Coach identity leadership behaviours are positively associated with athlete resource appraisals: The mediating roles of relational and group identification.

Anthony J. Miller [a], Matthew J. Slater [a], Martin J. Turner [b]

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[a] School of Life Sciences and Education, Staffordshire University, Stoke-on-Trent, ST4 2DF, UK

[b] Department of Psychology, Manchester Metropolitan University, Manchester, M15 6GX. UK

Corresponding author:

Anthony J. Miller, email: Anthony.miller@research.staffs.ac.uk

Second author:

Matthew J. Slater, email: M.Slater@staffs.ac.uk

Third author:

Martin J. Turner, email: M.Turner@mmu.ac.uk

Abstract

Background: There is growing evidence identifying the positive effects of sport and exercise leaders engaging in identity leadership. Yet we have limited knowledge of how identity leadership is associated with athletes' resource appraisals (e.g., self-efficacy) and performance, the underpinning mechanisms that explain such relationships, and changes in relationships across a sporting season.

Methods: In Study 1, 412 amateur and professional athletes completed seven questionnaires directly prior to athletic competition in a cross-sectional design. In Study 2, 136 athletes completed seven questionnaires directly before competition, and one questionnaire directly after competition both at the start and the end of the athletic season.

Results: In Study 1, relational identification and group identification mediated the positive relationship between identity leadership and self-efficacy, control, approach goals and social support. In Study 2, identity leadership at the start of the season predicted self-efficacy at the end of the season through relational identification. Group identification did not significantly mediate the identity leadership-resource appraisal relationship. Perceived social support at the start of the season predicted greater performance satisfaction at the end of the competitive season.

Conclusions: Findings provide evidence that sport coaches' engagement in identity leadership is key to forming a shared social identity, which in turn, is broadly adaptive for stress appraisals and performance satisfaction both cross sectionally and longitudinally.

Keywords: *Leadership; Social Identity; Identification; Appraisal; Performance*

Social identity theorizing has identified that group processes are central to cognition and behaviour (Tajfel & Turner, 1979; Turner et al., 1987). A significant part of group processes (e.g., communication, commitment to group goals) stem from the leader (Haslam et al., 2011), and this is particularly salient within competitive sport, where it is often the individual representing the group that inspires athletes to unite and mobilize their efforts (see Rees et al., 2015). Recent theorizing into the social identity approach to leadership (Haslam et al., 2011; Steffens et al., 2014a) has endeavoured to identify how such leaders influence a group and create a cohesive and unified environment. When this cohesive environment is created, members will define the self as characteristic of an in-group (e.g., a sport team), seeing themselves as not just "I" but as one of "us". Organizational evidence has indicated that a leader who creates a shared social identity enhances follower trust (Giessner & van Knippenberg, 2008), job performance (Zhu et al., 2015) and the perceived effectiveness and charismatic tendencies of the leader (van Knippenberg & van Knippenberg, 2005).

Identity leadership comprises of four principles (Haslam et al., 2011; Steffens et al., 2014a), whereby leaders: (1) represent the unique qualities that define the group that they lead (i.e., they need to be "one of us"—prototypical); (2) advance and promote the core interests of the group (i.e., they need to "do it for us"—advancement); (3) bring people together by creating a shared sense of "we" and "us" (i.e., they need to craft a sense of us—entrepreneur); and (4) organise events and activities that give weight to the group's existence (i.e., they need to make us matter—impresarioship). In recent years, growing evidence in sport and exercise settings has supported the assertion that leaders who create, embody, advance, and embed a collective sense of "us" are more effective. For example, successful performance directors at the London 2012 Olympic games consistently communicated a positive, distinctive, and enduring sense of social identity in their media communication (Slater et al., 2015). Further, engagement in identity leadership (vs. not) has been associated

with greater intentional and behavioral mobilization of effort (Slater et al., 2018). In addition to sport coaches, team captains embodying identity leadership are perceived to have greater influence, instill team confidence, and strengthen group identification and task cohesion (Steffens et al., 2014a: Study 4). Researchers have also identified that perceived leader-entrepreneurship bolsters physical performance and effort within cycling trials (Stevens et al., 2019a). In exercise settings too, leaders that are perceived to create a sense of "us" enhance attendance and participation in sport and exercise classes (Stevens et al., 2019b).

The mechanisms through which this enactment of identity leadership influences variables such as performance, effort and attendance include both relational (i.e., coach) and group identification. Stevens and colleagues (2019b) found that the enactment of identity leadership has a positive effect on sport and exercise attendance through group identification. Group identification refers to the extent to which individuals feel an emotional attachment and a sense of belonging to groups of which they are part (Tajfel & Turner, 1979). Zhu and colleagues (2015) identified that leaders who strengthen follower group identification are likely to improve follower job performance too. Specifically, because leaders can influence followers to internalize a group as part of their self-concept, this becomes the basis for follower attitude, behaviour, and mobilization to engage with the group they identify with, and in turn, perform better. As an antecedent to group level identification as an influence on variables such as attendance and performance, relational identification with a leader has been found to play a role too. Sluss and Ashforth (2007, p. 15) defined relational identification as "a (partial) definition of oneself in terms of a given role-relationship-what the relationship means to the individual". Sluss and Ashforth (2007) posited that to identify with a collective (i.e. group identification), an individual must identify with the individuals that embody and sustain the role-relationship. Simply, an individual is likely to see the collective (i.e. group identification) as an extension of the dyadic role-relationship (Sluss & Ashforth, 2007).

Echoing this argument, Sluss and colleagues (2012) evidence that strong relational identification with a leader can, in turn, positively influence group identification. Further, these effects are more pronounced when the leader is highly prototypical of an organisation. A heightened level of relational identification has been shown to influence follower creativity (Gu et al., 2015), perceptions of social support (White et al., 2020), and positive appraisals of motivated performance situations (i.e., important/stress-inducing events such as a competitive sport match; Slater et al., 2018). Compared to poor relational identification, perceiving a strong relational identification with a leader positively influences follower efficacy, perceived control, approach goals, and cognitive performance within competitive (non-sport) situations (Slater et al., 2018). Equally, it has also been evidenced that a sense of relational identification with a leader can be inferred from a follower's social identification with a group that unites follower and leader, in turn influencing charisma (Steffens et al., 2014b). To this tune, evidence points to both relational identification with a leader influencing group identification (Sluss et al., 2012), and group identification in turn influencing relational identification (Steffens et al., 2014b). Accordingly, both identification with a leader and group can influence psychological- and performance-related variables. To elucidate inconsistencies, researchers have not yet identified: (1) whether the full identity leadership theoretical model influences psychological resources (i.e., the four identity leadership principles); (2) whether relational and group identification are evidence based mechanisms (i.e., serial mediators) of the identity leadership-resource appraisal relationship; and (3) whether identity leadership and psychological stress variables are meaningfully related within an ecologically valid competitive sporting environment. In other words, an investigation of whether identity leadership influences psychological resources (i.e. self-efficacy, control, approach goals, and avoidance goals) through identification (relational and group) within team-based sporting environments would contribute to identity leadership theory.

In the current paper, the notion of psychological resources (i.e., self-efficacy, control, approach and avoidance goals) stem from the Theory of Challenge and Threat States in Athletes (TCTSA; Jones et al., 2009). Jones et al. (2009) proposed that when psychological resources meet or exceed perceived situational demands, an individual is likely to approach competition in a *challenge* state, which is adaptive for sports performance and well-being (Turner et al., 2014). In contrast, when psychological resources do not meet or exceed perceived situational demands, an individual is likely to approach competition in a *threat* state, which is maladaptive for sports performance (Jones et al., 2009; Meijen et al., 2020; Turner et al., 2014). These psychological resources are appraisals of an individual's level of skill, knowledge and ability in the order to meet or surpass the demands of the situation (Blascovich et al., 2003). Collectively, researchers have found that an athlete who is self-efficacious, perceives control over their actions and has approach goals, is more likely to be challenged by a stressful performance situation, performing better as a result (e.g., Turner et al., 2012; Turner et al., 2014). Within the TCTSA, avoidance goals (i.e. motivated towards avoiding incompetence) have also been conceptualised as a resource, though being a contributor towards threat responses and poorer performance rather than challenge responses and enhanced performance (Jones et al., 2009). Moving beyond individual resources (i.e. self-efficacy, perceived control and approach goals and avoidance goals), within the revised TCTSA (TCTSA-R: Meijen et al., 2020), social support has been conceptualised as a resource appraisal. This addition follows advances in research that has considered social support a key contributor to the stress process (Blascovich et al., 2003; Blascovich & Mendes, 2000; Dixon & Turner, 2018; Meijen et al., 2020). Empirical research has identified that social support improves sport coaches' stress related coping (Dixon & Turner, 2018). Though proposed as part of the stress process (Meijen et al., 2020), and evidence identifying the benefits of social support (Dixon & Turner, 2018), it is yet to be operationalised as a

resource appraisal in published research. As part of the coping process, the identity leadership perspective extends on the premise that a dyadic relationship can predict appraisals by considering the dynamicity of a group. A leader can endorse a shared social identity—by behaving in-line with the 4 principles of identity leadership—consequently, athletes develop interpersonal connections with the leader and therefore the group that they are part of (Haslam et al., 2011). With previous reviews suggesting that shared social identities can influence cognitive appraisals (Slater et al., 2016), we suggest that identity leadership can influence athletes' appraisals of a sporting event through developing connections with a leader and group. Formally, we examine the following hypotheses in Study 1:

H1: There will be a positive atemporal association between perceived identity leadership and self-efficacy, perceived control, approach goals, and social support, and a negative association with avoidance goals.

