The Effects of Prosocial and Antisocial Behaviors on Emotion, Attention, and Performance During a Competitive Basketball Task

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Abstract

The purpose of this experiment was to investigate whether prosocial and antisocial teammate behaviors affect emotions (i.e., happiness, anxiety, anger), attention, and performance. Undergraduate sport and exercise science students (*N* = 102) were randomly assigned to one of three groups: prosocial behavior, antisocial behavior, and control. They performed a basketball free-throw shooting task for two minutes in baseline and experimental phases and completed measures of emotions and attention. Free-throw shooting performance was also recorded. A series of 2 Group ANCOVAs controlling for baseline scores showed that the prosocial group reported more happiness than the antisocial and control groups. The antisocial group reported more anxiety than the prosocial group, and more anger and lower attention than the other two groups. The prosocial and antisocial groups performed better than the control group. These findings suggest that prosocial and antisocial teammate behaviors may influence the recipient's emotions, attention, and performance during sport competition.

Keywords: teammate, recipient, experiment, emotions

The Effects of Prosocial and Antisocial Behavior on Emotion, Attention, and Performance during a Competitive Basketball Task

The high prevalence and significance of prosocial and antisocial behaviors in sport have sparked the interest of researchers trying to understand these behaviors (for reviews see Kavussanu, 2012; Kavussanu & Stanger, 2017). Prosocial behavior has been defined as voluntary behavior intended to help or benefit another individual or group of individuals (Eisenberg & Fabes, 1998), for example, helping a player off the floor. Antisocial behavior is behavior intended to harm or disadvantage others (Sage, Kavussanu, & Duda, 2006), for example, verbally abusing a player. In sport, researchers have primarily examined the antecedents of prosocial and antisocial behaviors (e.g., Kavussanu, Stanger, & Ring, 2015; Stanger, Backhouse, Jennings, & McKenna, 2018; van de Pol, Kavussanu, & Claessens, 2018). Recently, researchers have started to investigate the consequences of these behaviors for the recipient (e.g., Al-Yaaribi, Kavussanu, & Ring, 2016; Al-Yaaribi & Kavussanu, 2017, 2018; Benson & Bruner, 2018). The purpose of the current study was to extend this work in an experimental setting.

A theoretical framework relevant to this study is the social cognitive theory of moral thought and action (Bandura, 1991), which describes a reciprocal relationship between the social environment and an individual's thoughts, feelings, and behaviors. According to this theory, the social environment influences an individual's behavior, but the person also affects the environment via his/her behavior. Moreover, the morality of conduct is judged based on its consequences for the recipient rather than one's motives (Bandura, 1991). For example, injuring an opposing player is viewed as unethical behavior because it results in negative physical consequences for the recipient, regardless of the motives of the act. Bandura (1999) also described two dimensions of morality: proactive morality, which is expressed in the power to act humanely, and inhibitive morality, where people refrain from behaving

inhumanely. In sport research, the terms prosocial and antisocial behavior have been used to refer to the two aspects of morality (see Kavussanu, 2006, 2012).

Research (see Graupensperger, Jensen, & Evans, 2018; Kavussanu & Boardley, 2009) has shown that athletes engage in both prosocial and antisocial behaviors toward teammates (e.g., congratulating or arguing with a teammate). It has been suggested that prosocial teammate behaviors may have achievement-related consequences for example, they could enhance the recipient's motivation and subsequent performance (Kavussanu & Boardley, 2009). Recent studies have provided evidence consistent with this proposal (Al-Yaaribi et al., 2016; Al-Yaaribi & Kavussanu, 2017, 2018): Football and basketball players who perceived their teammates acting prosocially toward them during a match also reported experiencing more enjoyment, tried harder, perceived that they had performed better, and reported higher commitment toward their team (Al-Yaaribi et al., 2016). Prosocial teammate behavior has also been positively related to task cohesion and inversely associated with burnout in athletes from a variety of team sports (Al-Yaaribi & Kavussanu, 2017).

Antisocial teammate behavior, on the other hand, may have negative consequences for the recipient's well-being and performance. Players' perceptions of antisocial behavior by their teammates during a match have been associated with more anger, less effort, and lower perceived performance (Al-Yaaribi et al., 2016; Al-Yaaribi & Kavussanu, 2018). In addition, antisocial teammate behavior has been inversely associated with commitment, and this relationship was mediated by effort and perceived performance. Although these studies shed light on the potential consequences of prosocial and antisocial behaviors in sport, their cross-sectional design does not allow conclusions to be drawn about the direction of causality. Experimental research is needed to determine the influence of teammate behaviors on athlete outcomes.

Teammate Behavior, Emotions, Attention, and Performance

Prosocial and antisocial teammate behaviors could have implications for the recipient's emotions. For example, being the recipient of prosocial behaviors, such as encouragement, positive feedback, and support from one's teammates, can lead athletes to feel happiness, which is experienced when individuals appraise events or situations as beneficial and favorable for them, or as making progress toward attaining goals (Jones, Lane, Bray, Uphill, & Catlin, 2005; Lazarus, 2000). In previous research, the recipients of prosocial teammate behavior during a single match, or throughout the season, reported enjoyment and positive affect (Al-Yaaribi et al., 2016; Al-Yaaribi & Kavussanu, 2017, 2018). However, researchers have not examined the effects of prosocial teammate behavior on the happiness of the recipient, in an experimental setting.

