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The Prosocial and Antisocial Behaviour in Sport Scale: Further evidence for construct validity and reliability

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Abstract
The purpose of this research was to provide further evidence for the construct validity (i.e., convergent, concurrent, and discriminant validity) of the Prosocial and Antisocial Behaviour in Sport Scale (PABSS), an instrument that has four subscales measuring prosocial and antisocial behaviour toward teammates and opponents. We also investigated test-retest reliability and stability of the PABSS. We conducted three studies using athletes from a variety of team sports. In Study 1, participants (N = 129) completed the PABSS and measures of physical and verbal aggression, hostility, anger, moral identity, and empathy; a sub-sample (n = 111) also completed the PABSS one week later. In Study 2, in addition to the PABSS, participants (N = 89) completed measures of competitive aggressiveness and anger, moral attitudes, moral disengagement, goal orientation, and anxiety. In Study 3, participants (N = 307) completed the PABSS and a measure of social goals. Across the three studies, the four subscales evidenced the hypothesised relationships with a number of variables. Correlations were large between the two antisocial behaviours and small between the two prosocial behaviours. Overall, the findings supported the convergent, concurrent, and discriminant validity of the scale, provided evidence for its test-retest reliability and stability, and suggest that the instrument is a valid and reliable measure of prosocial and antisocial behaviour in sport.

Keywords: concurrent, convergent, discriminant, item stability

Introduction
The importance of developing valid and reliable instruments that assess the morally relevant dimensions of sport experience was emphasised by Bredemeier and Shields (1998) over a decade ago. These scholars have also pointed to the significance of moral behaviour as the “bottom line” of morality. Thus, developing instruments that measure morally relevant behaviour in sport is an important prerequisite to conducting research that furthers our understanding of this behaviour in the sport context.

One such instrument has been recently developed by Kavussanu and Boardley (2009) based on Bandura (1991, 1999) and previous work on prosocial and antisocial behaviour (e.g., Eisenberg & Fabes, 1998; Sage, Kavussanu, & Duda, 2006). Bandura (1991) has argued that how people act is more important than their justifications of their behaviour, implying that moral psychologists should focus on behaviour. He also suggested that individuals use multidimensional rules or standards (e.g., the consequences of the action, whether it is directed at others, etc.) to determine whether behaviour is reprehensible. Finally, Bandura (1999) has distinguished between proactive morality, which is manifested in the power to behave humanely, and inhibitive morality, which is expressed in the power to refrain from behaving inhumanely. In this view of morality “people do good things as well as refrain from doing bad things” (Bandura, 1999, p. 194).

In the sport context, the terms prosocial and antisocial behaviour have been used to refer to the two dimensions of morality (see Kavussanu, 2008). Prosocial behaviour has been defined as voluntary behaviour intended to help or benefit another individual or group of individuals (Eisenberg & Fabes, 1998), and examples in sport are helping an injured opponent and congratulating a teammate. The term antisocial behaviour has been used to refer to voluntary acts intended to harm or disadvantage another (Sage et al., 2006), and examples in sport are cheating or trying to injure another player. Prosocial and antisocial behaviours can have positive and negative consequences, respectively, for athletes’ physical and psychological well-being. For example, kicking a
player could cause him or her to experience pain, and helping an injured player could alleviate his or her distress. However, if the player does not feel any pain (e.g., because he or she is distracted or has taken analgesic medication), the behaviours will not have the expected consequences (Kavussanu & Boardley, 2012). Thus, prosocial and antisocial behaviours have the potential to affect others.

In order to measure prosocial and antisocial behaviour in sport, Kavussanu and Boardley (2009) developed the Prosocial and Antisocial Behaviour in Sport Scale (PABSS). First, a large number of behaviours fitting the respective definitions and occurring in five team sports (i.e., basketball, football, field hockey, netball, and rugby) were identified. Then, items were developed to measure these behaviours, and their content validity was examined through expert ratings. Next, an abbreviated item list was administered to 1,213 team-sport athletes. Factor analyses of these items revealed four factors: two factors represented prosocial behaviour towards teammates and opponents, and two factors represented antisocial behaviour towards teammates and opponents. The final instrument consists of 20 items and four subscales (corresponding to the four factors) that have displayed acceptable levels of internal consistency with alpha coefficients ranging from 0.74 to 0.87 (Kavussanu & Boardley, 2009). Similar levels of internal consistency (α range = 0.77–0.89) have been reported in a recent study of 292 New Zealand athletes (Hodge & Lonsdale, 2011). The large range of alpha coefficients is in part due to the different number of items in each subscale.

To date, the PABSS has been used in studies with athletes from England (Boardley & Kavussanu, 2009, 2010), North America (Bolter & Weiss, 2013), Australia (Boardley & Jackson, 2012), and New Zealand (Hodge & Lonsdale, 2011), that have revealed a variety of findings. For example, prosocial behaviour toward teammates has been predicted positively by mastery motivational climate (Boardley & Kavussanu, 2009) and autonomous athlete motivation (Hodge & Lonsdale, 2011), while prosocial behaviour toward opponents has been positively associated with empathy (Kavussanu & Boardley, 2009). The two antisocial behaviours have also been positively related to moral disengagement (Boardley & Kavussanu, 2009, 2010; Hodge & Lonsdale, 2011). Thus, a body of literature using the PABSS has started to emerge and reveals potential antecedents of prosocial and antisocial sport behaviours underscoring the importance of this instrument and the need to provide further evidence for its psychometric properties.

In the original study that developed the PABSS, Kavussanu and Boardley (2009) provided evidence for the concurrent validity of the scale. This aspect of validity is concerned with whether a measure is associated with a criterion variable (external standard), when data are collected at the same point in time (Kline, 2005). Evidence for concurrent validity was obtained by examining whether prosocial and antisocial behaviours were related to three variables that have been consistently linked to these behaviours in past research: empathy, task orientation, and ego orientation. Although correlations supported the hypothesised relationships, only one sample of athletes was studied; thus, the evidence is limited. In addition, Kavussanu and Boardley (2009) did not examine convergent validity, which refers to the degree to which a measure is associated with theoretically similar constructs (Brewer, 2000) and is evidenced when a scale is correlated at least moderately with established measures of the same or similar constructs (Kline, 2005).

