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Investigating the Relationship Between Authentic Leadership and Athletes' Commitment,
Positive Affect, and Perceived Teammate Prosocial Behaviour via Trust and Team Culture

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Abstract

1
2 Authentic leadership is a genuine form of leadership in which leaders demonstrate behaviours in
3 line with their moral values. Research has started to examine this leadership style and its impact
4 on a range of athlete outcomes. The aim of this study was to investigate whether coaches'
5 authentic leadership, as perceived by their athletes, is related to athletes' commitment, positive
6 affect, and perceived teammate prosocial behaviour via trust and team culture. Participants were
7 366 (240 females, $M_{age} = 21.07$) athletes, participating mostly in team sports, who completed
8 questionnaires assessing the aforementioned variables. Using multilevel path analysis, we found
9 that authentic leadership was positively related to athletes' commitment and positive affect via
10 trust and team culture, as well as to perceived teammate prosocial behaviour via trust. Our
11 findings enhance our understanding of authentic leadership in sport and highlight its importance
12 in predicting a range of outcomes. The findings suggest that authentic leadership in coaches
13 could be key to creating more positive environments in sport.

14

15 *Keywords:* coaches; commitment; positive affect; perceived prosocial behaviours; leadership

Investigating the Relationship Between Authentic Leadership and Athletes' Commitment, Positive Affect, and Perceived Teammate Prosocial Behaviour via Trust and Team Culture

1 Given the social nature of sport, coaches are seen as highly influential within sports
2 environments and can impact on athletes' development, emotions, and morality (1). Recent
3 leadership models focus on the relationships leaders develop and interactions they have with
4 their followers (2). One such model of leadership, which is highly relevant to sport, is authentic
5 leadership (3). Research shows that authentic leadership is positively related to several desirable
6 outcomes in athletes, such as commitment and enjoyment (e.g., 4, 5). However, although some
7 studies have examined authentic leadership in sport, the majority of authentic leadership research
8 has been conducted in organizational contexts. Yet authentic leadership is highly relevant to
9 sport and could facilitate numerous positive athlete outcomes. This study aims to address gaps in
10 the literature by investigating the relationship between authentic leadership and a range of athlete
11 outcomes.

12 **Authentic Leadership**

13 Authentic leadership is centred around the idea of authenticity which comes from ancient
14 Greek philosophy, referring to "to thine oneself be true" (6). It is considered a genuine form of
15 leadership, whereby leaders' behaviours are in line with their inner beliefs and moral values (7).
16 Many definitions of authentic leadership exist, however in this study, we focus on Walumbwa et
17 al.'s (3) definition. They define authentic leadership as "a pattern of leader behaviour that draws
18 upon and promotes both positive psychological capacities and a positive ethical climate, to foster
19 greater self-awareness, an internalized moral perspective, balanced processing of information,
20 and relational transparency on the part of the leaders working with followers, fostering positive
21 self-development" (p. 94). Walumbwa et al. (3) integrated previous definitions (e.g., 8, 9) and
22 proposed that authentic leadership is a multidimensional construct, which incorporates four key

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1 components: self-awareness, relational transparency, internalized moral perspective, and
2 balanced processing.

3 Self-awareness refers to showing an understanding of one's strengths and weaknesses and
4 being aware of their impact on others (3). One cannot be considered authentic unless one is
5 aware of oneself and so self-awareness is key to authentic leadership (9). Relational transparency
6 pertains to authentic leaders being open with their followers through showing their true thoughts
7 and feelings, while minimising the expression of inappropriate emotions (10, 3). Internalized
8 moral perspective suggests authentic leaders have internal moral standards, which influence their
9 moral behaviours, rather than being guided by group and societal pressures (11) and are able to
10 express where they stand on controversial issues (3). Finally, balanced processing (of
11 information) means that authentic leaders take into account all available information, including
12 their followers' perspective, before coming to an objective decision (3). These components are
13 interconnected, forming a coherent model.

14 Authentic leadership shares similarities with other models, such as transformational
15 leadership, which focuses on transforming and motivating followers (12), and ethical leadership,
16 which is concerned with demonstrating normatively appropriate conduct and promoting such
17 conduct in followers (13). However, it is conceptually distinct from these models as
18 demonstrated by empirical studies. Specifically, studies examining authentic leadership,
19 transformational leadership, and ethical leadership have shown that authentic leadership explains
20 variance in follower outcomes that are not explained by transformational and ethical leadership
21 (3, 5). Thus, there is merit in investigating authentic leadership as a separate leadership model
22 within sport.

