How teammate behaviors relate to athlete affect, cognition, and behaviors: A daily diary approach within youth sport

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ABSTRACT

Objectives: The current study examined prosocial and antisocial behaviors from teammates as predictors of within-person differences over time in self-reported prosocial and antisocial teammate behaviors toward teammates and social identity strength.
Design: Over a 10-day period, a daily diary approach was used to collect 848 observations from 100; *male, n* = 45; female, *n* = 55 youth hockey athletes who were between 11 and 17 years of age (M_{age} = 13.24, SD = 1.83).
Method: Participants completed daily diaries related to their experiences of prosocial and antisocial behavior from teammates, the prosocial and antisocial behaviors they directed toward teammates, and social identity strength. Linear mixed-level modelling was used to examine how daily experiences of moral behavior from teammates over-time were linked to within-person differences in moral behaviors toward teammates and social identity strength.
Results: Multilevel analyses showed significant within-person variance in athletes' moral behaviors toward teammates and their social identity strength. These differences were predicted by daily experiences of prosocial and antisocial behavior from teammates. Athletes reported a stronger social identity on days they experienced a higher number of prosocial behaviors, and a weaker social identity on days they experienced a higher number of antisocial behaviors. The frequency of daily experienced prosocial and antisocial behaviors interacted in predicting self-reported prosocial and antisocial behaviors toward teammates.
Conclusion: Daily prosocial and antisocial behaviors from teammates are systematically related to the ways that athletes behave toward their teammates as well as the strength with which they identify with their sport team.

1. Introduction

Scholars have called for greater attention to how the social environments in sport teams contribute to athlete experiences (Martin, Bruner, Eys, & Spink, 2014; Smith, 2003). A social environment refers to the nature of interactions as well as the quality of ongoing interpersonal relationships among social actors in a particular social setting (Shaw, 1981). Thus, the social environments within sport teams are neither monolithic (i.e., sport teams have distinct social environments), nor are they experienced uniformly by athletes (i.e., individual experiences differ as a result of how one interacts with others in the group) (Holt, Black, Tamminen, Fox, & Mandigo, 2008). Several lines of inquiry evidence the significance of athletes' social environments on cognitive, affective, and behavioral outcomes. Examples include research showing positive links between attraction to the task aspects of a team and the use of more adaptive pre-competition coping strategies

(Wolf, Eys, Sadler, & Kleinert, 2015), general psychological need satisfaction and emotional regulation (Taylor & Bruner, 2012), and perceived sociomoral atmosphere and prosocial behavior (Rutten et al., 2007). Moreover, the social environments within youth sport teams may be particularly consequential for athletes. Relationships outside the family unit become increasingly salient during adolescence, with peer acceptance surfacing as a highly relevant goal for youth (Harris, 1995).

Theoretical accounts from developmental and social psychological perspectives cast the interaction between individuals and their peers as a key issue relevant to social behavior (e.g., Bandura, 1991) and youth development more generally (e.g., Brown, 2004; Harris, 1995). In this regard, sport offers ample opportunities to meet and interact with other youth (Smith, 2003), with some evidence suggesting that adolescent athletes enjoy greater popularity and status as a result of being a member of a distinct social group (Sussman, Pokhrel,

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Ashmore, & Brown, 2007). Although the nature of peer influence is nuanced, Rubin, Bukowski, and Parker (2006) provide a useful framework for understanding the hierarchically embedded nature of peer influence in youth sport teams. This framework situates emergent group processes (e.g., cohesion, motivational climate) at the highest level of social complexity, with interpersonal relationships forming a lower level of complexity (e.g., friendships). However, specific interactions that occur between teammates forms the basis of youth athletes' experiences with their peers (Holt et al., 2008). Despite the importance of teammate interactions as they pertain to sport experiences, scarce attention has been devoted to examining how teammate interactions relate to within-person changes in athlete cognition, affect, and behavior. Examining within-person changes over time provide insight into the dynamics of how youth are influenced by (and adapt to) their social environment (Brown, 2004; Granic & Patterson, 2006). Thus, the current research sought to examine youth athletes' cognitive, affective, and behavioral responses to prosocial and antisocial behavior from teammates.

Prosocial and antisocial behaviors conceptually map onto the proactive and inhibitive elements of morality, respectively, which makes the experience of such behaviors psychologically meaningful (Bandura, 1999). Whereas *prosocial behavior* refers to acts that are intended to help or benefit others (e.g., encouragement), *antisocial behavior* refers to acts that are harmful or put others at a disadvantage (e.g., verbal abuse) (Eisenberg & Fabes, 1998; Kavussanu, Seal, & Phillips, 2006). Although studies on the antecedents of moral behavior in sport have garnered traction over the past decade, research on consequences of athletes being the recipient of teammate moral behaviors is scarce. One exception is a cross-sectional study showing that being the recipient of more frequent prosocial behavior from teammates corresponds with greater enjoyment, more effort, and higher levels of perceived performance (Al-Yaaribi, Kavussanu, & Ring, 2016). These researchers also found that more frequent antisocial teammate behavior corresponded with less enjoyment and more anger among sport participants. Notwithstanding these insights into the consequences of being the recipient of prosocial and antisocial behavior from teammates, researchers have yet to examine how experiencing such behavior is related to changes in how athletes think, feel, and act in relation to their teammates across time.

