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The Contribution of Organized Youth Sport to Antisocial and Prosocial Behavior in Adolescent Athletes

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Abstract In this study, we investigated the contribution of organized youth sport to antisocial and prosocial behavior in adolescent athletes. The sample consisted of $N = 260$ male and female soccer players and competitive swimmers, 12 to 18 years of age. Multilevel regression analysis revealed that 8% of the variance in antisocial behavior and 7% of the variance in prosocial behavior could be attributed to characteristics of the sporting environment. Results suggested that coaches who maintain good relationships with their athletes reduce antisocial behavior, and that exposure to relatively high levels of sociomoral reasoning within the immediate context of sporting activities promotes prosocial behavior. These results point to specific aspects of adolescents' participation in sport that can be used to realize the educational potential of organized youth sport.

Keywords Antisocial behavior · Prosocial behavior · Moral reasoning · Coach-athlete relationship quality · Sociomoral atmosphere

Introduction

Adolescents do not engage in sports in order to be educated. Yet, each social practice in which they participate could have an educational influence. Young athletes not only learn the skills and knowledge they need to perform their sports; they also learn sport-related rules and norms. Between 12 and 18 years of age, no fewer than 68% of Dutch adolescents participate in organized youth sport (CBS, 1999). It is a context in which adolescents voluntarily participate. Young athletes subject themselves to the authority of adults, and expose themselves to the influence of peers. Notably, the socializing influence of peers in leisure activities and practices is substantial, and could even be greater in this domain than in the family and school context (Cotterell, 1996; Emmler and Reicher, 1995; Mahoney, 2000; Mahoney and Stattin, 2000; Weiss and Smith, 2002). Thus it is important to study to what extent and how participation in organized youth sport exerts an influence on young people's behavior.

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Some research suggests that competitive and performance oriented social contexts actually promote antisocial behavior (Anderson and Morrow, 1995; Kohn, 1986; Stephens and Bredemeier, 1996) and have a negative effect on prosocial behavior (Kleiber and Roberts, 1981). Shields and Bredemeier (1995) suggest that organized youth sport may promote antisocial behavior, as sport is a context of moral release, being based on competition, self-interest and a suspension of relational responsibility, while moral deliberation is reduced by formal and informal rules. The empirical evidence for an association between organized youth sport and juvenile antisocial behavior, however, remains equivocal (Begg *et al.*, 1996; Coalter, 1989; Duncan *et al.*, 2002; Mutrie and Parfitt, 1998; Robins, 1990; Vazsonyi *et al.*, 2002). Duncan *et al.* (2002) assume that contradictory research outcomes may be due to the types of sport activity and behaviors examined. For instance, participation in contact sports has been associated with higher perceived legitimacy of aggressive behavior (Conroy *et al.*, 2001) and lower levels of moral functioning (Kavussanu and Ntoumanis, 2003) in comparison with non-contact sports. In addition, Vallerand *et al.* (1997) found that team sport athletes showed lower levels of concern for the opponent than individual sport athletes.

Arnold (1994, 2001), in contrast, argues that sport should be understood as a practice imbued with moral values. Sport not only entails respect for the rules of the game, but also relates to respect for one's opponents, equal opportunities to perform well, mutual co-operation, fairness, and sportpersonship. These elements are considered to be constitutive of sport, and may be summarized by the concept of "fair play" (Loland and McNamee, 2000). Van Bottenburg and Schuyt (1996) contend that sporting activity fosters the development of important virtues, such as team spirit and social responsibility. Coakley (1984) emphasized that sporting activity stimulates social-cognitive competences, such as role-taking ability, as athletes must constantly anticipate their opponents' actions or moves. While role-taking ability is a necessary condition for growth in moral reasoning (Kohlberg *et al.*, 1987), virtuous dispositions like self-control or perseverance could be important for the translation of moral reasoning into moral behavior (Matsuba and Walker, 1998). Finally, there is empirical evidence showing that school extracurricular activity participation (Mahoney, 2000) and supervised and structured leisure activities (Vazsonyi *et al.*, 2002), including organized youth sport, are associated with less antisocial behavior in adolescents.