Kavussanu and Boardley (2009) also provided evidence for the instrument’s discriminant validity. This aspect of validity entails the evaluation of measures against each other and is evident when variables assumed to measure different constructs are not too highly correlated (Kline, 2005). Discriminant validity was supported by correlations among the prosocial and antisocial behaviour subscales that ranged between 0.04 and 0.46, that is, correlations that were not too high. However, no other evidence of this type of validity was provided. Additional support for discriminant validity would be obtained by differential relationships between the four PABSS subscales and measures of other constructs.

Another psychometric property not examined by Kavussanu and Boardley (2009) is test-retest reliability, which is typically estimated by administering a measure to the same people twice and correlating the two sets of scores (Pedhazur & Schmelkin, 1991). We also examined stability (or reproducibility), which refers to the extent to which scores are resistant to change on repeated administrations when no change is expected (Lane, Nevill, Bowes, & Fox, 2005).

In sum, more evidence is needed to further establish the validity and reliability of the PABSS. In the present research, we aimed to obtain this evidence in three studies. In Study 1, we examined convergent, concurrent, and discriminant validity using non-sport measures, and investigated test-retest reliability and stability. In Studies 2 and 3, we sought to provide further support for construct validity in two other samples of team-sport athletes using sport-specific measures.

Study 1

The main purpose of Study 1 was to examine convergent, concurrent, and discriminant validity of the PABSS using non-sport measures; we also examined test-retest reliability and stability of the PABSS. Below,
we discuss the variables used to examine each type of validity.

**Convergent validity**

We investigated convergent validity of the antisocial behaviour subscales by examining their relationship with two dimensions of aggression, which is behaviour intended to cause harm or injure another (Berkowitz, 1993). Two components of dispositional aggression described by Buss and Perry (1992) are physical and verbal aggression, and refer to the instrumental component of aggression implemented by physical or verbal means, respectively. Given that, in sport, antisocial behaviour has been defined as behaviour intended to harm or disadvantage another (Sage et al., 2006), it is conceptually similar to the construct of aggression, but broader in that it also refers to behaviour aimed to disadvantage others (see Kavussanu, 2012). Thus, we hypothesised that the two antisocial behaviours would be positively associated with physical and verbal aggression, and such relationships would provide support for the convergent validity of these subscales. However, we expected that compared to teammate behaviour, antisocial opponent behaviour would be more strongly associated with physical and verbal aggression.

**Concurrent validity**

We investigated concurrent validity by examining whether the four PABSS subscales are associated with anger, hostility, moral identity, and empathy. Anger represents the emotional component of aggression (Buss & Perry, 1992), and involves physiological arousal and preparation for aggression, while hostility is the cognitive component of aggression and consists of feelings of ill will and injustice (Buss & Perry, 1992). We expected positive links between anger and hostility and the two antisocial behaviours; these would support the concurrent validity of the antisocial behaviour subscales.

Moral identity has been defined as the degree to which being moral is a defining or central characteristic of one’s sense of self. It is the cognitive schema one holds about his or her moral character (Aquino, Freeman, Reed, Lim, & Felps, 2009) and is organised around a set of moral traits, such as being honest, caring, generous, and compassionate (Aquino & Reed, 2002). The degree to which these moral traits are central to one’s self-concept is known as moral identity centrality, but will be referred to here as moral identity. In past research, moral identity has positively predicted self-reported volunteering and actual donation behaviour in college students (Aquino & Reed, 2002) and has been negatively associated with antisocial behaviour in footballers (Sage et al., 2006); however, it did not predict prosocial sport behaviour (Sage et al., 2006). We anticipated that moral identity would be negatively linked to antisocial behaviour and positively related to prosocial behaviour. However, due to the inconsistent findings of previous research (Aquino & Reed, 2002; Sage et al., 2006), the latter hypothesis was tentative.

Finally, empathy refers to the responses of one individual to the observed experiences of another (Davis, 1983). Two empathy dimensions linked to moral variables in past research are perspective taking (i.e., the tendency to adopt the psychological point of view of others) and empathic concern (i.e., the tendency to experience feelings of sympathy, compassion, and concern for unfortunate others). Individuals high in empathy are more likely to attend to others’ needs and feelings and therefore more likely to behave prosocially and refrain from behaving aggressively toward others. Empathy has been positively linked to prosocial behaviour, and negatively related to aggression and antisocial behaviour (Eisenberg & Miller, 1987; Miller & Eisenberg, 1988). It has also been positively associated with prosocial opponent behaviour and negatively linked to the two antisocial behaviours (Kavussanu & Boardley, 2009). We wished to determine whether these findings would be replicated in a different sample, which would further support the concurrent validity of the PABSS.

**Discriminant validity**

We investigated discriminant validity by examining whether the four PABSS subscales are differentially related to physical aggression, empathy, and moral identity. We expected that physical aggression would be associated more strongly with antisocial behaviour toward opponents than teammates, because the former – but not the latter – entails physical acts. Empathy and moral identity were expected to be more strongly correlated with prosocial behaviour toward opponents than teammates because the former are helping behaviours, which are more likely to occur when someone has empathy for others and views being moral as a central part of the self. Finally, we expected that prosocial behaviours would have negative or no association with the aggression constructs because such associations have been revealed between prosocial and antisocial behaviour – which is conceptually similar to aggression – in previous research (e.g., Sage & Kavussanu, 2008).

**Test-retest reliability and stability**

Finally, we examined test-retest reliability and stability of the four PABSS subscales. To this end, we
administered the scale to the same sample on two different occasions separated by a one-week interval.