23 Authentic leadership is highly relevant to sport for several reasons. Firstly, authentic
24 leaders place importance on developing open and transparent relationships and are concerned
25 with their followers' development. This is expected to instil high levels of trust and result in

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1 positive outcomes in athletes. Indeed, it has been suggested that in order to be effective, coaches
2 need to encourage caring and trusting coach-athlete relationships (1). Secondly, the moral
3 component of authentic leadership could help to establish moral team norms and thus may
4 positively impact on followers' ethical conduct (3). This is vital given that sport is of a social
5 nature and athletes' behaviour could be influenced by the norms coaches create (14). Finally,
6 authentic leaders could create more positive sports environments, which may impact on athletes'
7 commitment, enjoyment, and sports participation (4). Thus, there is merit in investigating this
8 form of leadership in sport.

9 **Authentic leadership and athlete outcomes**

10 In line with models of authentic leadership (8, 9), this construct is expected to be related to
11 numerous outcomes in followers. In this section, we start by discussing the potential
12 relationships between authentic leadership and positive affect, commitment, and perceived
13 teammate prosocial behaviour. We then outline how these relationships could be potentially
14 explained by trust and team culture.

15 Based on Walumbwa et al's (3) definition, authentic leaders have heightened levels of
16 positive emotions, which may influence followers' commitment and positive affect (9). In the
17 sport context, sport commitment has been defined as a "psychological construct representing the
18 desire and resolve to continue sport participation" (15, p. 6), while positive affect refers to the
19 experience of pleasant emotions or moods (16) and is an indicator of wellbeing. Authentic
20 leaders are expected to promote positive affect and commitment in followers by spreading their
21 own positive emotions to their followers via emotional contagion processes (8, 9). Support for
22 the positive relationships between authentic leadership and athlete commitment and positive
23 affect has been provided by several sport studies (4, 5).

24 Authentic leadership should also influence prosocial behaviour defined as "voluntary
25 behaviour intended to help or benefit another individual" (14, p. 99). It is expected to be

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1 positively related to followers' prosocial behaviour through authentic leaders acting as moral
2 exemplars by demonstrating behaviours in line with their ethical standards and establishing
3 moral team norms (8, 17). Consequently, authentic leadership may increase the team's frequency
4 of prosocial behaviour resulting in higher perceptions of teammate prosocial behaviours. Hannah
5 et al. (17) found that authentic leadership was positively related to soldiers' prosocial behaviours
6 common in a military setting (e.g., demonstrating responsible behaviour, considering soldiers'
7 impact on others, and putting the good of the group ahead of their own self-interest). In the sport
8 context, Malloy and Kavussanu (18) found that athletes of coaches in an intervention group
9 (which involved teaching coaches how to engage in authentic behaviours), reported significantly
10 higher perceptions of their teammates' prosocial behaviours from pre- to post-intervention
11 compared to the control group, whose coaches received no intervention.

12 According to models of authentic leadership, a key variable that authentic leadership may
13 influence is trust (11). Trust in one's leader is defined as being able to rely on the leader and
14 believing that they have good intentions for the team (19). Models of authentic leadership (i.e.,
15 11, 8, 9) proposed that authentic leaders are likely to instil trust in their followers by being
16 genuine and acting as role models by demonstrating moral values, transparency, and integrity.
17 This should lead followers to identify with their leader which instils greater trust (8, 9). The
18 positive relationship between authentic leadership and trust has been reported in several studies
19 in sport (e.g., 4, 20).

20 Models of authentic leadership also suggest that authentic leaders may create a positive
21 climate (e.g., 8). In this study we refer to climate as team culture, which is a concept similar to
22 school culture as defined by Higgins-D'Alessandro and Sadh (21) as individuals' perception of
23 their team environment, consisting of normative expectations, leader/team relationships, follower
24 relationships, and educational opportunities (21). Authentic leaders may create a positive team
25 culture as they are transparent, create open relationships with followers, and provide

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1 opportunities to the team; this over time may become the culture of the team (8). Studies in
2 organizational and nursing settings have found a positive relationship between authentic
3 leadership and similar variables to team culture, such as team climate, defined as supportive and
4 trusting social environments (e.g., 22, 23). Although these studies measured team culture in
5 slightly different ways, this construct is conceptually similar to Higgins-D'Alessandro and
6 Sadh's (21) definition as they both focus on trusting leader-follower relationships and the
7 perceived opportunities provided by the leader.