One of the most common emotions athletes experience during competition is anxiety. Anxiety is often (but not always) considered a negative emotion, has been defined as uncertainty regarding goal attainment and coping, and is characterized by feelings of apprehension and tension, along with arousal of the autonomic nervous system (Jones et al., 2005). Anxiety occurs when situations are perceived as stressful and threatening (Eysenck, 1992). The recipient of prosocial teammate behavior may be less likely to experience anxiety during competition because such behavior may help to buffer competitive stress. In contrast, antisocial teammate behaviors, such as expressing frustration after a teammate's poor play, criticizing, swearing, and arguing with teammates, may lead the recipient to perceive external pressure, which could lead to anxiety. In previous research, players who perceived antisocial teammate behavior over the course of a season reported more negative affect (Al-Yaaribi & Kavussanu, 2017), and negative social interactions have been positively associated with athletes' stress and negative affect (DeFreese & Smith, 2014); these interactions include unhelpful, unwanted, rejecting, neglecting, or intrusive behaviors (Newsom, Rook,

Nishishiba, Sorkin, & Mahan, 2005) and constitute antisocial behavior, as they can potentially harm others.

Antisocial behavior can also elicit anger, "an emotion comprising high arousal that results from an event perceived to be a demeaning offence against me and mine" (Jones et al., 2005). Antisocial teammate behaviors such as verbal abuse, swearing, and criticism may cause anger because they can lead the recipient to feel disrespected. The perception that one has been treated disrespectfully is the most common source of anger (see Miller, 2001) with many studies showing that disrespectful treatment elicits anger (see Bettencourt & Miller, 1996). In previous sport research, players who perceived their teammates acting antisocially toward them during a single competition or the entire season reported more anger (Al-Yaaribi et al., 2016; Al-Yaaribi & Kavussanu, 2018), suggesting that antisocial teammate behavior has the potential to elicit anger.

Prosocial and antisocial behaviors could also influence attention, which involves the process of focusing on task-relevant information while ignoring task-irrelevant (disruptive) information (Schmidt & Lee, 1999). Attention can be shifted by thoughts and emotions (e.g., Hatzigeorgiadis & Biddle, 2008; McCarthy, Allen, & Jones, 2013). Antisocial teammate behavior may divert the recipient's attention to task-irrelevant thoughts by thinking about or trying to respond to one's teammates' verbal abuse or criticism. Task-irrelevant thoughts may disrupt attentional focus and shift attentional resources away from task-relevant information (Wulf, 2013). Indeed, empirical research has shown that athletes can be distracted by emotional task-irrelevant negative words, such as "loser", with negative sport-relevant words causing the greatest attentional bias (Lautenbach, Laborde, Putman, Angelidis, & Raab, 2016).

Prosocial teammate behavior may also lead to better performance. For example, receiving positive feedback from a teammate may enhance the recipients' trust in their

abilities, which in turn should increase their motivation and subsequent performance. Experimental research has shown that performance-related positive feedback, such as "congratulations" and "well done", improved performance (e.g., Escarti & Guzmán, 1999; Mouratidis, Vansteenkiste, Lens, & Sideridis, 2008), while in cross-sectional work, prosocial teammate behavior was positively associated with perceived performance (Al-Yaaribi et al., 2016; Al-Yaaribi & Kavussanu, 2018). In contrast, criticizing or showing frustration at one's teammates may demotivate the recipients, particularly those who are relatively sensitive to others' criticism and disapproval, and such behaviors could impair performance. In support of this argument, previous research has reported a negative relationship between antisocial teammate behavior and perceived performance during a basketball game (Al-Yaaribi et al., 2016).

The Present Experiment

In sum, although researchers have investigated antecedents of prosocial and antisocial behaviors in sport (e.g., Kavussanu et al., 2015; Stanger et al., 2018), the potential consequences of these behaviors for the recipient have only recently started to receive research attention (e.g., Al-Yaaribi et al., 2016; Al-Yaaribi & Kavussanu, 2017, 2018; Benson & Bruner, 2018). However, none of these studies have used an experimental design, limiting the conclusions one can draw about the direction of causality between teammate behavior and its consequences for the recipient. The current experiment was designed to extend the existing literature by examining whether prosocial and antisocial teammate behaviors affect emotions (i.e., happiness, anxiety, anger), attention, and performance. We hypothesized that compared to a control group: (a) prosocial teammate behavior would increase happiness and improve performance (e.g., Al-Yaaribi et al., 2016; Al-Yaaribi & Kavussanu, 2018); and (b) antisocial teammate behavior would increase anxiety and anger (e.g., Al-Yaaribi & Kavussanu, 2017, 2018) and decrease attention (e.g., Lautenbach et al.,

2016). We forwarded no hypotheses regarding the effects of prosocial behavior compared to antisocial behavior.

Method

Participants

One hundred and two (51 males; *M* = 20.31, *SD* = 2.30 years) sport and exercise science university students voluntarily participated in the experiment in exchange for course credit. Power calculations using GPower software (Faul, Erdfelder, Lang, & Buchner, 2007) indicated that, with 34 participants in each group and an alpha level of .05, the study was powered at .80 to detect significant group differences in outcome measures corresponding to a medium-to-large (*d* = 0.8, Cohen, 1992) effect size.

Participants' main sports were basketball (*n* = 17; 16.7%), football (*n* = 12; 11.8%), rugby and hockey (*n* = 11; 16.7% for each), netball (*n* = 9; 8.8%), cricket (*n* = 3; 2.9%), ice hockey, American football, water polo, volleyball (*n* = 1; 1.0% for each sport), and individual sports (*n* = 35; 34.5%) such as swimming, weight lifting, golf, track and field, tennis, and gymnastics. At the time of testing, participants had experience playing their main sport competitively for an average of 6.90 years (*SD* = 4.50). Their highest level of basketball playing experience was recreational (*n* = 65; 64.7%), local (*n* = 15; 14.7%), regional (*n* = 6; 5.9%), university (*n* = 9; 8.8%) and other (*n* = 7; 5.9%) levels, and they indicated that they had never (*n* = 33; 32.4%), rarely (*n* = 43; 42.2%), sometimes (*n* = 12; 11.8%), often (*n* = 12; 11.8%), or very often (*n* = 2; 2.0%) played basketball. Finally, participants had played basketball competitively or recreationally for an average of 3.2 years (*SD* = 2.44).