1.1. Behavioral responses to prosocial and antisocial behavior from teammates

Does being the recipient of prosocial and antisocial behaviors from teammates contribute to differences in how athletes treat their teammates? Theory relevant to this question suggests that, from a social cognitive perspective, observing peers engage in specific behaviors, or being the recipient of such behaviors, can signal to an individual what is permissible or desirable in a particular context (Bandura, 1991). Likewise, a main tenet of interpersonal sensemaking theory is that group members make sense of their environment by constructing explanations for the social interactions they experience in a particular context (Weick, 1995). To facilitate this process, group members create cognitive accounts that link social experiences to specific outcomes, and these cognitive accounts drive social behavior. For example, research on workplace behavior showed that people are more likely to engage in helping behaviors in response to positive workplace interactions, and more likely to engage in counter-productive work behaviors in response to negative workplace interactions (Spector & Fox, 2002). This is also evident in sport, with research showing that youth athletes' perceptions of poor sportspersonship by their coach and teammates was positively linked to their personal sportspersonship behaviors (Shields, LaVoi, Bredemeier, & Power, 2007). In a study of prosocial and antisocial behaviors toward teammates, athletes who perceived their teammates to engage in higher levels of antisocial behavior toward one another, also consequently reported engaging in more frequent antisocial behavior

toward teammates (Benson, Bruner, & Eys, 2017). Thus, with respect to how youth athletes behaviorally respond to daily prosocial and antisocial behaviors from teammates, we hypothesized the following:

Hypothesis 1. Athletes will report more frequent prosocial behaviors on days they experience more prosocial behaviors from teammates.

Hypothesis 2. Athletes will report more frequent antisocial behaviors on days they experience more antisocial behaviors from teammates.

1.2. Cognitive and affective responses to prosocial and antisocial behavior from teammates

The second area of interest is how experiencing prosocial and antisocial behaviors from teammates is related to how athletes think and feel about their sport team across time. Here, we focus on the construct of social identity, which is "that part of an individual's self-concept which derives from his/her knowledge of his/her membership of a social group (or groups) together with the value and emotional significance attached to that member" (Tajfel, 1981, p. 255). Cameron (2004) conceptualized social identity as a multidimensional construct that includes cognitive and affective components: *Ingroup ties* refers to the psychological bonds to a group; *cognitive centrality* refers to the value ascribed to group membership; and *ingroup affect* refers to the positive emotions associated with group membership (Cameron, 2004). Social identities can govern people's cognitive, affective, and behavioral responses to social stimuli—insofar as people strongly identify with a particular group (Ellemers, Spears, & Doosje, 2002). For example, ingroup affect measured earlier in the season positively predicted prosocial behavior toward teammates later in the season (Bruner, Boardley, & Côté, 2014). In a separate study, ingroup ties positively predicted personal and social skills as well as initiative of youth sport participants (Bruner et al., 2017). Although social identification processes appear to affect interpersonal behavior, extant theory provides a basis to suggest that interpersonal behaviors may also strengthen or diminish an athlete's social identity.

The idea that the degree to which one identifies with a group can change across time is supported by self-categorization theory, which states that social identity salience is driven by the degree to which contextual factors highlight the momentary relevance of a particular social category and/or the degree to which group membership is cognitively accessible (Oakes, Turner, & Haslam, 1991). There is also research pointing to how people's motives for identification can contribute to changes in social identity across time (Easterbrook & Vignoles, 2012). More relevant to the current study, the nature of social interactions within a group can also shape one's social identity (Postmes, Haslam, & Swaab, 2005). For example, interactions that make an individual feel socially validated as a group member can positively affect social identity strength over time (Postmes, Spears, Lee, & Novak, 2005). Although studies in the sport domain have yet to examine within-person changes in social identity strength, there is some evidence that group-related perceptions relate to social identity. For example, perceived groupness (Martin, Balderson, Hawkins, Wilson, & Bruner, 2017) and perceived outcome interdependence (Bruner, Eys, Evans, & Wilson, 2015) were positively associated with ingroup ties, cognitive centrality, and ingroup affect. Notably, a study using stimulated recall methodology found that prosocial teammate behaviors were perceived to positively affect social identity strength, whereas antisocial teammate behaviors were generally perceived to negatively affect social identity strength (Bruner, Boardley, Allan, Root, et al., 2017). Based on these findings together with extant theory on the dynamic nature of social identity processes, we hypothesize that experiencing prosocial teammate behaviors would enhance an athlete's sense of group membership, whereas experiencing antisocial teammate behaviors may diminish such feelings:

Hypothesis 3. Athletes will report higher social identity scores (i.e., a

stronger social identity) on days they experience more prosocial behaviors from teammates.

Hypothesis 4. Athletes will report lower social identity scores (i.e., a weaker social identity) on days they experience more antisocial behaviors from teammates.

To evaluate the foregoing hypotheses, we used a daily diary approach to track how specific events correspond to changes in cognitive, affective, and behavioral responses (Ohly, Sonnentag, Niessen, & Zapf, 2010). This change-sensitive methodology enables insight into whether there are within-person differences in the variables of interest (i.e., self-reported moral behaviors toward teammates, social identity strength), and more importantly, whether such differences are systematically linked to youth athletes' daily experiences (i.e., moral behaviors from teammates). Thus, the current study used a daily diary approach to examine the effects of prosocial and antisocial teammate behaviors on the (a) frequency with which youth athletes report engaging in prosocial and antisocial teammate behaviors and (b) social identity strength.

2. Method

2.1. Participants

Participants included 100 athletes (male, $n = 45$; female, $n = 55$) from seven competitive youth hockey teams in Canada, including three male teams and four female teams. The age groups represented included Peewee (11–12 years of age), Bantam (13–14 years of age) and Midget (15–17 years of age), with an average age of 13.24 ($SD = 1.83$) years. We recorded 848 daily observations with a response rate of 84.80%.

