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4
5 The Relationships between Perfectionism, Angry Reactions, and Antisocial Behaviour in
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1 **Abstract**

2 Perfectionism involves extreme requirements for perfection that may give rise to antisocial
3 behaviour in team sport. To test this possibility, we first examined pathways linking self-
4 oriented perfectionism and socially prescribed perfectionism to antisocial behaviour. We then
5 examined pathways linking other-oriented perfectionism to antisocial behaviour via angry
6 reactions to poor teammate performance. A cross-sectional design was employed.
7 Competitive team sport athletes ($n = 257$, $M_{\text{age}} = 20.71$ years, $s = 4.10$) completed measures
8 of perfectionism, angry reactions to poor teammate performance, and antisocial behaviour. In
9 testing the first aim, we found that self-oriented perfectionism shared no relationship with
10 antisocial teammate behaviour and a negative relationship with antisocial opponent
11 behaviour. By contrast, socially prescribed perfectionism shared positive relationships with
12 antisocial behaviour toward teammates and opponents. In testing the second aim, we found
13 that other-oriented perfectionism shared positive indirect relationships with antisocial
14 behaviour toward teammates and opponents via angry reactions to poor teammate
15 performance. In line with recent theoretical assertions, these findings suggest that there may
16 be a darker side to perfectionism that is related with antisocial behaviour in team sport.

17 *Keywords:* personality; emotions; moral behaviour; competitive athletes; team sport

1 Team sport is replete with opportunities to engage in antisocial behaviour (Kavussanu
2 & Stanger, 2017). For instance, athletes may deliberately foul an opponent to break up a
3 threatening counterattack or make disparaging verbal comments to demoralise a teammate
4 who is performing poorly (Kavussanu & Boardley, 2009). Such acts are examples of
5 voluntary behaviour intended to harm or disadvantage another athlete and are evident across
6 all levels of competition (Kavussanu & Stanger, 2017; Sage, Kavussanu, & Duda, 2006).
7 When examining this classification of behaviour, researchers typically distinguish between
8 antisocial acts directed toward teammates and antisocial acts directed toward opponents (see
9 Kavussanu & Boardley, 2009). In keeping with Bandura's (1991) social cognitive theory of
10 moral thought and action, these two types of antisocial behaviour involve overt actions that
11 have potentially negative consequences for teammates (e.g., psychological harm) and
12 opponents (e.g., physical injury), respectively (Kavussanu & Boardley, 2009).

13 Due to the potential damaging consequences of antisocial behaviour, researchers have
14 focussed on identifying factors that help to explain why some athletes are more likely to
15 behave antisocially (e.g., Boardley & Kavussanu, 2010). While several important factors
16 have been identified, an area of investigation that requires further consideration is the role of
17 personality in explaining antisocial behaviour in team sport. This line of research is
18 particularly important as researchers have identified that certain personality characteristics
19 are socially aversive and have the potential to engender destructive interpersonal behaviours
20 (e.g., aggression; Ziegler-Hill & Marcus, 2016). One personality trait that may be relevant in
21 this regard is perfectionism (Flett, Hewitt, & Sherry, 2016). This has recently been
22 emphasised by Flett and Hewitt (2016) who suggest that there is a darker side to
23 perfectionism that may predispose athletes to behave antisocially in team sport.

24 **Multidimensional Perfectionism**

1 Perfectionism is a multidimensional personality trait that involves irrational and
2 extreme requirements for perfection (Hewitt, Flett & Mikail, 2017). The multidimensional
3 perfectionism framework developed by Hewitt and Flett (1991) is often used to examine
4 perfectionism in sport. The model includes three core dimensions that capture personal and
5 social features central to perfectionism: self-oriented perfectionism, socially prescribed
6 perfectionism, and other-oriented perfectionism. The first two dimensions capture extreme
7 forms of pressure for the self to be perfect. Specially, self-oriented perfectionism is a personal
8 dimension that involves self-imposed requirements of perfection for the self and tendencies to
9 engage in harsh self-criticism. By contrast, socially prescribed perfectionism is a social
10 dimension that involves intense beliefs that others require perfection from the self and will be
11 critical of them if they fail to achieve perfection. The third dimension is unique in that it
12 captures an extreme form of pressure for others to be perfect. Specifically, other-oriented
13 perfectionism is a social dimension that involves relentless requirements for others to be
14 perfect and tendencies to direct harsh criticism toward others.

15 In Hewitt and Flett's (1991) multidimensional framework, self-oriented perfectionism
16 shares overlap with features of perfectionism that involve self-imposed striving for perfection
17 and the setting of unrealistically high personal performance standards (Gotwals, Stoeber,
18 Dunn, & Otto, 2010). By contrast, socially prescribed perfectionism shares overlap with
19 features of perfectionism that involve excessive concerns over mistakes and fears of negative
20 social evaluation (Gotwals et al., 2010). Other-oriented perfectionism is conceptualised as a
21 unique dimension distinguishable from the features of perfectionism captured in most other
22 multidimensional perfectionism models (Stoeber & Otto, 2006). When examining the
23 potential for perfectionism to give rise to problematic social behaviours, researchers often
24 focus on self-oriented perfectionism, socially prescribed perfectionism, and, perhaps most
25 importantly, other-oriented perfectionism (e.g., Stoeber, Noland, & Mawenu, 2017).

1 **Perfectionism and Antisocial Behaviour**

2 Flett and Hewitt (2016) have recently highlighted the importance of investigating the
3 potential for perfectionism to give rise to antisocial behaviour in team sport. They highlight
4 that irrational requirements for perfection may lead certain perfectionistic athletes to engage
5 in immoral behaviours that reflect an extreme need to win and outperform others. One
6 illustrative example of such behaviour includes antisocial acts that have the potential to harm
7 or disadvantage other athletes. In highlighting this potential link, Flett and Hewitt (2016)
8 refer only to a general experience of pressure to be perfect as the precursor to antisocial
9 behaviour. Whether or not the pressure to be perfect inherent in all dimensions of
10 perfectionism are related with antisocial behaviour is yet to be examined. In relation to
11 Hewitt and Flett's (1991) multidimensional framework, all three dimensions of perfectionism
12 involve extreme requirements for perfection that may be relevant in predicting antisocial
13 behaviour in this context.