**Method**

**Participants**

Participants were male (n = 73) and female (n = 56) students from a British university competing in hockey (n = 24), netball (n = 23), football (n = 60), and rugby (n = 22). These sports were selected because they are contact team sports. Thus, they were appropriate for obtaining validity evidence for the PABSS, as the scale was developed for use with athletes from contact team sports and some items are applicable only to these sports. At the time of data collection, participants ranged in age from 18 to 33 years (M = 18.43, s = 1.42) and had competed in their respective sport for an average of 7.17 (s = 3.26) years. The highest ever standard at which they had played their sport was club (46%), county (33%), regional (14%), national (4%), and international (3%).

**Measures**

The following measures were administered:

**Prosocial and antisocial behaviour.** The PABSS (Kavussanu & Boardley, 2009) was used to measure prosocial and antisocial behaviour in sport. Participants were presented with 20 items describing sport behaviours and were asked to report how often they had engaged in each behaviour in the previous season on a Likert scale anchored by 1 = never and 5 = very often. The PABSS consists of four subscales that measure prosocial behaviour toward opponents (eight items; e.g., deliberately fouled an opponent), antisocial behaviour toward teammates (five items; e.g., verbally abused a teammate), prosocial behaviour toward opponents (three items; e.g., helped an injured opponent), and prosocial behaviour toward teammates (four items; e.g., encouraged a teammate). The mean of each subscale was calculated and used in all analyses. This procedure was followed for all measures.

**Aggression.** The Buss-Perry Aggression Questionnaire (Buss & Perry, 1992) was used to assess physical aggression, verbal aggression, hostility, and anger. Participants were asked to indicate how well a number of statements describe what they are like in general using a Likert scale anchored by 1 = very unlike me and 5 = very like me. The questionnaire consists of four subscales that measure physical aggression (nine items; e.g., if somebody hits me, I hit back), verbal aggression (five items; e.g., I often find myself disagreeing with people), hostility (eight items; e.g., I am suspicious of overly friendly strangers), and anger (seven items; e.g., I have trouble controlling my temper). In past research, the four subscales have shown good levels of internal consistency with $\alpha = 0.72$–0.85 (Buss & Perry, 1992).

**Moral identity.** The 5-item internalisation dimension of the moral identity scale (Aquino & Reed, 2002) was used to measure moral identity. Participants were presented with nine traits (i.e., caring, fair, kind, helpful, hardworking, compassionate, etc.) validated as necessary characteristics of a moral person, and were asked to respond to statements concerning these traits (e.g., it would make me feel good to be a person who has these characteristics). Participants responded on a Likert scale anchored by 1 = strongly disagree and 7 = strongly agree. This subscale has shown very good internal consistency ($\alpha = 0.83$) in previous research (Aquino & Reed, 2002).

**Empathy.** The 7-item perspective taking (e.g., before criticising somebody, I try to imagine how I would feel if I were in their place) and 7-item empathic concern (e.g., I am often quite touched by things that I see happen) subscales of the Interpersonal Reactivity Index (Davis, 1980) were used to measure empathy. Participants were asked to indicate how well a number of statements describe them and responded on a scale with anchors of 1 = does not describe me well and 5 = describes me very well. Because perspective taking and empathic concern are theoretically related (Davis, 1983), and in this study the two variables were moderately correlated, $r$ (128) = 0.35, $P < 0.001$, responses on the two subscales were averaged to form an overall empathy score. This combined scale has been used in past research, and has shown very good internal consistency ($\alpha = 0.82$–0.85; Carlo, Raffaelli, Laible, & Meyer, 1999).

**Procedure**

Upon approval of the study by the University ethics committee, one of the investigators administered questionnaires to participants at the end of a sport science undergraduate lecture. Participants were informed that the purpose of the study was to examine sportsperson-like attitudes and behaviours and the factors that influence them. It was also explained that all responses would be kept anonymous and confidential and used only for research purposes, participation was voluntary, and they could withdraw from the study at any time. All students present in the class agreed to take part, gave informed consent, and completed the measures described above.
To assess test-retest reliability and stability of the PABSS, the instrument was administered to participants under standardised conditions, at the end of the same sport science undergraduate lecture, given at the same time-tabled lecture slot, a week later (see also Nevill, Lane, Kilgour, Bowes, & Whyte, 2001). When assessing test-retest reliability it is suggested that the interval between the two administrations is relatively short, that is, one to two weeks, to allow one to tap only random measurement error and not true changes (Pedhazur & Schmelkin, 1991). Given that the PABSS measures behaviour, which could change over time as it is affected by situational factors, we chose a one-week interval to minimise the possibility that behaviours would change from the first to second administration (see Anastasi & Urbina, 1997). A total of 63 males and 48 females (who were present in both lectures) completed the questionnaire on both occasions and were used in our assessment of test-retest reliability and stability. Using university students allowed us to administer the test under standardised conditions which is important when assessing test-retest reliability (Schutz, 1998).

Results and discussion

Descriptive statistics and internal consistency

The means and standard deviations of the PABSS subscales at Time 1 are presented in Table I. Athletes reported that, when playing their team sport, they behaved antisocially rarely to sometimes to often. Table I also includes alpha coefficients for all measures. It can be seen that the two antisocial behaviour subscales exhibited acceptable levels of internal consistency at Times 1 and 2 (α range = 0.77–0.89). The prosocial teammate behaviour subscale also exhibited good levels of internal consistency at Times 1 and 2, as did the prosocial opponent behaviour subscale at Time 2 (α range = 0.73–0.77). However, alpha for the prosocial opponent behaviour subscale at Time 1 (α = 0.64) was below traditionally acceptable levels of internal consistency (i.e., α = 0.70). Finally, all other measures used in the study had acceptable levels of internal consistency (α range = 0.71–0.87).