Experimental Design

We used a mixed factorial design with one between-subjects factor and one within-subjects factor. The between-subjects factor was Group and had three levels: prosocial behavior, antisocial behavior, and control. The within-subjects factor was Phase and had two

levels: baseline and experimental. Participants were randomly assigned to one of three groups (17 males and 17 females in each group) and performed the task in the baseline and experimental phases.

Equipment and Experimental Task

The task involved shooting basketball free throws for two minutes. Participants threw a size seven (diameter = 0.23 m) basketball (Nike Baller) from a standard free-throw line (distance = 4.57 m) into a standard-size hoop (diameter = 0.46 m) set at a standard height (3.05 m) from the ground. The equipment and task conformed to Federation of International Basketball (FIBA, 2014) guidelines. The apparatus (Powerhoop) consisted of the base, pole, hoop, and backboard (1.2 x 0.9 m). A digital countdown timer (ZJchao: 34.3 x 11.9 x 10.7 cm), with a blue LED display, was positioned at a distance of about 4 m from the participant, a height of 2 m from the ground, and an angle of approximately 20° to the front and left of the participant, so that he/she could keep track of time. A similar task has been used in previous research (e.g., Hardy & Parfitt, 1991; Wilson, Vine, & Wood, 2009). The experiment was conducted in a laboratory.

Measures

Emotions. Happiness, anxiety and anger experienced by the participants during the competitive task were measured using the happiness (four items), anger (four items), and anxiety (five items) subscales of the Sport Emotion Questionnaire (Jones et al., 2005). Participants were asked to think to what extent they felt these emotions during the task they had just completed and record their responses on a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*extremely*). The stem “During the task, I felt...” was followed by items measuring happiness (e.g., “joyful”, “cheerful”), anxiety (e.g., “anxious”, “nervous”), and anger (e.g., “annoyed”, “furious”). Previous studies have supported the construct validity and internal

consistency of the three subscales when used after competition (e.g., Dewar, Kavussanu, & Ring, 2013).

Attention. The 4-item attentional control subscale of the Test of Performance Strategies (Thomas, Murphy, & Hardy, 1999) was used to assess participants' attention during the task. The stem was "During the task…" and example items are "I focused my attention effectively" and "I had trouble maintaining my concentration". Participants responded on a 5-point Likert scale, ranging from 1 (*never*) to 5 (*always*). The attentional control subscale has shown good internal consistency with a Cronbach's alpha coefficient of .78 (Thomas et al., 1999).

Performance. We used two measures of performance. First, we measured performance by calculating the number of successful baskets during the baseline and experimental phases, in line with some previous studies (e.g., Kavussanu, Crews, & Gill, 1998; Wilson et al., 2009). Second, we used a more sensitive measure of performance, comprising a point-system, according to which, participants were awarded: five points for a successful shot; three points for a ball that touched only the rim; two points for a ball that hit the backboard and the rim; one point for a ball that touched only the backboard; and zero points for a complete miss. Thus, the shots which received less than five points did not go through the hoop. The total score was computed by summing the points from shooting attempts during each of the two minutes of the task duration. Previous studies have used a point system to measure performance (e.g., Wulf, Raupach, & Pfeiffer, 2005; Zachry, Wulf, Mercer, & Bezodis, 2005). We refer to the first measure of performance as "baskets scored" and to the second measure as "shooting accuracy".

Experimental Manipulations

In order to develop the experimental manipulations, we conducted a pilot study. Specifically, two of the investigators and four undergraduate sport and exercise science

students, who were active sport participants, generated a list of prosocial and antisocial statements based on their own sport experiences and that of their fellow teammates. The students were given definitions of prosocial behavior (i.e., voluntary behavior intended to help or benefit another individual) and antisocial behavior (i.e., voluntary behavior intended to harm or disadvantage another individual) and were asked to list all prosocial and antisocial verbal behaviors they had experienced during any competitive games. The 10 prosocial and 10 antisocial behaviors/ statements mentioned most consistently and five neutral statements (referring to behaviors that cannot be classified as prosocial or antisocial) generated by the authors were used in the next phase of the research.

The 25 statements were rated by 20 college athletes (10 males) on the extent to which they were pleasant (or unpleasant) thus being likely to have positive or negative effects on the athletes during competition, on a 9-point Likert scale (– 4 = *extremely unpleasant* to + 4 = *extremely pleasant*). The five prosocial and five antisocial statements with the most extreme ratings were used in the experimental manipulations. The five prosocial statements (M = 2.11) were: you can do it; keep going; great effort; great performance; and we are almost there. The five antisocial statements (M = –2.33) were: what are you doing; this is awful; you are letting me down; terrible performance; and it is about bloody time. The five neutral statements (M = 0.26) were: the basket is black; it is cold here; the light is bright; the basket is big; the floor is hard".

The experimental manipulation involved verbalizing by a confederate, who was ostensibly the participant's teammate, each of the five (prosocial, antisocial, or neutral) statements to the participants during the task. This was done at predetermined intervals within the two-minute countdown period (1:40, 1:20, 1:00, 0:40 and 0:20 minutes from the end). The tone of voice used to say the statements was: encouraging for the prosocial group; angry and frustrated for the antisocial group; and neutral for the control group.