14 Self-oriented perfectionism and socially prescribed perfectionism are both
15 underpinned by extreme requirements to be perfect that give rise to excessive concerns
16 regarding failure and the negative implications of not being perfect (Hewitt et al., 2017).
17 With self-oriented perfectionism, the requirement to attain perfection at all costs is
18 underpinned by beliefs that self-worth is contingent on the attainment of perfection. By
19 contrast, the requirement to attain perfection inherent in socially prescribed perfectionism is
20 underpinned by beliefs that being perfect is necessary in gaining acceptance and avoiding
21 rejection from others (Hewitt et al., 2017). Flett and Hewitt (2016) assert that such
22 experiences of extreme pressure may trigger an overwhelming need to outperform others and
23 avoid failure. Indeed, research in sport has identified that self-oriented perfectionism and
24 socially prescribed perfectionism are both related with performance approach and
25 performance avoidance goals (e.g., Kaye, Conroy, & Fifer, 2008). This pressure to perform

1 and avoid failure may give rise to antisocial behaviours that help athletes to gain a
2 competitive advantage over opponents and establish superiority over teammates (Flett &
3 Hewitt, 2016).

4 Other-oriented perfectionism is unique in that it involves an extreme need for others
5 to be perfect rather than the self to be perfect (Hewitt & Flett, 1991). The requirement for
6 others to be perfect is underpinned by an irrational sense of importance (Flett et al., 2016).
7 This is reflected in extreme disappointment and subsequent hostility toward others who fail to
8 satisfy unrealistically high standards of performance (Hewitt & Flett, 1991). In team sport,
9 other-oriented perfectionism is directed toward teammates (e.g., “I demand nothing less than
10 perfection of my teammates”; Stoeber, Otto, & Stoll, 2006). The inevitable sense of
11 disapproval with teammates may lead athletes higher in other-oriented perfectionism to act
12 antisocially toward teammates during competition (Hall, 2006). However, the same inevitable
13 sense of disapproval with teammates may also be expressed toward opponents. That is, team
14 sport may provide a context in which athletes higher in other-oriented perfectionism are
15 likely to take out their extreme disappointment with teammates on other available targets
16 such as opponents (cf. Denson, Pedersen, & Miller, 2006).

17 In addition to underpinning theoretical links, several empirical studies have found
18 evidence linking perfectionism to antisocial outcomes. For example, previous findings from
19 research outside of sport show that socially prescribed perfectionism and other-oriented
20 perfectionism share positive relationships with antisocial personality traits including hostility,
21 callousness, deceitfulness, manipulateness, narcissism, and Machiavellianism, while self-
22 oriented perfectionism shares positive relationships with hostility and manipulateness only
23 (Stoeber, 2014a, 2014b). Socially prescribed perfectionism, other-oriented perfectionism,
24 and, to a lesser degree, self-oriented perfectionism, have also been found to share positive
25 relationships with physical aggression, verbal aggression, and interpersonal conflict (i.e.,

1 hostile, critical, and rejecting interactions with others; Mushquash & Sherry, 2012; Stoeber et
2 al., 2017). These findings indicate that perfectionism, particularly socially prescribed
3 perfectionism and other-oriented perfectionism, share positive relationships with antisocial
4 personality traits and antisocial behaviours in undergraduate student populations. An
5 important aim in this study was to examine whether these relationships extend to antisocial
6 behaviour in team sport.

7 **Angry Reactions to Poor Teammate Performance**

8 One factor that could help to explain the relationships between perfectionism and
9 antisocial behaviour in team sport is state anger. State anger is commonly defined as an
10 “emotional state or condition marked by subjective feelings that vary in intensity from mild
11 irritation or annoyance to intense fury or rage” (Spielberger, 1999, p. 1). The subjective
12 feelings individuals may experience include feelings of general anger, feelings relating to the
13 verbal expression of anger, and feelings relating to the physical expression of anger
14 (Spielberger, 1999). When considered together, these feelings of state anger can be used to
15 capture the overall intensity of anger experienced in a specific situation (Spielberger &
16 Reheiser, 2009). In keeping with Deffenbacher (2011), we conceive that the experience of
17 more intense angry feelings is likely to elicit destructive behavioural responses (e.g., physical
18 or verbal assaults on others). This is evident in team sport with research showing positive
19 relationships between anger and antisocial behaviour (Kavussanu, Stanger, & Boardley,
20 2013; Stanger, Kavussanu, & Ring, 2017). These findings suggest that athletes who are short-
21 tempered and frequently infuriated during competition may also engage in higher levels of
22 antisocial behaviour.

23 Perfectionism is one factor that has been found to contribute to an athlete’s tendency
24 to become angry in team sport competition (e.g., Dunn, Gotwals, Causgrove Dunn, &
25 Syrotuik, 2006). To date, research in this area has focussed on state anger in situations

1 involving poor personal performance, rather than state anger in situations involving poor
2 teammate performance. In line with the conceptual rationale outlined above, the role of angry
3 reactions to poor teammate performance may be particularly relevant in explaining the
4 relationships shared between other-oriented perfectionism and antisocial behaviour.
5 Specifically, for athletes higher in other-oriented perfectionism, poor teammate performance
6 may be experienced as a demeaning offense against the self that gives rise to anger (Lazarus,
7 1991). This idea is consistent with theoretical accounts linking other-oriented perfectionism
8 with feelings of intense anger and contempt in situations involving failure from others (e.g.,
9 Horney, 1950). In team sport, anger experienced in reaction to poor teammate performance
10 may underpin the tendency to direct blame, criticism, and (potentially) antisocial behaviour
11 toward teammates and opponents. In support of this idea, researchers have identified that
12 other-oriented discrepancies (i.e., perceptions that others have failed to meet personal
13 performance expectations) share a strong, positive relationship with interpersonal conflict
14 (Nealis, Sherry, Sherry, Stewart, & Macneil, 2015).

15 **The Present Study**

16 In line with the theoretical and empirical evidence outlined above, we first aimed to
17 examine pathways linking self-oriented perfectionism and socially prescribed perfectionism
18 to antisocial behaviour. We then aimed to examine pathways linking other-oriented
19 perfectionism to antisocial behaviour. In relation to our first aim, we hypothesised that self-
20 oriented perfectionism and socially prescribed perfectionism would share positive
21 relationships with antisocial behaviour toward teammates and opponents. In relation to our
22 second aim, we hypothesised that the relationships between other-oriented perfectionism and
23 antisocial behaviour toward teammates and opponents would be explained by the tendency to
24 react angrily in situations involving poor teammate performance.

25

Method

1 **Participants**

2 Participants were 257 (219 males; 38 females; $M_{age} = 20.71$ years; $s = 4.10$ years;
3 range = 16–39 years) competitive athletes recruited from various sport teams in the United
4 Kingdom. The sports that athletes participated in were soccer ($n = 110$), rugby union ($n = 85$),
5 and rugby league ($n = 62$). The highest level that athletes had competed at was international
6 ($n = 57$), national ($n = 63$), regional ($n = 27$), academy ($n = 78$), university ($n = 28$) and
7 unknown ($n = 4$). On average, participants had been competing in their sport for 11.28 years
8 ($s = 4.65$ years) and dedicated 11.86 hours ($s = 5.57$ hours) to training and competition per
9 week. In comparison to other activities in their lives, participants rated their sport as very
10 important ($M = 7.92$, $s = 1.92$: 1 = *extremely unimportant* to 9 = *extremely important*).