8 Trust and team culture may be directly related to athletes' commitment and positive
9 affect. This is because trust and positive team cultures influence followers' beliefs about the
10 honesty and integrity of the leader and the environment they have created (19, 24, 25). If
11 followers feel they can trust their leaders and they experience a positive team environment, they
12 are more likely to be committed and experience more positive emotions (25). Conversely, if
13 followers do not perceive their leader as trustworthy, they may consider quitting the team (25).
14 This has been supported by research which has found trust in leadership to be positively
15 associated with followers' satisfaction, commitment, and negatively associated with the intention
16 to quit (24).

17 Furthermore, trust and team culture may be directly related to athletes' perceptions of their
18 teammate's prosocial behaviours. Trusting relationships and positive team cultures may support
19 followers and empower them to develop through encouraging the open sharing of information in
20 positive sociomoral atmospheres, in turn leading to outcomes such as greater perceived
21 teammate prosocial behaviours (11). This may be because trusting relationships and positive
22 climates are expected to be associated with followers' positive attitudes, which in turn should
23 lead to positive behaviours (25). Such a positive sociomoral atmosphere created by trusting
24 relationships and positive team cultures has been found to predict prosocial behaviours in sport
25 (25, 26, 27).

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1 Trust and team culture may also explain the role of authentic leadership on athletes'
2 commitment and positive affect (11, 8). According to models of authentic leadership (e.g., 3),
3 authentic leaders are believed to influence followers' commitment and positive affect as a result
4 of followers identifying with their authentic leaders and through creating positive team cultures
5 which promote high levels of trusting relationships that in turn positively impact on followers'
6 commitment and positive emotions (9, 3). Thus, trust and team culture may explain the
7 relationship between authentic leadership and commitment and enjoyment. The potential role of
8 authentic leadership on commitment and positive emotions, via trust and team culture, has been
9 supported by several studies in the business and nursing domains, with similar variables such as
10 team climate (28, 29, 30). A study in sport also found that authentic leadership was indirectly
11 related to athletes' commitment via trust (4).

12 Trust and team culture may also explain the role of authentic leadership in promoting
13 perceived teammate prosocial behaviour (i.e., 8). Authentic leaders are capable of influencing
14 followers' prosocial behaviour through creating trusting relationships and by establishing a team
15 norm to act morally (i.e., 8, 9, 31). This in turn should lead followers of authentic leaders to
16 show more prosocial behaviours and subsequently increase athletes' perceptions of their
17 teammate prosocial behaviour. Thus, trust and team culture may potentially explain the
18 relationship between authentic leadership and perceived teammate prosocial behaviour.
19 However, the potential indirect role of team culture in the relationship between authentic
20 leadership and follower outcomes has received limited attention in sport.

21 **Current Investigation**

22 In summary, authentic leaders may influence followers' commitment, positive affect, and
23 teammate prosocial behaviour via creating trusting relationships and a positive team culture (e.g.,
24 28, 17). Athletes' perceptions of their teammate prosocial behaviour and positive affect in
25 relation to authentic leadership have received little attention in sport, while no sport study has

1 examined the potential role of team culture in this relationship. These variables are important in
2 promoting continued participation in sport, which is vital given the proposed 35% drop in sports
3 participation from the age of 12 (32). This research will fill these gaps in the literature.

4 Based on the extant literature (e.g., 3, 5, 8), the purpose of this study was to investigate the
5 role of authentic leadership on followers' commitment, positive affect, and perceived teammate
6 prosocial behaviour, via trust and team culture. We hypothesized that perceived authentic
7 leadership of coaches would be positively and indirectly related to athletes' commitment,
8 positive affect, and perceived teammate prosocial behaviour, (e.g., 23, 28) via trust and team
9 culture (e.g., 4, 22, 33).

10 **Method**

11 **Participants**

12 Athletes ($N = 366$; 240 females, 65.6%) from 22 sport teams that competed in university
13 leagues or in external leagues at a regional level, from the UK, participated in the study. The
14 sports were lacrosse ($n = 120$, 32.8%), field hockey ($n = 80$, 21.9%), football ($n = 47$, 12.8%),
15 hockey ($n = 30$, 8.2%), netball ($n = 25$, 6.8%), basketball ($n = 21$, 5.7%), rugby union ($n = 20$,
16 5.5%), American football ($n = 18$, 4.9%), and athletics ($n = 5$, 1.4%); even though athletics is an
17 individual sport it was included in this study as the athletes trained and competed as a team. At
18 the time of data collection, participants had an average age of 21.07 ($SD = 5.16$), had played their
19 sport for an average of 7.74 years ($SD = 5.97$), and had been with their coaches for an average of
20 1.68 years ($SD = 0.78$). Participants were coached by a male (57.4%) or a female (42.6%) coach.
21 The selection criteria for the participants were that they must train in a team sport environment
22 and have been playing with their coach and team for a year or more, so that the influence of the
23 coach would be apparent (34). The sample size was determined according to Schönbrodt and
24 Perugini's (35) simulation study, who state that correlations stabilize at a sample of 250.
25 Additionally, a review of adequate sample size and power consideration for Structural Equation