Manipulation Check

A 10-item adapted version of the two teammate behavior subscales of the Prosocial and Antisocial Behavior in Sport Scale (PABSS; Kavussanu & Boardley, 2009) was used to measure the recipients' perceptions of prosocial and antisocial teammate behaviors during the task. The stem "During the task, my teammate..." was followed by items measuring prosocial behavior (four items; e.g., "congratulated me for good play", "gave me constructive feedback") and antisocial behavior (five items; e.g., "criticized me", "verbally abused me"). Participants responded on a 5-point Likert scale ranging from 1 (*never*) to 5 (*very often*) to indicate how often their teammate engaged in each behavior toward them during the task. An item (i.e., "supported me") was included with the original 4-item prosocial teammate behavior subscale to increase its internal consistency in line with past research (Al-Yaaribi & Kavussanu, 2017, 2018). Research has supported the internal consistency and factorial validity of the teammate behavior subscales (e.g., Al-Yaaribi et al., 2016).

Procedure

Upon receiving ethical approval from the University Ethics Committee, participants were recruited via e-mails, posters, and flyers. They were tested individually. In every experimental session, there were two experimenters: the first delivered instructions and collected data (and is referred to as the "experimenter") and the second acted as a teammate, who collected and passed the basketball back to the shooter after every shot, and is referred to as the "confederate". The experimenter was one of four research assistants, while the confederate was the same person in all experimental sessions. This was necessary to standardize the confederate's performance and tone of voice used to verbalize the different statements in order to make the groups comparable.

Once the participant and confederate arrived at the laboratory, they read and signed a consent form. Next, the experimenter: explained that the aim of the study was to enhance

teamwork performance during competition; demonstrated the proper technique of free-throw shooting, rebounding, and passing to be used; and informed participants that the goal was to work together as a team and score as many baskets as possible within two minutes. The time was displayed on the digital timer. Participants were also told that their performance (i.e., number of successful baskets) would be compared with the performance of other teams, displayed on a leaderboard, and that the top three teams would receive monetary prizes of £30 for first, £20 for second, and £10 for third place, at the end of the experiment. Monetary prizes were included in order to intensify competition. Next, the participant was informed that he or she had been "randomly assigned" to shoot the basketball. In reality, this was predetermined: The confederate was always the teammate, who collected and passed the ball to the participant. The task started when the experimenter said "Go" and ended with the buzzer signal from the digital timer at the end of the two-minute period.

The participant and the confederate were given one minute to practice and familiarize themselves with the task requirements. Then, they completed the task in the baseline phase, followed by a four-minute rest, where they completed the baseline questionnaire measuring emotions, and attentional control during the task. Next, the experimental phase took place, during which the manipulations were delivered. Then, both the participant and the confederate completed the same questionnaire used in the baseline phase, as well as the manipulation check. At the end of the experiment, participants were informed their performance score, were debriefed, and were asked if they had suspected the confederate was part of the experiment. None of them thought that the teammate was a confederate. Finally, participants were thanked and were asked not to disclose the study protocol to anyone.

Data Analysis

First, we evaluated the effectiveness of the experimental manipulations using a 3 Group (prosocial, antisocial, control) × 2 Gender (male, female) Multivariate Analysis of Variance

(MANOVA) followed by separate Analyses of Variance (ANOVAs), and Tukey post hoc comparisons, on the measures of prosocial and antisocial teammate behaviors, which were used as the manipulation check. Next, we conducted a 3 Group (prosocial, antisocial, control) × 2 Gender (male, female) × 2 Phase (baseline, experimental) mixed-model MANOVA, with emotions, attention, and performance as the dependent variables. Significant Group by Phase interaction effects were followed by 3 Group (prosocial, antisocial, control) Analyses of Covariance (ANCOVAs) on the experimental phase scores (e.g., happiness, anxiety, etc.), controlling for the respective baseline scores. For all analyses, the alpha level was set at $p < .05$, and we have reported the associated effect size (Cohen, 1988). Partial eta-squared (η_p^2) values of .02, .13, and .25, and Cohen's standardized mean difference (*d*), values of .20, .50, and .80, correspond to small, medium, and large effects, respectively.

Results

Preliminary Analysis

Prior to the main analysis we conducted preliminary analyses. There were no missing data or outliers. Histograms, qq plots, and all variables were normally distributed as indicated by the skewness and kurtosis values. All scale scores demonstrated good–to-excellent levels of reliability with alpha coefficients ranging from .74 to .91 in the baseline and experimental phases.

Manipulation Check

The 3 Group × 2 Gender MANOVA conducted on the prosocial and antisocial behavior measure yielded a multivariate Group effect, Wilks' $\lambda = .171$, $F(4, 190) = 67.36$, $p < .001$, $\eta_p^2 = .586$; there was no Gender effect or Group by Gender interaction. Follow-up 3 Group × 2 Gender ANOVAs revealed group differences for both prosocial, $F(2, 96) = 56.90$, $p < .001$, $\eta_p^2 = .542$, and antisocial, $F(2, 96) = 71.16$, $p < .001$, $\eta_p^2 = .597$, teammate behavior. Tukey post hoc comparisons showed that the prosocial group perceived more prosocial teammate

behavior (M = 3.54, SD = 0.56) compared to the antisocial (M = 1.89, SD = 1.07, p = .01, d = 1.93, 95% CI = 1.36-2.51) and control (M = 1.61, SD = 0.70, p = .01, d = 3.05, 95% CI = 2.35-3.74) groups. Moreover, the antisocial group perceived more antisocial teammate behavior (M = 2.27, SD = 0.81) than the prosocial (M = 1.04, SD = 0.10, p = .01, d = 2.13, 95% CI = 1.54-2.73) and control (M = 1.08, SD = 0.17, p = .01, d = 2.03, 95% CI = 1.45-2.62) groups. These findings indicate that our experimental manipulations were successful.

