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**Predictors of antisocial and prosocial behavior in an adolescent sports context**

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## Abstract

This study examined antisocial and prosocial behavior of  $N = 439$  adolescent athletes between 14 and 17 years of age (67 teams). Multilevel analyses showed that team membership explained 20% and 13% of the variance in antisocial and prosocial behavior in the sports context, respectively. The team effects suggest that aggregating antisocial or prosocial adolescents within teams may partially explain differences in antisocial and prosocial behavior among athletes in the sports context. A trend was found towards a relation between higher levels of moral reasoning within teams and less antisocial behavior in the sports context. Favorable moral atmosphere was positively associated with more prosocial behavior in the sports context. Finally, supportive coach-athlete relationships were associated with both less antisocial and more prosocial behavior in the sports context.

**Key words:** prosocial and antisocial behavior; supportive coach-athlete relationship; moral atmosphere; moral reasoning; fair play attitude

## Predictors of Antisocial and Prosocial Behavior in an Adolescent Sports Context

For many adolescents organized youth sport is an important part of the ecological context in which their development takes place. Of all Dutch adolescents no less than 72% (Breedveld & Tiessen-Raaphorst, 2006) participate in organized youth sport, a percentage that is similar to that for North America (NCYS, 2001). The sporting environment may, however, offer not only leisure and reward, but also social challenges and opportunities for adolescents. The social demands placed on young athletes may partly parallel those of other important life settings, such as the home and school environment. In the sports context, these demands pertain to the adequate regulation of adolescents' behavior in a competitive context that is determined by specific moral norms and values and in which coach-athlete relationships and relationships with fellow athletes further shape adolescents' behavior. The aim of the current study was to examine possible predictors of antisocial and prosocial behavior that may vary within the sports context, and which may be amenable to intervention or choice at the level of individual athletes, the team, and adults who are involved as coaches. These predictors concern fair play attitude, moral reasoning, moral atmosphere and coach-athlete relationship quality. The present study is the first to examine the impact of these factors on adolescent athletes' behavior in the sports context while taking into account individual differences in the tendency to display antisocial and prosocial behavior.

Kavussanu (2008) argues that the social nature of sport provides ample opportunities for both prosocial behavior, designated as any voluntary act performed with the goal of benefiting or helping another person (e.g., helping an injured player), and antisocial behavior, designated as any voluntary act intended to harm or disadvantage another person (e.g., trying to injure another athlete). These prosocial and antisocial behaviors not only concern other peoples' rights and well-being and should therefore be considered as morally relevant, according to Kavussanu, but also refer to the proactive (doing good) and inhibitive (refraining from doing bad) aspects of