11 **Procedure**

12 Following institutional ethical approval, gatekeepers (e.g., academy managers) of
13 team sport clubs were contacted via e-mail and invited to be involved in the study. With those
14 expressing an interest in participating, data collection arrangements were made. Specifically,
15 a convenient timeslot was established in which the lead researcher could provide an overview
16 of the project, address any queries, and invite athletes to complete the study questionnaire.
17 Informed consent (≥ 18 years) or parental consent and participant assent (< 18 years) was
18 gained from all participants prior to them completing a multi-section questionnaire.

19 **Measures**

20 **Sport Multidimensional Perfectionism.** The Brief Multidimensional Perfectionism
21 Scale (Brief HF-MPS; Hewitt, Habke, Lee-Bagley, Sherry and Flett, 2008) was used to
22 capture athletes' levels of perfectionism in sport. This 15-item self-report scale assesses self-
23 oriented perfectionism (SOP; 5-items, e.g., "I strive to be as perfect as I can be"), socially
24 prescribed perfectionism (SPP; 5-items, e.g., "People expect nothing less than perfection
25 from me"), and other-oriented perfectionism (OOP; 5-items, e.g., "Everything that others do

1 must be of top-notch quality”). Athletes were instructed to focus on their sport participation:
2 “Below are a number of statements regarding attitudes toward sport and sport performance.
3 Please read each statement and decide to what degree this statement characterises *your*
4 *attitudes toward competitive sport*”. The item set was prefaced with the phrase “*In*
5 *competitive sport ...*” Athletes responded to all items using a 7-point Likert scale (1 =
6 *strongly disagree* to 7 = *strongly agree*). Each short form subscale has demonstrated a strong
7 correlation with the corresponding subscale from Hewitt and Flett’s (1991) full-length
8 Multidimensional Perfectionism Scale (r range = .81 to .91; Hewitt et al., 2008). Hewitt et al.
9 (2008) also provide evidence for the internal consistency of each perfectionism subscale (α
10 $\geq .80$). In line with previous research focussing on the independent effects of perfectionism,
11 each subscale was examined (e.g., Mallinson & Hill, 2011).

12 **Antisocial Behaviour.** The antisocial behaviour subscales of the Prosocial and
13 Antisocial Behaviour in Sport Scale (PABSS; Kavussanu & Boardley, 2009) were used to
14 assess self-reported levels of antisocial behaviour. These subscales capture antisocial
15 teammate behaviour (AT; 5-items, e.g., “Criticised a teammate”) and antisocial opponent
16 behaviour (AO; 8-items, e.g., 8-items, e.g., “Tried to injure an opponent”). Athletes were
17 instructed to report how often they had engaged in each behaviour during the current season
18 using a 5-point Likert scale (1 = *never* to 5 = *very often*). To emphasise these instructions, the
19 item set was also prefaced with the phrase: “*During the season (so far), I have ...*” Any
20 athletes in the pre-season phase of their sport annual cycle were instructed to indicate how
21 often they had engaged in each behaviour during the previous season (e.g., Kavussanu, et al.,
22 2013).¹ Kavussanu and colleagues have provided evidence of the validity and reliability of

¹ Football and rugby union participants reported on their antisocial behaviour “*during the season (so far)*”, whereas rugby league participants reported on their antisocial behaviour “*during the previous season*”. A Box’s M test was used to test whether the variance–covariance of the two data collection methods differed. The results revealed no significant difference (Box’s $M = 1.59, p = .67$).

1 the PABSS (Kavussanu & Boardley, 2009; Kavussanu et al., 2013). This includes evidence
2 for the internal consistency of each antisocial behaviour subscale ($\alpha \geq .77$). Consistent with
3 previous research, antisocial teammate behaviour and antisocial opponent behaviour were
4 examined independently (e.g., Boardley & Kavussanu, 2010).

5 **Angry Reactions to Poor Teammate Performance.** The Reactions-to-Mistakes
6 Anger Scale (RTM-Anger; Dunn et al., 2006) was used to capture how frequently athletes
7 react with feelings of anger in response to poor teammate performance during competition.
8 This 15-item self-report scale is a modified version of Spielberger's (1999) State Anger (S-
9 Anger) scale that captures three feelings of state anger: feeling angry (FA; 5-items, e.g., "I
10 feel angry"), feel like expressing anger verbally (FLEAV; 5-items, e.g., "I feel like yelling at
11 somebody"), and feel like expressing anger physically (FLEAP; 5-items, e.g., "I feel like
12 hitting someone"). The instrument was initially used to assess athletes' angry reactions to
13 poor personal performance during team sport competition (see Dunn et al., 2006). However,
14 in the present study athletes were instructed to rate how frequently they generally reacted
15 with (or felt like expressing) anger when one of their teammates was not playing well during
16 competition. The item set was prefaced with the phrase "*When one of my teammates is not*
17 *playing well ...*" and athletes were instructed to respond to items using a 7-point Likert scale
18 (1 = *never* to 7 = *almost always*). Spielberger (1999) has provided evidence for the internal
19 consistency of the overall 15-item S-Anger scale ($\alpha \geq .92$). In keeping with previous research
20 in sport, we examined an overall measure of angry reactions to poor performance (e.g., Dunn
21 et al., 2006).

22 **Data Analysis**

23 A multi-stage procedure was implemented to analyse the data. These analyses were
24 carried out using IBM Statistics SPSS 25.0 and Mplus 8.2 (Muthén & Muthén, 1998-2018).
25 The first stage of data analysis involved following the data screening protocol outlined by

1 threshold ($n = 1$) were removed from any further analyses. Item non-response for the
2 remaining cases with missing data was less than or equal to two items ($M = 1.24$, $s = .44$,
3 $range = 1-2$ items). Little's missing completely at random (MCAR) test revealed that the
4 remaining missing data could be characterised as MCAR ($\chi^2 = 819.42$, $df = 835$, $p = .64$). As
5 the amount of missing data was low and the scales adopted have demonstrated acceptable
6 internal consistency, the remaining missing values were replaced using the mean of non-
7 missing items from relevant subscales (Graham, Cumsille, & Elek-Fisk, 2003).