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1 Modelling (SEM) and factor analysis suggested that a minimum sample size of 200 offers
2 adequate statistical power of data analysis and accurate results (36). Our sample was much larger
3 than these suggestions.

4 **Measures**

5 **Authentic leadership.** Athletes' perceptions of their coach's level of authentic leadership
6 were measured using the Authentic Leadership Questionnaire (ALQ, 3). We adapted this
7 questionnaire to be specific to sport, in line with previous studies (i.e., 20) by replacing "my
8 leader" with "my coach". The ALQ consists of 16 items, which measure the four components of
9 authentic leadership using four subscales, including self-awareness (e.g., "my coach seeks
10 feedback to improve interactions with others"), relational transparency (e.g., "my coach says
11 exactly what he or she means"), internalized moral perspective (e.g., "my coach demonstrates
12 actions that are consistent with his or her beliefs"), and balanced processing (e.g., "my coach
13 listens carefully to different points of view before coming to conclusions"). Participants are
14 asked to think about their experiences with their coach and respond on a 5-point scale with 1
15 corresponding to "not at all" and 5 corresponding to "frequently if not always". This scale has
16 been found to have very good reliability in sport ($\alpha = .85$; 20).

17 **Trust.** Athletes rated their perceived levels of trust using the Trust Questionnaire
18 developed by Dirks (19). This scale consists of nine items, and example items include "I trust
19 and respect my coach" and "other players consider my coach to be trustworthy". Participants
20 were asked to think about their experiences with their coach this season and circle the
21 appropriate answer using a 7-point Likert scale, with 1 representing "strongly disagree" and 7
22 "strongly agree". This scale was found to be reliable ($\alpha = .96$; 19).

23 **Team culture.** Athletes' perceptions of their team culture were measured using an
24 adapted version of the School Culture Scale (21). Team culture is a concept similar to school
25 culture, defined as individuals' perception of their team environment, consisting of normative

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1 expectations, leader/team relationships, follower relationships, and educational opportunities
2 (21). The original scale consists of four subscales; however, for our study any items which could
3 not be adapted to a sport environment were removed, leaving a 14-item questionnaire. The
4 wording of the questionnaire was also changed so that “teacher” became “coach” and “students”
5 became “athletes”. The remaining subscales included in our study were: coach/team relationships
6 (e.g., “athletes generally treat each other with respect and fairness”), athlete relationships (e.g.,
7 “the coach gives athletes a say in team decisions”) and educational opportunities (e.g., “athletes
8 learn how to listen to other people’s ideas better”). This scale has been found to be reliable ($\alpha =$
9 .85; 21).

10 **Sport commitment.** Athletes’ ratings of their commitment were measured using a scale
11 from the Sport Commitment Model (15). This scale consists of four items (e.g., “How hard
12 would it be for you to quit playing for this team”). Participants are asked to think about their
13 experiences in their team and circle the most relevant number using a 5-point Likert scale, with 1
14 corresponding to “not at all dedicated” and 5 corresponding to “very dedicated.” This scale has
15 been found to be reliable in sport ($\alpha = .85$; 18).

16 **Positive affect.** Positive affect was measured using the positive affect subscale of the
17 Positive and Negative Affect Scale (16). Participants were asked to read seven items describing
18 affective states (i.e., “interested, excited, enthusiastic, inspired, determined, attentive and
19 strong”) and rate the extent to which they had felt those emotions in the past few weeks, using a
20 5-point scale with 1 meaning “very slightly or not at all” and 5 meaning “very much.” This scale
21 has been found to be reliable ($\alpha = .89$; 16).