H2: The atemporal association between perceived identity leadership and resource appraisals will be mediated by relational and group identification.

Regarding performance, previous researchers have found mixed evidence regarding how psychological states (e.g., resource appraisals) relate to sports performance. In the TCTSA (Jones et al., 2009) and TCTSA-R (Meijen et al., 2020) it is posited that when self-efficacy, perceived control, approach focus and perceptions of support meet or exceeds perceived demands, an individual is likely to show a challenge response, in turn positively influencing performance and well-being. In-line with this thinking, researchers have evidenced that considering the appraisal of the event carries implications for performance (González-Morales, & Neves, 2015; Moore et al., 2012). Specifically, challenge-based appraisals have been found to positively influence subjective performance (Nicholls et al., 2012). That said, some researchers have found that psychological resources do not significantly relate to performance (Turner et al., 2012). To add to the inconsistency, Slater

and colleagues (2018) found mixed effects for both resource appraisals and cardiovascular indices (of challenge and threat) on cognitive performance. Specifically, perceiving a stronger identification with a leader was concordant with greater resource appraisals, mobilization of effort, and cognitive performance on a concentration grid activity (Study 2). Yet, no such findings were apparent on a separate cognitive task (Study 3). These mixed results urged Slater and colleagues (2018) to call for future research to investigate the relationships between identity leadership, resource appraisals and performance in more ecologically valid settings. Given that leadership success is evaluated over time, Slater and colleagues (2018) also evidenced the need for longitudinal field investigations into the influence of identity leadership.

In the current research, we aim to address Slater and colleagues' (2018) calls, and bring together leadership (Haslam et al., 2011) and stress theory (Meijen et al., 2020), by examining whether athletes' perceptions of their coach's identity leadership can predict resource appraisals, and performance satisfaction across an athletic season. We also investigate whether relational and group identification mediate these temporal relationships. Identifying to what extent sport coaches influence appraisal and performance holds implications for theoretical development given that leadership is not currently considered in the predominant theory (Jones et al., 2009; Meijen et al., 2020). Formally, we examine the following hypotheses in Study 2:

H3: There will be a positive temporal association between perceived identity leadership and self-efficacy, perceived control, approach goals and social support, and a negative association with avoidance goals.

H4: The temporal association between perceived identity leadership and resource appraisals will be mediated by relational and group identification.

H5: Identity leadership, relational identification, group identification and resource appraisals at wave one will account for a significant proportion of variance in performance satisfaction at wave two, when controlling for wave one performance satisfaction.

Overview of studies

The present research uses both a cross-sectional and longitudinal design in understanding the influence of identity leadership, being an approach taken in comparable, recent research (Stevens et al., 2020). Study 1, to our knowledge, is the first to examine the atemporal mechanisms (i.e., relational and group identification) by which engagement in identity leadership by sport coaches predicts athletes' resource appraisals in the lead up to a competitive event. Extending our first study, in Study 2 we longitudinally examine associations between identity leadership, relational and group identification, resource appraisals, and sports performance (i.e. satisfaction) in two waves across an athletic season. By assessing variables longitudinally, we can identify whether perceptions of leadership influence athletes' resource appraisals through the mechanisms of relational and group identification across a season. Further, we identify the antecedents that contribute towards sports performance over a competitive season. By recognising the influence of these social processes on resource appraisals (Study 1 and 2) and performance (Study 2), we aim to advance stress (Meijen et al., 2020) and leadership (Haslam et al., 2011) theory.

Study 1

Participants and Design

We adopted an atemporal cross-sectional design to investigate indirect effects of identity leadership on resource appraisals when approaching competition. Four hundred and twelve athletes (M_{age} = 23.86 ± 5.38; 299 males; white British, n = 383) of various sporting experience (M_{years} = 11.29 ± 6.46) within amateur (64%) and professional sport (36%) took part in the study. Athletes competed across 34 sports, including; football (n = 89), rugby (n =

42), lacrosse (*n* = 21), hockey (*n* = 24) netball (*n* = 20), cricket (*n* = 19), ultimate frisbee (*n* = 12), swimming (*n* = 10), dance (*n* = 4), tennis (*n* = 5), american football (*n* = 4), athletics (*n* = 4), hurling (*n* = 2), basketball (*n* = 23), cheerleading (*n* = 4), kickboxing (*n* = 3), handball (*n* = 4), futsal (*n* = 15), volleyball (*n* = 18), badminton (*n* = 5), water polo (*n* = 13), airsoft (*n* = 2), ice hockey (*n* = 7), karate (*n* = 2), gymnastics (*n* = 2), softball (*n* = 8), golf (*n* = 4), archery (*n* = 1), mixed martial arts (*n* = 1), running (*n* = 20), korfball (*n* = 3), curling (*n* = 2), equestrian (*n* = 9) and boxing (*n* = 10).

Procedure

Following institutional ethical approval, convenience and snowball sampling techniques were adopted, contacting coaches via emails, word of mouth, and social media. Convenience sampling was achieved by liaising with athlete groups. Snowball sampling was achieved by encouraging athletes on completion to send details of the study to other potential athletes that may be interested. Once approved by the team coach (via convenience sampling) and athletes (via snowball sampling) a Qualtrics survey was sent to the athletes within an hour of competition. All surveys were completed on the participants' electronic device. To ensure participants filled the forms authentically, the athletes were asked questions which were reversed coded, and were asked how imminent commencement of competition was. Those who did not fill the forms authentically were removed from analyses.

Measures

Identity leadership. The Identity Leadership Inventory (ILI) is a 15-item questionnaire that measures the four principles of identity leadership (Steffens et al. 2014a). The ILI is a robust measure of identity leadership and has been validated across 20 countries (van Dick et al., 2018). The questionnaire includes items such as "*My coach embodies what the team stands for*" (Identity-prototypical, α = .92), "*My coach stands up for the team*" (Identity-advancement, α = .88), "*My coach creates a sense of cohesion within the team*" (Entrepreneur

of identity, α = .93), and "*My coach devises activities that bring the team together*" (Impresario of identity, α = .91). In-line with Stevens and colleagues' (2019b), a global identity leadership measure (comprised of all 15 items) demonstrated excellent internal consistency (Cronbach's α = .97). Though a four-factor model of the ILI has been conceptualized, Steffens and colleagues (2014a) identified that the intercorrelations between the four principles have significant overlap. Given that this is the case, and to maintain sufficient statistical power, subsequent analyses are run on global identity leadership.

Group and relational identification. A 3-item questionnaire was used to identify how strongly athletes identified with their sport team (Slater et al., 2018): "*I feel a strong connection with the team"*, "*I identify strongly with the team"* and "*I feel no connection with the team"* (reverse scored). Responses were on a Likert scale from 1 (*not at all*) to 7 (*very true*). This measure has been used by identity leadership researchers (e.g., Slater et al., 2018) and demonstrated good reliability in the current study (α = .86). The same three items and scale used for group identification were edited, replacing the words "*the team*" to "*my coach*". These changes, in-line with Slater and colleagues' (2018) procedure, identified an athletes' level of relational identification with the leader. The measure showed good internal consistency (α = .89).

Self-efficacy. Derived from the self-efficacy scale using Bandura's (2006) guidelines, two items measured how confident each athlete felt to perform well in the upcoming match (Turner et al., 2012). Specifically, the questionnaire asked; "*In the next fixture, to what extent do you feel confident that you can perform well?*" and "*In the next fixture, to what extent do you feel confident that you can fulfil your potential?*". Participants reported on a Likert scale from 1 (*not at all*), to 5 (*very much so*). Cronbach's alpha was acceptable (α = .76).

Perceived control. Adapted from the Academic Control Scale (Perry et al., 2001; Turner et al., 2012), a single item was used to identify perceived control over their upcoming

performance: "*The more effort I put into the following fixture, the better I will do?*". Typical of research measuring resource appraisals (e.g. Turner et al., 2014), the item was recorded on a 5-point Likert-scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Achievement goals. The Achievement Goal Questionnaire (AGQ: Conroy et al., 2003; Turner et al., 2012) was used to identify an athlete's motivational disposition towards performance. This was condensed to a 4-item measure for brevity, with a single item for each subscale. The scale in this capacity has been individually validated (Conroy et al., 2003) in measuring resource appraisals (e.g., Slater et al., 2018; Turner et al., 2013). These 4 items were used to create two subscales, approach (from mastery approach and performance approach) and avoidance (from mastery avoidance and performance avoidance). Approach (α = .64) and avoidance (α = .72) subscales were internally consistent.