In the present study, we examine the contribution of organized youth sport to antisocial and prosocial behavior among adolescent soccer players and competitive swimmers, focusing on educationally relevant factors, including sociomoral atmosphere of the sporting environment, sociomoral reasoning about sport dilemmas, and coach-athlete relationship quality. It has been demonstrated that a favorable sociomoral

climate of the environment (e.g. Guivernau and Duda, 2002; Ommundsen *et al.*, 2003; Power *et al.*, 1989; Stephens, 2000), and mature sociomoral reasoning (Blasi, 1980; Bredemeier, 1994; Nelson *et al.*, 1990; Ommundsen *et al.*, 2003) are both related to less antisocial and more prosocial behavior. From studies on natural occurring mentoring (e.g. Darling *et al.*, 2002; Rhodes, 2002; Zimmerman *et al.*, 2002) it can be derived that high quality coach-athlete relationships may protect against antisocial behavior and promote prosocial behavior, since the coach serves as a positive role model and provides emotional support. It is important to note that relational support from adults has been shown to be a strong predictor of behavioral adjustment in adolescents (DuBois *et al.*, 2002; Scholte *et al.*, 2001; Wills and Cleary, 1996).

In soccer and competitive swimming, individual athletes are always part of specific teams or exercise groups. Since the present study focuses on these types of sport, we can take advantage of the nested structure of the data using multilevel regression analysis (Goldstein, 1995), which permits the simultaneous analysis of the degree to which individual characteristics of athletes (individual level) and characteristics of teams or coaches (contextual level) are associated with antisocial and prosocial behavior. Whereas at the individual level sociomoral atmosphere reflects individual perceptions of the sociomoral climate, at the contextual level sociomoral atmosphere is a shared perspective by team members. Sociomoral reasoning can be evaluated at the individual level, reflecting differences in moral reasoning among individual athletes, or at the contextual level, reflecting differences in moral reasoning between teams. Finally, at the individual level coach-athlete relationship quality refers to the athlete's perception of his or her relationship with the coach, whereas at the contextual level coach-athlete relationship quality reflects the way a coach interacts with his athletes. As such, coach-athlete relationship quality can have an effect on antisocial and prosocial behavior at both levels. Eventually, antisocial and prosocial behavior will depend on characteristics of individual athletes and characteristics of teams or coaches, that is, the social context.

Hypotheses

We hypothesize that an advantageous sociomoral atmosphere of the sporting environment—characterized by mutual respect, care, trust, responsibility, and shared prosocial norms about what constitutes appropriate behavior—and a relatively high level of sociomoral reasoning about sport dilemmas, will be related to less antisocial behavior and more prosocial behavior in adolescent athletes. Next, we hypothesize that high quality coach-athlete relationships will be related to less antisocial behavior and more prosocial behavior in adolescent athletes.

Both hypotheses will be evaluated at the individual and contextual level, using multilevel regression analysis. It should be noted that interpretations of effects at the contextual level are most straightforward, as these effects are independent from the contribution the athlete makes to the team or the relationship with the coach. In cross-sectional multilevel studies contextual effects strengthen the confidence in the causal interpretation of effects (Kreft and De Leeuw, 1998; Snijders and Bosker, 1999). Because self-selection can be a possible alternative explanation for what appear to be contextual effects, we will control for demographic variables that might play a role in the selection of a sport, a club, or a team, such as age, sex, level of education, current extent and years of sport participation, cultural background, and socioeconomic status. Moreover, we will control for type of sport, as soccer and competitive swimming are different types of sport with respect to physical contact and individual or team performance.