22 **Perceived teammate prosocial behaviour.** Athletes indicated their perception of the
23 frequency of their teammate prosocial behaviour toward them using the adapted (37) respective
24 subscale of the Prosocial and Antisocial Behaviour in Sport Scale (14). In line with Al-Yaaribi et
25 al (37), the wording was changed so that the scale measured athletes’ perceptions of their

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1 teammate prosocial behaviour towards them. This was because authentic leaders are expected to
2 change team norms and so an increase in the team's frequency of prosocial behaviours toward
3 individual athletes was expected. However, as we assessed athletes' perceptions of their
4 teammate behaviour toward themselves, it should be noted that this measure does not assess
5 team norms. The stem was changed to "this season, my teammates." This scale consists of five
6 items (e.g., "Congratulated me for good play") and uses a five-point Likert scale with 1
7 corresponding to "never" and 5 corresponding to "very often." A confirmatory factor analysis
8 (CFA) showed the adapted scale to have good model fit as shown by factor loadings which
9 ranged from .60 to .85, as well as good reliability ($\alpha = .87$; 37).

10 **Procedure**

11 Before conducting the study, ethical approval was received from a university ethical
12 committee. We then contacted the teams' coaches, via email or phone, and asked whether their
13 athletes could take part in the study, and informed consent was obtained. After a date and time
14 for data collection was arranged, the questionnaires were administered to the athletes before or
15 after a training session, in the same place as their normal training session. Data were collected
16 towards the end of a regular university season, over two months (between February and March).
17 The order of the measures in the questionnaire was counterbalanced to avoid order effects and
18 the questionnaire took 10-15 minutes to complete. The researchers remained present at all times
19 to answer any questions.

20 **Data Analysis**

21 Firstly, preliminary data analysis¹ was conducted to examine any missing data and to
22 calculate the Cronbach alphas for the different scales, using SPSS, version 28. Secondly, a
23 multilevel path analysis was conducted using Mplus, version 8.8, to test whether coach authentic
24 leadership was positively related to athletes' commitment, positive affect, and athletes'

¹ We report all measures, and no data were excluded.

1 perceptions of their teammate prosocial behaviour, both directly and indirectly via trust and team
2 culture. A multilevel approach was used in order to capture the nested nature of the data (as a
3 result of athletes being nested in teams), while simultaneously testing multiple direct and indirect
4 relationships proposed in the theoretical model. Specifically, a random intercept multilevel
5 model was specified using the latent variable covariates approach, which results in consistent
6 (i.e., unbiased) estimates (38), with between-level covariances. Thus, the multilevel approach
7 was used primarily to obtain correct standard errors and the primary relationships among the
8 variables were tested at the within (athlete) level. The model was tested using the Bayesian
9 estimation, because it does not have a distribution assumption and is an appropriate method for
10 testing indirect relationships within a multilevel framework (38). Results are presented using
11 standardized estimates, which can be interpreted as effect sizes because they are expressed in
12 standard deviation units, as well as 95% credibility intervals.

13 **Results**

14 Missing data on the individual items ranged from 0 to 0.8% and were assumed to be
15 missing at random. Because only a small percentage of the data was missing, any missing data
16 were replaced with the mean of the variable (39). The Cronbach alpha scores ranged from .68 to
17 .93 and were excellent to acceptable for all variables except for prosocial teammate behaviour as
18 suggested by George and Mallery (40) ($> .9$ = Excellent; $> .8$ = Good; $> .7$ = Acceptable). Table
19 1 displays the reliabilities, descriptive statistics, and correlations among the study variables.
20 Correlations among the variables ranged from .16 to .68 and were all positive and significant.

21 Next, a null model was specified to calculate the intra-class correlations (ICC), showing
22 that the values of ICCs were: .17 for authentic leadership, .16 for trust, .10 for team culture, .20
23 for commitment, .13 for positive affect, and .05 for perceived teammate prosocial behaviour.
24 These results suggested that there were similarities across the athletes within each team and,
25 therefore, multilevel modelling was an appropriate method to use to handle the non-

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1 independence of observations due to the team clustering, as indicated by the ICCs being above
2 the acceptable level of .05 (41, 42, 43).

3 The full multilevel path model was tested, in which authentic leadership was specified as a
4 predictor of trust and team culture, and authentic leadership, trust, and team culture were
5 specified as predictors of commitment, positive affect, and perceived teammate prosocial
6 behaviour (outcomes) at the within (athlete) level. The results of the direct relationships are
7 presented in Table 2 and Figure 1. Overall, the model explained 41.5% of the variance in trust,
8 14.2% in team culture, 14.5% in commitment, 19.9% in positive affect, and 7.1% in perceived
9 teammate prosocial behaviour.