Construct validity

Convergent, concurrent, and discriminant validity of the PABSS were examined by computing the correlations of the four behaviours with theoretically similar or different constructs. To account for error of measurement, we also computed disattenuated correlations (Spearman, 1904). As can be seen in Table I, the two antisocial behaviours were: positively associated with physical and verbal aggression supporting convergent validity; positively linked to hostility and anger supporting concurrent validity; and negatively related to moral identity and empathy, also supporting concurrent validity. Prosocial behaviour towards opponents was positively linked to moral identity and empathy supporting concurrent validity; both prosocial behaviours were unrelated to aggression, anger, and hostility, indicating discriminant validity. Discriminant validity was also supported by the correlations among the four PABSS subscales which ranged from −0.02 to 0.47 (disattenuated correlations range −0.03–0.60). These results support the validity of the PABSS as a measure of antisocial and prosocial sport behaviour.

Table I. Alpha coefficients, zero-order correlations and descriptive statistics: Study 1 (N = 129).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Antisocial Behaviour (AB)</th>
<th>Prosocial Behaviour (PB)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Opponents (0.77) (0.89))</td>
<td>Teammates (0.79) (0.87))</td>
</tr>
<tr>
<td></td>
<td>Opponents (0.64) (0.73))</td>
<td>Teammates (0.77) (0.73))</td>
</tr>
<tr>
<td>Physical aggression (0.87)</td>
<td>0.51***/0.62***</td>
<td>0.29**/0.35***</td>
</tr>
<tr>
<td>Verbal aggression (0.79)</td>
<td>0.47***/0.60***</td>
<td>0.30 <em><strong>/0.38</strong></em></td>
</tr>
<tr>
<td>Hostility (0.79)</td>
<td>0.21*+/0.27*</td>
<td>0.34***+/0.43***</td>
</tr>
<tr>
<td>Anger (0.84)</td>
<td>0.40***+/0.50***</td>
<td>0.31***+/0.42***</td>
</tr>
<tr>
<td>Moral identity (0.71)</td>
<td>−0.27***/−0.37***</td>
<td>−0.32****/−0.43***</td>
</tr>
<tr>
<td>Empathy (0.77)</td>
<td>−0.38***/−0.49***</td>
<td>−0.42***/−0.54***</td>
</tr>
<tr>
<td>Gender</td>
<td>−0.36***/−0.41***</td>
<td>−0.40***/−0.45***</td>
</tr>
<tr>
<td>AB Teammates</td>
<td>0.47***+/0.60***</td>
<td></td>
</tr>
<tr>
<td>PB Opponents</td>
<td>0.04/0.06</td>
<td>−0.02/−0.03</td>
</tr>
<tr>
<td>PB Teammates</td>
<td>0.18+/0.23*</td>
<td>0.02/0.03</td>
</tr>
<tr>
<td>M*</td>
<td>2.41/2.44</td>
<td>2.16/2.11</td>
</tr>
<tr>
<td>σ̇</td>
<td>0.67/0.76</td>
<td>0.66/0.65</td>
</tr>
</tbody>
</table>

Note: Alpha coefficients are in brackets; double brackets in the case of the one-week follow-up. Disattenuated correlations are presented after the slash.

*Time 1 means and standard deviations (σ̇) are presented before the slash, Time 2 after the slash. Gender was coded as 0 = male and 1 = female.

*P < 0.05, **P < 0.01, ***P < 0.001.
Test-retest reliability and stability

Test-retest reliability was examined by computing Intraclass Correlation Coefficients (ICC) using a two-factor mixed-effects model (McGraw & Wong, 1996). Acceptable levels of test-retest reliability are indicated by strong ICCs (> 0.70) between the measures completed at two time points (Terwee et al., 2007). All four subscales demonstrated good levels of test-retest reliability between Times 1 and 2, with ICCs of 0.92, 95% Confidence Interval (CI) [0.89, 0.95], and 0.88, 95% CI [0.83, 0.92] for antisocial behaviour toward opponents and teammates, respectively, and 0.88, 95% CI [0.83, 0.92] and 0.83, 95% CI [0.75, 0.88] for prosocial behaviour toward opponents and teammates, respectively.

With respect to the stability of the four subscales, we investigated both mean and individual-item stability. We examined mean stability using a 2 Gender (male, female) by 2 Time (test, retest) multivariate analysis of variance (MANOVA), with gender as a between-subjects factor and Time as a within-subjects factor. This analysis confirmed that the four mean subscale scores did not change significantly over time, $F(4, 106) = 1.06, P = 0.38, \eta^2_p = 0.04$, providing support for the mean stability of the four subscales (Schutz, 1998). Means and standard deviations (s) for Times 1 and 2 can be seen in Table I.

Individual-item stability was examined based on recommendations by Nevill, Lane and colleagues (Lane et al., 2005; Nevill et al., 2001). Specifically, for each item, we calculated test-retest differences and report the minimum and maximum difference scores (Table II). We also computed the proportion of agreement, that is, the percentage of participants whose test-retest difference scores were within ± 1, which is the value recommended for a 5-point Likert scale; an item is assumed to have acceptable stability if 90% of test-retest difference scores lie within this range (Nevill et al., 2001). Finally, we computed the median-sign test (i.e., the number of participants with differences above and below the median, 0) to determine the degree of potential bias of scores increasing or decreasing from test to retest. The results of these analyses (including means and s) are presented in Table II. For all items, at least 90% of participants had test-retest difference scores within ±1 indicating fairly high stability. However, the median-sign test revealed that the scores of two prosocial teammate items (“encouraged a teammate” and “congratulated a teammate for good play”) and one prosocial opponent item (“helped an opponent off the floor”) significantly increased over the one-week interval.

Discussion

The results showed strong support for the three aspects of validity of the antisocial behaviour subscales. The evidence for the concurrent and discriminant validity of the two prosocial behaviours was
modest. This issue was addressed in Study 3, while Study 2 sought further support for the validity of the PABSS. All subscales demonstrated very good test-retest reliability and mean stability. Although a few items fluctuated somewhat from test to retest, generally each item of the PABSS showed acceptable stability over a one-week interval.