Method

Participants

We included soccer and competitive swimming into our study, as these sports constitute a team and an individual sport, respectively, having high participation rates in The Netherlands. Both sports are performed by adolescents from lower and lower-middle-class socioeconomic backgrounds. Whereas soccer is a contact sport, competitive swimming represents an individual non-contact sport that is performed in exercise groups or teams. A total number of $N = 10$ sports clubs participated in our study: $n = 6$ soccer clubs ($n = 187$ adolescents) and $n = 4$ swimming clubs ($n = 73$ adolescents). All participants provided informed consent. The sports clubs were randomly drawn from the population of soccer and swimming clubs in the urbanized area of two Dutch cities, Amsterdam and Utrecht. All selected clubs agreed to participate. The average size of the young persons' sections of the clubs was 224 youth members. The participants, 153 male and 107 female athletes ($N = 260$), were recruited from 25 teams, and ranged from 12 to 18 years of age ($M = 14.8$, $SD = 1.5$). The response percentage was high, that is, 90%. Each participant received a 5 Euro CD-token.

Socioeconomic status was a combination of the educational and occupational background of both parents (Van Westerlaak *et al.*, 1990) and was computed on the basis of sample-specific factor loadings and standard deviations. Mean scores correspond to socioeconomic strata in the following way: 3 to 9, lower class; 9 to 12, middle class; and 12 to 16, upper class (Bernstein and Brandis, 1970). The internal consistency reliability of the scale for socioeconomic status was good, $\alpha = .82$. The mean score was 8.4 ($SD = 2.7$), which indicated that the sample could be

considered as lower-middle class. The adolescents' level of formal education was middle to high, and correlated significantly with the socioeconomic status of their parents, $r(235) = .40$, $p < .01$. The mean family size was 2.8 children. The percentage of single parent families was 18.4%, and the percentage of divorced parents was 15.1%. The sample consisted of adolescents with a Dutch ($n = 208$), Moroccan ($n = 20$), Surinam ($n = 17$) and Turkish ($n = 15$) ethnic background. At the time of the data collection the adolescents had participated in competitive sports during 8.2 years ($SD = 3.1$) on average.

Measures

The participants completed questionnaires on social desirability, anti- and prosocial behavior, sociomoral atmosphere of the sporting environment, sociomoral reasoning about sport dilemmas, and coach-athlete relationship quality. For the purpose of interpretation, all scores were keyed to the names of the scales. For instance, a high score on the scale for antisocial behavior is indicative of a high level of reported antisocial behavior.

Social desirability

The social desirability scale contained 15 items describing socially desirable attributes (Crowne and Marlowe, 1960; Rutten, 2001). Examples are: "I always practice what I preach," and "I never boast." Adolescents indicated whether each statement was true or false for them personally. The scale for social desirability proved to be internally consistent, $\alpha = .83$.

Antisocial behavior

Antisocial behavior was assessed with the Anti Social Behavior Inventory (ASBI), which has been used with adolescents from the general population and several (sub)clinical samples (Tavecchio *et al.*, 1999; Wouters and Spiering, 1990). The items are concerned with petty crime, vandalism, violence, and rebellious behavior. Corresponding examples of questions are: "I have stolen something that was worth less than 5 euro," "I have purposely destroyed or damaged things from others," "I have used a weapon in a fight," and "I have joined a group in messing around." The internal consistency reliability (15 items) was $\alpha = .91$. The correlation with social desirability was non-significant.

Prosocial behavior

In order to assess prosocial behavior, we adapted the Prosocial Behavior Questionnaire (PBQ), and used it as a self-report measure of prosocial behavior in adolescence. The PBQ was designed by Weir and Duveen (1981) in order

to be used as a teacher or parent report measure of children's prosocial behavior in middle childhood. The PBQ contains 20 items with a 4-point Likert-type scale, ranging from "rarely applies" to "certainly applies." The items represent positive social behaviors such as helping, sharing and supporting others. Some examples are: "I spontaneously pick up things, which another person has dropped," and "I take the opportunity to praise the work of those who are less able."

Stams *et al.* (2005) used the adapted PBQ in a sample of juvenile delinquents ($n=75$) and adolescents from low socioeconomic backgrounds and different cultural minority groups. The PBQ proved to be internally consistent ($\alpha = .71$). Evidence for concurrent validity of the PBQ was found in significant and positive associations with empathy and victim-based moral orientation, and negative associations with norm-trespassing, delinquent and aggressive behavior. Divergent validity was demonstrated by low to moderate correlations with verbal intelligence, $r(652) = .10$, $p < .05$, and social desirability, $r(652) = .32$, $p < .001$. In the present study, we found an internal consistency reliability of $\alpha = .89$. The association with social desirability was $r(258) = .22$, $p < .001$.