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3 morality, respectively (Bandura, 1999). Kavussanu and Boardly (2009) emphasize that both  
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5 prosocial and antisocial behaviors should be examined in order to understand social behavior in  
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7 sport, not only because antisocial and prosocial behavior in sports constitute two largely  
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9 independent dimensions, but also because young athletes show high rates of both prosocial and  
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11 antisocial behaviors (Shields, Bredemeier, LaVoi, & Power, 2005).  
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15 The empirical evidence regarding the potential influences of sports on the behavior of  
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17 athletes has recently been summarized in a meta-analytic review. Stams et al. (2009) conducted  
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19 a meta-analysis of 54 studies examining the relation between sport participation and  
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21 adolescents' deviant behavior, including antisocial (non-prohibited by law) and delinquent  
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23 (prohibited by law) behavior. In this review, greater extent of sport participation showed a small  
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25 but significant positive association with antisocial behavior ( $r = .09$ ), and a small but significant  
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27 negative association with delinquent behavior ( $r = -.05$ ). It should be noted, however, that the  
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29 included prospective longitudinal studies consistently showed negative effects of greater sport  
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31 participation, whereas the cross-sectional studies did not show any relation between sport  
32  
33 participation and deviant behavior. Interestingly, much depends of the context in which sports  
34  
35 are performed. Sporting activity in the context of the school was associated with positive  
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37 outcomes, indicating that the social context in which the activities take place may play an  
38  
39 important role. This might not come as a surprise, as sports in schools are ideally designed and  
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41 monitored to serve an overarching educational goal (Maher, 2005). In many countries, including  
42  
43 the Netherlands, school-organized sport activities are limited, and as a result most sport  
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45 activities are conducted in clubs or volunteer organizations that vary in the amount of explicit  
46  
47 policy with respect to prosocial and antisocial behaviour. Consequently, sports may be a  
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49 relatively benign and protective environment for some adolescents, whereas it may be an  
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51 unpleasant environment for others, or even an environment that may contribute to  
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53 developmental risk (Endresen & Olweus, 2005).  
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3 Given the important role of rules as well as conflict inherent to competition, sports  
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5 participation has been studied from the perspective of moral development. According to  
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7 Kavussanu and Boardly (2009), most studies have focused on inhibitive morality, while less is  
8  
9 known about the possible role of proactive morality, despite the efforts that have been taken to  
10  
11 promote proactive morality in sports through concepts such as 'fair play'. The fair play concept  
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13 refers to a set of sport specific behavior codes, rules, and values that are considered to be  
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15 constitutive of sport, such as respect for one's opponents, mutuality, fairness, and equal  
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17 opportunities (Arnold, 1994, 2001). Aziz (1998) as well as Stephens and Bredemeier (1996)  
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19 examined fair play attitude in soccer players, and found team values of fair play to predict  
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21 prosocial behavior in terms of fair play tactics. Notably, fair play attitude has also been related  
22  
23 to less antisocial behavior in at least two studies. A positive team attitude toward fair play was  
24  
25 associated with less antisocial behavior among adolescent soccer players in a study conducted  
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27 by Reference to Author (2008), while Junge et al. (2000) found that a negative attitude toward  
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29 fair play predicted aggressive tendencies among football players.  
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36 Proactive morality may manifest itself not only in attitudes, but also in moral reasoning  
37  
38 about actions taken in concrete situations. Bloom and Smith (1996), Coakley (1984), and Van  
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40 Bottenburg and Schuyt (1996) have emphasized proactive morality by showing that  
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42 participation in sport may foster the development of cooperation, discipline, social  
43  
44 responsibility, and social-cognitive competencies, including role-taking ability, which is an  
45  
46 important prerequisite for attaining higher levels of moral reasoning. Reference to Author  
47  
48 (2007) found that higher levels of moral reasoning about sport dilemmas were positively  
49  
50 associated with more prosocial behavior in adolescent athletes. Shields and Bredemeier (1995),  
51  
52 however, showed that in itself, sport is a social context that pulls for lower levels of moral  
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54 reasoning: "A moral pause or "bracketed morality" (p.113) is characteristic of sport, referring to  
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56 a temporary suspension of the usual moral obligation to equally consider the needs and desires  
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58 of others. Shields and Bredemeier (1995) and Bredemeier and Shields (1986a; 1986b) found that  
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3 sport specific dilemmas were solved at lower levels of moral reasoning (more egocentric and  
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5 instrumental, and less empathic and prosocial) than general daily dilemmas, predicting  
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7 aggressive tendencies among athletes (Bredemeier, 1994). Negative associations between sport  
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9 participation and moral reasoning in general were also found by Beller and Stoll (1995),  
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11 showing that organized youth sport might have a negative influence.  
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15 An important contextual factor is the teams' sociomoral atmosphere, which refers to the  
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17 sense of community, and the degree to which norms are created, shared, and justified through  
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19 dialogue (Higgins-D'Alessandro & Sath, 1998; Power, Higgins, & Kohlberg, 1989). A positive  
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21 sociomoral atmosphere has been shown to predict moral behavior both in schools (Høst,  
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23 Brugman, Tavecchio, & Beem, 1998; Power et al., 1989) and in organized youth sport (e.g.,  
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25 Guivernau & Duda, 2002; Kavussanu, Roberts, & Ntoumanis, 2002; Kavussanu & Spray, 2006;  
26  
27 Reference to Author, 2008, Stephens, 2000). Furthermore, Nucci and Kim (2005) conducted a  
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29 review of the literature on aggression and sportpersonship, and concluded that the competitive  
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31 sport context can lead to unethical and aggressive behaviors, having a negative impact on the  
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33 well-being of young athletes, when it is dominated by a win-at-all-costs philosophy.  
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39 Nucci and Kim (2005) identified the sports coach as an important person within the sports  
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41 context, who is in the position to influence antisocial behavior. The coach can serve as a natural  
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43 mentor by providing relational support, and by acting as an important role model (Beam, Chen,  
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45 & Greenberger, 2002). Many studies refer to the positive influence of natural mentoring on  
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47 adolescent behavior (Scholte, Van Lieshout, & Van Aken, 2001; Zimmerman, Bingenheimer, &  
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49 Notaro, 2002). Furthermore, Duquin and Schroeder-Braun (1996, p. 354) also mention that  
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51 "coaches can play an important role in developing prosocial behavior by the way they structure  
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53 the moral climate of the sport context, by modeling empathic relations, and by guiding youth  
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55 toward prosocial responsibilities". They refer to the model-function that coaches can have for  
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57 their teams, the discipline they instill, and the values coaches convey.  
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3 From an attachment-theoretical perspective, coaches may be considered as secure base  
4 figures of convenience, providing some limited attachment-related support without actually  
5 being considered attachment figures per se (Waters & Cummings, 2000). Their sensitivity  
6 towards adolescents and acceptance of their signals of need and distress may foster positive  
7 relational concepts. There is empirical evidence showing that these positive expectations,  
8 incorporated in positive working models of relationships with others, predict positive outcomes,  
9 especially prosocial behavior (see for example Kobak & Sceery, 1988; Kochanska & Murray,  
10 2000; Weinfeld, Ogawa, & Sroufe, 1997). The support itself may, furthermore, promote  
11 adaptive regulation of emotion and behavior in times of stress. Research in the sports context  
12 shows that mutual trust, care, open communication, and acceptance of individual differences  
13 (e.g., in ability) and emotions (e.g., sadness and joy during the game) are core elements of  
14 coach-athlete relationships that are based on relational support (Poczwardowski, Barott, &  
15 Henschen, 2002; Vanden Auweele & Rzewnicki, 2000; Wylleman, 2000). These supportive  
16 coach-athlete relationships have been shown to be associated with less antisocial and more  
17 prosocial behavior in adolescent athletes (Reference to Author, 2007, 2008).