Athletes' received support. A 22-item questionnaire identified an athlete's perception of received support (ARSQ: Freeman et al., 2014). This measure identifies 4 dimensions of social support: emotional, esteem, informational, and tangible. All items followed from the stem "*In the build up to the upcoming fixture, to what extent has someone*"… "*cheered you up*" (emotional, α = .92), "*comforted you*" (esteem, α = .94), "*given you tactical advice*" (informational, α = .93), and "*helped manage your training sessions*" (tangible, α = .95). Freeman and colleagues (2014) found support for both a four-factor and a unidimensional model. Much like Freeman and colleagues, Cronbach's alpha for all subscales combined was excellent (α = .96). Given that the intercorrelations between the four principles have significant overlap, and aiming to maintain sufficient statistical power, subsequent analyses are run on overall social support.

Task importance. A single item identified whether the upcoming fixture is important to them, from 1 (*not at all*) to 5 (*very much so*). This item is commonly used in TCTSA research, providing valid data in measuring task importance (e.g., Slater et al., 2018; Turner

et al., 2014). Task importance is a prerequisite of challenge and threat responses (Jones et al., 2009).

Data analysis

For main analyses, we identify the indirect effects of identity leadership on resource appraisals when approaching competition (Chadha et al., 2019; Cohen et al., 2003). Specifically, we identify the extent to which identification with a leader and group indirectly effect the relationship between perceived identity leadership and self-efficacy, perceived control, approach goals, avoidance goals and received support. Given that power analyses calculations are necessary for robust research (Schinke et al., 2020), Monte Carlo estimations, via the MARlab application (Schoeman et al., 2017) were conducted. For path a^1, a^2 and d^{21} parameter estimations between, and standard deviations of identity leadership (X) and group identification (M2) reported by Stevens and colleagues (2018) within sports teams were used. For paths b^1, b^2 and c', estimations are based on previous associations between identity leadership parameters and resource appraisals (Slater et al., 2018). From this, small to medium (R^2; b^1, b^2 and c' = .28) associations for paths b^1, b^2 and c' are anticipated (Slater et al., 2018; Thoemmes et al., 2010). Inline with previous studies (Stevens et al, 2019b), alpha was set at .05, and 5000 replications were conducted. From this, sample size estimates for the mediated paths indicated at least 135 participants to achieve a power of .80 (a^1b^1 N = 92, a^2b^2 N = 125, $a^1d^{21}b^2$ N = 135). Analyses were conducted via the lavaan package of R software (v. 4.0.0). Structural equational model estimates (with two serial mediators) are reported alongside cluster-robust standard errors to control for non-independence of errors (i.e. controlling for a suspected correlation between error terms within each sports team). Given that (a) research has evidenced that relational identification informs social identification (Sluss & Ashforth, 2007; Sluss et al., 2012), and (b) that relational identification can be inferred as a result of group identification (Steffens et al., 2014b), both mediators (i.e.,

relational and group identification) are tested as mediator 1 and mediator 2. Simply, relational identification is placed in the models as mediator one, with group identification being placed as mediator two. Then, group identification is placed in the models as mediator one, with relational identification being placed as mediator two. Robust clustering enabled calculation of 95% confidence intervals (CI's) for all indirect effects. If the CI does not cross zero, a significant indirect effect has occurred (Zhao et al., 2010). Further, a good-fitting model is required to interpret paths of a structural model (Imai et al., 2010). Hence, the robust comparative fit index (i.e., the discrepancy between the data and the hypothesized model; CFI), the standardised root mean square residual (i.e., standardized difference between the observed correlation and the predicted correlation; SRMR), and the robust root mean square error of approximation (i.e., absolute measure of fit; RMSEA) were reported. Values close to .08 for the robust RMSEA and .06 for the robust SRMR are indicative of a good model fit. Equally, values close to .95 for CFI (Hu & Bentler, 1999) constitute good model fit. An intercorrelation matrix (see Table 1) identified that intercorrelations between variables (excluding the four identity leadership principles) were below the .80 cut-off (Barry & Feldman, 1985). See Figure 1 for a generic model of the serial multiple mediation with two mediators.

[insert Figure 1]

[insert Table 1]

Results

Preliminary Analyses

No missing data were revealed within all subscales. Following Smith's (2011) guidelines, data-points with *z* scores greater than two were winsorized. This is a process in which extreme values are replaced to reduce the influence of outliers on the data. Overall, 5.24% of the data were winsorized. The multicollinearity assumption was met, and cook's

distance values were less than 1. Variance inflation factor values (≤ 5.432) and tolerance values (≥ .184) were acceptable (Hair et al., 1995). The independent errors assumption was satisfied, with Durbin-Watson values (1.64 – 1.937) all within the ≥1 to ≤3 range (Field, 2017). Normally distributed errors, linearity and homoscedasticity assumptions were satisfied across models.

Perceived Importance. Perceived importance is a prerequisite of challenge and threat responses (Jones et al., 2009). A one-sample *t*-test indicated that athletes reported the competition to be of significant importance (i.e., significantly different to zero, $t(412) = 94.34$, $p < .001$, $M = 4.16 \pm .90$).

Serial Mediation Model Analyses

When including relational identification as mediator 1, all models were a good fit (Std. RMR ≤ .05, RMSEA < .08, CFI > .95). When group identification was included as mediator 1, all models were also a good fit (Std. RMR ≤ .06, RMSEA < .08, CFI > .95). Within the following analyses, global identity leadership forms the predictor variable (X), with *relational identification* as mediator 1 (MV), and *group identification* as mediator 2 (MV). The dependent (Y) variable is the respective resource appraisal. Total effects of identity leadership on resource appraisals were significant in most models (see Table 2). The total effect for identity leadership on avoidance goals was not significant ($\beta = .04$, 95% CI = -.14, .22).

There was a non-significant indirect effect for identity leadership on the resource appraisals of self-efficacy, control, approach goals, avoidance goals and social support through relational identification ($\beta \leq .08$, 95% CI = -.23, .19). There was a significant indirect effect for identity leadership on self-efficacy, control and approach goals through group identification ($\beta = .05$, 95% CI = .01, .08). No such effect was found for social support ($\beta =$ .02, 95% CI = -.001, .05) or avoidance goals ($\beta = -.02$, 95% CI = -.05, .02). Furthermore,

there was a significant indirect effect for identity leadership on self-efficacy, control, approach goals, and social support through both relational and group identification ($\beta \geq .03$, 95% CI = .004, .10). No such effect was found for avoidance goals (β = -.02, 95% CI = -.06, .02). Further, there was a significant positive direct effect for identity leadership on self-efficacy, control, approach goals and social support ($\beta \geq .15$, $p \leq .013$) when both mediators were included in this order (i.e., relational and group identification). No significant direct effect was identified for avoidance goals ($\beta = .06$, $p = .63$).

When analyses were run with group identification placed before relational identification, all indirect effects through *both* mediators were non-significant (see supplementary file). Equally, when group identification was included as mediator 1, and relational identification at wave two as mediator 2, there was a significant direct effect of identity leadership on self-efficacy, control, approach goals and social support ($\beta \geq .15$, $p \leq .003$), and this association was mediated by group identification at wave two ($\beta \geq .05$, 95% CI = .007, .16; see supplementary file). A summary of standardised coefficients for total, direct and indirect effects of identity leadership on resource appraisals can be found in Table 4. Further, all mediation models in Study 1 (with mediators in both directions) can be found in the supplementary file.

[insert Table 2]

Discussion

In-line with our expectations, in Study 1 we established that identity leadership is positively associated with self-efficacy, control, approach goals, and social support (H1). There was no significant negative association between identity leadership avoidance goals. The positive associations between identity leadership and self-efficacy, approach goals and perceived control were mediated by group identification. Relational, and in turn group identification (H2), mediated the positive association between identity leadership and self-

efficacy, control, approach goals and social support. Against our expectations, the positive associations between identity leadership and self-efficacy, control, approach goals and social support were not significantly mediated by relational identification. Further, the negative associations between identity leadership and avoidance goals were not significantly mediated by relational identification, group identification, or in serial (H2). When group identification was added as mediator 1, and relational identification was added as meditator 2, all indirect effects were non-significant. The non-significant reversed models' evidence that, supporting Sluss and colleagues' findings (2012), a dyadic emotional connection with the leader is more likely as a result of identity leadership, which then influences group level identification and athletes' appraisals of events. Extending identity leadership and stress theory, Study 1 provides initial evidence that there is a positive relationship between identity leadership and resource appraisals, which is explained by relational and therefore group identification. While this is a useful step forward, Study 1 involved cross-sectional data, and thus, in Study 2, we adopted a longitudinal design to assess these relationships at two waves at the start and the end of an athletic season. Sport performance satisfaction indicators were also included in Study 2 to assess whether social variables and an athlete's approach to competitive situations is conducive to better perceived performances (Turner et al., 2012; Turner et al., 2014).

Study 2

Study 1 data indicated that there was a positive relationship between athletes' perceptions of their coach's identity leadership, and the athletes' resource appraisals, and these relationships were explained by relational and group identification. Extending leadership theory, broadly, these findings show that those who perceive greater self-efficacy, control, approach goals and social support perceive greater emotional connections with their coach and team as a result of sport coaches' enactment of identity leadership principles. Advancing Study 1, and to contribute theoretically to social identity and challenge and threat

approaches, in Study 2 we examined the relationships between identity leadership and resource appraisals (with relational and group identification as mediators) over time. Given an athlete's appraisal of a competitive event has implications for performance (González-Morales & Neves, 2015), in Study 2, we additionally examined whether identity leadership, identification (relational and group), and resource appraisals predicted performance satisfaction across an athletic season.

