correlations in our study ranging between .30 and .47). Here, then, extraverts might be perceived as better leaders due to their expressive nature and the subsequent impact of their positive emotionality. Indeed, the pervasiveness of emotions in sports settings and the close proximity of athletes on the field (eg, compared to organizational settings) might also explain the stronger relationship in sports settings.

Besides being extraverted, being articulate also emerged as a discriminating attribute for high-quality leaders in all four leadership roles (with correlations between .27 and .30). This observation might be explained by the fact that being articulate is essential for many leadership behaviors. For example, in relation to transformational leadership, power and influence arise from being able to articulate a vision that is accepted and acted upon by the followers. Similarly, leaders who want to engage in successful identity leadership need to be able to articulate what

the group stands for and what binds them together in order to craft a shared sense of "we" and "us."

4.2 | High-quality leaders in different contexts

Our stratified sample allowed us to examine similarities and differences in the leader profiles of high-quality leaders who were male or female, active at high or low competitive level, and in different sports. On this basis, we can conclude that our main findings with respect to the characteristic leadership behaviors (ie, the motivation and problem-solving subscales of PSLBI, the four ILI subscales, and the promoting teamwork and appropriate role model subscales of the DTLI) held for both male and female teams, and for leaders active at high and low competitive level, and across all four of the sports we studied. Yet despite this general consistency, some differences can be noted. In what follows, we highlight some key observations.

4.2.1 | Leader profiles for male and female leaders

Eagly et al[49] noted previously that evaluations of leaders can differ between males and females with perceivers showing a small overall tendency to evaluate female leaders less favorably than male leaders. This finding did not hold for sports teams, where no differences in perceived leadership quality emerged between male and female teams for perceptions of task, motivational, and social leadership. The only (marginal) difference pertained to external leadership, where male participants ($M = 4.09$; SD = 0.95; $t = 1.97$, $P = .05$) were on average perceived as better leaders than female participants ($M = 3.95$; SD = 1.04). We realize of course that because male leaders were rated by their male teammates and vice versa for female leaders (due to the specific team sports context), a direct comparison between male and female ratings was not possible.

With respect to attributes, previous literature has highlighted the importance of athletic ability (ie, being skilled) when team members evaluate the leadership status of their peers.[13] Our study confirms that being skilled is indeed one of the discriminating attributes for leadership quality. In addition, though, it is important to note that for both male and female leaders, other leadership attributes had a stronger discriminating impact than athletic ability.

Furthermore, some interesting differences can be noted with respect to the discriminating identity leadership dimensions for the four leadership roles. By way of illustration, while identity prototypicality was important for both male and fame leaders, for male leaders crafting a sense of us (ie, identity entrepreneurship) was highly discriminant

of their quality, whereas high-quality female leaders profited more from attending to the team's interests (ie, identity advancement). This finding held for task, motivational, and social leaders, as well as for male external leaders. For female external leaders, making us matter (ie, identity impresarioship) was the most discriminant subscale of leadership quality.

4.2.2 | Leader profiles at high and at low competitive level

Specifically, with respect to the four identity leadership dimensions, it is apparent that for motivational, social, and external leadership, all four identity leadership subscales were very important in discriminating high-quality leaders, both at a high and at a low competitive level. The only difference was observed for task leadership; while all four identity leadership dimensions served to discriminate high-quality leaders at a high competitive level, at a low competitive level, only identity prototypicality (ie, being one of us) emerged as relevant predictor.

Furthermore, previous research has suggested that the traits that are characteristic of high-quality leaders could differ between leaders at higher and lower competitive levels. For example, Rylander et al[13] showed that scores derived from different Big Five subscales were differentially predictive for leaders at different competitive levels, with less agreeable athletes emerging as leaders among elite groups, while more extraverted athletes were perceived as leaders among non-elite groups. Our findings did not substantiate these results. First, we did not replicate the discriminating role of agreeableness, neither at high, nor at low competitive level, for any of the four leadership roles. Indeed, the very low correlations of agreeableness with quality in the four leadership roles (ie, ranging between −.001 and .05) suggest that agreeableness is not related to leadership quality. On the other hand, extraversion was found to be an important trait for distinguishing high-quality task, motivational, social, and external leaders, in particular at a high competitive level.