Sociomoral atmosphere of the sporting environment

The scale for sociomoral atmosphere is an adaptation of the 24-item School Culture Scale (Higgins, 1995, 1997), which has been translated in Dutch by Veugelers and De Kat (1998), who used it in a middle and high school population, showing internal consistency and factorial validity. We adapted the translated version for use in the context of organized youth sport by making the items sport-specific (e.g. athletes report on their team-members in stead of their class-mates), removing items that have no meaning in the context of organized youth sport. Subsequently, we conducted a principal components analysis, which showed a one-dimensional solution. The remaining 17-items were used as a self report measure that purports to assess the sociomoral climate of a sports club in terms of normative expectations ("There is very little physical fighting"); athlete-coach/sports club relationships ("Athletes and coaches trust each other"); and athlete relationships ("Athletes generally treat each other with respect and fairness"). Athletes indicated on 5-point Likert-type scales the degree to which statements regarding the sociomoral climate of their sporting environment were true or untrue. The internal consistency reliability of the scale for sociomoral atmosphere was $\alpha = .86$. The correlation with social desirability was non-significant.

Sociomoral reasoning about sport dilemmas

The Practical Sociomoral Reflection Objective Measure—Sport (PSROM-Sport) was developed to assess practical so-

ciomoral reasoning in the context of organized youth sport, and was derived from the Sociomoral Reflection Objective Measure—Short Form, the SROM-SF (Basinger and Gibbs, 1987), which is a multiple choice questionnaire containing 2 moral dilemmas and 12 question arrays focusing on sociomoral norms. Each question includes a response option representative of Kohlberg's moral stages 1 through 4. The first two stages, indicative of unilateral (concrete consequences) and instrumental (pragmatic deals or exchanges) reasoning respectively, constitute the immature level. The third and fourth stage, mutual-prosocial and systemic reasoning respectively, constitute the mature level (Gibbs *et al.*, 1992).

The PSROM-Sport assesses the level of sociomoral reasoning in a similar way, using 12 question arrays about situations in the context of organized youth sport (e.g., "You decide to help the best player in the team to get fit after an injury, so that he might be ready in time for the most important match of the year"), tapping the type of sociomoral norms the person uses (e.g., "Because this player might help you too" (stage 2), "Without this player you might loose the important match" (stage 1), "It shows that you feel responsible for your team (stage 4), "If you don't, you don't act as a real friend" (stage 3). The internal consistency reliability of the PSROM-Sport was sufficient, that is, $\alpha = .68$. The correlation with social desirability was non-significant.

Some evidence for construct validity was found in a sub-sample of 40 athletes by comparing moral scores on the PSROM-sport with scores on the Sociomoral Reflection Measure—Short Form (SRM-SF), which is a semi-structured interview assessing sociomoral reasoning competence in general (Gibbs *et al.*, 1992), so not limited to sports related dilemma's, and a self-constructed semi-structured interview assessing fair play orientation (Loland and McNamee, 2000; Tamboer and Steenbergen, 2000). Both interviews were reliably scored, with intraclass correlations for intercoder agreement above .80, and were internally consistent ($\alpha > .80$). We found significant correlations between sociomoral reasoning in the context of organized youth sport (PSROM-sport), and both sociomoral reasoning competence, $r(38) = .27$, $p < .05$, and fair play orientation, $r(38) = .53$, $p < .001$.

Coach-athlete relationship quality

The Quality of the Relationship scale is an adaptation of the Barrett-Lennard Relationship Inventory (Barrett-Lennard, 1962), and was construed to assess the quality of the relationship between the athlete and his or her coach in terms of *empathic understanding*, *positive regard*, *congruence*, and *willingness to be known*. These adjectives are considered to be features of a rewarding coach-athlete relationship (Poczwardowski *et al.*, 2002; Van den Auwele and

Rzewnicki, 2000). By means of 6-point Likert-type scales, ranging from total disagreement to total agreement, adolescents responded to 12 statements concerning their present relationship with the coach. Athletes responded to items such as “I appreciate this coach” and “I nearly always know exactly what this coach means.” The internal consistency reliability of the Quality of Relationship scale was $\alpha = .87$. The correlation with social desirability was non-significant.