Method

Participants and Design

A two-wave longitudinal design was adopted to investigate serial mediation models. One-hundred and thirty-six athletes (M_{age} = 24.73 ± 5.39; 118 males) of various sporting experience (M_{years} = 12.82 ± 6.45) within amateur (43%) and professional sport (57%) took part. The sample included athletes who participated in football (n = 81), rugby (n = 37) and netball (n = 18). Comparable with similar research (Stevens et al., 2020), a separate sample of 136 team sport athletes is assessed over time (whilst study 1 used a broader sample of athletes [individual and team sports]) in order to understand the effects of identity leadership in a targeted, under-researched population (within identity leadership research).

Measures

We used the same 7 questionnaires as in Study 1, prior to the competitive fixture. In addition, after the fixture (within an hour), we measured perceived performance satisfaction (Biddle, Hanrahan, & Sellars, 2001), with a single item: "*Please indicate how satisfied you are with your performance in the match you have just participated in*?". This is a previously validated questionnaire anchored at 1 (*totally dissatisfied*) to 10 (*totally satisfied*). Cronbach's alpha on self-efficacy (α = .54) at wave 2 was questionable. The results from these variables should be interpreted with caution. All other subscales on all items across wave 1 and 2 were at least acceptable (α ≥ .79).

Procedure

Following institutional ethical approval, convenience and snowball sampling techniques were adopted, contacting coaches via email, word of mouth, and social media. Once approved by the team's coach (via convenience sampling) and athletes (via snowball sampling), paper surveys were given to the athletes within an hour of competition. Wave 1 surveys were handed out within the first two weeks of the season. On the first page it was noted that this was a two-wave study, and that the procedure will be repeated towards the end of the season. If consent was not granted, athletes were thanked for their consideration. Athletes then completed demographic information and the 7 questionnaires. After the competition fixture, within an hour of completion, the players were asked to rate their performance. Wave 2, which was an exact replication of the above, was completed in the final two weeks of the season (8 months later).

Data Analysis

Main analyses involved two stages. First, serial mediation analyses (Cohen et al., 2003) were conducted. We tested whether identification (relational and group) at wave 2 mediated the relationship between perceived identity leadership at wave 1 and resource appraisals at wave 2. Like Study 1, initially, relational identification at wave 2 formed mediator 1, and group identification at wave 2 formed mediator 2. Then, mediators were reversed, placing group identification at wave two as mediator 1, and relational identification at wave 2 as mediator 2. Typical when assessing longitudinal autoregressive models, wave 1 repeated variables were used as controls (Adachi & Willoughby, 2015). As with Study 1, for indirect effects, analyses were conducted via the lavaan package of R software (v. 4.0.0). Structural equational model estimates (with two serial mediators) are reported using the Satorra-Bentler correction (see Chou et al., 1991) alongside cluster-robust standard errors to control for non-independence of errors (i.e. controlling for a suspected correlation between

error terms within each sports team) and multivariate non-normality. Robust clustering was enabled, with statistical significance of indirect effects being determined using 95% CI's (Zhao et al., 2010). Retaining the power analyses used for study 1[1], sample size estimates for the mediated paths indicated at least 135 participants to achieve a power of .80 across all paths (a^1b^1 N = 92, a^2b^2 N = 125, $a^1d^{21}b^2$ N = 135). Further, mediational research assessing the longitudinal associations between identification (Stevens et al., 2019b; Wakefield, Bowe, Kellezi, Butcher, & Groeger, 2020) and dependent variables has used similar participant numbers to the present study (N = 186, Stevens et al., 2018; N = 122, Wakefield et al., 2020). Second, typical of challenge and threat research within ecologically valid settings (Blascovich et al., 2004; Turner et al., 2012), hierarchical multiple regression analyses (via R software 4.0.0) were conducted to identify whether facets of social factors and resource appraisals at wave one predicted wave 2 performance satisfaction.

Results

Preliminary Analyses

Missing values analyses revealed that all missing data at both time points were missing completely at random ($\chi^2 \geq .322$, $p \geq .149$), with .1% of overall data responses being missing. From this, multiple imputations were conducted, and following Smith's (2011) guidelines, data-points with z scores greater than two were winsorized. Across all regression models, Cook's distance values were less than 1, the multicollinearity assumption was met and variance inflation factor (≤ 1.094) and tolerance values ($\geq .914$) were acceptable (Hair et al., 1995). Independent errors (Durbin-Watson, 1.767 – 2.308), normally distributed errors, linearity, and homoscedasticity assumptions were satisfied across models. The assumption of multivariate normality (Mardia Skewness < .05) was violated across all endogenous

[1] The monte carlo power estimations using the current software packages do not account for control variables as part of power analyses (Schoeman, Boulton, & Short, 2017). The present power calculation should be considered an approximate estimate. That said, these results ensure confidence that our final sample (N = 136) for study 2 was sufficient for mediation analyses.

variables. In dealing with this, the Satorra-Bentler model was run, and robust-cluster standard errors are reported (see Chou et al., 1991). Intercorrelation matrices for wave 1 and wave 2 can be seen in Table 3.

Perceived Importance. Two one-sample *t*-tests indicated that athletes (at both waves) reported the competition to be of significant importance (i.e., significantly different to zero: wave 1, $t(145) = 48.69$, $p < .001$, $M = 3.86 \pm .96$; wave 2, $t(135) = 57.35$, $p < .001$, $M = 4.01 \pm .82$). A paired samples *t*-test identified that there was a non-significant increase in perceived importance from wave one to wave two, $t(135) = -1.55$, $p = .123$.

[insert Table 3]

Serial Mediation Model Analyses

When including relational identification as mediator 1, self-efficacy, approach goals, avoidance goals and social support models were an acceptable fit (Std. RMR ≤ .06, Robust RMSEA < .08, Robust CFI > .90). With mediators in this order, acceptable fit was not identified within the control model (Std. RMR = .06, Robust RMSEA = .13, Robust CFI = .87). When group identification was included as mediator 1, the self-efficacy, control, approach, avoidance and social support models were an acceptable fit (Std. RMR ≤ .06, Robust RMSEA < .08, Robust CFI > .90). Within the following analyses, perceived identity leadership at wave 1 forms the predictor variable (X), with *relational identification* at wave two forming M1. *Group identification* at wave two formed M2 and respective resource appraisal at wave two formed the Y variable. Lastly, all wave one variables were used as covariates to control for stability effects. Total effects of identity leadership at wave one on self-efficacy at wave two was significant ($p = .05$). All remaining total effects of identity leadership at wave one on resource appraisals at wave two were non-significant. Complete mediation models can be seen in the supplementary file.

Self-efficacy and control. There was a significant indirect effect for identity leadership at wave 1 on self-efficacy and control at wave 2 through relational identification at wave 2 ($\beta \geq .10$, 95% CI = .02, .20). There was a non-significant indirect effect for identity leadership at wave 1 on self-efficacy and control at wave 2 through group identification at wave 2 ($\beta < .001$, 95% CI = -.04, .03). Furthermore, there was a non-significant indirect effect for identity leadership at wave 1 on self-efficacy and control at wave 2 through both relational and group identification at wave 2 ($\beta \leq .01$, 95% CI = -.02, .04). Further, there was a significant positive direct effect for identity leadership at wave 1 on self-efficacy at wave 2 ($\beta = .10$, $p = .03$).

Approach goals, avoidance goals and social support. There was a significant indirect effect for identity leadership at wave 1 on social support at wave 2 through relational identification at wave 2 ($\beta = .06$, 95% CI = .004, .12). The association between identity leadership at wave 1 and approach goals, avoidance goals and social support at wave two was not significantly mediated by group identification at wave two ($\beta \leq .04$, 95% CI = -.03, .09). There was a significant indirect effect for identity leadership at wave 1 on approach goals at wave 2 through both relational and group identification at wave 2 ($\beta = .07$, 95% CI = .02, .13). Both relational and group identification at wave 2 did not significantly mediate the relationship between identity leadership at wave 1 and social support at wave two ($\beta = -.01$, 95% CI = -.05, .02). Further, there was a non-significant direct effect for identity leadership at wave 1 on approach goals, avoidance goals and social support at wave 2 ($\beta \leq .10$, $p > .05$; see supplementary file).

When analyses were run with group identification at wave two placed before relational identification at wave two, all indirect effects through *both* mediators were non-significant (see supplementary file). Equally, when group identification at wave two was included as mediator 1, and relational identification at wave two as mediator 2, there was a

significant direct effect of identity leadership at wave one on self-efficacy (β = .10, p = .03), and this was mediated by relational identification at wave two (β = .12, 95% CI = .06, .18). In assessing bi-directional relationships (e.g. self-efficacy at wave one predicting identity leadership at time 2), no significant associations were found. A summary of standardised coefficients for total, direct and indirect effects of identity leadership at wave one on resource appraisals at wave two can be found in Table 4. Further, all mediation models in Study 2 (with mediators in both directions) can be found in the supplementary file.