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38 There are only few studies that examine both antisocial and prosocial behavior, and there  
39 are even less studies that examine both types of behavior in a specific context. A previous study  
40 by Reference to Author (2007) showed that factors in soccer and competitive swimming that are  
41 amenable to intervention, such as positive coach-athlete relationships and exposure to high  
42 levels of sociomoral reasoning in the immediate context of sporting activities, predicted less  
43 antisocial and more prosocial behavior outside the sports context, respectively. Another study by  
44 Reference to Author (2008) showed that positive coach-athlete relationships, high levels of  
45 sociomoral reasoning about sports dilemma's and also positive attitude toward fair play were  
46 associated with antisocial and prosocial behavior in the context of sport, but this study only  
47 focused on soccer and did not control for general tendencies to behave in antisocial or prosocial  
48 ways. It is important to control for these tendencies, especially at the team level, as aggregation  
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3 of individual athletes with similar tendencies to behave antisocial or prosocial could have a  
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5 substantial impact on the degree to which adolescents show antisocial and prosocial behavior in  
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7 the context of sport (e.g., Dishion & Dodge, 2005; Dishion, McCord, & Poulin, 1999). The  
8  
9 current study is the first to examine antisocial and prosocial behavior in the sports context  
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11 controlling for individual differences in adolescents' tendency to show antisocial behavior  
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13 (aggression and delinquency) and prosocial behavior.  
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17 In the current study, multilevel analyses were used to simultaneously examine the degree to  
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19 which individual characteristics of athletes (individual level) and team characteristics  
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21 (contextual level) contributed to the athletes' behavior in the sports context, including four types  
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23 of sport. We expected that favorable moral atmosphere, higher levels of moral reasoning about  
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25 sport dilemmas, more positive fair play attitude, and supportive coach-athlete relationships  
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27 would contribute to less antisocial and more prosocial behavior in the sports context. Because  
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29 self-selection in sports and teams may (partly) account for team-level effects, we controlled for  
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31 the athletes' age, cultural background, socioeconomic status, level of education, extent of sport  
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33 participation, and most importantly externalizing behavior in general in the case of antisocial  
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35 behavior in the context of sport, and prosocial behavior in general when examining prosocial  
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37 behavior in the context of sports. Moreover, we controlled for type of sport and, because the  
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39 measures were based on self-report, the tendency to give socially desirable answers.  
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45 Athletes were included from two individual sports (athletics and taekwondo) and two team  
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47 sports (soccer and basketball) that have high participation rates in the Netherlands. These sports  
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49 may attract different youth populations, trigger different behaviors, show different frequencies  
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51 and diversity in antisocial and prosocial behaviors (Kavussanu, Seal, & Phillips, 2006), and may  
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53 be organized in teams differently. Therefore, the moderating effects of type of sport on the  
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55 associations between the potential predictors (moral reasoning, moral atmosphere, fair play  
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57 attitude, and supportive coach-athlete relationships) and antisocial en prosocial behavior in the  
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59 context of sport were also tested. Finally, we explored whether levels of antisocial behavior  
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## Predictors of adolescents' behavior in sports 8