Study 2
In Study 2, we further examined convergent, concurrent, and discriminant validity of the PABSS using sport-specific criterion variables. We investigated convergent and concurrent validity of the two antisocial behaviour subscales by examining their relationships with competitive aggressiveness (for convergent validity) as well as anger and attitudes towards moral decision-making in sport (for concurrent validity). Aggressiveness refers to the disposition to become aggressive or acceptance and willingness to use aggression (Berkowitz, 1993), while anger is the subjective evaluation that increased physiological arousal is a result of threat to one’s physical or psychological well-being (Averill, 1983). We expected positive relationships between antisocial behaviours and competitive aggressiveness and anger.

To provide further evidence for convergent and concurrent validity we examined the link of the four subscales with variables associated with prosocial and antisocial behaviour in past research. The first set of variables is attitudes towards moral decision making. Lee, Whitehead, and Ntoumanis (2007) described two antisocial attitudes termed “acceptance of cheating” and “acceptance of gamesmanship” and one prosocial attitude termed “keeping winning in proportion”. Acceptance of cheating refers to infractions of the rules in order to gain some unfair advantage, in which there is a degree of successful deception, whereas gamesmanship refers to actions that do not violate the rules of the sport but appear to violate the spirit of the contest, perhaps using the laws to gain some unfair advantage (Lee et al., 2007). Keeping winning in proportion involves emphasis on winning fairly and de-emphasises the will to win at all costs. Antisocial and prosocial attitudes were expected to have positive relationships with antisocial and prosocial behaviours, respectively.

We also examined whether behaviours were associated with moral disengagement and goal orientation. Moral disengagement refers to a set of psychological manoeuvres that enable individuals to minimise the negative affect typically associated with transgressive behaviour (Bandura, 1999) and has been associated positively with antisocial behaviour and negatively with prosocial behaviour in sport (Boardley & Kavussanu, 2008, 2009). Goal orientation has been distinguished into task (i.e., the tendency to define success via self-referenced criteria) and ego (i.e., the tendency to define success using other-referenced criteria) orientations (Nicholls, 1989). In past research, task and ego goal orientations have been positively related to prosocial and antisocial behaviour, respectively (e.g., Kavussanu & Boardley, 2009; Sage et al., 2006). Similar relationships were anticipated in this study.

Finally, we investigated discriminant validity by examining the subscales’ relationships with trait competitive sport anxiety, which has a cognitive component (i.e., negative expectations and worry over the task at hand) and a somatic component (i.e., one’s perception of physiological elements of anxiety such as feelings of tension and nervousness) (Smith, Smoll, & Schutz, 1990). As anxiety has not been associated with any moral variables in previous research, we expected no relationship between anxiety and prosocial or antisocial behaviours. We also examined the associations of behaviours with the other measured constructs. Given that antisocial and prosocial behaviours are distinct constructs (Kavussanu & Boardley, 2009) we expected no relationship between prosocial and competitive anger and aggressiveness or antisocial attitudes; similarly, we expected a null relationship between antisocial behaviour and prosocial attitudes.

Method
Participants
Participants were male (n = 53) and female (n = 36) students at a British university competing in team sports, who indicated football (n = 31), rugby (n = 17), hockey (n = 15), netball (n = 15), basketball (n = 6), American football (n = 3), or lacrosse (n = 2) as their main team sport. At the time of data collection, they ranged in age from 19 to 26 years (M = 19.63, s = 1.03) and had participated in their respective team sport for an average of 8.18 (s = 3.67) years. The highest ever standard at which participants had played their team sport at that time was club (37%), county (37%), regional (18%), national (5%), and international (3%).

Measures
The following measures were administered:

Prosocial and antisocial behaviour. The PABSS (Kavussanu & Boardley, 2009) was used to measure prosocial and antisocial behaviour in sport (see Study 1 for further details).

Aggressiveness and anger. We measured aggressiveness and anger in sport competition with the Competitive Aggressiveness and Anger scale (Maxwell & Moores,
M. Kavussanu et al.

2007). The stem “When playing your team sport how often have you behaved, felt or thought that...” was used followed by two 6-item subscales measuring aggressiveness (e.g., Violent behaviour directed toward an opponent is acceptable) and anger (e.g., I get mad when I lose). Participants responded on a Likert scale anchored by 1 = *never* and 5 = *very often*. Maxwell and Moores (2007) have provided evidence for the factorial validity and reliability of the aggressiveness (α range = 0.83–0.84) and anger (α range = 0.78–0.83) subscales.

**Moral attitudes.** We measured moral attitudes with the Attitudes to Moral Decision making in Youth Sport Questionnaire (Lee et al., 2007). Participants were asked to read a number of statements describing thoughts and feelings players may have and indicate their level of agreement on a Likert scale anchored by 1 = *strongly disagree* and 7 = *strongly agree*. The questionnaire measures acceptance of cheating (three items; e.g., It is okay to cheat if nobody knows), acceptance of gamesmanship (three items; e.g., I sometimes try to wind up the opposition), and keeping winning in proportion (three items; e.g., Winning and losing are a part of life). Lee et al. (2007) have provided evidence for the factorial validity and reliability of the acceptance of cheating (α = 0.73) and acceptance of gamesmanship (α = 0.75). The third subscale (i.e., keeping winning in proportion) had unacceptable levels of internal consistency in previous research (α = 0.60) and in this study (α = 0.54) and was not used in the main data analysis. Although the questionnaire was developed with a youth sample, it has been used successfully with adult athletes (e.g., Bureau, Vallerand, Ntoumanis, & Lafreniere, 2012; Ntoumanis & Standage, 2009).