[insert Table 4]

Performance Satisfaction

Within hierarchical multiple regression models, wave one performance satisfaction was added at Step one, followed by identity leadership (Step 2), relational identification (Step 3), group identification (Step 4), and all resource appraisals (Step 5). For wave one performance satisfaction (Step 1: R^2 = .002, p > .05), identity leadership (Step 2: R^2 = .01, p > .05), relational identification (Step 3: R^2 = .02, p > .05) and group identification (Step 4: R^2 = .03, p > .05), there was a non-significant proportion of variance accounted for after each addition. For resource appraisals, a significant proportion of variance was accounted for by the addition of step 5 (Step 5: R^2 = .08, p < .05). Specifically, wave one social support was significantly associated with performance satisfaction at wave two (β = .40, p = .019).

Discussion

Overall, Study 2 indicated mixed support for our hypotheses. In-line with expectations, identity leadership at wave 1 was positively associated with self-efficacy at wave 2 (H3), and this was mediated by relational (but not group, in simple or serial mediation) identification at wave 2 (H4). Contrary to our expectations, identity leadership was not associated with perceived control, approach goals or social support temporally (H3).

When group identification was added as the M1 variable, and relational identification as the M2 variable, all indirect effects (i.e. through both group and relational identification) were non-significant. Further, when assessing bi-directional relationships (e.g. self-efficacy at time one predicting identity leadership at time two), all models were non-significant. With this finding, the present research supports that perceptions of leadership serve as an antecedent to the outcome, being athletes' resource appraisals. From this it can be argued that an individual's appraisal of an event is based on feedback received from an individual's subjective reality, inclusive of the leader (see Slater et al., 2018). In-line with our hypotheses, perceived social support at the start of the season predicted greater performance satisfaction at the end of the season (H5), but contrary to expectations, no other social factors or resource appraisals did. Collectively, our findings evidence that sport coaches who are perceived to display identity leadership at the start of the season are likely to positively influence athletes' self-efficacy on approach to sporting competition at the end of the season. Further, the association between identity leadership and self-efficacy is explained through a greater relational connection with the coach.

General Discussion

The purpose of this programme of research was to examine the influence of athletes' perceptions of sport coach's identity leadership on relational and group identification, resource appraisals, and athletic performance. In sum, findings provided mixed support for our hypotheses. In-line with H1, in Study 1, perceptions of coach identity leadership were positively associated with athletes' self-efficacy, perceived control, approach goals, and social support. In support of H2, relational and group identification (in this order) mediated the positive association between identity leadership and self-efficacy, control, approach goals and social support. Further, alone, group identification mediated the positive relationship between identity leadership and self-efficacy, control and approach goals. In contrast to H2,

alone, relational identification did not significantly mediate the relationship between identity leadership and all resource appraisals. Lastly, group identification did not significantly mediate the positive relationship between identity leadership and social support. Overall, identity leadership did not negatively associate with avoidance goals, nor was the relationship mediated by relational nor group identification. In Study 2, supporting H3, perceptions of coach's identity leadership at wave 1 were positively associated with athletes' self-efficacy (but not control, approach goals, avoidance goals and social support) at wave 2. When relational identification at wave 2 was included as a mediator, there was a positive association between identity leadership at wave 1 and self-efficacy at wave 2 (H4). In contrast to H4, in serial mediation models, relational and group identification at wave 2 did not explain the relationship between identity leadership at wave 1 and resource appraisals at wave 2. Further, when mediators were reversed (i.e., group identification placed before relational identification), no significant indirect effects were identified. Thus, over time, a strong relational identification with a leader did not, in turn, positively influence group identification (Sluss & Ashforth, 2012), nor was a sense of relational identification inferred from a follower's group identification (Steffens et al., 2014b). Regarding performance satisfaction, supporting H5, perceptions of social support at the start of the season predicted greater performance satisfaction at the end of the season. No other social factors or resource appraisals at the start of the season predicted performance satisfaction at the end of the season.

Theoretical Contributions

Overall, our two studies contribute to theory in three noteworthy ways. First, extending leadership theory, across Study 1 and 2, broadly, we find evidence that perceptions of coaches' identity leadership positively influenced athletes' resource appraisals towards motivated performance situations as a result of a sense of connection with their coach and

sport team. One reason for this could be due to a sport coaches role in influencing athletes to internalize their coach-athlete relationship as part of their self-concept (i.e., relational identification), and this may have been the basis for athletes' attitude and behaviour, mobilizing athletes to engage with the group they identify with, in turn appraising the competition more adaptively (i.e., greater resources appraisals). Slater and colleagues (2018) found similar results in that relational identification with a leader aided intentional mobilization and resource appraisals. Extending Slater and colleagues' (2018) findings, our research suggests that relational and group identification serve as mechanisms through which identity leadership influences appraisals within an ecologically valid setting.

Second, Study 2 advances identity leadership theory by providing initial evidence pointing to the temporal mechanisms behind sport team dynamics and athletes' stress appraisals. We found that perceived identity leadership played a part in creating a strong relationship between athlete and coach over time, in turn, predicting greater perceptions of self-efficacy. That said, similar to Slater et al. (2018), we present inconsistent findings regarding resource appraisals. A potential reason for this may be the meaning behind the dyadic relationship (i.e., shared identity content; Slater, Coffee, Barker, Haslam, & Steffens, 2019), not explored in ours, nor Slater et al's (2018) study. The belief that a leader and follower have similar ideas about the meaning of the group, such as being results-focused, influences follower mobilization of efforts toward a performance task. As the leader and followers share collective meaning (e.g., to approach tasks with confidence), dyadic identification is likely to be endorsed, and thus psychological resources are likely to be bolstered alongside enhanced mobilization (Slater et al., 2019). To this end, there is scope for future research to identify whether shared identity content serves as the mechanism through which resource appraisals are improved, and performance is enhanced.

Inconsistent with our first study, in Study 2, we found that identity leadership did not contribute to creating a strong relationship between athlete and group over time, nor did group identification predict elevated appraisals. Because perceived identity leadership influenced relational identification, to then influence group identification in the serial mediation models (Study 1), our evidence suggests that the emotional connection between leader and athlete that was formed may supersede group identification, as per Sluss and colleagues' (2012) propositions. In other words, self-efficacy may form as a result of relational identification rather than group identification. In sum, evidence from Study 2 indicates that it is pivotal within competitive sport that sport coaches make every effort to display identity leadership consistently across athletic seasons in order to retain and develop relational identification, which in turn enhances perceptions of efficacy in their athletes. It may be so that a leader's influence is bolstered as a result of a dyadic connection, (see Slater et al., 2018) thus persuasion to engage in activities may be endorsed by a follower, improving efficacy over time (Maddux, & Gosselin, 2003).

Third, broadly, the findings from Study 1 and 2, reflecting two independent samples of athletes, show that identity leadership and identification (with a leader and group) influences athletes' self-efficacy, perceived control, approach goals, and social support, indicating support for the propositions within the TCTSA-R (Meijen et al., 2020). Our research points to social antecedents of stress appraisals, such as perceptions of leadership. Particularly, we evidence that identity leadership may serve as a dispositional factor within the stress process, influencing the transaction between the environment and the stress response. It is important for an athlete to perceive that support is available from those who they share a strong connection with (i.e., a leader or group) to in turn use opportunities for support in anticipating motivated performance situations. This is particularly noteworthy given that leadership and other social factors (e.g., number of positive group memberships) have been found to be vital

in other approaches to health/stress (e.g., the social cure; Haslam et al., 2018). Thus, our findings support the notion of social resources, in that resources (friends; memberships in clubs and organizations) have been found to attenuate stressful situations (Billings & Moos, 1981). In turn, these social resources predict greater overall performances as a result of collective supportive climates (Peñalver et al., 2019), which are products of leadership (Zhu et al., 2015). To this tune, our findings add to initial conceptualizations (Slater et al., 2016) and evidence (Slater et al., 2018) that identity-based leadership serves as a significant antecedent to resource appraisals on approach to motivated performance situations (Meijen et al., 2020). Specifically, athletes believing that their coach shows identity leadership behaviours is likely to be associated with greater self-efficacy, perceived control, approach goals and perceived support cross sectionally (Study 1), and self-efficacy over time (Study 2).

As evidenced, some inconsistencies were found across our studies. In Study 1, group identification, cross-sectionally, influenced the process through which perceived coach identity leadership influenced athlete resource appraisals. Further, we found that perceptions of identity leadership positively influenced relational identification, in turn, positively influencing group identification and resource appraisals (excluding avoidance). However, in Study 2, longitudinally, only relational identification (not group identification) proved influential in the process through which perceptions of identity leadership at the start of the season influenced resource appraisals at the end of the season (i.e., only self-efficacy). Because our findings point to a relationship between perceptions of identity leadership and psychological appraisals over time, practically, identity leadership interventions such as the 3R's (Haslam et al., 2011) may prove pivotal in improving athletes' competitive appraisals and performance satisfaction. By this, leaders should aim to understand the social identities within a group (i.e., *reflect*), act in line with group expectations and norms (i.e., *represent*), and help set structures to achieve group goals (i.e., *realize*). In doing this, identification (i.e.

relational and group) is likely to be enhanced (Haslam et al., 2011), and competitive appraisals and performance satisfaction improved. In response to Slater et al. (2018) and Nicholls et al.'s (2012) calls, our data adds to previous findings, identifying that there are psychological consequences of identity leadership (Study 1) over time (Study 2), and that performance satisfaction can be influenced by social support across an athletic season (Study 2). Indeed, practically speaking, given the positive influence of social support at wave 1 predicting performance satisfaction at wave 2, we recommend that at the start of athletic seasons, coaches and sport psychologists should look to develop social support interventions (e.g., proactively during pre-season).