Results

Descriptive analyses

Table 1 presents the correlations between age, level of education, cultural background (Caucasian white or cultural minority), socioeconomic status, extent of sport participation (the standardized summation of the number of hours and days per week spent in sporting activity), type of sport (soccer or swimming), type of team (male or female athletes), social desirability, sociomoral reasoning, sociomoral atmosphere, coach-athlete relationship quality, and anti- and prosocial behavior. Only effects at $p < .001$ were considered significant in order to adjust for multiple comparisons.

Age correlated positively with sociomoral reasoning, $r(258) = .25, p < .001$. The extent of sport participation was less in swimmers than in soccer players, $r(258) = -.20, p < .001$, and less in female teams than in male teams, $r(258) = -.27, p < .001$. Athletes from cultural minority groups were underrepresented in competitive swimming, $r(258) = -.30, p < .001$, and in female teams, $r(258) = -.24, p < .001$. Socioeconomic status was positively associated with level of education, $r(258) = .37, p < .001$, and negatively associated with social desirability, $r(258) = -.28, p < .001$. Also, level of education was negatively related to social desirability, $r(258) = -.28, p < .001$. Social desirability proved to be associated with prosocial behavior, $r(258) = .22, p < .001$.

Sociomoral atmosphere was evaluated as relatively positive by competitive swimmers, $r(258) = .29, p < .001$, and female athletes, $r(258) = .30, p < .001$. Higher coach-athlete relationship quality was related to more mature levels of sociomoral reasoning, $r(258) = .21, p < .001$, and positive perceptions of sociomoral atmosphere, $r(258) = .45, p < .001$.

A positive sociomoral atmosphere, $r(258) = -.39, p < .001$, and higher coach-athlete relationship quality, $r(258) = .38, p < .001$, were negatively associated with antisocial behavior, and positively associated with prosocial behavior, $r(258) = .33, p < .001$, and $r(258) = .26, p < .001$, respectively. Moral reasoning was only associated with prosocial behavior, $r(258) = .22, p < .001$. The incidence of antisocial behavior was relatively low in competitive swimmers, $r(258) = -.20, p < .001$. Finally, female athletes reported more prosocial behavior than male athletes, $r(258) = .26, p < .001$.

Table 1 Means, standard deviations, and correlations between background variables, social desirability, explanatory variables, and anti-and prosocial behavior

Variables	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Age	14.78	1.54	1.00												
2. Level of education	3.86	2.07	.01	1.00											
3. Cultural background	1.25	.43	-.05	-.10	1.00										
4. SES	8.41	2.60	.12	.37*	-.15	1.00									
5. Extent of participation	.00	.87	.09	-.05	-.01	-.01	1.00								
6. Type of sport	.28	.45	.01	.01	-.30*	-.11	-.20*	1.00							
7. Type of team	.41	.49	-.04	.11	-.24*	.09	-.27*	.12	1.00						
8. Social desirability	1.33	.25	-.17	-.28*	.17	-.22*	.04	-.11	-.11	1.00					
9. Moral reasoning	2.75	.44	.25*	.12	-.13	.09	.06	.04	.17	-.08	1.00				
10. Moral atmosphere	3.73	.53	-.15	.11	-.16	.07	-.09	.29*	.30*	.05	.07	1.00			
11. Relationship quality	4.71	.75	-.03	.08	-.10	.07	.00	.03	.11	.02	.21*	.45*	1.00		
12. Antisocial behavior	1.32	.32	.13	-.15	.18	-.03	.08	-.20*	-.16	-.07	-.11	-.39*	-.38*	1.00	
13. Prosocial behavior	2.75	.44	-.01	-.01	-.03	.00	-.01	.01	.26*	.22*	.22*	.33*	.26*	-.19	1.00

Note. N = 260.