4.2.3 | Leader profiles in different sports

To our knowledge, no previous research has compared athlete leaders' attributes across different sports. The fact that the present study had a stratified sample of athletes drawn from four sports allowed us to provide some insight into this matter. Although our main findings (ie, the discriminating potential of the four identity leadership dimensions and the problem-solving and motivation subscales of the PSBLI) were consistent across all four sports, some notable differences emerged for the other variables. For example, extraversion was not a discriminating characteristic for

task, motivational, social, and external leaders in basketball teams. Furthermore, the findings revealed that task, social, and external leaders in soccer teams were characterized by the absence of yielding and withdrawn leadership styles, in a way that was not true for leaders in other sports.

4.3 | Strengths of the present research

A major strength of the present research is that, to our knowledge, it is the first to assess such a wide variety of attributes in one study. Moreover, simultaneously exploring the power of both traits and behaviors to predict athletes' leadership quality allowed us to examine their relative strength in a way that few other studies have.

Second, while previous work has focused on the attributes of leadership quality in general, we distinguished between four different leadership roles that athletes can occupy (ie, task and motivational leader on the field, and social and external leader off the field). Given the observed differences between the key attributes for each of these roles, it is important both for future research and for sport practice to take this distinction into account in the quest for the optimal leader.

A third strength is that we used a network approach to assess each athlete's leadership quality, which allowed us to identify athletes' leadership quality as perceived by their teammates. While previous studies used self-reports to assess leadership quality or focused on the team captain (who is rarely the best leader in the team[23,50]), this method allowed us to identify the best leader in the team on each of the four roles. Furthermore, by using social relations model for the first time in a sports context, we were able to filter out the target effect, which reflected the extent to which a particular team member was perceived as high-quality leader by others. In contrast to the measure of indegree centrality, this measure controlled for both the tendency of other team members to give high scores (ie, perceiver effects) and the particularities of a leader's relationship with other team members (ie, relationship effects).

A fourth strength of our study arises from the nature of our sample, which was stratified across male and female teams, high and low competitive level, and four different sports. Indeed, the large sample size (N = 776) allowed us to test the generalizability of our findings across these variables in a manner recommended by other scholars (who have complained about the failure of previous research to do this).[12]

4.4 | Limitations and avenues for future research

Nevertheless, our study was not without limitations. First, despite including a broad variety in leadership behaviors

and personality traits, it is clear that the list of potential predictors of leadership quality is endless. Accordingly, we focused on only a limited number that related to key perspectives in leadership research. Future research is therefore necessary to study the impact of other behaviors or traits on perceived leadership quality such as a servant leadership style[51] or authentic leadership behavior.[52] Although these leadership behaviors have only rarely been applied in the sports context in the past, they do potentially explain additional variation in an athlete's leadership quality both on and off the field.

Second, we used subjective perceptions of leadership quality, rather than objective observational measures. Yet given that individuals' perceptions of a situation are more important than the objective situation in determining their feelings and actions,[53] we believe that perceptions of leadership quality are more strongly related to leader effectiveness. Nevertheless, it would be interesting for future researchers to examine whether perceived leadership quality or objective leadership quality (based on observational measures) is most predictive of leader effectiveness.

Third, while we used peer-ratings to assess a player's leadership quality, we used self-perceptions to assess the different attributes. The reliability of our findings would further increase if we could also adopt peer-ratings to assess all attributes. However, in the present study, this approach would have massively increased the length of the questionnaire. Moreover, our decision to include a wide variety of traits and behaviors and to use multiple-item validated questionnaires instead of single items mitigated against using anything other than self-report to assess leader attributes. Given that this study revealed the key attributes associated with being a good athlete leader, future researchers could rely on peer-ratings by using a network approach on the resulting set of key attributes to validate our findings.