Limitations and Future Research Directions

Our studies are not without limitations. First, in both studies, we did not measure athletes' appraisals of the event in the few seconds immediately before the event started due to ethical reasons (Tenenbaum et al., 2002). Evidence has indicated that appraisals are fluid (Blascovich & Mendes, 2000; Chadha et al., 2019), and thus, it is plausible that the appraisals athletes reported an hour before the competition changed in the imminent seconds before the start. Though we know reappraisal happens in the moments before competition, we captured data as close to competition as feasible. Second, we based our research on stress theory (Jones et al., 2009), but the polychotomous propositions of the TCTSA-R were not included in this research (Meijen et al., 2020). By this without measuring Lazarusian appraisals of motivational relevance (i.e., the intensity of the competitive stress response) and goal congruence (i.e., the pursuit of goals that align with goals that the group intend to achieve; Lazarus & Folkman, 1984), it was not possible to test the TCTSA-R in this study (Meijen et al., 2020). There is merit in future studies identifying whether physiological reactivity to stressful situations can be influenced by identity leadership and identification variables over time, as well as researchers developing measurement tools that align with the TCTSA-R

(Meijen et al., 2020). Speaking of measurement, there has been evidence that single item measures (i.e. AGQ; Conroy et al., 2003; Turner et al., 2012), compared to full-length scales, may not be sufficient indicators of a construct, reducing reliability (Hays et al., 2012). Although this is the case, the used scales have proven valid in measuring resource appraisals (Slater et al., 2018; Turner et al., 2013). Although study 2 measured intraindividual associations over time, there was a gender imbalance, and thus it may be beneficial for future research to incorporate stratified sampling techniques ensure a gender balance (e.g. Fransen et al., 2015). Those who took part in the study Finally, regarding performance, other pertinent markers were not considered. Future research may benefit in taking a holistic perspective when measuring performance, such as individual-objective (i.e., km ran, percentage pass completion) parameters.

Conclusion

In the present research we examined whether the perceptions of sport coach's identity leadership predicted athletes' resource appraisals cross-sectionally (Study 1) and longitudinally (Study 2), and whether these relationships were explained by relational and group identification. We also explored the influence of identity leadership on performance satisfaction across a season (Study 2). Broadly, we find evidence that perceptions of identity leadership influenced athletes' self-efficacy, perceived control, approach goals and perceived support, through identification with both the coach and the team (Study 1). In addition, we identified that perceptions of identity leadership at the start of a season was associated with athletes' self-efficacy at the end of the season through relational (but not group) identification (Study 2). Additionally, receiving social support at the start of the season positively predicted increased performance satisfaction at the end of the season. These findings stimulate the need for sport coaches to understand both: (1) the importance of displaying identity leadership behaviours for their athletes' resource appraisals and performance satisfaction, and 2) how

relational and group identification may be key mechanisms through which resource appraisals are optimized.

References

1. Adachi, P., & Willoughby, T. (2015). Interpreting effect sizes when controlling for stability effects in longitudinal autoregressive models: Implications for psychological science. *European Journal of Developmental Psychology*, *12*(1), 116-128. https://doi.org/10.1080/17405629.2014.963549
2. Bandura, A. (2006). Guide for constructing self-efficacy scales. *Self-efficacy Beliefs of Adolescents*, *5*, 307-337.
3. Berry, W. D., Feldman, S., & Stanley Feldman, D. (1985). *Multiple regression in practice* (No. 50). Sage.
4. Biddle, S. J. H., Hanrahan, S. J., & Sellars, C. N. (2001). *Attributions: Past, present, and future*. In R. N. Singer, H. A. Hausenblas, & C. M. Janelle (Eds.), Handbook of sport psychology (p. 444-471). Chichester: Wiley.
5. Billings, A. G., & Moos, R. H. (1981). The role of coping responses and social resources in attenuating the stress of life events. *Journal of Behavioral Medicine*, *4*, 139-157. doi: 10.1007/BF00844267
6. Blascovich, J., & Mendes, W. B. (2000). *Challenge and threat appraisals: The role of affective cues*. In J. Forgas (Ed.), Feeling and thinking: The role of affect in social cognition (pp. 59–82).
7. Blascovich, J., Mendes, W. B., Tomaka, J., Salomon, K., & Seery, M. (2003). The robust nature of the biopsychosocial model challenge and threat: A reply to Wright and Kirby. *Personality and Social Psychology Review*, *7*(3), 234-243. https://doi.org/10.1207/S15327957PSPR0703_03

8. Blascovich, J., Seery, M. D., Mugridge, C. A., Norris, R. K., & Weisbuch, M. (2004). Predicting athletic performance from cardiovascular indexes of challenge and threat. *Journal of Experimental Social Psychology*, *40*(5), 683-688. https://doi.org/10.1016/j.jesp.2003.10.007
9. Chadha, N. J., Turner, M. J., & Slater, M. J. (2019). Investigating irrational beliefs, cognitive appraisals, challenge and threat, and affective states in golfers approaching competitive situations. *Frontiers in Psychology, 10.* https://doi.org/10.3389/fpsyg.2019.02295
10. Chou, C. P., Bentler, P. M., & Satorra, A. (1991). Scaled test statistics and robust standard errors for non-normal data in covariance structure analysis: a Monte Carlo study. *British Journal of Mathematical and Statistical Psychology*, *44*(2), 347-357. https://doi.org/10.1111/j.2044-8317.1991.tb00966.x
11. Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences (2nd edition).* Hillsdale, NJ: Erlbaum.
12. Conroy, D. E., Elliot, A. J., & Hofer, S. M. (2003). A 2× 2 achievement goals questionnaire for sport: Evidence for factorial invariance, temporal stability, and external validity. *Journal of Sport and Exercise Psychology*, *25*, 456-476. https://doi.org/10.1123/jsep.25.4.456
13. Dixon, M., & Turner, M. J. (2018). Stress appraisals of UK soccer academy coaches: An interpretative phenomenological analysis. *Qualitative Research in Sport, Exercise and Health*, *10*, 620-634. https://doi.org/10.1080/2159676X.2018.1464055
14. Field, A. (2017). *Discovering statistics using IBM SPSS Statistics (5th edition)*. London: SAGE Publications Ltd.

15. Fransen, K., Van Puyenbroeck, S., Loughead, T. M., Vanbeselaere, N., De Cuyper, B., Broek, G. V., & Boen, F. (2015). The art of athlete leadership: Identifying high-quality athlete leadership at the individual and team level through social network analysis. *Journal of Sport and Exercise Psychology*, *37*(3), 274-290.

16. Freeman, P., Coffee, P., Moll, T., Rees, T., & Sammy, N. (2014). The ARSQ: The Athletes' Received Support Questionnaire. *Journal of Sport and Exercise Psychology*, *36*(2), 189–202. https://doi.org/10.1123/jsep.2013-0080

17. Giessner, S. R., & Van Knippenberg, D. (2008). "License to fail": Goal definition, leader group prototypicality, and perceptions of leadership effectiveness after leader failure. *Organizational Behaviour and Human Decision Processes*, *105*, 14-35. https://doi.org/10.1016/j.obhdp.2007.04.002

18. González-Morales, M. G., & Neves, P. (2015). When stressors make you work: Mechanisms linking challenge stressors to performance. *Work & Stress*, *29*(3), 213-229. https://doi.org/10.1080/02678373.2015.1074628

19. Gu, Q., Tang, T. L. P., & Jiang, W. (2015). Does moral leadership enhance employee creativity? Employee identification with leader and leader–member exchange (LMX) in the Chinese context. *Journal of Business Ethics*, *126*(3), 513-529. https://doi/10.1007/s10551-013-1967-9

20. Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1995). *Multivariate Data Analysis (3rd edition)*. New York: Macmillan.

21. Hays, R. D., Reise, S., & Calderón, J. L. (2012). How much is lost in using single items?. *Journal of General Internal Medicine*, *27*(11), 1402-1403. https://doi/10.1007/s11606-012-2182-6

22. Haslam, C., Jetten, J., Cruwys, T., Dingle, G., & Haslam, S. A. (2018). *The new psychology of health: Unlocking the social cure.* London: Routledge.

23. Haslam, S. A., Reicher, S. D., & Platow, M. J. (2011). *The new psychology of leadership: Identity, influence and power.* Hove: Psychology Press.

24. Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1-55. https://doi.org/10.1080/10705519909540118

25. Imai, K., Keele, L., & Tingley, D. (2010). A general approach to causal mediation analysis. *Psychological methods*, *15*(4), 309-334. https://doi.org/10.1037/a0020761

26. Jones, M., Meijen, C., McCarthy, P. J., & Sheffield, D. (2009). A theory of challenge and threat states in Athletes. *International Review of Sport and Exercise Psychology*, *2*(2), 161–180. https://doi.org/10.1080/17509840902829331

27. Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.