2.2. Procedure

After obtaining institutional ethics approval as well as approval from the executive board members of two targeted hockey associations, we contacted coaches from nine teams, of which seven agreed to participate. Parental consent and youth athlete assent was obtained for all athletes who participated. An initial intake questionnaire was distributed in-person to obtain background and demographic information. A lottery draw for a $20.00 gift certificate was held for each team after the initial intake questionnaire. For the daily diary portion of the study, athletes were provided a dated booklet that contained ten questionnaire packages – one for each of the subsequent ten days. Athletes were asked to complete one questionnaire package, every night before bed. To enhance data fidelity and optimize responses rates, we asked the parents to remind their children to complete the booklet every night. Over the duration of the ten days, a member of the research team met with each team twice to provide booklets to any athletes who had lost theirs and to provide a general reminder about the study. Participants received $2.00 toward a gift certificate for each completed daily questionnaire—up to a maximum of $20.00.

2.3. Measures

Each day, athletes were asked to indicate whether they had (a) interacted with teammates, (b) a team game (i.e., intergroup competition), (c) a team practice, (d) a social event with their team, and (e) no interaction with their teammates. Dummy variables (1 = yes, 0 = no) were created based on the occurrence of a team game, practice, or social interaction among teammates in the absence of a team game or practice. The following measures were also completed.

2.3.1. Daily experienced prosocial and antisocial behaviors from teammates

We assessed daily experienced prosocial and antisocial behaviors from teammates using items from an adapted version of the Prosocial and Antisocial in Behavior in Sport Scale (Kavussanu & Boardley,

2009). Previous work adapted the PABSS to assess prosocial and antisocial behaviors from the perspective of the recipient, in which the scale evidenced good model with a two-factor structure and correlated with theoretically related variables (Al-Yaaribi et al., 2016). Consistent with other daily diary studies that focused on the occurrence of discrete behaviors (e.g., workplace deviance, Ferris, Spence, Brown, & Heller, 2012), daily measures of prosocial teammate behaviors and antisocial teammate behaviors were conceptualized as formative constructs and thus reliability estimates were not computed. The two subscales related to teammate directed behaviors were modified to assess the daily occurrence of behaviors, where athletes were asked to indicate if they had personally experienced any of the following behaviors today; responses were dummy coded (yes = 1, no = 0). Four items assessed experienced prosocial teammate behavior ("Did you receive positive feedback from a teammate", "Did you receive encouragement from a teammate", "Did you receive constructive feedback from a teammate", "Did a teammate congratulate you for a good play"). Five items assessed experienced antisocial teammate behaviors, which included an item created to assess exclusionary behaviors ("Did a teammate initiate an argument with you", "Did a teammate verbally abuse you", "Did a teammate swear at you", "Did a teammate show frustration toward you", "Were you excluded from an activity by a teammate"). We added a social exclusionary item to capture an important aspect of adolescence relevant to our study objectives (i.e., inclusivity; Brown, 2004, pp. 363–394), and devised the item to align with how antisocial behaviors are conceptualized. This item replaced the traditional PABSS item "did you criticize a teammate." Scores were computed by summing the number of experienced prosocial teammate behaviors (ExPTB) as well as experienced antisocial teammate behaviors (ExATB).

2.3.2. Daily prosocial and antisocial behaviors toward teammates

We assessed self-reported daily prosocial and antisocial behaviors toward teammates using similar items from the PABSS (Kavussanu & Boardley, 2009), where athletes indicated if they had personally engaged in any of the following behaviors today. Four items assessed prosocial behavior toward teammate ("Did you give positive feedback to a teammate", "Did you encourage a teammate", "Did you give constructive feedback to a teammate", "Did you congratulate a teammate for a good play"). Five items assessed antisocial behavior toward teammates, which included an item we created to assess social exclusion ("Did you argue with a teammate", "Did you verbally abuse a teammate", "Did you swear at a teammate", "Did you show frustration toward a teammate", "Did you exclude a teammate from an activity"). Responses were dummy coded (i.e., yes = 1, no = 0) and scores were computed by summing the number of prosocial behaviors toward teammate (PBT) as well as antisocial behaviors toward teammates (ABT). These measures are also formative constructs.

2.3.3. Daily social identity strength

Daily social identity strength was assessed by having athletes rate the extent to which they identified with their current sport team, on a scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). We assessed three dimensions of social identity strength using a brief nine-item version of the Social Identity in Sport Questionnaire (Bruner & Benson, 2017). The three subscales, including ingroup ties (e.g., "I feel strong ties to other members of this team", 3 items, $\alpha = 0.94$), cognitive centrality (e.g., "The fact that I am a member of this team often enters my mind", 3 items, $\alpha = 0.89$), and ingroup affect ("Generally, I feel good when I think about myself as a member of this team", 3 items, $\alpha = 0.94$) demonstrated acceptable levels of reliability. Moreover, confirmatory factor analysis based on the three-factor structure showed adequate model fit, $\chi^2 (24) = 58.149$, $p < 0.001$, RMSEA = 0.040, 95% CI [0.027, 0.053], CFI = 0.962, TLI = 0.944, SRMR = 0.052. Given the non-independence of responses by athletes across time, the TYPE = COMPLEX function in Mplus 7.1 was used to adjust the standard errors of the parameter estimates within this analysis

(Muthén & Muthén, 2012).