8 Subscales were then computed and screened for univariate and multivariate outliers.
9 Standardized z-scores greater than ± 3.29 ($p < .001$, two-tailed) served as the indicator for
10 univariate outliers. This assessment resulted in one case being removed. A Mahalanobis
11 distance greater than $\chi^2(6) = 22.46$ ($p < .001$) was used as the criteria to identify multivariate
12 outliers. This evaluation resulted in one further case being removed from the study ($n = 254$;
13 male $n = 217$; female $n = 37$; M age = 20.69; $s = 4.11$). Following the removal of these cases,
14 skewness and kurtosis values were then analysed. All variables were considered
15 approximately univariate normal (absolute skewness values = .08 to .69; absolute kurtosis
16 values = .07 to .35). Mardia's normalised coefficient for multivariate kurtosis was 1.19,
17 indicating that the data used to test the hypothesised models satisfies the assumption of
18 multivariate normality. The final stage of this procedure involved assessing the internal
19 consistency of all subscales, which was acceptable in each case ($\alpha \geq .70$; Nunnally &
20 Bernstein, 1994).

21 **Descriptive Statistics and Bivariate Correlation Analysis**

22 The descriptive statistics and bivariate correlations are displayed in Table 1.
23 Consistent with previous studies, the mean score for self-oriented perfectionism was
24 moderate-to-high and the mean scores for socially prescribed perfectionism and other-
25 oriented perfectionism were moderate (e.g., Mallinson & Hill, 2011). Likewise, the low-to-

1 moderate mean scores for antisocial teammate and antisocial opponent behaviour were in
2 keeping with research examining multiple team sports (e.g., Kavussanu et al., 2013). The
3 mean score for angry reactions to poor teammate performance was low-to-moderate. This
4 score was lower than the moderate mean score for angry reactions to poor personal
5 performance reported in previous research (see Dunn et al., 2006).

6 In relation to the bivariate correlations, self-oriented perfectionism shared no
7 relationships with angry reactions to poor teammate performance and antisocial behaviour.
8 By contrast, socially prescribed perfectionism and other-oriented perfectionism shared small
9 significant positive relationships with angry reactions to poor teammate performance,
10 antisocial teammate behaviour, and antisocial opponent behaviour. Finally, angry reactions to
11 poor teammate performance shared medium significant positive relationships with antisocial
12 teammate behaviour and antisocial opponent behaviour (small $\geq .10$, medium $\geq .30$, large \geq
13 $.50$; Cohen, 1988).

14 **Hypothesised Models**

15 The first hypothesised model (see Figure 1) focussed on the relationships between
16 four latent variables: self-oriented perfectionism, socially prescribed perfectionism, antisocial
17 teammate behaviour, and antisocial opponent behaviour. In this model, the two exogenous
18 perfectionism variables were measured using item-level indicators (self-oriented
19 perfectionism, $n = 5$; socially prescribed perfectionism, $n = 4$).² The endogenous antisocial
20 teammate behaviour variable was modelled using item-level indicators ($n = 5$), whereas the
21 endogenous antisocial opponent behaviour was modelled using random parcels of paired
22 items ($n = 4$; Little, Cunningham, Shahar, & Widman, 2002). Due to significant gender
23 differences found in previous studies examining antisocial behaviour in team sport athletes

² One item (“The better I do, the better I am expected to do”) was removed. This item failed to provide a meaningful loading on the socially prescribed perfectionism latent variable ($\lambda = .16$).

1 (e.g., Kavussanu, Stamp, Slade, & Ring, 2009), we also included gender as a dummy-coded
2 (0 = males; 1 = females) control variable in this model. The measurement model, in which
3 gender and the above latent factors were specified to covary, provided adequate fit to the data
4 ($\chi^2/df = 1.97$, CFI = .93, SRMR = .06, RMSEA = .06, 90% CI = .05 to .07).

5 The second hypothesised model (see Figure 2) focussed on the relationships between
6 four latent variables: other-oriented perfectionism, angry reactions to poor teammate
7 performance, antisocial teammate behaviour, and antisocial opponent behaviour. In this
8 model, the same modelling strategy employed in the previous model was used to measure the
9 exogenous perfectionism variable (other oriented perfectionism, $n = 5$) and the two
10 endogenous antisocial behaviour variables (antisocial teammate behaviour, $n = 5$; antisocial
11 opponent behaviour, $n = 4$). The intervening angry reactions to poor teammate performance
12 variable was modelled using subscale-level indicators ($n = 3$). Due to potential gender
13 differences in the endogenous variables, gender was added as a dummy-coded (0 = males; 1
14 = females) control variable in this model. The measurement model, in which gender and the
15 above latent factors were specified to covary, provided adequate fit to the data ($\chi^2/df = 1.97$,
16 CFI = .92, SRMR = .05, RMSEA = .06, 90% CI = .05 to .07).

17 In the second hypothesised model, our decision to model an overall measure of angry
18 reactions to poor teammate performance is in keeping with previous research examining
19 angry reactions to poor personal performance as an overall measure (see Dunn et al., 2006).
20 In the current study, we replicated this approach to increase the parsimony of the overall
21 model and satisfy minimum participant to estimated parameter ratio guidelines (Bentler,
22 1995). To explore the applicability of this approach we examined a series of structural sub-
23 models. These models were designed to explore the unique influence of the three independent
24 state anger subscales used to capture angry reactions to poor teammate performance (feeling
25 angry, feel like expressing anger verbally, and feel like expressing anger physically) in the

1 relationships between other-oriented perfectionism and antisocial behaviour towards
2 teammates and opponents.

3 The results of these exploratory analyses revealed that the corresponding direct and
4 indirect pathways across the three models were consistent in relation to direction,
5 significance, and magnitude. Specifically, other-oriented perfectionism shared positive
6 relationships with each of the three state anger subscales examined (β range = .23 to .28, p
7 range = .00 to .01). In turn, the three state anger subscales examined each shared a positive
8 relationship with antisocial teammate behaviour (β range = .21 to .43, p range = .00 to .01)
9 and antisocial opponent behaviour (β range = .26 to .38, p = .00). Finally, in each model,
10 other-oriented perfectionism was found to share small-to-medium positive indirect
11 relationships with antisocial teammate behaviour (ab range = .05 to .12, lower 95% CI range
12 = .01 to .05, upper 95% CI range = .11 to .20) and antisocial opponent behaviour (ab range =
13 .06 to .10, lower 95% CI range = .01 to .03, upper 95% CI range = .13 to .17). The stability of
14 the parameter estimates across the three models indicates that each state anger subscale exerts
15 a similar influence in the relationships between other-oriented perfectionism and antisocial
16 behaviour towards teammates and opponents. These exploratory findings therefore provide
17 further support for using these subscales to examine an overall measure of angry reactions to
18 poor teammate performance in the second hypothesised model.³

19 **Structural Equation Models**

20 The first hypothesised provided adequate fit to the data ($\chi^2/df = 1.97$, CFI = .93,
21 SRMR = .06, RMSEA = .06, 90% CI = .05 to .07). In this model (see Figure 3), the
22 exogenous variables (self-oriented perfectionism, socially prescribed perfectionism, and
23 gender) accounted for 12% of variance in antisocial teammate behaviour and 15% of variance

³ For more information about the three structural sub-models, please see the supplemental material (Figure S1, S2, and S3).