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3 differ between the four types of sport, as factors that might directly influence antisocial behavior  
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5 in sport – such the degree of physical contact, the competitive nature of the sport, and the degree  
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7 to which one's efforts to achieve goals are blocked – may vary between sports, but have not  
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9 been examined extensively in empirical research.  
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## Method

*Participants*

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17 The sample consisted of  $N = 439$  male competition level athletes, active in team or  
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19 individual sports, who were recruited from  $N = 67$  teams of  $N = 33$  sports clubs:  $n = 8$  soccer  
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21 clubs ( $n = 17$  teams,  $n = 161$  adolescents), 8 basketball clubs ( $n = 16$  teams,  $n = 93$  adolescents),  
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23 9 athletics clubs ( $n = 18$  teams,  $n = 100$  adolescents), and  $n = 8$  taekwondo clubs ( $n = 16$  teams,  
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25  $n = 73$  adolescents). Teams were represented by 3 to 12 athletes ( $M = 6.55$ ,  $SD = 2.49$ ), and  
26  
27 sports clubs by 8 to 32 athletes ( $M = 13.72$ ,  $SD = 5.38$ ). The clubs were randomly drawn from  
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29 the population of these types of sports clubs in urbanized areas of the Netherlands. All clubs that  
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31 were asked to participate agreed. The participants of the study were 14 to 17 years of age ( $M =$   
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33  $15.3$ ,  $SD = 1.4$ ) and they all provided informed consent. The response percentage was high, that  
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35 is, more than 90%. Among the participants of each team a 12 euro CD-token was raffled.  
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41 Socioeconomic status of the athletes was determined by combining the educational and  
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43 occupational background of both parents (Van Westerlaak, Kropman, & Collaris, 1990) and was  
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45 computed on the basis of sample-specific factor loadings and standard deviations. Mean scores  
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47 correspond to socioeconomic strata in the following way: 3 to 9, lower class; 9 to 12, middle  
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49 class; and 12 to 16, upper class (Bernstein & Brandis, 1970). The internal consistency reliability  
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51 of the scale for socioeconomic status was good,  $\alpha = .83$  (4 items). The mean score was 8.9 ( $SD =$   
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53  $2.9$ ), which indicated that the sample could be considered as lower class. The adolescents' level  
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55 of formal education was low, and correlated significantly with the socioeconomic status of their  
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57 parents,  $r = .30$ ,  $p < .001$ .  
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The mean family size was 2.7 children. The percentage of single parent families was 16.1%

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3 and the percentage of divorced parents was 19.9%. The percentage of Caucasian white  
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5 adolescents was 65.0%. The remaining 35.0% were adolescents with an ethnic minority  
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7 background, that is, at least one of their parents had been born in a country that is or was part of  
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9 the ethnic minority or integration policy of the Dutch government. At the time of the data  
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11 collection the adolescents had been active in competitive sports for 8.0 years ( $SD = 2.9$ ) on  
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13 average.  
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### 16 17 *Measures*

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19 The athletes completed questionnaires assessing the outcome variables antisocial and  
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21 prosocial behavior in the sports context, and the explanatory variables moral atmosphere of the  
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23 sporting environment, moral reasoning about sport dilemmas, fair play attitude, and coach-  
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25 athlete relationship quality in terms of both relational support and attachment-related support  
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27 from the coach in the sense of psychological availability of and reliance on the coach. The  
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29 participants also had to complete questionnaires assessing the control variables externalizing and  
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31 prosocial behavior in general and social desirability. For the purpose of interpretation, all scores  
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33 were keyed to the names of the scales. For instance, a high score on the scale for prosocial  
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35 behavior is indicative of a high level of self-reported prosocial behavior. Scales that were  
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37 significantly skewed, such as externalizing problems, were transformed to normal with a  
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39 quadratic or logarithmic transformation (Tabachnick & Fidell, 1996).  
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### 45 46 *Outcome variables*