* $p < .001$.

Multilevel analysis

Multilevel analysis allows the simultaneous examination of how individual and group level variables are related to individual level outcomes, accounting for the non-independence of observations within groups (Goldstein, 1995). Using multilevel regression analysis, we separately tested a model for antisocial and prosocial behavior, examining whether sociomoral atmosphere, sociomoral reasoning, coach-athlete relationship quality (explanatory variables) predicted antisocial and prosocial behavior, controlling for social desirability and background variables, such as sex, age and type of sport.

The explanatory variables could be considered as qualities of individual athletes and as features of the social context. Therefore, all explanatory variables were analyzed both at the individual and contextual level. In order to separate individual effects from contextual effects, we aggregated characteristics of individual athletes within teams, and subsequently subtracted the group mean from the corresponding individual scores. By this method of group mean centering individual level variables were derived, having analogues at the contextual level. The individual level variables reflect individual variation in perceived sociomoral atmosphere, sociomoral reasoning, and perceived coach-athlete relationship quality. The contextual level variables reflect environmental variation or between-team differences in sociomoral atmosphere, sociomoral reasoning, and coach-athlete relationship quality. Apart from the derived contextual variables, we distinguished integral contextual variables, such as type of sport (soccer versus competitive swimming) and type of team (male versus female athletes), which are not summaries of individual characteristics and have no individual level equivalents.

We tested multilevel regression models for antisocial and prosocial behavior in three consecutive steps. Model fit was tested by the difference in deviance between each step, which has a chi-square distribution, and can be used to test whether the more elaborate model fits significantly better than the simpler model. The variables with non-significant coefficients were removed from the model after each step. The resulting models were used as a reference for further comparison. We chose to present only the best fitting multilevel regression models for antisocial and prosocial behavior.

In the *first step*, a null-model or intercept-only model that contains an outcome variable and no explanatory variables was fitted to the data as a baseline. In the *second step*, individual level explanatory variables were entered in the model, such as perceived coach-athlete relationship quality, controlling for social desirability and all background variables. This step deals with perceptions, cognitions and experiences of individual athletes. In the *third step*, contextual explanatory variables were entered in the model, such as mean coach-athlete relationship quality, and both integral

variables, namely, type of sport (soccer versus competitive swimming), and type of team (male versus female). As such, we took into account that athletes were always part of specific teams. In this way the perspective was shifted from the individual athlete to the immediate context of athletic action, namely, the team or the coach. Mean sociomoral atmosphere is a shared perspective, and could be considered as a more objective measure of the sociomoral atmosphere. Mean sociomoral reasoning reflects the team's level of sociomoral reasoning. Mean coach-athlete relationship quality reflects the degree to which coaches are able to maintain good relationships with their athletes.

Multilevel regression model for antisocial behavior

From the null-model (see Table 2) it can be derived that 92% of the variance in antisocial behavior could be attributed to differences among individual athletes within teams (individual level), and that 8% of the variance in antisocial behavior could be attributed to differences between teams or coaches (contextual level). The best fitting multilevel regression model— $X^2(5, N = 260) = 63.93, p < .001$ —accounted for 23% of the variance in antisocial behavior among athletes. Most of the variance accounted for in antisocial behavior was distributed at the individual level, namely, 15%. The explained variance at the contextual level was 8%. Higher perceived and mean coach-athlete relationship quality were related to lower levels of antisocial behavior, $b = -.20, t(259) = 3.36, p < .001$, and $b = -.22, t(259) = 4.13, p < .001$, which indicated that more positive coach-athlete relationships predicted lower levels of antisocial behavior both at the individual and contextual level. Athletes who perceived their sporting environment to be relatively positive reported lower levels of antisocial behavior, $b = -.21, t(259) = 3.49, p < .001$. Type of sport was negatively associated with antisocial behavior, $b = -.18, t(259) = 3.37, p < .001$, indicating that swimmers scored relatively low on antisocial behavior in comparison with soccer players. Athletes higher in formal education reported less antisocial behavior, $b = -.11, t(259) = 2.13, p < .05$. We found no significant individual-level or cross-level interaction effects.