1 in antisocial opponent behaviour. The standardised parameter estimates show that self-
 2 oriented perfectionism shared a non-significant relationship with antisocial teammate
 3 behaviour ($\beta = -.17$, $SE = .09$, $p = .07$) and a negative relationship with antisocial opponent
 4 behaviour ($\beta = -.21$, $SE = .09$, $p = .02$). By contrast, socially prescribed perfectionism shared
 5 positive relationships with antisocial teammate behaviour ($\beta = .25$, $SE = .08$, $p = .00$) and
 6 antisocial opponent behaviour ($\beta = .24$, $SE = .09$, $p = .01$).

7 The second hypothesised model also provided adequate fit to the data ($\chi^2/df = 1.94$,
 8 CFI = .93, SRMR = .05, RMSEA = .06, 90% CI = .05 to .07). In this model (see Figure 4),
 9 the exogenous variables (other-oriented perfectionism and gender) accounted for 13% of
 10 variance in angry reactions to poor teammate performance. Moreover, a combination of the
 11 exogenous variables and angry reactions to poor teammate performance accounted for 27%
 12 of variance in antisocial teammate behaviour and 26% of variance in antisocial opponent
 13 behaviour, respectively. The parameter estimates show that other-oriented perfectionism
 14 shared a positive relationship with angry reactions to poor teammate performance ($\beta = .26$,
 15 $SE = .09$, $p = .00$). In turn, angry reactions to poor teammate performance shared positive
 16 relationships with antisocial teammate behaviour ($\beta = .47$, $SE = .07$, $p = .00$) and antisocial
 17 opponent behaviour ($\beta = .41$, $SE = .07$, $p = .00$). Assessment of the bootstrapped indirect
 18 effects indicated that other-oriented perfectionism shared small-to-medium positive indirect
 19 relationships with antisocial teammate behaviour ($ab^1 = .12$, 95% CI = .04 to .20, $SE = .04$)
 20 and antisocial opponent behaviour ($ab^2 = .11$, 95% CI = .03 to .19, $SE = .04$).⁴

⁴ In each model, standardised factor loadings from indicator variables to relevant latent variables were all meaningful ($> .30$) and significant ($p < .001$). In the first model (see Figure 3), self-oriented perfectionism item indicators = .78, .71, .78, .82, and .55; socially prescribed perfectionism item indicators = .38, .79, .91, and .55; antisocial teammate behaviour item indicators = .79, .80, .61, .59, and .55; antisocial opponent behaviour parcel indicators = .75, .69, .84, and .75. In the second model (see Figure 4), other-oriented perfectionism item indicators = .50, .59, .57, .71, and .59; angry reactions to poor teammate performance subscale indicators = .83, .91, & .54; antisocial teammate behaviour item indicators = .78, .81, .61, .60, and .55; antisocial opponent behaviour parcel indicators = .75, .69, .84, and .75.

1 requirement to outperform others that may compel certain team sport athletes to engage in
2 antisocial behaviour (Flett & Hewitt, 2016). In keeping with this idea, we anticipated that
3 self-oriented perfectionism would share positive relationships with antisocial behaviour
4 toward teammates and opponents. By contrast, self-oriented perfectionism was found to share
5 no relationship with antisocial teammate behaviour and a negative relationship with antisocial
6 opponent behaviour. While these findings are contrary to the conceptual argument outlined
7 by Flett and Hewitt (2016), they are in keeping with some previous research findings. For
8 example, in analyses where the overlap with other dimensions of perfectionism is controlled
9 for, self-oriented perfectionism shares either negative or non-significant relationships with
10 outcomes such as anger, hostility, and aggressiveness (Stoeber et al., 2017).

11 In comparison to other dimensions of perfectionism, self-oriented perfectionism also
12 involves a strong motivation to achieve task mastery (see Kaye et al., 2008). This unique
13 preoccupation with personal development may play a key role in influencing the behaviours
14 athletes higher in self-oriented perfectionism are willing to engage in when striving to be
15 perfect. In team sport, engaging in antisocial behaviour in order to achieve success may be
16 incompatible with the motivation to develop and achieve self-imposed perfection. In the
17 current study, this notion could be especially relevant to the relationship between self-
18 oriented perfectionism and antisocial opponent behaviour. Specifically, the lower levels of
19 antisocial opponent behaviour related with self-oriented perfectionism may reflect attempts to
20 actively avoid engaging in behaviours that could undermine the demonstration of personal
21 competence. This need to demonstrate genuine mastery over others may also offset any
22 compulsion to engage in behaviours that could antagonise teammates who are instrumental to
23 the attainment of personal goals in team sport (see Al-Yaaribi, Kavussanu, & Ring, 2016).
24 Based on this discussion, self-oriented perfectionism may entail unrealistically high standards
25 that apply to both the need to be perfect in sport and the need to maintain high moral

1 standards as an athlete (see Yang, Stoeber, & Wang, 2015). Specifically, in striving to be
2 perfect, athletes higher in self-oriented perfectionism may seek ways of outperforming others
3 that are honest and carry the potential to engender feelings of genuine self-worth.

4 In testing the first aim, we also examined pathways linking socially prescribed
5 perfectionism to antisocial behaviour. Socially prescribed perfectionism involves a sense of
6 pressure to be perfect that is perceived to be imposed on the self by others (Hewitt & Flett,
7 1991). This external pressure may compel certain team sport athletes to engage in antisocial
8 behaviour (Flett & Hewitt, 2016). Aligned with this idea, and in support of our expectations,
9 socially prescribed perfectionism was found to share positive relationships with antisocial
10 behaviour toward teammates and opponents. In research outside of sport, socially prescribed
11 perfectionism has often been linked with problematic interpersonal behaviours (e.g.,
12 interpersonal conflict; Mushquash & Sherry, 2012). Our findings extend this research and
13 highlight that the experience of extreme external pressure to be perfect inherent to socially
14 prescribed perfectionism may have important interpersonal ramifications in team sport.

15 The possibility of failure is likely to represent a viable source of threat for athletes
16 higher in socially prescribed perfectionism (e.g., serving as an indication of interpersonal
17 inferiority). This preoccupation with failure in combination with concerns over securing the
18 approval of others and avoiding harsh criticism may give rise to antisocial behaviour. Indeed,
19 previous findings suggest that socially prescribed perfectionism engenders beliefs that failure
20 will result in negative interpersonal consequences (Conroy, Kaye, & Fifer, 2007). This
21 preoccupation with failure and fear of upsetting others has previously been found to explain
22 antisocial behaviour in team sport athletes (Sagar, Boardley, & Kavussanu, 2011). In the
23 context of the current findings, higher levels of antisocial teammate behaviour may reflect
24 attempts to degrade and establish interpersonal superiority over teammates, whereas higher
25 levels of antisocial opponent behaviour may reflect attempts to harm or disadvantage other

1 competitors and evade negative outcomes attached with being outperformed (e.g., feelings of
2 embarrassment; Flett & Hewitt, 2016).