Effects of Teammate Behavior on Outcomes

Our aim was to examine whether prosocial and antisocial teammate behaviors influence emotions, attention, and performance. A 3 Group (prosocial, antisocial, control) × 2 Gender (male, female) × 2 Phase (baseline, experimental) mixed-model MANOVA yielded multivariate effects for Group, Wilks' λ = .642, $F(12, 182) = 3.77$, $p < .001$, $\eta_p^2 = .199$, Phase, Wilks' λ = .610, $F(6, 91) = 9.69$, $p < .001$, $\eta_p^2 = .390$, and Group by Phase, Wilks' λ = .688, $F(12, 182) = 3.11$, $p < .001$, $\eta_p^2 = .170$. None of the effects involving Gender were significant. Subsequent ANOVAs yielded Group by Phase interaction effects for happiness, $F(2, 96) = 4.93$, $p = .009$, $\eta_p^2 = .093$, anxiety, $F(2, 96) = 5.32$, $p = .006$, $\eta_p^2 = .100$, anger, $F(2, 96) = 4.35$, $p = .02$, $\eta_p^2 = .083$, attention, $F(2, 96) = 3.47$, $p = .04$, $\eta_p^2 = .067$, baskets scored, $F(2, 96) = 3.73$, $p = .03$, $\eta_p^2 = .072$, and a marginally significant effect for shooting accuracy, $F(2, 96) = 3.09$, $p = .05$, $\eta_p^2 = .061$. These interaction effects are displayed in Figures 1, 2 and 3.

Next, we conducted a series of one-way ANCOVAs only on the measures pertaining to the Experimental Phase, with Group as the between-subjects factor and the respective baseline scores as the covariates. Thus, ANCOVA for happiness, compared the three groups on the happiness experienced during the experimental phase, controlling for the happiness experienced during the baseline phase. Although our hypotheses pertained only to the comparison with the control group, we also compared the prosocial group with the antisocial group for exploratory purposes. These analyses confirmed Group main effects for all

variables (see Table 1). Finally, we compared pairs of groups (i.e., antisocial v prosocial, antisocial v control, prosocial v control), on the scores of the variables obtained in the experimental phase, by performing a series of 2 Group ANCOVAs, adjusting for the respective baseline values.

As can be seen in Table 1, these comparisons indicated that the prosocial group was happier than both the antisocial, $p < .001$, $d = 1.04$, 95% CI = 0.53-1.54, and control, $p = .01$, $d = 0.57$, 95% CI = 0.09-1.06, groups. The antisocial group was more anxious than the prosocial group, $p = .01$, $d = 0.60$, 95% CI = 0.11-1.09, more angry than the prosocial, $p = .006$, $d = 0.77$, 95% CI = 0.28-1.26, and control, $p = .02$, $d = .49$, 95% CI =.43, .51 groups, and less focused than the prosocial, $p = .006$, $d = .72$, 95% CI = 0.23-1.21, and control, $p = .03$, $d = .63$, 95% CI = 0.14-1.11, groups. Finally, the prosocial group scored more baskets, $p = .04$, $d = 0.46$, 95% CI = 0.02-0.95, and had higher shooting accuracy, $p = .009$, $d = 0.60$, 95% CI = 0.11-1.08, than the control group. The antisocial group also scored more baskets, $p < .001$, $d = 0.86$, 95% CI = 0.36-1.36, and had higher shooting accuracy, $p = .004$, $d = 0.74$, 95% CI = 0.25-1.23, than the control group.

Discussion

To date, most researchers interested in moral behavior in sport have focused on investigating antecedents of prosocial and antisocial behaviors (see Kavussanu, 2012; Kavussanu & Stanger, 2017). Recently, researchers have started to examine consequences of these behaviors for the recipient (e.g., Al-Yaaribi et al., 2016; Al-Yaaribi & Kavussanu, 2017, 2018; Benson & Bruner, 2018). Two limitations of these studies are that they are cross-sectional and when performance was examined, perceived rather than objective performance was measured. The aim of the present research was to extend previous work by experimentally investigating the effects of prosocial and antisocial teammate behaviors on the recipient's emotions, attention, and objective performance in a competitive basketball task.

We found that the prosocial group experienced more happiness than both the antisocial and the control groups; the magnitude of these effects was large. Prosocial statements, such as “keep going” and “great effort”, led participants in the prosocial group to feel happier during the basketball free-throw shooting task than those who were assigned to the antisocial or control groups. Clearly, the prosocial group had a more pleasant experience during the basketball free-throw shooting task compared to the other two groups. The findings of the present study are in line with Bandura’s (1991) theory, which states that significant others in the social environment can influence one’s emotions, thoughts, and behavior. Taken together with previous research (Al-Yaaribi et al., 2016; Al-Yaaribi & Kavussanu, 2017, 2018; Benson & Bruner, 2018), our findings suggest that prosocial teammate behavior could enhance positive emotions during a competitive sport task. In turn, experiencing these emotions should encourage continued sport involvement (e.g., Al-Yaaribi & Kavussanu, 2018; Ullrich-French & Smith, 2009).

Although the two experimental groups did not differ from the control group in their anxiety, the antisocial group reported more anxiety than the prosocial group. It is possible that participants in the antisocial group experienced external stress and felt threatened by their teammate’s antisocial behavior while performing the free-throw shooting task, which could explain the higher anxiety they reported. This finding is in accordance with previous research suggesting that antisocial teammate behavior across a season and negative social interactions were associated with negative affect and perceived stress (Al-Yaaribi & Kavussanu, 2017; DeFreese & Smith, 2014). Our findings are in line with previous research showing that perceived prosocial behavior from one’s teammates was inversely associated with negative affect (Al-Yaaribi & Kavussanu, 2017).