**Moral disengagement.** We measured moral disengagement in sport with the 8-item Moral Disengagement in Sport Scale – Short (Boardley & Kavussanu, 2008). Participants were asked to read a number of statements describing thoughts players may have and indicate their level of agreement using a Likert scale anchored by 1 = *strongly disagree* and 7 = *strongly agree*. An example item is “Insults among players do not really hurt anyone”. The scale has shown very good levels of internal consistency (α range 0.80–0.85), and support has been provided for its factorial, convergent, and concurrent validity (Boardley & Kavussanu, 2008).

**Goal orientation.** We measured task and ego goal orientations with the Perception of Success Questionnaire (Roberts, Treasure, & Balague, 1998). The stem “When playing my main team sport I feel most successful when...” was used followed by two 6-item subscales measuring task (e.g., I show clear personal improvement) and ego (e.g., I beat other people) orientation. Participants responded on a Likert scale anchored by 1 = *strongly disagree* and 5 = *strongly agree*. Roberts et al. (1998) have provided evidence for the reliability of the task (α = 0.88) and ego (α = 0.88) subscales.

**Anxiety.** The Sport Anxiety Scale-2 (Smith, Smoll, Cumming, & Grossbard, 2006) was used to measure anxiety in sport. Participants were asked to read a number of statements describing thoughts and feelings associated with sport competition and indicate how they usually feel prior to or during competition using a Likert scale anchored by 1 = *not at all* and 4 = *very much so*. Example items are “I’m concerned about performing poorly” and “My body feels tense.” Smith et al. (2006) have provided evidence for the factorial validity and reliability of the scale.

**Procedure**

The procedure was identical to Study 1 with two exceptions: Participants were recruited from a second-year undergraduate sport and exercise science class and completed measures only at one time point.

**Results and discussion**

**Descriptive statistics and alpha coefficients**

Descriptive statistics for the PABSS subscales and alpha coefficients for all variables can be seen in Table III. The means of the PABSS subscales were similar to those reported in Study 1; all subscales displayed acceptable internal consistency (α range = 0.79–0.84). Alpha coefficients for all other subscales were acceptable with the exception of acceptance of gamesmanship, which was marginally acceptable (α = 0.68).

**Construct validity**

In order to assess convergent, concurrent, and discriminant validity of the PABSS, we examined correlations of the four subscales with the other measured variables and with each other (see Table III). The two antisocial behaviours were: positively linked to aggressiveness providing evidence for convergent validity; positively linked to anger, acceptance of cheating, acceptance of gamesmanship, moral disengagement, and ego orientation, and negatively related to task orientation supporting concurrent validity; and unrelated to sport anxiety supporting discriminant validity. The two prosocial behaviours were positively associated with task orientation supporting concurrent validity and unrelated to anger and anxiety supporting discriminant validity. However, prosocial teammate behaviour was also positively linked to acceptance of...
The correlations among the four PABSS subscales ranged from −0.02 to 0.41 (disattenuated range = −0.09 to 0.49).

Discussion

Overall, good support was provided for the convergent, concurrent, and discriminant validity of the antisocial behaviour subscales, while modest evidence was obtained for the concurrent and discriminant validity of the prosocial behaviour subscales.

Study 3

The main purpose of Study 3 was to further examine the concurrent and discriminant validity of the prosocial behaviour subscales using variables linked to prosocial behaviours in previous research, namely social goal orientations (Allen, 2003); antisocial behaviour in relation to these variables was also examined. The social goal orientations described by Allen (2003) are in relation to these variables was also examined. The concurrent and discriminant validity of the prosocial behaviour subscales. Moreover, if social goals evidence relationships of varying strength with the two prosocial behaviours, this would support the discriminant validity of the two prosocial behaviour subscales.

One study has examined the relationship between social goal orientations and prosocial and antisocial behaviours in football players. Specifically, Sage and Kavussanu (2007) found that both social affiliation and social recognition were positively associated with prosocial behaviour, whereas social status was positively linked to antisocial behaviour. Identifying similar relationships in this study would support the concurrent validity of the prosocial and antisocial behaviour subscales. Moreover, if social goals evidence relationships of varying strength with the two prosocial behaviours, this would support the discriminant validity of the two prosocial behaviour subscales.

Method

Participants

Participants were 307 male football players, whose age ranged from 16 to 36 years (M = 21.39, s = 4.01). At the time of data collection, they had played football competitively for an average of 13.04 (s = 5.14) years, and had played for their current team for an average of 2.58 (s = 1.97) years. The highest ever standard at which participants had played their team sport at that time was club (73.9%), county (16.3%), regional (8.1%), national (1.3%), and international (0.3%).

Measures

The following measures were administered:

Prosocial and antisocial behaviour. The PABSS (Kavussanu & Boardley, 2009) was used to measure prosocial and antisocial behaviour in sport (see Study 1 for details).
**Social goal orientations.** The 15-item Social Motivational Orientation scale for Sport (Allen, 2003) was used to assess social affiliation (seven items; e.g., I make some good friends in the team), social recognition (four items; e.g., I receive recognition from others for my accomplishments), and social status (four items; e.g., I belong to the popular group in the team). The stem for each item was “I feel things have gone well in football when....” and responses were made on a scale anchored by 1 = *strongly disagree* and 5 = *strongly agree*. The scale has shown good levels of internal consistency (α range = 0.77–0.87; Allen, 2003).

**Procedure**

After receiving approval from the University ethics committee, coaches of 25 football teams were contacted and all agreed to allow their athletes to participate in the study. The questionnaires were administered by research assistants during a training session. Athletes were told that honesty in responses was vital and that all responses would be used only for research purposes and would be kept strictly confidential. Participants signed an informed consent form before completing the questionnaire.

**Results and discussion**

**Descriptive statistics and alpha coefficients**

Descriptive statistics and alpha coefficients for all measures are presented in Table IV. On average, participants reported that they behaved antisocially rarely to sometimes and prosocially sometimes to often. All subscales demonstrated acceptable internal consistency (α range = 0.72–0.82) with the exception of the prosocial behaviour toward teammates subscale which was marginally acceptable (α = 0.68).