3 **Perfectionism, Angry Reactions, and Antisocial Behaviour**

4 In testing the second aim, we examined pathways linking other-oriented perfectionism
5 to antisocial behaviour via angry reactions to poor teammate performance. With other-
6 oriented perfectionism, the experience of pressure to be perfect is unique in that it is directed
7 outward to others (Hewitt & Flett, 1991). Research outside of sport suggests that this form of
8 externally directed pressure is particularly salient in relation to antisocial behaviour (e.g.,
9 Stoeber et al., 2017). In testing this assertion here, we found that other-oriented perfectionism
10 shared positive indirect relationships with antisocial behaviour toward teammates and
11 opponents via angry reactions to poor teammate performance. This was the case when
12 examining both an overall measure of angry reactions to poor teammate performance as well
13 as each subjective feeling of state anger individually. Overall, these findings support the
14 notion that athletes higher in other-oriented perfectionism are likely to experience anger in
15 response to poor teammate performance (Hall, 2006), and will criticise and blame others
16 when frustrated by their substandard achievements (Hewitt et al., 2017). In this regard,
17 antisocial behaviour towards teammates and opponents may reflect feelings of general anger,
18 feelings relating to the verbal expression of anger, and/or feelings relating to the physical
19 expression of anger experienced in situations when teammates are perceived to be
20 underperforming.

21 Athletes higher in other-oriented perfectionism may regard poor teammate
22 performance as a personal slight against the self. This experience may trigger an overriding
23 belief that underperforming teammates are worthy of blame and engender feeling of intense
24 anger (cf. Lazarus, 1991). This anger coupled with beliefs that teammates are to blame for
25 performing poorly may underpin subsequent antisocial behaviour. In the context of the

1 current findings, this appears to be the case for antisocial behaviour toward both teammates
2 and opponents. This suggests that angry reactions to poor teammate performance may not
3 manifest exclusively in antisocial teammate behaviour (e.g., teammate criticism). Instead, the
4 anger experienced when teammate performance is considered poor may also be directed
5 toward opponents. This pathway may reflect a form of displaced aggression relevant to other-
6 oriented perfectionism in team sport (see Denson et al., 2006). Specifically, team sport
7 competition may provide a context in which athletes higher in other-oriented perfectionism
8 are willing to express the feelings of anger triggered by teammates toward other available
9 targets such as opponents.

10 **Gender Differences**

11 In relation to gender differences, our findings are in keeping with previous research
12 examining antisocial behaviour in team sport (e.g., Sagar et al., 2011). Specifically, we found
13 evidence indicating that males engaged more frequently in antisocial teammate and antisocial
14 opponent behaviour in comparison to females. Previous research has identified that, in
15 comparison to female athletes, male athletes typically report lower levels of empathy and
16 stronger perceptions of an ego-involving motivational climate in sport (Kavussanu et al.,
17 2009). Such gender differences may play a key role in explaining the more frequent antisocial
18 behaviour of male athletes. In the current study, we also found evidence indicating that males
19 reported more frequent experiences of anger in situations involving poor teammate
20 performance. This tendency to react angrily to poor teammate performance may also play a
21 key role in explaining the more frequent antisocial behaviour of male athletes.

22 **Study Limitations and Future Research Directions**

23 The limitations in the current study must be considered. One noteworthy limitation
24 relates to the cross-sectional research design that was adopted. The hypothesised causal
25 relationships in the present study were based largely on theory and reflected in the

1 construction of the two structural equation models. However, it was not possible to make
2 inferences about the temporal precedence of the relationships between the variables examined
3 in these models. An important next step for future research will be to re-examine the current
4 models longitudinally in order to detect the temporal direction of these relationships (see
5 Maxwell & Cole, 2006). A further limitation pertains to the dual approach to assessing
6 antisocial behaviour. In the present study, most athletes reported on their antisocial behaviour
7 during the current season. However, some athletes engaging in preseason training during data
8 collection were referred to an instruction to report on their antisocial behaviour during the
9 previous season. While no differences were evident between the two methodological
10 approaches, future research should focus on using one fixed set of instructions applicable to
11 all athletes (e.g., report on antisocial behaviour during the past 12 months).

12 In terms of future research, one particularly important direction involves examining
13 other factors that may impact the perfectionism–antisocial behaviour relationship. This is
14 important as there are situations in which perfectionism may be more likely to lead to
15 outcomes such as angry reactions and antisocial behaviour (e.g., when experiencing a
16 prolonged period of unexpected poor performance; Flett & Hewitt, 2016). In the current
17 study, we identified that perceptions of poor teammate performance were particularly
18 infuriating for athletes higher in other-oriented perfectionism and played a key role in
19 explaining antisocial behaviour toward teammates and opponents. However, future research
20 is still needed to examine perceptions of situations that may explain when and why self-
21 oriented perfectionism and socially prescribed perfectionism give rise to antisocial behaviour.
22 Additionally, an important direction for future research involves examining alternative
23 emotional reactions relevant to the perfectionism–antisocial behaviour relationship. One
24 emotion that has been found distinguish self-oriented perfectionism from socially prescribed
25 perfectionism and other-oriented perfectionism is empathy (Stoeber et al., 2017). This

1 emotion has previously been linked to antisocial behaviour in sport (e.g., Kavussanu et al.,
2 2013) and may explain the pattern of findings identified in the current study.

3 A further direction to help extend this line of research involves examining alternative
4 models of perfectionism that may be relevant to antisocial behaviour in this context. For
5 example, moral perfectionism—a form of perfectionism that captures unrealistically high
6 moral standards and concerns over moral mistakes—may predict low levels of antisocial
7 behaviour in sport (see Yang et al., 2015). By contrast, narcissistic perfectionism—a form of
8 perfectionism that captures a range of narcissistic and perfectionistic traits—may predict high
9 levels of antisocial behaviour in sport (see Nealis et al, 2015). Finally, in the current study we
10 focussed on the independent effects of self-oriented perfectionism, socially prescribed
11 perfectionism, and other-oriented perfectionism in relation to antisocial behaviour. While this
12 approach was useful in identifying dimensions of perfectionism that are important in relation
13 to antisocial behaviour, it is important to acknowledge that the extent to which these three
14 dimensions coexist within individual athletes is likely to vary (Hewitt et al., 2017). A further
15 direction to help extend this line of research therefore involves adopting a methodological
16 approach that accounts for the potential interplay between the three perfectionism dimensions
17 examined in this study.