2.4. Multilevel analysis strategy

We used linear mixed-level modelling to examine how athletes' daily experiences of moral behavior from teammates are linked to within-person differences in self-reported moral behaviors toward teammates and social identity strength. The daily diary method creates a nested data structure in that each athlete (between-person level) provided multiple responses (within-person level) across time. To determine the viability of examining how daily events relate to within-person fluctuations in the outcomes of interest, we first calculated the levels of within-person variance for each of the daily measures by constructing unconditional null models (Raudenbush & Bryk, 2002). Next, separate random intercept models were constructed for each outcome measure with several time-invariant as well as time-variant covariates included as fixed effects. As it pertains to time-invariant covariates, we included the sex of the participant (dummy coded: 1 = male, 0 = female), participant age, and the number of surveys each participant completed across the 10-day period (i.e., completed surveys) as fixed effects. Participant age is a continuous variable and was grand-mean centered. For time-variant covariates, we included the occurrence of an intergroup competition (dummy coded: 1 = yes, 0 = no) and practice (dummy coded: 1 = yes, 0 = no) as Level 1 fixed effects. Antecedent variables (i.e., experienced prosocial teammate behavior, experienced antisocial teammate behavior) were partitioned into within-person and between-person components and treated as fixed effects. Although the effects of the between-person level variables were not the main focus of this research, it was important to include the between-level components in the models (Enders & Tofighi, 2007). Between-person level variables for experienced prosocial teammate behavior (i.e., BW_exPTB) and experienced antisocial teammate behavior (BW_exATB) were computed by averaging each athlete's individual responses across time. The between-person level variables were grand-mean centered by subtracting the grand sample mean from each athlete's average score. Within-person level variables for experienced prosocial teammate behavior (i.e., WI_exPTB) and experienced antisocial teammate behavior (WI_exATB) were person-mean centered, which means each athlete's average score is subtracted from each daily response score. Within-person scores represent daily deviations from an individual's average score. The between-person and within-person level variables are orthogonal to one another (i.e., BW_expPTB and WI_expPTB). We also tested whether WI_expPTB and WI_expATB interacted in relation to the outcomes of interest. Significant interactions were decomposed at ± 1 *SD* from the mean (Aiken, West, & Reno, 1991). We refer to variables at lower (1 *SD* below the mean) and higher (1 *SD* above the mean) levels when reporting the pattern of the interaction.

In addition to accounting for the nesting of responses within individuals, repeated measures are also temporally linked. The temporal ordering of these data introduces additional dependencies that, if not modelled appropriately, can bias standard errors (Raudenbush & Bryk, 2002). Across all models presented in the subsequent sections, we tested four covariance structures among the error variances. In a sequential fashion, we tested covariance structures with (a) error variances that are homogeneous and independent, (b) error variances that are heterogeneous and independent, (c) error variances that are heterogeneous with an autoregressive structure, and (d) unstructured error variances.

3. Results

3.1. Preliminary findings

Table 1 displays the frequency of self-reported daily moral behaviors and social-identity related perceptions as a function of team-related events, with 29.71% of observations coming from intergroup competition days, 34.08% from practice days, 19.45% from social interaction-only days, and 17.81% from no teammate interaction days (the cumulative % is greater than 100 because several athletes reported days including intergroup competition and a practice). Athletes reported significantly higher levels of PBT on both practice and intergroup competition days than social interaction-only days, $ps < 0.001$, and higher levels of PBT on intergroup competition days than practice days, $p < 0.001$. Likewise, athletes reported more frequent ABT on both practice and intergroup competition days than social interaction-only days, $ps < 0.001$, but more frequent ABT on intergroup competition days than practice-only days, $p = 0.006$. Athletes reported more frequent ExPTB on both practice and intergroup competition days than social interaction-only days, $ps < 0.001$, but more frequent ExPTB on intergroup competition days than practice days, $p = 0.001$. Moreover, athletes reported more frequent ExATB on both practice and intergroup competition days than social interaction-only days, $ps < 0.001$, but more frequent ExATB on intergroup competition days than practice days, $p = 0.022$. The social identity dimensions did not differ as a function of team-related events ($ps > 0.05$). We controlled for the occurrence of intergroup competition and practice in all subsequent multilevel models.[1]

Assumptions of multilevel analysis were evaluated for all the variables. The frequency of missing items ranging from 0% to 0.4% across the scales used in the current study. Missing data points were imputed using the mean-series method of replacement, but only when a single item was missing from a scale. Table 2 displays the descriptive statistics and correlations among the measured variables at the between-person level. Note that the average number of surveys completed by athletes correlated with several of the criterion variables at the between-person level. Thus, we controlled for the number of completed surveys in all subsequent models.

The intraclass correlation coefficients (ICC) derived from the series of unconditional null models demonstrated significant within-person variance ($ps < 0.001$) in the daily antecedent variables (i.e., experienced prosocial teammate behavior = 85.32%; experienced antisocial teammate behavior = 48.37%) and daily outcome variables (i.e., self-reported prosocial behaviors toward teammates = 89.00%; self-reported antisocial behaviors toward teammates = 57.43%; ingroup ties = 14.52%; cognitive centrality = 12.45%; ingroup affect = 18.75%). The significant within-person variance in each variable further supports the use of multilevel analysis. A covariance structure where error variances are heterogeneous and independent is used in all subsequent analyses because it offered better model fit than the alternative covariance structures based on comparing the −2 deviance log likelihood fit estimates (Raudenbush & Bryk, 2002).

3.2. Intra-individual associations with prosocial and antisocial behaviors toward teammates

Table 3 displays the findings related to self-reported prosocial and antisocial behaviors toward teammates. Daily experienced prosocial teammate behavior ($\gamma = 0.64$, $p < 0.001$) and mean levels of experienced prosocial teammate behavior ($\gamma = 0.55$, $p < 0.001$) were positively associated with self-reported prosocial behaviors. Daily experienced antisocial teammate behavior ($\gamma = 0.15$, $p = 0.004$) and mean levels of experienced antisocial teammate behavior ($\gamma = 0.37$, $p < 0.001$) were positively associated with self-reported prosocial behaviors toward teammates. However, daily experienced prosocial teammate behavior and daily experienced antisocial teammate behavior interacted in relation to self-reported prosocial behaviors toward

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[1] Additionally controlling for the presence of social-interaction only days did not change the magnitude or significance of the relations tested within the multilevel models and thus we report the results from the more parsimonious model.