10 As seen in Figure 1 (a path) and Table 2, the multilevel path analysis revealed that
11 authentic leadership was a positive predictor of both trust and team culture. In turn, trust was a
12 positive and significant predictor of commitment, positive affect, and perceived teammate
13 prosocial behaviour. Team culture was a positive and significant predictor of commitment and
14 positive affect but not of perceived teammate prosocial behaviour. In terms of authentic
15 leadership, results showed that it did not significantly and directly predict commitment, positive
16 affect, and prosocial behaviour (see Table 2). Yet, as shown in Table 3, authentic leadership was
17 an indirect predictor of commitment and positive affect via both trust and team culture, and of
18 perceived teammate prosocial behaviour only via trust.

19 **Discussion**

20 Authentic leadership is believed to be highly relevant to sport, due to its focus on
21 relationships and follower development and is expected to lead to positive outcomes in athletes
22 (e.g., 20, 4). Previous research has found authentic leadership to be positively related to athletes'
23 trust, commitment, and enjoyment. However, models of authentic leadership and studies
24 conducted in non-sport domains (3, 5, 8), suggest authentic leadership may also influence
25 variables such as positive affect, perceived teammate prosocial behaviours, and that both trust

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1 and team culture may explain the relationship between authentic leadership and these outcomes.
2 In the present study, we examined whether authentic leadership is related to athletes'
3 commitment, positive affect, and perceived teammate prosocial behaviours via trust and team
4 culture.

5 In support of our hypothesis, authentic leadership was positively related to athletes'
6 commitment and positive affect, via trust and team culture. These findings support research
7 conducted in sport and other contexts showing that trust is positively related to followers'
8 commitment (e.g., 4, 18, 20), and extend previous research by examining positive affect. The
9 positive relationship between authentic leadership and team culture is in line with studies
10 conducted in the business domain with similar variables (e.g., 22, 23). However, these studies
11 measured team climate rather than team culture and so the results are not directly comparable.
12 Our study extends these findings to the context of sport by demonstrating a positive relationship
13 between coach authentic leadership and positive affect as well as the indirect role of team
14 culture.

15 In line with our hypothesis, authentic leadership was also positively related to athletes'
16 perceived teammate prosocial behaviour, via trust. This supports the literature which suggests
17 that authentic leaders may promote prosocial behaviour in followers through creating trusting
18 relationships which could lead them to show more prosocial behaviours (i.e., 8, 9). Our study
19 extends previous research by demonstrating the indirect role trust plays in the relationship
20 between authentic leadership and perceived teammate prosocial behaviour.

21 Contrary to our hypothesis, authentic leadership was not related to athletes' perceptions of
22 their teammate prosocial behaviour via team culture. This finding is not in agreement with
23 previous literature (e.g., 8, 33), which suggests that authentic leadership could be related to
24 followers' prosocial behaviour, as a result of authentic leaders creating positive team cultures.
25 This discrepancy could be due to Hannah et al. (17) measuring prosocial behaviours rather than

1 perceptions of teammate prosocial behaviours toward individual participants. Furthermore,
2 Hannah et al. (17) used a sample of soldiers rather than athletes, who may have different types of
3 team cultures and different perceptions of prosocial behaviours, and so the findings cannot be
4 directly compared. Additionally, Hannah et al. (17), did not examine the indirect role of team
5 culture on prosocial behaviour. It is worth noting that team culture was positively correlated with
6 prosocial behaviour, however no indirect relationship was revealed in the multilevel model.

7 Taken together with previous research, our results suggest that when coaches exhibit
8 authentic behaviours, such as being open, staying true to oneself, incorporating others' opinions,
9 and displaying an internalised moral perspective, athletes may be more inclined to trust them;
10 this in turn may lead athletes to be more committed, experience positive emotions, and perceive
11 more prosocial behaviours from their teammates toward them (8, 9). Therefore, coaches should
12 be encouraged to display authentic behaviours, such as speaking honestly, taking into account
13 others' opinions, and frequently displaying behaviours in line with their moral values. This may
14 create more trusting relationships and team cultures and enhance positive affect and sport
15 commitment. Thus, authentic leadership may lead to beneficial outcomes in sport.

16 **Practical Implications**

17 The results of our study highlight the importance of authentic leadership within the context
18 of sport and demonstrate its positive impact on a range of outcomes. Specifically, the findings
19 suggest that coaches who demonstrate authentic behaviours are likely to create more committed
20 athletes, who experience positive affect, and perceive their teammates to display prosocial
21 behaviours toward them. Coaches can try to develop a greater understanding of their strengths
22 and weaknesses, be open with their followers, include their athletes in decision making, and
23 display behaviours in-line with their moral values. Finally, promoting authentic leadership
24 amongst coaches may help to create more positive environments and trustworthy relationships.