28. Maddux, J.E., & Gosselin, J.T. (2003). Self-efficacy. In M.R. Leary & J.P. Tangney (Eds.), Handbook of self and identity (pp. 218–238). New York: Guildford Press.

29. Meijen, C., Turner, M., Jones, M., Sheffield, D., & McCarthy, P. (2020). A theory of challenge and threat states in athletes: A revised conceptualisation. *Frontiers in Psychology*. https://doi.org/10.3389/fpsyg.2020.00126

30. Moore, L. J., Vine, S. J., Wilson, M. R., & Freeman, P. (2012). The effect of challenge and threat states on performance: An examination of potential mechanisms. *Psychophysiology*, *49*(10), 1417-1425. https://doi.org/10.1111/j.1469-8986.2012.01449.x

31. Nicholls, A. R., Polman, R. C., & Levy, A. R. (2012). A path analysis of stress appraisals, emotions, coping, and performance satisfaction among athletes. *Psychology of Sport and Exercise*, *13*(3), 263-270. https://doi.org/10.1016/j.psychsport.2011.12.003

32. Peñalver, J., Salanova, M., Martínez, I. M., & Schaufeli, W. B. (2019). Happy-productive groups: How positive affect links to performance through social resources. *The Journal of Positive Psychology*, *14*(3), 377-392. https://doi.org/10.1080/17439760.2017.1402076

33. Perry, R., Hladkyj, S., Pekrun, R., & Pelletier, S. (2001). Academic Control and Action Control in the Achievement of College Students: A Longitudinal Field Study. *Journal of Educational Psychology*, *93*(4), 776–789. https://doi.org/10.1037//OO22-0663.93.4.776

34. Rees, T., Haslam, S. A., Coffee, P., & Lavallee, D. (2015). A social identity approach to sport psychology: Principles, practice, and prospects. *Sports medicine*, *45*(8), 1083-1096. https://doi.org/10.1007/s40279-015-0345-4

35. Schinke, R. J., Mellalieu, S., Ntoumanis, N., Kavussanu, M., Standage, M., Strauss, B., & Papaioannou, A. (2020). Getting Published: Suggestions and Strategies from Editors of Sport and Exercise Psychology Journals. *Journal of Applied Sport Psychology*, 1-23. https://doi.org/10.1080/10413200.2020.1741725

36. Schoemann, A. M., Boulton, A. J., & Short, S. D. (2017). Determining power and sample size for simple and complex mediation models. *Social Psychological and Personality Science*, *8*(4), 379-386. https://doi.org/10.1177%2F1948550617715068

37. Slater, M. J., Barker, J. B., Coffee, P., & Jones, M. V. (2015). Leading for gold: social identity leadership processes at the London 2012 Olympic Games. *Qualitative Research in Sport, Exercise and Health*, *7*(2), 192-209. https://doi.org/10.1080/2159676X.2014.936030

38. Slater, M. J., Coffee, P., Barker, J. B., Haslam, S. A., & Steffens, N. K. (2019). Shared social identity content is the basis for leaders' mobilization of followers. *Psychology of Sport and Exercise*, *43*, 271-278. https://doi.org/10.1016/j.psychsport.2019.03.012

879 39. Slater, M. J., Evans, A. L., & Turner, M. J. (2016). Implementing a social identity
880 approach for effective change management. *Journal of Change Management*, *16*(1), 18-
881 37. https://doi.org/10.1080/14697017.2015.1103774
882 40. Slater, M. J., Turner, M. J., Evans, A. L., & Jones, M. V. (2018). Capturing hearts and
883 minds: The influence of relational identification with the leader on followers'
884 mobilization and cardiovascular reactivity. *The Leadership Quarterly*, *29*(3), 379-388.
885 https://doi.org/10.1016/j.leaqua.2017.08.003
886 41. Sluss, D. M., & Ashforth, B. E. (2007). Relational identity and identification: Defining
887 ourselves through work relationships. *Academy of Management Review*, *32*(1), 9-32.
888 https://doi.org/10.5465/amr.2007.23463672
889 42. Sluss, D. M., Ployhart, R. E., Cobb, M. G., & Ashforth, B. E. (2012). Generalizing
890 newcomers' relational and organizational identifications: Processes and
891 prototypicality. *Academy of Management Journal*, *55*(4), 949-975.
892 https://doi.org/10.5465/amj.2010.0420
893 43. Smith, M. (2011). *Research methods in accounting* (2nd ed.). London, UK: SAGE
894 Publications Ltd.
895 44. Steffens, N. K., Haslam, S. A., Reicher, S. D., Platow, M. J., Fransen, K., Yang, J., …
896 Boen, F. (2014a). Leadership as social identity management: Introducing the Identity
897 Leadership Inventory (ILI) to assess and validate a four-dimensional model. *Leadership*
898 *Quarterly*, *25*(5), 1001–1024.https://doi.org/10.1016/j.leaqua.2014.05.002
899 45. Steffens, N. K., Haslam, S. A., & Reicher, S. D. (2014b). Up close and personal:
900 Evidence that shared social identity is a basis for the 'special' relationship that binds
901 followers to leaders. *The Leadership Quarterly*, *25*(2), 296-313.
902 https://doi.org/10.1016/j.leaqua.2013.08.008

903 46. Stevens, M., Cruwys, T. and Murray, K. (2020), Social support facilitates physical
904 activity by reducing pain. *British Journal of Health Psychology*.
905 https://doi:10.1111/bjhp.12424
906 47. Stevens, M., Rees, T., Coffee, P., Haslam, S. A., Steffens, N. K., & Polman, R. (2018).
907 Leaders promote attendance in sport and exercise sessions by fostering social identity.
908 *Scandinavian Journal of Medicine & Science in Sports*, *28*(9), 2100-2108.
909 https://doi.org/10.1111/sms.13217
910 48. Stevens, M., Rees, T., Coffee, P., Steffens, N. K., Haslam, S. A., & Polman, R. (2019b).
911 Leading 'us' to be active: A two-wave test of relationships between identity leadership,
912 group identification, and attendance. *Sport, Exercise, and Performance Psychology.*
913 http://dx.doi.org/10.1037/spy0000164
914 49. Stevens, M., Rees, T., Steffens, N. K., Haslam, S. A., Coffee, P., & Polman, R. (2019a).
915 Leaders' creation of shared identity impacts group members' effort and performance:
916 Evidence from an exercise task. *PloS one*, *14*(7), e0218984.
917 /doi:10.1371/journal.pone.0218984
918 50. Tajfel, H., & Turner, J. (1979). An integrative theory of intergroup conflict. In *The Social*
919 *Psychology of Intergroup Relations* (pp. 33–47). https://doi.org/10.1016/S0065-
920 2601(05)37005-5
921 51. Tenenbaum, G., Lloyd, M., Pretty, G., & Hanin, Y. L. (2002). Congruence of actual and
922 retrospective reports of precompetition emotions in equestrians. *Journal of Sport and*
923 *Exercise Psychology*, *24*(3), 271-288. https://doi.org/10.1123/jsep.24.3.271
924 52. Thoemmes, F., MacKinnon, D. P., & Reiser, M. R. (2010). Power analysis for complex
925 mediational designs using Monte Carlo methods. *Structural Equation Modeling*, *17*(3),
926 510-534. https://dx.doi.org/10.1080%2F10705511.2010.489379

927 53. Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S., & Wetherell, M. S. (1987).
928 *Rediscovering the social group: A self-categorisation theory*. Oxford: Basil Blackwell.
929 54. Turner, M. J., Jones, M. V., Sheffield, D., Barker, J. B., & Coffee, P. (2014).
930 Manipulating cardiovascular indices of challenge and threat using resource
931 appraisals. *International Journal of Psychophysiology*, *94*(1), 9-18.
932 https://doi.org/10.1016/j.ijpsycho.2014.07.004
933 55. Turner, M. J., Jones, M. V., Sheffield, D., & Cross, S. L. (2012). Cardiovascular indices
934 of challenge and threat states predict competitive performance. *International Journal of*
935 *Psychophysiology*, *86*(1), 48-57. https://doi.org/10.1016/j.ijpsycho.2012.08.004
936 56. Turner, M. J., Jones, M. V., Sheffield, D., Slater, M. J., Barker, J. B., & Bell, J. J. (2013).
937 Who thrives under pressure? Predicting the performance of elite academy cricketers using
938 the cardiovascular indicators of challenge and threat states. *Journal of Sport and Exercise*
939 *Psychology*, *35*(4), 387-397. https://doi.org/10.1123/jsep.35.4.387
940 57. van Dick, R., Lemoine, J. E., Steffens, N. K., Kerschreiter, R., Akfirat, S. A., Avanzi, L.,
941 ... & González, R. (2018). Identity leadership going global: Validation of the Identity
942 Leadership Inventory across 20 countries. *Journal of Occupational and Organizational*
943 *Psychology*, 697-728. https://doi.org/10.1111/joop.12223
944 58. Van Knippenberg, B., & Van Knippenberg, D. (2005). Leader Self-Sacrifice and
945 Leadership Effectiveness: The Moderating Role of Leader Prototypicality. *Journal of*
946 *Applied Psychology, 90*(1), 25-37. http://dx.doi.org/10.1037/0021-9010.90.1.25
947 59. Wakefield, J. R., Bowe, M., Kellezi, B., Butcher, A., & Groeger, J. A. (2020).
948 Longitudinal associations between family identification, loneliness, depression, and sleep
949 quality. *British Journal of Health Psychology*, *25*(1), 1-16.
950 https://doi.org/10.1111/bjhp.12391