Fourth, the cross-sectional design of our study prevents us from drawing any causal conclusions. For example, it is possible that leaders who have been given a leadership position by their peers in the past (eg, being assigned as team captain following a team vote) are more likely to self-report leadership attributes. Accordingly, future research could benefit from an intervention design that focuses on the key attributes found here. For example, it seems likely that strengthening an athlete's identity leadership behaviors (ie, their ability to strengthen a shared sense of "we" and "us" in the team) would also lead to an increase in the extent to which that athlete is perceived as a good leader by the team. Furthermore, by including indicators of team effectiveness, one could establish (like the meta-analysis of Burke et al[54]) whether the key attributes identified in our study predict not only perceived leadership quality but also leader effectiveness.

A fifth limitation of our cross-sectional design is that temporal variability could not be taken into account. Clearly, changes over time could emerge both in perceptions of leadership quality itself and in the relation between these leadership perceptions and leadership attributes. To illustrate the first point, although newcomers in the team could have large leadership potential, if, at the start of the season, team members are not familiar with them, they might underestimate their leadership quality. In the present study, we reduced this potential bias by collecting data near the end of the season. This ensured that team members had enough time to develop an informed appreciation of their teammates' leadership quality. As noted above, the relationship between leadership perceptions and leadership attributes could also be susceptible to temporal change. For example, research shows that individuals with particular personality traits (eg, narcissism) may be perceived as effective leaders initially but enthusiasm for their leadership might fade over time.[55] Future researchers should therefore use a longitudinal design to gain insight into how the attributes that discriminate high-quality athlete leaders change over the course of a sporting season.

4.5 | Practical implications

This research has two key practical implications. First, its findings can be used to support the selection of athlete leaders in a season (eg, a team captain or a leadership group including leaders on and off the field). Indeed, the discriminant analyses that we used not only identify which attributes contribute maximally to group separation (ie, differentiating high-quality leaders), but can also be used as a basis for assigning newcomers to leadership roles in which they are likely to thrive.[43] In other words, when new players are coming into the team, evaluation can assess both personality traits (eg, extraversion, articulate) and leadership behaviors (eg, identity leadership behaviors) with a view to channeling players toward leadership roles for which they are most suited. Indeed, this has the capacity not only to reduce the likelihood of leadership failure but also to make the most of an individual's leadership potential.

Second, the fact that leadership behaviors had an important role to play in distinguishing high-quality athlete leaders suggests that leaders are not just born, but can also be made. Moreover, there were no key personality traits that negatively discriminated high-quality leaders. In other words, no athletes are inherently born to be bad leaders. Instead, all have the capacity to further strengthen their leadership potential by developing key leadership behaviors. These findings are in line with previous research indicating that while up to 30% of the variance in leadership occupancy might be accounted for by genetic factors, environmental factors account for the remaining variance.[56] This suggests that coaches would be well rewarded for investing time and energy in developing the

leadership qualities of the athletes in their team. The present paper gives a good indication of how best they might do this.

5 | PERSPECTIVES

Following on from the previous point, the evidence we have presented about the important role of particular leadership behaviors in discriminating high-quality athlete leaders points to the clear need for leadership development programs that target these behaviors. Moreover, as the different dimensions of identity leadership were most consistent in discriminating high-quality male and female leaders, at high and low competitive level, and in different sports, leadership programs that specifically target identity leadership skills would appear to be particularly likely to prove beneficial. In other words, teaching athlete leaders how to engage with peers and create, embody, advance, and embed a collective sense of "us" in their teams will not only lead those athletes to be perceived as better leaders themselves, but will also make them key drivers of their team's success.[47,48]

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.