25 **Limitations and Future Directions**

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1 Our research has revealed some interesting findings but also has some limitations. First,
2 the study was cross sectional and so did not allow for cause-and-effect relationships to be
3 examined. Furthermore, due to its cross-sectional nature, we are unable to test whether the
4 outcome variables may also work as mediating variables and vice versa. Nonetheless, the study
5 was needed to establish the relationships between authentic leadership and athlete outcomes as
6 research on authentic leadership in sport is still in its early stages. Second, previous studies
7 which have validated the team culture scale in sport were conducted on 12-18-year-olds, and so
8 this scale may not have been valid to use with the adult participants of this study (44). However,
9 an adult sample would not have had difficulty understanding the questions on the youth scale,
10 whereas the youth athletes may have had difficulty understanding all the questions on the adult
11 scale. It is worth noting that authentic leadership and the relationships leaders have with their
12 followers are complex and develop over time (45). A longitudinal study, with measures taken at
13 three time points would increase confidence in the causal nature of the relationships identified in
14 this study (46).

15 **Conclusion**

16 Our findings extend the current literature by showing that authentic leadership was
17 positively related to athletes' commitment and positive affect via trust and team culture as well
18 as to perceptions of their teammates prosocial behaviours via trust.. The study makes a
19 significant contribution to sport leadership literature by revealing the value of authentic
20 leadership in predicting these variables. Our results suggest that coaches should be encouraged to
21 display authentic leadership behaviours to potentially create trusting relationships and team
22 cultures, in order to increase athletes' commitment, positive affect, and perceived teammate
23 prosocial behaviours.

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Table 1

Descriptive Statistics, Alpha Coefficients, and Zero-Order Correlations, N = 366

| Variable | <i>M</i> | <i>SD</i> | Min | Max | α | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---------------------------------|----------|-----------|------|------|----------|--------|--------|--------|--------|--------|------|--------|
| 1. Authentic leadership | 3.95 | 0.59 | 1.63 | 5.00 | .92 | | | | | | | |
| 2. Trust | 5.72 | 0.99 | 1.89 | 7.00 | .93 | .68*** | | | | | | |
| 3. Team culture | 4.11 | 0.51 | 2.93 | 5.00 | .90 | .39*** | .36*** | | | | | |
| 4. Commitment | 4.28 | 0.73 | 1.75 | 5.00 | .87 | .31*** | .37*** | .29*** | | | | |
| 5. Positive affect | 4.10 | 0.68 | 1.00 | 5.00 | .90 | .40*** | .44*** | .35*** | .38*** | | | |
| 6. Prosocial teammate behaviour | 4.26 | 0.50 | 2.20 | 5.00 | .68 | .21*** | .24*** | .16** | .33*** | .22*** | | |
| 7. Coach sex | 1.43 | 0.50 | 1.00 | 2.00 | - | .27*** | .15** | .07 | .10 | .13* | .07 | |
| 8. Athlete sex | 1.66 | 0.48 | 1.00 | 2.00 | - | .08 | .07 | .08 | .07 | -.02 | -.02 | .51*** |

Note. Possible range of scores for all variables = 1-5 except for trust = 1-7. Sex was coded as male = 1, female = 2.

* $p < .05$, ** $p < .01$, *** $p < .001$.

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Table 2

Standardized Results for the Direct Relationships among Study Measures, N = 366

| Direct Effects | Estimate | Posterior SD | 95% CI [LL, UL] |
|-------------------------|----------|--------------|-----------------|
| Authentic Leadership on | | | |
| Trust | .64*** | .03 | .58, .70 |
| Team culture | .38*** | .05 | .28, .46 |
| Commitment | .09 | .07 | -.04, .23 |
| Positive affect | .11 | .07 | -.02, .23 |
| Prosocial behaviour | .08 | .07 | -.06, .21 |
| Trust on | | | |
| Commitment | .20** | .07 | .07, .33 |
| Positive affect | .28*** | .06 | .16, .40 |
| Prosocial behaviour | .16* | .07 | .02, .29 |
| Team culture on | | | |
| Commitment | .18*** | .05 | .07, .28 |
| Positive affect | .16** | .05 | .06, .26 |
| Prosocial behaviour | .09 | .06 | -.03, .20 |

Note. All paths at the within level. The estimates refer to standardised coefficients. An effect is significant when the credibility interval does not contain 0. CI = credibility interval; LL = lower limit; UL = upper limit. Prosocial behaviour refers to perceived teammate prosocial behaviour.