Table 1
Comparisons based on daily events and participant sex.

	Practice[a]	Intergroup competition[b]	Social interaction[c]	Males[d]	Females[e]
1. Ingroup ties	6.14 (1.04)	6.03 (1.07)	6.16 (0.94)	6.17 (0.89)	5.94 (1.06)
2. Cognitive centrality	5.71 (1.27)	5.71 (1.24)	5.74 (1.40)	5.59 (1.37)	5.59 (1.15)
3. Ingroup affect	6.39 (0.86)	6.34 (0.90)	6.46 (0.73)	6.47 (0.74)	6.20 (0.91)
4. PBT	2.94 (1.12)	3.46 (0.71)	1.22 (1.51)	2.52 (0.79)	2.44 (0.74)
5. ABT	0.28 (0.63)	0.47 (0.87)	0.15 (0.52)	0.22 (0.41)	0.40 (0.58)
6. ExPTB	2.79 (1.24)	3.12 (1.16)	1.00 (1.42)	2.22 (1.07)	2.27 (0.73)
7. ExATB	0.30 (0.75)	0.38 (0.75)	0.15 (0.50)	0.27 (0.60)	0.30 (0.49)

Note. PBT = Number of daily prosocial behaviors toward teammates. ABT = Number of daily antisocial behaviors toward teammates. ExPTB = Number of daily experienced prosocial teammate behaviors. ExATB = Number of daily experienced antisocial teammate behaviors. a = 252 observations. b = 289 observations. c = 165 observations. d = 45 observations. e = 55 observations. There were 151 observation with no reported social interactions. Several athletes from the same team had a practice and an intergroup competition on the same day, which is why the summed total number of observations in the first four columns is greater than 848.

Table 2
Descriptive statistics (person-level).

Variables	1	2	3	4	5	6	7	8	9
1. Ingroup ties	–	–	–	–	–	–	–	–	–
2. Cognitive centrality	0.45***	–	–	–	–	–	–	–	–
3. Ingroup affect	0.56***	0.51***	–	–	–	–	–	–	–
4. PBT	0.07	−0.04	−0.12	–	–	–	–	–	–
5. ABT	−0.12	−0.01	−0.09	0.21*	–	–	–	–	–
6. ExPTB	0.20*	0.01	0.17	0.70**	0.06	–	–	–	–
7. ExATB	−0.17	−0.02	−0.14	0.32**	0.73**	0.15***	–	–	–
8. Age	−0.08	−0.26**	−0.11	−0.07	0.24*	0.06	0.19	–	–
9. Completed surveys	0.19	0.09	0.28**	−0.37**	−0.10	−0.28**	-0.12	0.04	–
M (SD)	6.04 (0.99)	5.66 (1.25)	6.32 (0.85)	2.47 (0.77)	0.32 (0.52)	2.25 (0.89)	0.29 (0.54)	13.24 (1.82)	8.48 (2.26)

Note. All means and correlations based on scores aggregated to the person-level. PBT = Number of daily prosocial behaviors toward teammates. ABT = Number of daily antisocial behaviors toward teammates. ExPTB = Number of daily experienced prosocial teammate behaviors. ExATB = Number of daily experienced antisocial teammate behaviors. $N = 100$ participants.

Table 3
Full models predicting PTB and ATB.

	Daily outcome measures	
	PBT	ABT
Fixed effects	*b* (SE)	*b* (SE)
Intercept (γ_{00})	1.85 (0.08)***	0.32 (0.05)***
Completed surveys (γ_{01})	−0.02 (0.03)	−0.02 (0.02)
Sex (γ_{02})	0.06 (0.10)	−0.09 (0.06)
Age (γ_{03})	−0.08 (0.03)*	0.03 (0.02)
Practice (γ_{10})	0.70 (0.08)***	−0.04 (0.04)
Intergroup competition (γ_{20})	0.97 (0.08)***	0.07 (0.05)
BW_ExPTB (γ_{04})	0.55 (0.06)***	−0.01 (0.04)
BW_ExATB (γ_{05})	0.38 (0.10)***	0.80 (0.05)***
WI_ExPTB (γ_{30})	0.64 (0.02)***	0.01 (0.02)
WI_ExATB (γ_{40})	0.15 (0.05)***	0.44 (0.03)***
WI_ExATB* WI_ExPTB (γ_{50})	−0.20 (0.04)***	−0.10 (0.03)***
Random effects		
Intercept (μ_{0j})	0.17 (0.03)	0.07 (0.01)
Model fit		
−2* Log Likelihood	2014.76	1209.06

Note. All fixed effects are unstandardized regression coefficients, with standard error estimates in parentheses. Error variances are heterogeneous (i.e., allowed to vary across days).
*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

teammates ($\gamma = -0.20$, $p < 0.001$). The interaction pattern (Fig. 1a) was decomposed using simple slopes analysis. Daily experienced prosocial teammate behavior positively predicted self-reported prosocial behaviors toward teammates at lower ($\gamma = 0.74$, $p < 0.001$) and higher ($\gamma = 0.54$, $p < 0.001$) levels of daily experienced antisocial behavior. The relation between daily experienced prosocial behavior and self-reported prosocial behavior toward teammates became weaker at higher levels of daily experienced antisocial behavior.