Multilevel regression model for prosocial behavior

The null-model in Table 3 shows that 93% of the variance in prosocial behavior could be attributed to differences among individual athletes within teams, and that 7% of the variance in prosocial behavior could be attributed to differences between teams or coaches. The best fitting multilevel regression model— $X^2(5, N = 260) = 62.28, p < .001$ —accounted for 23% of the variance in prosocial behavior among athletes. Most of the variance in prosocial behavior that

Table 2 Multilevel regression model for antisocial behavior

	Null-model	Explanatory model	
		<i>b</i>	<i>t</i>
Individual level			
Perceived coach-athlete relationship quality		-.20	3.36***
Perceived sociomoral atmosphere		-.21	3.49***
Level of education		-.11	2.13*
Contextual level			
Mean coach-athlete relationship quality		-.22	4.13***
Type of sport (soccer vs. swimming)		-.18	3.37***
Variance components			
Contextual level	.008 (8%)	.000	
Individual level	.091 (92%)	.076	
Explained variance^a			
Contextual level		8%	
Individual level		15%	
Deviance	131.023	67.096	
χ^2		63.93***	

Note. *N* = 260 athletes, *N* = 25 teams.

^aTotal amount of explained variance is 23%.

p* < .05; **p* < .001.

was explained by the independent variables was distributed at the individual level, namely, 16%, while 7% of the explained variance was distributed at the contextual level. Athletes displaying a stronger tendency to respond in a socially desirable manner reported more prosocial behavior, *b* = .24, *t*(259) = 4.19, *p* < .001. Higher levels of sociomoral reasoning were associated with more prosocial behavior both at the contextual level, *b* = .15, *t*(259) = 2.23, *p* < .05, and individual level, *b* = .17, *t*(259) = 3.03, *p* < .01. Also, a relatively positive perception of the sociomoral atmosphere

was associated with more prosocial behavior, *b* = .26, *t*(259) = 4.56, *p* < .001. Finally, female teams reported higher levels of prosocial behavior, *b* = .20, *t*(259) = 3.03, *p* < .01. No significant interaction effects were found.

Discussion

In this study, we focused on educationally relevant factors in organized youth sport that were hypothesized to contribute to

Table 3 Multilevel regression model for prosocial behavior

	Null-model	Explanatory model	
		<i>b</i>	<i>t</i>
Individual level			
Sociomoral reasoning		.17	3.03**
Perceived sociomoral atmosphere		.26	4.56***
Social desirability		.24	4.19***
Contextual level			
Mean sociomoral reasoning		.15	2.23*
Type of team (male vs. female)		.20	3.03**
Variance components			
Contextual level	.013 (7%)	.000	
Individual level	.179 (93%)	.149	
Explained variance^a			
Contextual level		7%	
Individual level		16%	
Deviance	304.525	242.245	
χ^2		62.28***	

Note. *N* = 260 athletes, *N* = 25 teams.

^aTotal amount of explained variance is 23%.

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

antisocial and prosocial behavior of adolescent athletes. The sample consisted of 260 male and female soccer players and competitive swimmers. Using multilevel regression analysis, we found that 8% of the variance in antisocial behavior and 7% of the variance in prosocial behavior could be attributed to the sporting environment, more specifically, the team and its coach. We examined whether sociomoral atmosphere of the sporting environment, sociomoral reasoning about sport dilemmas, and coach-athlete relationship quality could explain these environmental effects, independent of type of sport and important characteristics of the athletes, including age, sex, level of education, current extent and years of sport participation, cultural background, and socioeconomic status.

Sociomoral reasoning was significant as a contextual factor explaining the influence of team-membership on prosocial behavior, and coach-athlete relationship quality was significant as a contextual factor explaining the influence of team-membership on antisocial behavior. These findings are in line with research emphasizing the important role played by the peer group (Carlo *et al.*, 1999), and studies showing the importance of relationship quality with parents or other important adults (Scholte *et al.*, 2001; Stattin and Kerr, 2000). At the individual level, more explanatory factors were found. Athletes who experienced a favorable sociomoral atmosphere of the sporting environment and a positive relationship with their coach reported less antisocial behavior. More prosocial behavior was predicted by positive perceptions of the sociomoral atmosphere, and mature sociomoral reasoning.