* $p < .05$, *** $p < .001$.

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Table 3

Standardized Results for the Indirect Relationships, N = 366

| Indirect Effects of Authentic Leadership | Estimate | Posterior SD | 95% CI [LL, UL] |
|--|----------|--------------|-----------------|
| Via trust on | | | |
| Commitment | .13** | .04 | .05, .22 |
| Positive affect | .18*** | .04 | .10, .27 |
| Prosocial behaviour | .10* | .05 | .01, .19 |
| Via team culture on | | | |
| Commitment | .07*** | .02 | .03, .12 |
| Positive affect | .06** | .02 | .02, .11 |
| Prosocial | .03 | .02 | -.01, .08 |

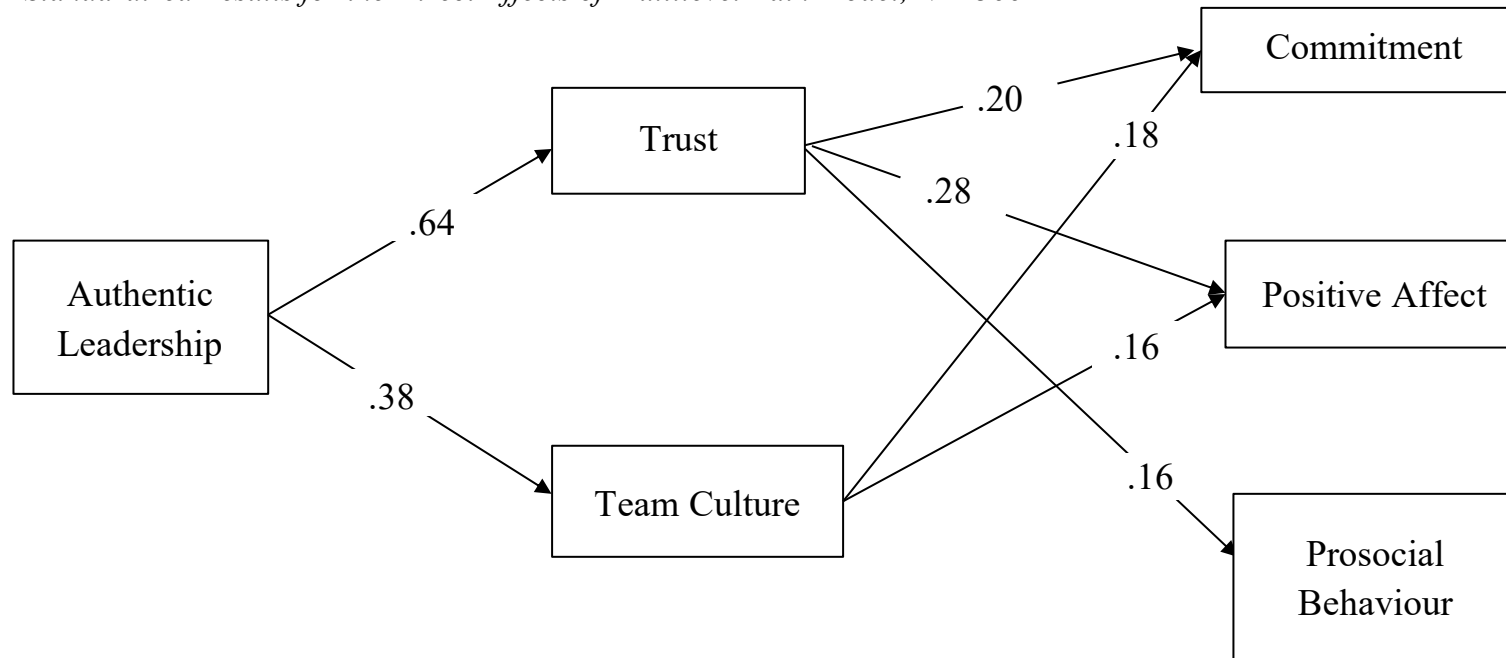
Note. All paths at the within level. An effect is significant when the credibility interval does not contain 0. CI = credibility interval; LL = lower limit; UL = upper limit. Prosocial behaviour refers to perceived teammate prosocial behaviour.

* $p < .05$, ** $p < .01$, *** $p < .001$.

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Figure 1

Standardized Results for the Direct Effects of Multilevel Path Model, N = 366



Note. For readability purposes, only significant relationships are displayed.