**Construct validity**

In order to assess concurrent and discriminant validity of the four subscales, we examined their correlations with social goal orientations. The two prosocial behaviours were positively associated with social affiliation and social recognition supporting concurrent validity; the prosocial opponent behaviour subscale was also positively associated with social status orientation. The two prosocial behaviour subscales also had varying strength of association with social affiliation, supporting discriminant validity. As can be seen in Table IV, antisocial opponent behaviour was positively linked to social status supporting its concurrent validity; it was also significantly and positively associated with social recognition and social affiliation. Although the correlations between antisocial opponent behaviour and social affiliation and antisocial teammate behaviour and social status were statistically significant, in part due to the large sample size, they did not reach the 0.15 value that represents small effect size (Cohen, 1992). Thus, although these relationships were not hypothesised, the findings may not have implications for the concurrent validity of these subscales. Antisocial teammate behaviour was unrelated to social goals with the exception of social status. Finally, the correlations among the four PABSS subscales ranged from 0.00 to 0.55 (disattenuated range = 0.00–0.69), supporting discriminant validity.

**Discussion**

In sum, Study 3 provided evidence for the concurrent and discriminant validity of the four subscales. In particular, Study 3 broadly demonstrated anticipated relationships between the two prosocial behaviour subscales and social goals, a finding that is consistent with previous research (Sage & Kavussanu, 2007). However, the positive relationship between prosocial opponent behaviour and social status orientation was unexpected. Although

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Table IV. Alpha coefficients, zero-order correlations, and descriptive statistics: Study 3 (N = 307).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Antisocial Behaviour (AB)</th>
<th>Prosocial Behaviour (PB)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Opponents (0.82)</td>
<td>Teammates (0.77)</td>
</tr>
<tr>
<td>Social affiliation (0.90)</td>
<td>0.12*/0.14*</td>
<td>0.03/0.04</td>
</tr>
<tr>
<td>Social recognition (0.82)</td>
<td>0.29***/0.35***</td>
<td>0.03/0.04</td>
</tr>
<tr>
<td>Social status (0.87)</td>
<td>0.29***/0.34***</td>
<td>0.11/0.13*</td>
</tr>
<tr>
<td>AB teammates</td>
<td>0.55***/0.69***</td>
<td></td>
</tr>
<tr>
<td>PB opponents</td>
<td>0.26***/0.35***</td>
<td>0.21***/0.28***</td>
</tr>
<tr>
<td>PB teammates</td>
<td>0.03/0.04</td>
<td>0.00/0.00</td>
</tr>
<tr>
<td>M</td>
<td>2.75</td>
<td>2.66</td>
</tr>
<tr>
<td>s</td>
<td>0.69</td>
<td>0.74</td>
</tr>
</tbody>
</table>

*Note: Alpha coefficients are presented in brackets. Disattenuated correlations are presented after the slash.*

*P < 0.05, **P < 0.01, ***P < 0.001.
this relationship may characterise only this specific population (i.e., adult male footballers), it should be further explored in future research.

**General discussion**

A prerequisite to advancing knowledge in any research area is the development of valid and reliable measures that assess the constructs of interest. The PABSS was developed to measure prosocial and antisocial sport behaviour and some evidence for construct validity has been provided (Kavussanu & Boardley, 2009). The purpose of the present research was to provide further evidence of the construct validity of the PABSS and to examine its test-retest reliability and stability.

**Construct validity**

**Antisocial behaviour.** Consistent with our hypotheses, the two antisocial behaviours were positively associated with physical and verbal aggression with strong correlations for antisocial opponent and moderate correlations for antisocial teammate behaviour. A very strong correlation was also observed between antisocial opponent behaviour and competitive aggressiveness suggesting that these two constructs are very similar. The strong-to-very-strong relationships with established measures of similar constructs support the convergent validity of the antisocial opponent behaviour subscale (see Brewer, 2000; Kline, 2005). The moderate relationships between antisocial teammate behaviour and aggression suggest that this behaviour is not as similar to aggression as is antisocial opponent behaviour. Thus, the convergent validity of antisocial teammate behaviour needs to be further examined.

In support of our hypotheses, the two antisocial behaviours were positively associated with hostility, anger, and acceptance of cheating and gamesmanship. These findings suggest that team-sport athletes who behave antisocially toward their opponents and teammates are more likely to view cheating and gamesmanship behaviours as acceptable and to be hostile and angry. Consistent with previous research (e.g., Boardley & Kavussanu, 2009, 2010; Kavussanu, Stamp, Slade, & Ring, 2009; Sage et al., 2006), the two antisocial behaviours were positively associated with moral disengagement and negatively linked to moral identity, empathy, and task orientation. Overall, the identified relationships with a range of theoretically related constructs offer support for the concurrent validity of the two antisocial behaviour subscales.

Although both antisocial behaviours were associated with the variables discussed above in the expected direction, in most cases, the effect sizes — reflected in the magnitude of the correlations — varied: antisocial opponent behaviour had large correlations with physical and verbal aggression, aggressiveness, acceptance of cheating and gamesmanship and moral disengagement, whereas antisocial teammate behaviour was moderately linked to these variables. It makes sense that athletes who cheat, employ gamesmanship, and are physically and verbally aggressive are more likely to be antisocial toward their opponents rather than their teammates, which may explain the differential strength in the identified relationships. In addition, antisocial opponent but not teammate behaviour was positively associated with ego orientation, in line with previous research (Boardley & Kavussanu, 2010; Kavussanu & Boardley, 2009). Moreover, antisocial opponent behaviour was positively linked to the three social goals — correlations were moderate for social status and social recognition and small for social affiliation — while antisocial teammate behaviour evidenced a very small positive link to social status orientation.