18 **Conclusion**

19 In line with recent theoretical assertions, the findings in the current study suggest that
20 there may be a darker side to perfectionism that is related with antisocial behaviour in team
21 sport (Flett & Hewitt, 2016). This was not apparent in the findings for self-oriented
22 perfectionism, but evident in the findings for both socially prescribed perfectionism and
23 other-oriented perfectionism. Specifically, we found that socially prescribed perfectionism
24 and other-oriented perfectionism shared positive relationships with antisocial behaviour
25 toward teammates and opponents. Our findings extend previous research indicating that these

1 social dimensions of perfectionism are related to problematic interpersonal behaviour (see
2 Flett et al., 2016). In focussing on other-oriented perfectionism, our findings also extend
3 previous research in team sport (e.g., Dunn et al., 2006). Specifically, we found evidence to
4 highlight that poor teammate performance may be a particularly important scenario to
5 consider when explaining the angry temperament and antisocial behaviour of athletes higher
6 in other-oriented perfectionism.

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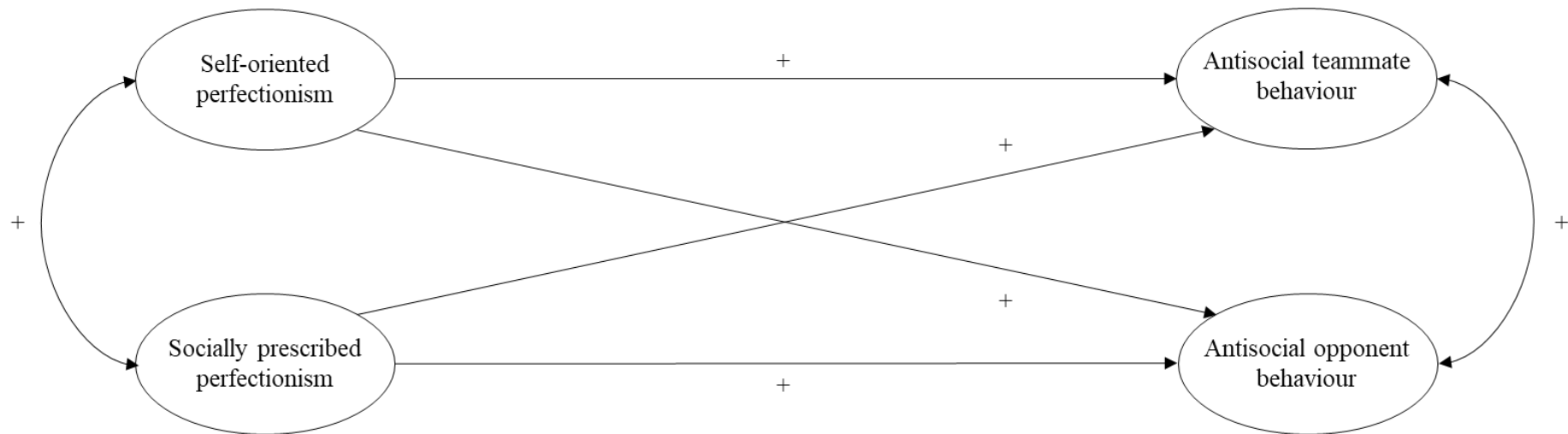
- 1 Table 1
- 2 Descriptive statistics, bivariate correlations, and reliability estimates

	<i>M</i>	<i>s</i>	α	1.	2.	3.	4.	5.
1. Self-oriented perfectionism (SOP)	5.34	1.09	.85					
2. Socially prescribed perfectionism (SPP)	4.08	1.00	.71	.51***				
3. Other-oriented perfectionism (OOP)	4.38	.97	.72	.64***	.65***			
4. Angry Reactions to Poor Teammate Performance	2.35	.94	.93	.08	.21**	.27**		
5. Antisocial teammate behaviour (AT)	2.25	.77	.80	.07	.15*	.16*	.42**	
6. Antisocial opponent behaviour (AO)	2.33	.81	.85	.04	.15*	.17*	.40**	.59**

- 3 *Note.* * $p < .05$; ** $p < .01$; *** $p < .001$

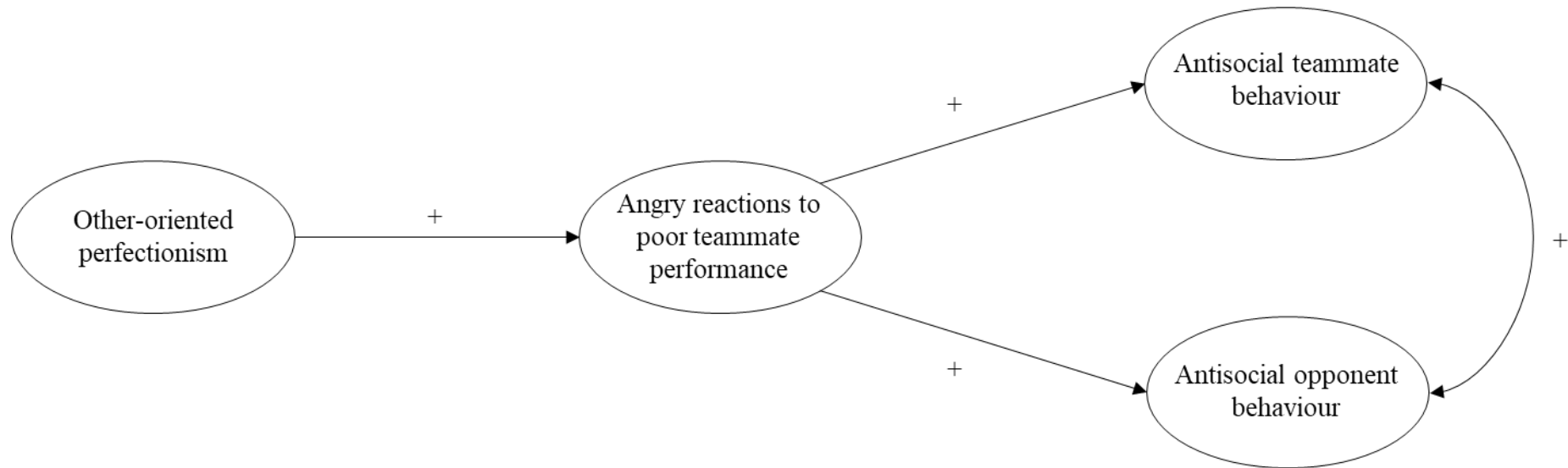
1 Figure 1

2 The relationships between self-oriented perfectionism, socially prescribed perfectionism, angry reactions to poor teammate performance, and
3 antisocial behaviour