Antisocial teammate behavior elicited significantly more anger compared to prosocial and neutral behavior. This sort of behavior may have irritated our participants, and they may

have felt offended. Our research provides the first experimental evidence that antisocial teammate behavior leads to anger (Al-Yaaribi et al., 2016; Al-Yaaribi & Kavussanu, 2018). The present study contributes to the literature on social-moral interactions and psychological well-being in sport by demonstrating that prosocial and antisocial behaviors have positive and negative, respectively, consequences for the recipient.

Antisocial teammate behavior decreased attention during the task compared to the other two groups; these effects were moderate-to-large in size. Antisocial behaviors, such as expressing frustration and criticizing a teammate, may have distracted the recipients' attention away from the task by causing them to think about that behavior. Such task-irrelevant thoughts may have reduced the amount of attentional resources devoted to the task. A previous study showed that processing pejorative sport-related words consumed some attentional resources with task-irrelevant thoughts (Lautenbach et al., 2016). To the best of our knowledge, ours is the first study to document a causal relationship between antisocial behavior and attention during a competitive sport task.

The prosocial group scored more baskets and had higher shooting accuracy than the control group. This finding supports research indicating that the recipients of prosocial teammate behavior perceived higher performance during the match (Al-Yaaribi et al., 2016; Al-Yaaribi & Kavussanu, 2018). It is also in line with previous research (e.g., Escarti & Guzmán, 1999; Mouratidis et al., 2008), which has shown that positive feedback regarding one's performance improves subsequent performance. The present finding provides novel experimental evidence for the beneficial consequences of prosocial teammate behavior for the recipient's performance.

Participants in the antisocial group also scored more baskets and had better free-throw shooting accuracy than those in the control group. This is an unexpected finding, given evidence showing that antisocial teammate behavior had a negative association with

perceived performance (Al-Yaaribi et al., 2016; Al-Yaaribi & Kavussanu, 2018). The discrepancy in these findings may be attributed, at least in part, to the differences in the measures of performance used in the current study and the two previous studies. Specifically, in this study, we assessed actual performance, whereas previous research assessed "perceived" performance. Indeed, other studies have also shown discrepancy in the findings pertaining to perceived and actual performance (e.g., Dewar et al., 2013); thus results involving perceived performance may not fully generalize to actual performance.

It is also possible that increased anger and anxiety, resulting from antisocial teammate behavior, may have led recipients to exert more effort, in order to prove that their teammate was wrong or prevent additional verbal abuse, thereby improving their performance. It has been proposed that anger and anxiety can enhance performance (e.g., Lazarus, 2000; Robazza & Bortoli, 2007). Indeed, Al-Yaaribi et al. (2016) found evidence for an indirect pathway between antisocial teammate behavior and perceived performance that was serially mediated by anger and effort. Moreover, a significant positive association between shooting accuracy and anger (r = .34) emerged in the experimental phase of our study.

Based on the current findings, one could be tempted to conclude that antisocial teammate behavior is beneficial for performance and should be encouraged in sport. However, we do not know how this type of behavior would affect teammate performance over a longer period, such as during an entire match or the course of the season. Repeatedly engaging in antisocial teammate behavior may have detrimental effects not only on the recipient but also on the entire team and influence other variables, such as effort and task cohesion (see Al-Yaaribi & Kavussanu, 2017, 2018). Recent research has also shown that antisocial teammate behavior could have a negative influence on one's social identity (Benson & Bruner, 2018) as well as on participants' own antisocial behavior toward their teammates (Benson, Bruner, & Eys, 2017). It would be interesting to determine whether the

long-term frequency of antisocial teammate behavior has positive or negative long-term effects on performance and the other variables investigated in this experiment.

Limitations and Future Research Directions

Our experiment has revealed some interesting findings; however, it also has some limitations, which should be considered when interpreting our results. First, although our findings have high internal validity, like any laboratory study, our experiment could not fully capture what occurs in the real world sport. Specifically, the participants and confederate had no history of playing together and interacted with each other for a short period; thus, the experimental phase did not accurately represent the team experience in real-world sports. However, our experiment replicated some characteristics of a team sport by creating a cooperative goal structure, in which the participants and confederate worked together and competed against other teams (via the leaderboard). Moreover, participants were working toward the same goal, scoring as many baskets as possible on a basketball free-throw shooting task, and there was a timer, a leaderboard, and an observer, who evaluated performance. These are conditions typically existing in sport competition. In addition, the confederate verbalized statements, which were developed based on athletes' sport experience. In sum, we were able to replicate many conditions that exist in real world sport, and we observed some interesting effects. Future research could use laboratory-based simulations of sport performance environments or conduct a field experiment to examine the generalizability of our findings to naturally-occurring settings.

A second limitation is that the confederate was aware of the experiment's purpose and manipulation. In future research, it would be ideal if a trained confederate, who is blind to the study purpose, performs the experimental manipulation. Third, the point system used to measure performance was loaded on the side of a missed shot. Future research might consider using other measures of performance that award more points for successful shots, for

example, five points for a successful shot without rim or backboard contact and four points for a successful shot with rim contact or backboard contact. Finally, it would be interesting to investigate whether the task duration and the frequency and intensity of teammate behaviors influence our outcomes. For example, long-term frequency of antisocial teammate behavior could lead to extreme anger responses, which, in turn, may impair performance.

Conclusion

The present experiment provided novel evidence to add to the literature on sport morality by illuminating the role of the social environment in determining athletes' emotions, attention, and performance. Prosocial teammate behavior had beneficial effects on these variables during competition, while antisocial teammate behavior led to negative emotions, disrupted attentional focus, and improved performance. Our experiment has enhanced our understanding of the consequences of prosocial and antisocial teammate behaviors during a competitive sport task, and is the first research to provide causal evidence for some of the relationships identified in cross-sectional studies (Al-Yaaribi et al., 2016; Al-Yaaribi & Kavussanu, 2017, 2018).