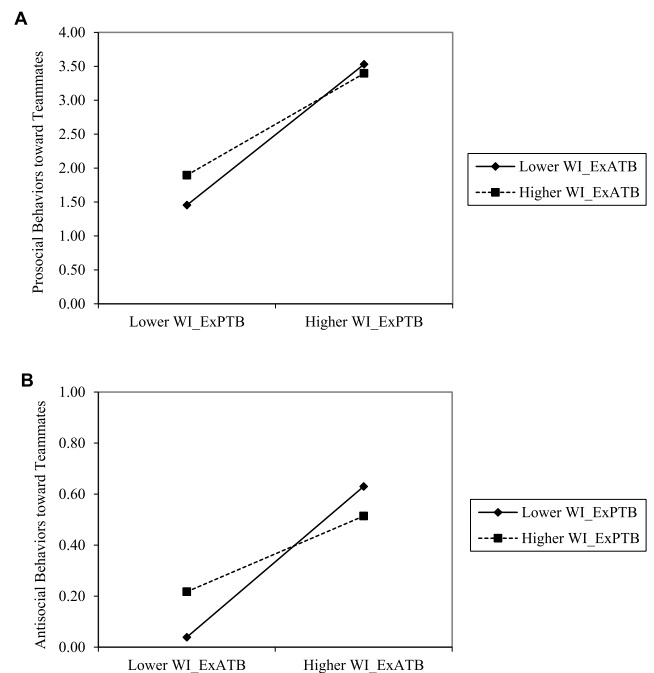As hypothesized, daily experienced antisocial teammate behavior

Fig. 1. How daily experienced prosocial teammate behaviors interact with daily experienced antisocial teammate behaviors in relation to prosocial behaviors toward teammates (A) and antisocial behaviors toward teammates (B).

($\gamma = 0.44$, $p < 0.001$) and mean levels of experienced antisocial teammate behavior ($\gamma = 0.80$, $p < 0.001$) were positively associated with self-reported antisocial behaviors toward teammates. Neither daily experienced prosocial teammate behavior ($\gamma = 0.01$, $p = 0.402$) nor mean levels of experienced prosocial teammate behavior ($\gamma = -0.01$,

Table 4
Full models predicting ingroup ties, cognitive centrality, and ingroup affect.

	Daily outcome measures		
	Ingroup ties	Cognitive centrality	Ingroup affect
Fixed effects			
Intercept (γ_{00})	4.91 (0.42)***	4.60 (0.57)***	5.06 (0.36)***
Completed surveys (γ_{01})	0.12 (0.05)**	0.13 (0.06)*	0.14 (0.04)**
Sex (γ_{02})	0.31 (0.20)	−0.02 (0.27)	0.35 (0.17)*
Age (γ_{03})	−0.01 (0.06)	−0.18 (0.08)*	−0.01 (0.05)
Practice (γ_{10})	−0.07 (0.04)	−0.06 (0.04)	−0.13 (0.04)***
Intergroup competition (γ_{20})	−0.03 (0.05)	−0.05 (0.05)	−0.10 (0.04)*
BW_ExPTB (γ_{04})	0.36 (0.11)**	0.14 (0.15)	0.32 (0.10)**
BW_ExATB (γ_{05})	−0.34 (0.18)	0.17 (0.25)	−0.21 (0.15)
WI_ExPTB (γ_{30})	0.04 (0.01)**	0.04 (0.01)*	0.04 (0.01)***
WI_ExATB (γ_{40})	−0.08 (0.03)**	−0.02 (0.03)	−0.07 (0.03)**
Random effects			
Intercept (μ_{0j})	0.86 (0.14)	1.58 (0.23)	0.62 (0.09)
Model fit			
−2* Log Likelihood	1214.81	1433.27	1097.97

Note. All fixed effects are unstandardized regression coefficients with standard error estimates in parentheses. Error variances are heterogeneous (i.e., allowed to vary across days).

*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

$p = 0.740$) were associated with self-reported antisocial behavior toward teammates. However, daily experienced antisocial teammate behavior interacted with daily experienced prosocial behavior in relation to self-reported antisocial behaviors toward teammates ($\gamma = −0.10$, $p < 0.001$). In decomposing the interaction effect (Fig. 1b), simple slopes analysis showed that daily experienced antisocial teammate behavior positively predicted self-reported antisocial behaviors toward teammates at lower ($\gamma = 0.59$, $p < 0.001$) and higher ($\gamma = 0.30$, $p < 0.001$) levels of daily experienced prosocial behavior. The relationship between daily experienced antisocial teammate behavior and self-reported antisocial behaviors toward teammates was attenuated at higher levels of experienced prosocial teammate behavior.

3.3. Intra-individual associations with social identity

Daily experienced prosocial and experienced antisocial behavior did not significantly interact in predicting social identity. Thus, no interaction terms were retained for the analyses reported here and displayed in Table 4. As expected, daily experienced prosocial teammate behavior ($\gamma = 0.04$, $p = 0.007$) and mean levels of experienced prosocial teammate behavior ($\gamma = 0.36$, $p = 0.002$) were positively associated with ingroup ties. In contrast, daily experienced antisocial teammate behavior ($\gamma = −0.08$, $p = 0.006$). Moreover, daily experienced prosocial teammate behavior was positively associated with cognitive centrality ($\gamma = 0.04$, $p = 0.011$). However, daily experienced antisocial teammate behavior did not account for unique variance in cognitive centrality ($p = 0.558$). Finally, daily experienced prosocial teammate behavior ($\gamma = 0.04$, $p < 0.001$) and mean levels of experienced prosocial teammate behavior ($\gamma = 0.32$, $p = 0.001$) were positively associated with ingroup affect. Daily experienced antisocial teammate behavior was negatively associated with ingroup affect ($\gamma = −0.07$, $p = 0.006$).