Multilevel research in the context of the school showed that 19% of the variance in scholastic achievement among students was attributed to characteristics of the school environment (Scheerens and Bosker, 1997). In the present study, 8% of the variance in antisocial behavior and 7% of the variance in prosocial behavior could be attributed to characteristics of the sporting environment. These percentages may not appear to be large. However, we must take into account that our study is concerned with a cross-context prediction of antisocial and prosocial behavior. We probably would have found larger percentages of contextual variation if we had focused on behaviors within the direct context of athletic action, that is, antisocial and prosocial behavior on the playing field, but this was not the purpose of our study. The contextual effects that we found seem relatively small, partly because individual effects tend to be systematically overestimated at the expense of contextual effects. Notably, in multilevel analysis all measurement error is exclusively distributed at the individual level.

In the present study, contextual effects provide the strongest evidence for the influence of coach-athlete relationship quality and sociomoral reasoning on antisocial and prosocial behavior, as these effects are independent from the

athlete's contribution to the team and the relationship with the coach. It is possible that contextual effects can be explained by mechanisms of self-selection. One such mechanism is the process that athletes may choose to become members of a specific team because they share the same personal qualities as other athletes. Another example of self-selection is the process by which athletes with similar characteristics are allocated to specific teams or coaches.

Selective allocation may largely explain why female teams scored higher on prosocial behavior than male teams, because the contextual effect for type of team could be a direct result of a normative gender effect on measures of prosocial behavior in adolescents (Carlo and Randall, 2002; Eagly and Crowley, 1986). More prosocial behavior in female athletes is in line with research showing that female athletes reported higher levels of moral functioning, lower approval of unsportsmanlike behaviors, and were less likely to judge injurious acts as legitimate than male athletes (Kavussanu and Roberts, 2001).

There are two arguments against self-selection. Firstly, we found no effect for type of sport on prosocial behavior. Secondly, the contextual effects for coach-athlete relationship quality and sociomoral reasoning remained significant after controlling for type of sport and other variables that may be connected with processes of self-selection, including formal education, age, sex, socioeconomic status, and cultural background. Although we should be extremely careful about making any causal inferences, these findings render the argument for self-selection less compelling as an explanation for the contextual effects found in the domains of coach-athlete relationship quality and sociomoral reasoning.

There are some limitations to the current study. The most important limitation is the cross-sectional nature of the design, which sets limits to the causal interpretation of our findings. This limitation was partly overcome by using multilevel regression analyses. However, as we already discussed, selection effects cannot be ruled out completely, because not all potential confounding variables can ever be statistically controlled. Therefore, we should caution against the causal interpretation of our results, especially if individual effects are involved. Although the contextual effects suggest a causal link between sport participation and antisocial and prosocial behavior, the contextual effects of coach-athlete relationship quality and sociomoral reasoning should be corroborated in a prospective study using an experimental design. A second limitation is that our findings are based on measures of self-report. Hence, we cannot show to what extent self-report of antisocial and prosocial behavior was contaminated by individual perceptions of athletes. However, there is evidence for the reliability and validity of self-report measures assessing antisocial (Junger-Tas and Haen Marshall, 1999) and prosocial behavior (Carlo and Randall, 2002). Because self-report of antisocial and prosocial behavior may be sensitive to

responding in a socially desirable manner, as was the case for prosocial behavior, we controlled for social desirability in the multilevel regression analyses.

This study is the first to examine how individual and contextual characteristics of the sporting environment might foster antisocial and prosocial behavior in adolescent athletes. Results suggest that coaches who maintain good relationships with their athletes reduce antisocial behavior, and that exposure to relatively high levels of sociomoral reasoning within the immediate context of sporting activities promotes prosocial behavior. We conclude that the context of organized youth sport contains moral and relational factors that are relevant to understanding sports' contribution to adaptive behavioral development of young sportsmen and sportswomen.

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