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Table 1

Adjusted (controlling for baseline scores) Means and Standard Errors for Emotions, Attention, and Performance in the Experimental Phase

	Group							
	Prosocial		Antisocial		Control			
Variable	*M*	*SE*	*M*	*SE*	*M*	*SE*	*F* (2,98)	η_p^2
Emotions								
Happiness	3.51 [ab]	0.18	2.42 [ac]	0.18	2.91 [bc]	0.18	9.51***	.16
Anxiety	1.92 [a]	0.12	2.34 [a]	0.12	2.08	0.12	3.23*	.06
Anger	1.56 [a]	0.14	2.19 [ab]	0.14	1.72 [b]	0.14	5.17**	.10
Attention	4.09 [a]	0.11	3.63 [ab]	0.11	4.03 [b]	0.11	4.90**	.09
Performance								
Baskets scored	16.94 [a]	0.77	18.70 [b]	0.76	14.86 [ab]	0.77	6.19**	.11
Shooting accuracy	107.01[a]	2.02	108.69[b]	2.02	99.97 [ab]	2.02	5.23**	.10

Note: In each row, means with the same superscript differ significantly from each other.

Possible range of scores: 1-5 for emotions; 1-7 for attention.

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

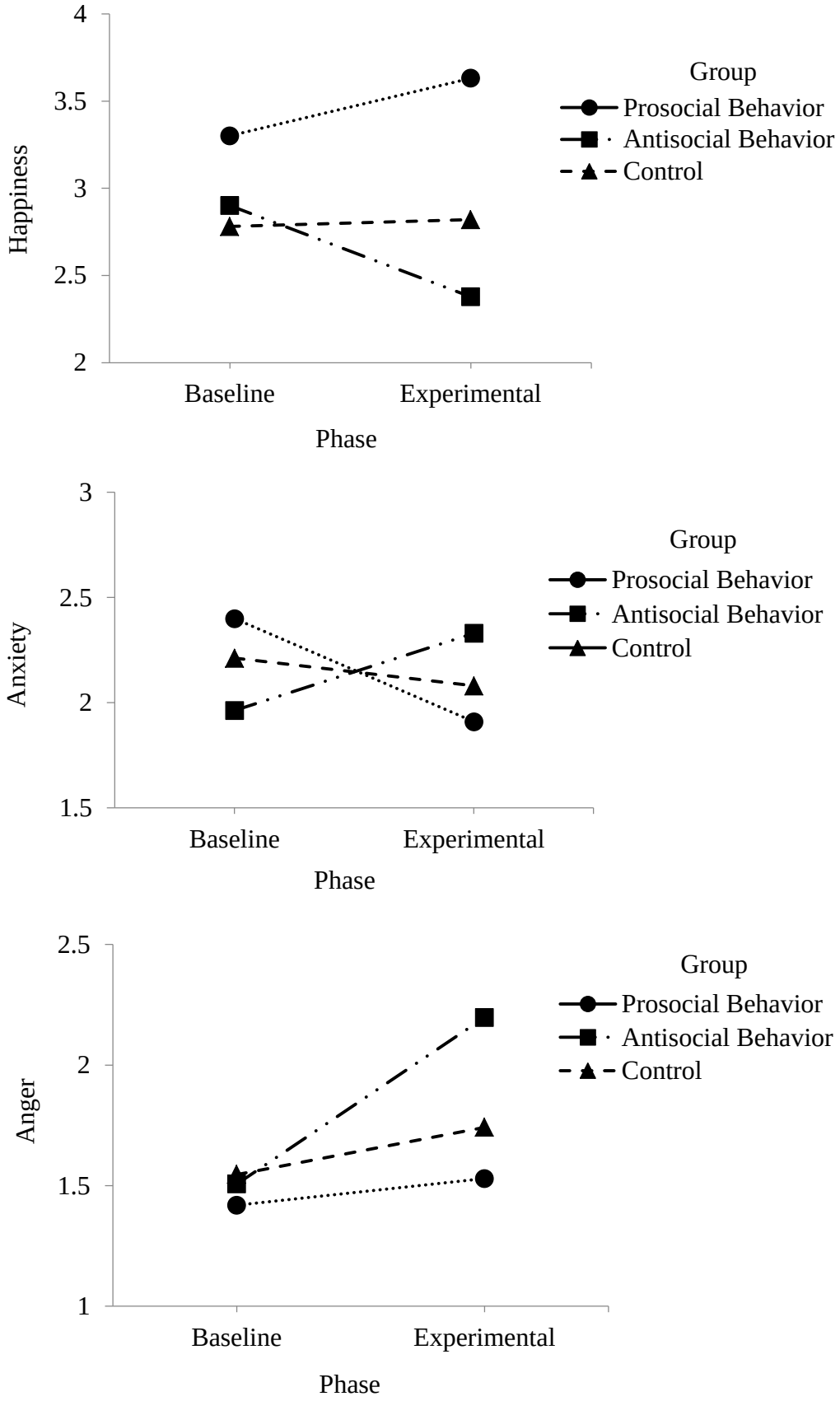


Figure 1. Significant interaction effects between Group and Phase on Happiness (A), Anxiety (B), and Anger (C).