4. Discussion

Theory on adolescent development (e.g., Brown, 2004, pp. 363–394; Granic & Patterson, 2006; Harris, 1995) supports the notion that the quality and frequency of teammate interactions constitute a

fundamental part of youth athletes' social environments, and ultimately their social development. To provide insight into how peer behaviors contribute to youth athletes' social experiences in sport, the current research examined how daily experiences of prosocial and antisocial behaviors from teammates are linked to within-person differences in youth athletes' personal moral behaviors toward teammates and social identity strength. Using a daily diary approach, the findings show that the frequency with which athletes experience prosocial and antisocial behaviors from teammates differentially predicts (a) the self-reported frequency with which athletes engage in prosocial and antisocial behaviors when interacting with teammates, (b) the psychological ties athletes have toward their teammates (i.e., ingroup ties), (c) the value placed on sport team membership (i.e., cognitive centrality), and (d) the positive feelings athletes derive from sport team membership (i.e., ingroup affect).

4.1. Prosocial and antisocial behavior toward teammates

Broadly speaking, our findings are consistent with the tenets of interpersonal sensemaking theory (Weick, 1995), social cognitive theory (Bandura, 1991), and recent empirical work (Benson et al., 2017), suggesting that youth regulate the way they act toward teammates based on the social behaviors of their teammates. Whereas average levels of experienced prosocial teammate behavior positively predicted self-reported prosocial behavior toward teammates, average levels of experienced antisocial teammate behavior positively predicted self-reported antisocial behavior toward teammates. Multilevel analyses additionally showed that the ways in which athletes interact with teammates varies across time. Importantly, this variation in moral behavior toward teammates is systematically linked to athletes' daily experiences of prosocial and antisocial behaviors from teammates.

Daily experiences of prosocial and antisocial behaviors from teammates interacted in predicting the self-reported frequency with which athletes engaged in moral behaviors. The pattern of the interaction effects are similar in that (a) the positive relation between experiencing prosocial teammate behavior and engaging in prosocial behaviors toward teammates was weakened on days when athletes experienced more antisocial behavior from teammates (Panel A of Fig. 1), and (b) the positive relation between experiencing antisocial teammate behavior and engaging in antisocial behaviors toward teammates was weakened on days when athletes experienced more prosocial behavior from teammates (Panel B of Fig. 1). A notable finding at the within-person level is that experiencing higher levels of prosocial teammate behaviors somewhat mitigates the effect of experiencing antisocial teammate behavior. On such days (i.e., higher number of prosocial and antisocial behaviors from teammates), athletes reported engaging in more prosocial teammate behavior and less antisocial teammate behavior, relative to those who experienced lower levels of prosocial teammate behavior. This suggests that experiencing prosocial teammate behaviors may help to ameliorate the undesirable consequences of experiencing antisocial teammate behavior. At the same time, experiencing antisocial teammate behaviors dampened the desirable effect of experiencing prosocial behaviors. Spector and Fox (2002) note that interpersonal behaviors elicit behavioral responses partly due to the emotions they generate, with positive emotions feeding into prosocial responses, and negative emotions feeding into antisocial responses. Given work showing that negative affective responses drive antisocial behavior in sport (Stanger, Kavussanu, Boardley, & Ring, 2013), it is plausible that emotional experiences might mediate the relation between experienced and enacted moral behavior. With this in mind, perhaps experiencing prosocial teammate behavior lessens the negative emotions associated with experiencing antisocial teammate behavior, just as experiencing antisocial behavior dampens the positive emotions associated with experiencing prosocial teammate behavior. At a practical level, it may be beneficial to explore group-based interventions of team building as a strategy to promote prosocial and dissuade antisocial

behavior. Team building encapsulates a variety of strategies aimed to help individuals function more effectively as a unit (Martin, Carron, & Burke, 2009). However, team building could also be harnessed to influence the prosocial and antisocial interactions that occur among teammates within youth sport settings. The correspondence between how an athlete is treated and how s/he treats others suggests that establishing desirable norms for teammate interactions through peer-led team building activities may help to foster a more positive social environment for youth athletes.

It should also be noted that self-reported prosocial and antisocial behavior toward teammates were lowest on days when athletes experienced a combination of lower levels of prosocial and antisocial teammate behavior (depicted in the left side of Panels A and B of Fig. 1). Experiencing a relative absence of prosocial and antisocial teammate behavior suggests low levels of teammate interaction, which could translate into a lack of opportunity to engage in antisocial and prosocial behaviors toward teammates. Supporting this interpretation, a study of interpersonal dynamics found that the frequency of interaction between two individuals corresponded to greater helping and harming behaviors (Venkataramani & Dalal, 2007). Indeed, the extent to which peers influence adolescent behavior is partly predicated on the availability of opportunities to engage in specific forms of behavior (Brown, 2004, pp. 363–394). This might also explain the higher levels of prosocial and antisocial behavior on days with team-specific events (i.e., intergroup competition, practices) relative to days without such events.

4.2. Social identity strength

The current findings demonstrate that the strength with which youth athletes identified with their team varied across time, and this variance relates systematically to teammate interactions. Although evidence from the social psychological literature suggests that social identity strength can change rather quickly in response to discrete events as well as more gradually over time (Easterbrook & Vignoles, 2012; Oakes et al., 1991), the dynamic nature of athletes' social identities has, until now, yet to be directly tested. Consistent with Hypothesis 3, youth athletes reported higher levels of ingroups ties, ingroup affect, and cognitive centrality on days that they experienced more prosocial teammate behaviors. Interestingly, the average frequency with which athletes experienced prosocial teammate behaviors also contributed to higher levels of ingroup ties and ingroup affect. This suggests that the average frequency of these behaviors across time, as well as deviations from this average, are both related to the extent to which athletes feel psychological ties to their teammates and feel positively about their group. Conversely, cognitive centrality was only predicted by whether athletes experienced more or less prosocial behavior than is typical for them a given day. Positive interactions with teammates—characterized by frequent prosocial behavior and infrequent antisocial behavior—may be akin to social affirmation that one is a valued group member. This interpretation is consistent with the notion that maintaining a strong social identity requires a degree of social validation from group members (Postmes, Haslam et al., 2005; Postmes, Spears et al., 2005) and youth athletes' personal recollections of how prosocial and antisocial teammate behaviors made them feel about their team identity (Bruner, Boardley, Allan, Root, et al., 2017). Interestingly, the occurrence of intergroup competition or games did not predict changes in social identity strength. This suggests that the mere occurence of intergroup competition or team practices is not as relevant to social identification processes as the types of social interactions that occur among teammates.