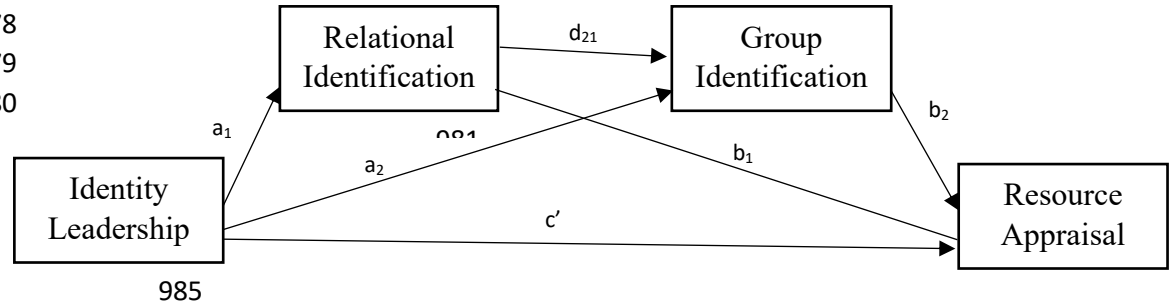
60. White, C., Slater, M., Turner, M., & Barker, J. (2020). More positive group memberships and social identification are associated with greater resilience in Royal Air Force (RAF) personnel. *British Journal of Social Psychology*. https://doi.org/10.1111/bjso.12385

61. Zhao, X., Lynch Jr, J. G., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research*, *37*(2), 197-206. https://doi.org/10.1086/651257

62. Zhu, W., He, H., Trevino, L. K., Chao, M. M., & Wang, W. (2015). Ethical leadership and follower voice and performance: The role of follower identifications and entity morality beliefs. *The Leadership Quarterly*, *22*, 702-718. http://dx.doi.org/10.1016/j.leaqua.2015.01.004

Figure 1

Serial multiple mediation model with two mediators within study 1.



Notes: X—independent variable; Y—Dependent. Variable; M1, M2—Mediators. a1, a2, b1, b2, d21, c'—Regression coefficients.

Table 1

Study 1 Scale Reliabilities, Descriptive Statistics and Inter-correlations

	Mean +/- SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Prototypical	5.08 +/- 1.32	.92											
2. Advancement	5.16 +/- 1.27	.87*	.88										
3. Entrepreneurship	4.71 +/- 1.53	.79*	.74*	.93									
4. Impresarioship	4.69 +/- 1.53	.71*	.71*	.83*	.91								
5. Global Identity Leadership	4.92 +/- 1.27	.91*	.90*	.93*	.90*	.97							
6. Relational Identification	5.16 +/- 1.45	.76*	.72*	.73*	.67*	.79*	.89						
7. Group Identification	5.61 +/- 1.09	.50*	.48*	.49*	.46*	.53*	.56*	.86					
8. Self-efficacy	3.95 +/- .86	.45*	.44*	.41*	.40*	.47*	.45*	.48*	.76				
9. Control	4.16 +/- .79	.44*	.42*	.40*	.40*	.46*	.41*	.47*	.59*	---			
10. Approach	5.62 +/- 1.12	.41*	.41*	.31*	.30*	.39*	.37*	.37*	.50*	.42*	---		
11. Avoidance	4.45 +/- 1.56	.08	.11*	.04	.07	.08	.03	-.01	.02	-.01	.42*	---	
12. Overall Support	4.13 +/- 1.26	.45*	.44*	.51*	.47*	.51*	.46*	.36*	.34*	.39*	.26*	.13*	.96

Note: $p \leq .05$**, $p \leq .01$*

Table 2

Summary of Total, Direct and Indirect Effects Study 1

	Self-Efficacy	Control	Approach	Avoidance	Social Support
Total Effect	β = .21*	β = .23*	β = .24*	β = .04	β = .41*
Direct Effect	β = .15*	β = .18*	β = .18*	β = .06	β = .38*
Relational Identification	β = .06	β = .003	β = .06	β = -.04	β = .08
Group Identification	β = .05*	β = .05*	β = .05*	β = -.02	β = .02
Relational*Group Identification	β = .06*	β = .06*	β = .05*	β = -.02	β = .03*
Group*Relational Identification	β = .008	$\beta \leq$ .001	β = .008	β = -.005	β = .01

Note: $p \leq .05$*, Relational*Group Identification = Relational identification as mediator 1, and group identification as mediator 2. Group*Relational Identification = Group identification as mediator 1, and relational identification as mediator 2.

Table 3

Study 2 Pearson's correlations coefficients (r) between the variables across timepoints

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Prototypical	-	.86*	.80*	.76*	.93*	.70*	.39*	.58*	.44*	.50*	18**	.48*	.46*	.39*	.32*	.45*	.27*	.10
2. Advancement	.88*	-	.79*	.74*	.93*	.69*	.40*	.65*	.40*	.52*	.17**	.48*	.46*	.34*	.32*	.44*	.23*	.08
3. Entrepreneur	.74*	.66*	-	.84*	.93*	.68*	.39*	.65*	.46*	.48*	.17**	.47*	.46*	.40*	.38*	.47*	.24*	-.00
4. Embedder	.62*	.63*	.79*	-	.89*	.61*	.34*	.60*	.41*	.46*	.21**	.46*	.43*	.38*	.36*	.45*	.29*	.04
5. Global identity leadership	.92*	.89*	.90*	.84*	-	.74*	.43*	.68*	.46*	.54*	.19**	.51*	.49*	.41*	.38*	.49*	.28*	.06
6. Relational Identification	.84*	.77*	.78*	.72*	.88*	-	.64*	.57*	.45*	.48*	-.02	.37*	.35*	.25*	.20**	.32*	.27*	.11
7. Group Identification	.42*	.43*	.46*	.44*	.51*	.54*	-	.41*	.31*	.47*	-.14	.23*	.18*	.03	.01	.12	.16	.16
8. Self-efficacy	.47*	.43*	.43*	.40*	.50*	.43*	.45*	-	.51*	.53*	.20**	.40*	.38*	.26*	.18**	.32*	.27*	.16
9. Control	.51*	.41*	.34*	.31*	.46*	.46*	.43*	.65*	-	.53*	.07	.40*	.39*	.20**	.16	.30*	.19**	.07
10. Approach	.46*	.45*	.36*	.33*	.46*	.36*	.43*	.54*	.58*	-	.23*	.43*	.36*	.28*	.26*	.35*	.21**	.19**
11. Avoidance	.36*	.30*	.38*	.28*	.38*	.26*	.29*	.40*	.40*	.71*	-	.21**	.08	.21**	.22*	.19**	.15	.06
12. Emotional	.46*	.36*	.46*	.40*	.49*	.47*	.41*	.49*	.56*	.53*	.46*	-	.87*	.74*	.62*	.87*	.24*	.11
13. Esteem	.42*	.32*	.51*	.42*	.48*	.44*	.4*	.47*	.51*	.47*	.47*	.87*	-	.77*	.68*	.91*	.25*	.09
14. Informational	.31*	.29*	.44*	.36*	.40*	.38*	.27*	.25*	.35*	.22*	.34*	.62*	.66*	-	72*	.90*	.24*	.08
15. Tangible	.25*	.24*	.36*	.28*	.33*	.31*	.16	.17*	.23*	.04	.22**	.43*	.47*	.74*	-	.87*	.11	.02
16. Overall Support	.42*	.35*	.52*	.43*	.49*	.47*	.36*	.40*	.47*	.34*	.42*	.83*	.86*	.90*	.81*	-	.24*	.06
17. Performance Satisfaction	.24*	.21*	.13	.20**	.23*	.30*	.18**	.19**	.21**	.26*	.16	.21**	.20**	.18**	.05	.18**	-	.03

Note: Wave 1 correlations are below the diagonal, and wave 2 correlations are above the diagonal, $p \leq .05$**, $p < .01$*

Table 4

Summary of Total, Direct and Indirect Effects Study 2

	Self-Efficacy	Control	Approach	Avoidance	Social Support
Total Effect	β = .11*	β = -.001	β = .06	β = .07	β = .02
Direct Effect	β = .10*	β = -.002	β = -.01	β = .10	β = .03
Relational Identification	β = .10*	β = .11*	β = .03	β = .03	β = .06*
Group Identification	β = -.01	β = -.001	β = -.08	β = .04	β = .02
Relational*Group Identification	β = .01	β = .001	β = .07*	β = -.03	β = -.01
Group*Relational Identification	β = -.02	β = -.02	β = -.004	β = -.004	β = -.01

Note: $p \leq .05$*, Relational*Group Identification = Relational identification at wave two as mediator 1, and group identification at wave two as mediator 2. Group*Relational Identification = Group identification at wave two as mediator 1, and relational identification at wave two as mediator 2.