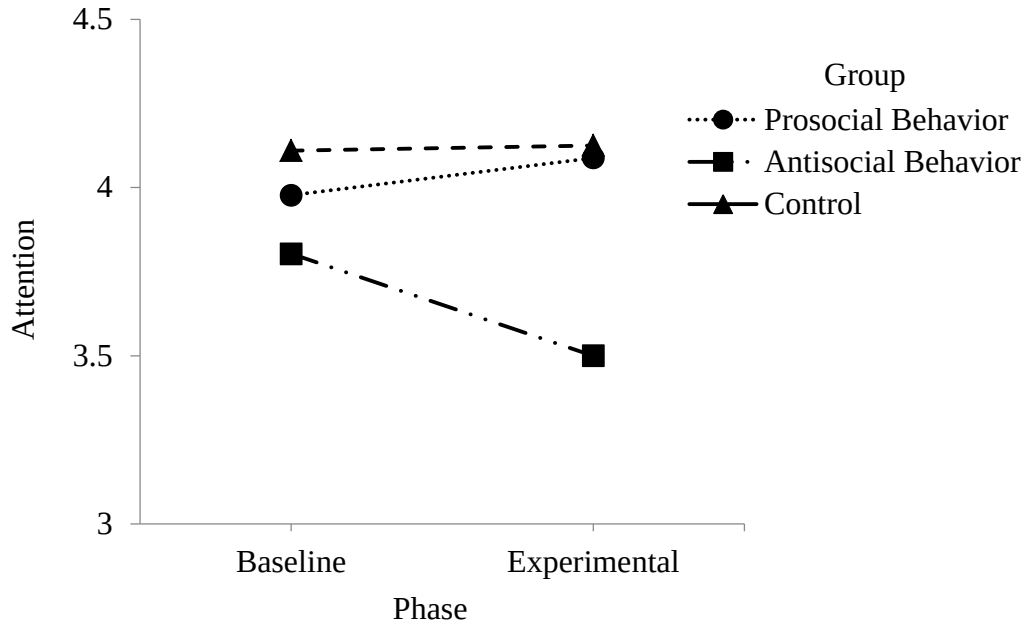
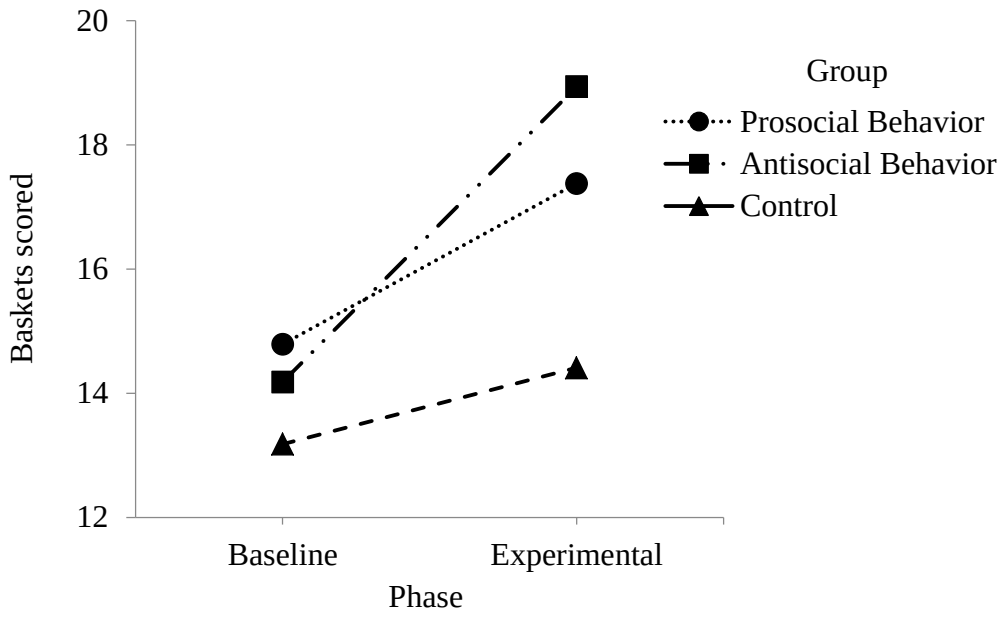


Figure 2. Significant interaction effect between Group and Phase on attention.



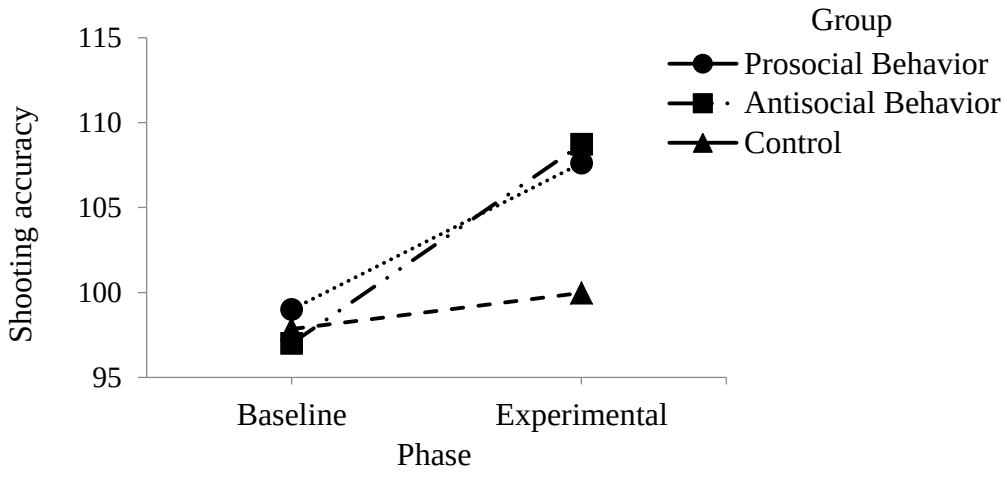


Figure 3. Significant interaction effect between Group and Phase on baskets scored (A) and shooting accuracy (B)