The differential links of the two antisocial behaviours to a variety of variables as well as their null relationships with anxiety provide support for their discriminant validity (see Kline, 2005). The correlations between the two antisocial behaviours across the three studies were large ($r$ range = 0.41–0.55) suggesting that a common antisocial trait may underlie these behaviours (Kavussanu & Boardley, 2009).

**Prosocial behaviour.** Consistent with previous research (Kavussanu & Boardley, 2009; Sage & Kavussanu, 2007) the two prosocial behaviours were positively linked to task orientation, social affiliation, and social recognition. These findings suggest that players, who act prosocially by helping an opponent off the floor or encouraging and congratulating a teammate, also tend to define success using self-referenced criteria and aim to develop reciprocal relationships with others and validate themselves through others’ approval. Prosocial behaviours, particularly toward teammates, should strengthen relationships within the team, thereby satisfying participants’ goals for social affiliation and recognition. These findings, along with the non-significant relationships with physical and verbal aggression, hostility, anger, aggressiveness, acceptance of cheating, moral disengagement, ego orientation, and anxiety support the concurrent validity of the prosocial behaviour subscales.

Prosocial behaviour toward opponents was positively associated with moral identity and empathy. Previous research has also found that moral identity positively predicts self-reported volunteering and actual donation behaviour in college students (Aquino & Reed, 2002) and that empathy is
associated with prosocial opponent behaviour (Kavussanu & Boardley, 2009). The relationships between moral identity and empathy with prosocial teammate behaviour were weak and non-significant. These findings are in line with previous research (e.g., Kavussanu & Boardley, 2009; Sage et al., 2006) and suggest that prosocial teammate behaviour is distinct from prosocial opponent behaviour. The specific prosocial teammate behaviours included in our scale were giving positive and constructive feedback to a teammate as well as encouraging, and congratulating a teammate. These are supportive acts to one’s teammates and therefore less likely to be affected by one’s empathy or moral identity.

Prosocial opponent behaviour was also positively associated with social status goal orientation. Perhaps individuals who focus on validating the self through achieving popularity among peers think that helping other players may contribute to creating a positive image and increase their popularity among their peers. Prosocial teammate behaviour was not related to either of these variables. The differential links of the two prosocial behaviour subscales with moral identity, empathy, and social status goal orientation support their discriminant validity. The correlations between the two prosocial behaviours ranged from 0.18 to 0.34 (disattenuated range = 0.23–0.49) suggesting that these behaviours are related, yet they are distinct from each other. Finally, in line with previous research (e.g., Hodge & Lonsdale, 2011; Kavussanu & Boardley, 2009), in most cases, the two prosocial behaviours were unrelated to the two antisocial behaviours, suggesting that players who behave prosocially toward their teammates or opponents are no more or less likely to behave antisocially. Therefore, to better understand moral behaviour in sport, it is important to investigate both prosocial and antisocial behaviour.

An unexpected positive link was observed between prosocial behaviour toward teammates and acceptance of gamesmanship, which are behaviours used to enhance team performance by taking an unfair advantage over the opponent. Perhaps players who engage in prosocial teammate behaviours such as supporting and encouraging their teammates also do this to enhance their team’s performance, and for this reason they may also be more accepting of gamesmanship behaviours that may promote team success. It is also possible that this unexpected finding occurred by chance and may not be replicated in future research.

Test-retest reliability and stability

Test-retest reliability and stability of the PABSS were examined in Study 1. Intraclass correlations for all four subscales across a one-week period, provided support for the test-retest reliability of all subscales (see John & Benit-Martínez, 2000). In addition, mean subscale scores did not change over time supporting mean stability (Schutz, 1998), and over 90% of participants’ test-retest difference scores were within the acceptable range of ± 1, supporting individual-item test-retest reliability (Nevill et al., 2001). These findings suggest that the PABSS is relatively stable over the short term, and that situational factors may not impart much error into scale responses.

Limitations and future research directions

This research has some limitations that should be considered when interpreting the findings. A first limitation concerns the use of relatively homogenous samples. Specifically, although participants in the first two studies had diverse sport experience, they were all university students, while all participants in Study 3 were male football players; thus, the findings can only be generalised to similar populations. Second, the Cronbach’s alpha coefficient of the prosocial opponent behaviour at Time 1 was 0.64. It is known that this coefficient varies from one sample to another and is greatly affected by the number of items in the scale (Cortina, 1993). As the prosocial opponent behaviour subscale has only three items, the relatively low alpha is not overly surprising. Future research should try to improve the internal consistency of this subscale by adding more items that measure other prosocial behaviours toward opponents.

A third limitation is the small sample size of Study 2, which revealed a number of relationships between the two prosocial behaviours and several sport-related variables. Although many of the correlations represented small effect size (Cohen, 1992), only three reached statistical significance. Given that statistical significance is influenced by sample size, and large samples produce more reliable findings, future research should further examine the relationship between the two prosocial behaviour subscales and the sport-related variables examined in Study 2 to better estimate the magnitude of their relationships. Finally, future research could examine the degree to which the prosocial and antisocial behaviours measured by the PABSS correspond to actual behaviours occurring during a match. This could be achieved by recording the behaviours measured by the PABSS during a match (e.g., from videotaped matches) administering the PABSS after the match, and determining the relationship between observed and reported behaviours. A strong relationship between observed and reported behaviours would provide further evidence for the construct validity of the PABSS.
Conclusion
In conclusion, the present research provided the first evidence for test-retest reliability and stability of the PABSS as well as additional evidence for its concurrent and discriminant validity. All four subscales were associated with a number of theoretically related variables in the hypothesised direction. All four subscales also showed very good levels of discriminant validity, as reflected in the varying strength of their relationships and links with the variables measured in this study. Finally, strong evidence for convergent validity was provided for the antisocial opponent behaviour subscale. Although we had some unexpected results, overall, the current findings support the reliability and construct validity of the PABSS.

References
Questionnaire (AMDYSQ). *Psychology of Sport and Exercise, 8*, 369–392.