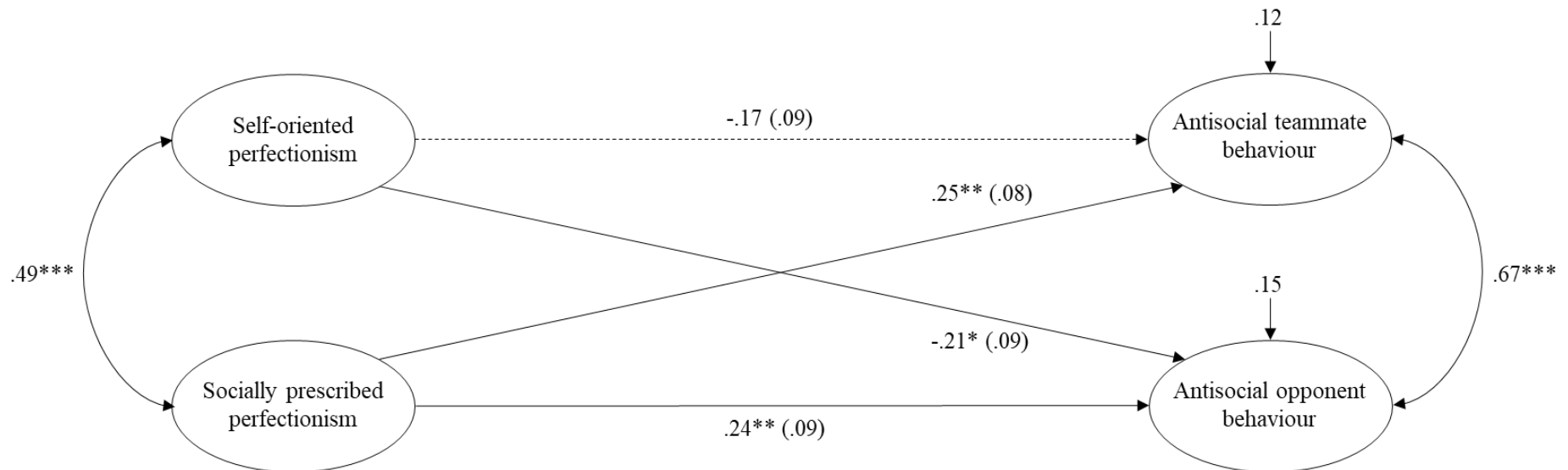
4 *Note.* The parcel indicators and dummy-coded gender covariate (0 = males; 1 = females) are not displayed

- 1 Figure 2
- 2 The relationships between other-oriented perfectionism, angry reactions to poor teammate performance, and antisocial behaviour.



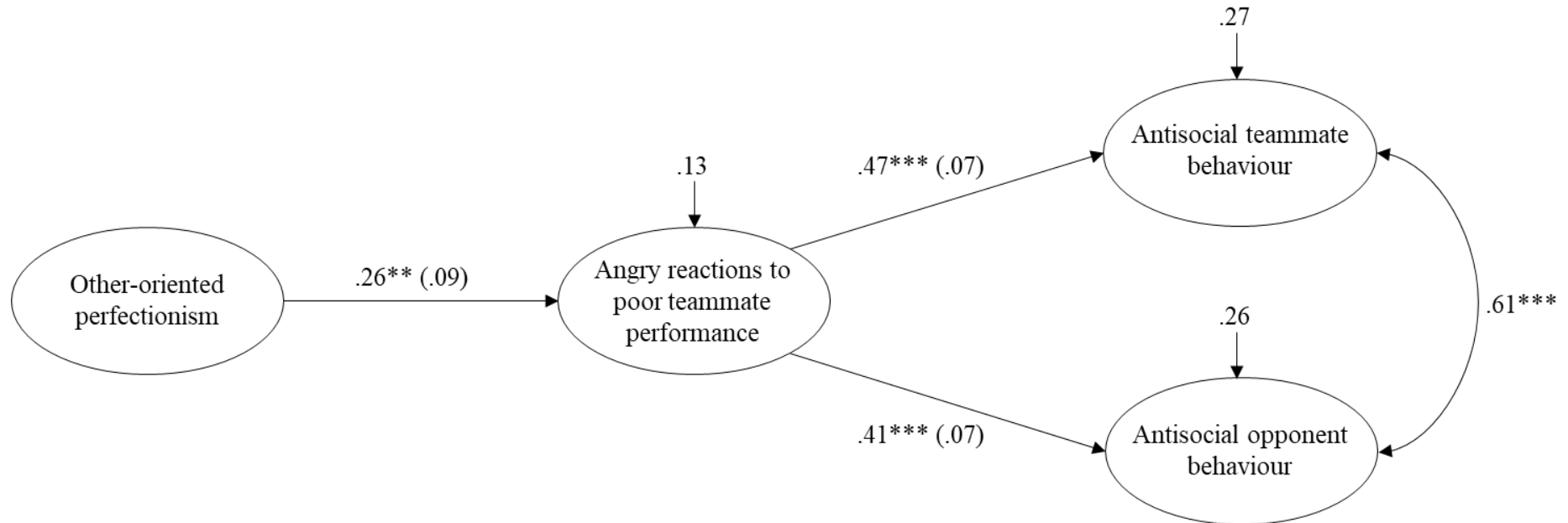
- 3 *Note.* The parcel indicators and dummy-coded gender covariate (0 = males; 1 = females) are not displayed

- 1 Figure 3
- 2 The relationships between self-oriented perfectionism, socially prescribed perfectionism, and antisocial behaviour.



- 3 *Note.* All pathways are standardized; standard errors in parentheses; dashed line = non-significant; parcel indicators and dummy-coded gender
- 4 covariate (0 = males; 1 = females) are not displayed; the paths from gender to antisocial teammate behaviour ($\beta = -.30$, $SE = .06$, $p = .00$) and
- 5 antisocial opponent behaviour ($\beta = -.37$, $SE = .06$, $p = .00$) were significant; $n = 254$; $*p < .05$; $**p < .01$; $***p < .001$

- 1 Figure 4
- 2 The relationships between other-oriented perfectionism, angry reactions to poor teammate performance, and antisocial behaviour.



- 3 *Note.* All pathways are standardized; standard errors in parentheses; the parcel indicators and dummy-coded gender covariate (0 = males; 1 =
- 4 females) are not displayed; the paths from gender to angry reactions to poor teammate performance ($\beta = -.17$, $SE = .06$, $p = .00$), antisocial
- 5 teammate behaviour ($\beta = -.14$, $SE = .06$, $p = .02$), and antisocial opponent behaviour ($\beta = -.21$, $SE = .06$, $p = .00$) were significant; $n = 254$; $*p <$
- 6 $.05$; $**p < .01$; $***p < .001$