In partial support of Hypothesis 4, athletes reported weaker psychological ties to their teammates and felt less positively about their group on days that they experienced more antisocial behaviors from teammates. However, there was no relation between daily experienced antisocial teammate behaviors and cognitive centrality. One possibility

is that this component of social identification is more driven by factors that affect self-categorization processes (Oakes et al., 1991). However, this does not explain the within-person relation between prosocial behaviors and cognitive centrality. Speaking to the complex nature of cognitive centrality, it is possible that experiencing antisocial behavior at the hands of fellow group members could make group membership more salient, in some cases.

More broadly, the current findings add to the literature on the positive effects of prosocial behaviors for the recipient, which include higher levels of sport enjoyment (Al-Yaaribi et al., 2016) and enhanced subjective well-being and greater interpersonal closeness (under conditions of autonomously motivated helping, Weinstein & Ryan, 2010). Considering the relations of prosocial behaviors with self-esteem and social closeness, positive teammate interactions (i.e., more frequent prosocial, less frequent antisocial) may strengthen social identity due to its positive effect on the psychological needs underlying identity construction—two of which are self-esteem and social acceptance (Vignoles, 2011). In a multi-wave study with novel interpersonal groups, within-person changes in satisfaction of self-esteem, belonging, and efficacy motives corresponded to stronger group identification over time (Easterbrook & Vignoles, 2012). Taken together, although individuals may derive their initial sense of group identification based on self-categorization processes (Postmes et al., 2005), our findings provide insight into how daily teammate interactions contribute to the strength of athletes' social identities.

4.3. Limitations and considerations for future research

The intensive nature of gathering daily reports over a 10-day span is a strength of the current study, but one that nonetheless has limitations. Despite using multiple time points and tracking within-person variation in responses, the study only examined the experiences of Canadian youth athletes participating in competitive youth hockey, and the short time frame captured by the daily diary approach is not amenable to examining growth patterns relevant to developmental changes (Ohly et al., 2010). The correlational nature of these data tempers the ability to make conclusive causal inferences. It is theoretically plausible that the processes studied in the current research exhibit a degree of reciprocity. Researchers have suggested that there can be a degree of entrainment between behaviors that elicit certain responses, and how those responses reinforce such behavior in subsequent interactions, particularly as they pertain to antisocial development (Granic & Patterson, 2006). Social identity strength has also been identified as a predictor of moral behaviors toward teammates (Bruner et al., 2014). Experiencing desirable patterns of teammate behavior (more frequent prosocial behaviors, less frequent antisocial behaviors) may reinforce an athlete's identity with that group, which may, in turn, motivate athletes to engage in behaviors that would maintain positive ingroup relations (Bruner, Boardley, Allan, Forrest, et al., 2017). To disentangle these temporal questions, researchers could use a measurement-burst design, which combines intensive daily observations with less periodic assessments over a longer time frame. This enables researchers to examine how within-person variability corresponds to long-term changes (Sliwinski, 2008). Another point to consider is that youth athletes had well-formed social identities at the onset of the study. Studying the precursors of social identity formation would be a difficult task, particularly in sport teams, as social identities form quickly based on cues derived from group properties (Tajfel, 1981).

The findings are also limited in that athletes interact with their teammates across a variety of contexts that were not captured by the current study's method (e.g., school, home) and that athletes may treat different teammates in distinct ways. Notably, the measure was developed to assess sport-specific interactions and thus may not fully capture the prosocial and antisocial interactions that occur outside the confines of sport. It should also be noted that this might explain why self-reported prosocial and antisocial behaviors were higher on days involving

sport-specific events relative to other days. In considering how to achieve a deeper understanding of teammate interactions in sport, the Electronically Activated Recorder (EAR) is a promising and complementary methodology for capturing athletes' day-to-day interactions through momentary auditory recordings (e.g., Tobin et al., 2015). An observational methodology, such as the EAR, also helps to address the issue of relying on self-report measures of prosocial and antisocial behavior. To further unpack how athletes respond to intragroup behaviors, it is worthwhile to consider the *content* of athletes' social identities (i.e., what it means to be a group member, Ashmore, Deaux, & McLaughlin-Volpe, 2004) and the norms for behavioral conduct (Benson et al., 2017). This is because athletes who strongly identify with their team are more likely to engage in behaviors that they perceive to be characteristic of prototypical group behavior (Benson et al., 2017).

5. Conclusions

In closing, we implemented a change-sensitive methodology to better understand youth athletes' sport experiences. The current research provides insight into youth athletes' cognitive, affective, and behavioral responses to prosocial and antisocial behaviors from teammates. Supporting previous work on the value of examining proactive (e.g., engaging in prosocial behaviors) and inhibitive moral acts (e.g., refraining from antisocial behaviors) when evaluating moral conduct (Bandura, 1999; Kavussanu et al., 2006), it appears to be equally important to recognize how experiencing prosocial and antisocial behaviors jointly contribute to athletes' sport experiences. Our findings show that daily prosocial and antisocial behaviors from teammates are systematically related to the ways that athletes behave toward their teammates as well as the strength with which they identify with their sport team.

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