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48 *Antisocial and prosocial behavior in the sports context.* Antisocial behavior and prosocial  
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50 behavior in the context of sport were measured with the Sports Behavior Inventory (SBI), which  
51  
52 is an adaptation of the Antisocial Behavior Inventory for the Context of Sport (ASBI-Sport) and  
53  
54 the Prosocial Behavior Inventory for the Context of Sport (PSBI-Sport) (Reference to Author,  
55  
56 2008). These instruments were based upon the Anti Social Behavior Inventory (ASBI) by  
57  
58 Wouters and Spiering (1990; Reference to Author, 2007; Tavecchio, Stams, Brugman, &  
59  
60 Thomeer-Bouwens, 1999) and the Prosocial Behavior Questionnaire (PBQ) from Weir and

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3 Duveen (1981; Reference to Author, 2007), respectively. Reference to Author (2008)  
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5 constructed the SBI in order to measure behavior in the sports context, assessing on- and off-  
6  
7 field behavior. They found internal consistency reliabilities of  $\alpha = .85$  for antisocial behavior  
8  
9 and  $\alpha = .71$  for prosocial behavior, respectively. On 4-point Likert-type scales the athletes  
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11 indicated for 18 items the degree to which they behave in a certain way (varying from 1 “never”  
12  
13 to 4 “often”). Examples of items for antisocial behavior are “I shout abuse to others during  
14  
15 matches” and “I get disqualified for fouling opponents”. Examples for prosocial behavior are “I  
16  
17 help others when they are not that good at something yet” and “I like to compliment another  
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19 player when he or she is very good at something”. Internal consistency reliabilities were  $\alpha = .92$   
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21 and  $\alpha = .89$  for antisocial and prosocial behavior, respectively.  
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### 27 *Explanatory variables*

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29 *Moral atmosphere of the sporting environment.* The moral atmosphere of the sporting  
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31 environment was measured with an adaptation of the Dutch translation (Veugelers & De Kat,  
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33 1998) of the School Culture Scale (SCS; Higgins, 1995, 1997). The translated SCS showed  
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35 internal consistency reliability and factorial validity (Veugelers & De Kat, 1998). The adapted  
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37 version was created for use in the sports context by Reference to Author (2007, 2008), who  
38  
39 demonstrated internal consistency ( $\alpha = .86$  and  $.84$ , respectively) and divergent validity. In the  
40  
41 2007 study they found no correlation with social desirability, and in the 2008 study the  
42  
43 association with social desirability was weak, with  $r = .26$ ,  $p < .001$ . There was no significant  
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45 association with verbal intelligence (2008). The instrument is a 19-item self report measure that  
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47 purports to assess the moral climate of the sporting environment in terms of normative  
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49 expectations, social conduct, quality of communication, and opportunities for youth  
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51 participation. Athletes indicate on 5-point Likert-type scales the degree to which statements  
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53 regarding the moral climate of their sporting environment apply to them by using answer  
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55 categories varying from 1 “false” to 5 “totally true”. An example of a statement is: “At this club  
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3 the athletes trust each other". We found an internal consistency reliability of  $\alpha = .85$ .

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5 *Moral reasoning about sport dilemmas.* The Practical Sociomoral Reflection Objective  
6 Measure - Sport (PSROM-Sport) (Reference to Author, 2007, 2008) was developed to assess  
7 practical moral reasoning in the context of organized youth sport, and was derived from the  
8 Sociomoral Reflection Objective Measure-Short Form, the SROM-SF (Basinger & Gibbs, 1987;  
9 Høst, Brugman, Tavecchio, & Beem, 1998), which is a multiple choice questionnaire containing  
10 two moral dilemmas and twelve question arrays focusing on moral norms. Each question  
11 includes a response option representative of Kohlberg's moral stages 1 through 4. The first two  
12 stages, indicative of unilateral (concrete consequences) and instrumental (pragmatic deals or  
13 exchanges) reasoning, respectively, constitute the immature level. The third and fourth stage,  
14 mutual-prosocial and systemic reasoning respectively, constitute the mature level (Gibbs,  
15 Basinger, & Fuller, 1992).

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The PSROM-Sport assesses the level of moral reasoning in a similar way. In the studies of  
Reference to Author (2007, 2008), internal consistency reliabilities ranged from  $\alpha = .68$  to  $\alpha$   
=.63, respectively. We used the original twelve question arrays about situations in the context of  
organized youth sport and only made some small textual changes to increase the  
comprehensibility of some items [(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 moral norms the person uses (e.g., "Without this player you might lose the  
important match" (stage 1), "Because this player might help you too" (stage 2), "If you don't,  
you're not acting as a real friend" (stage 3), and "It shows that you feel responsible for your  
team" (stage 4)]. The internal consistency reliability of the PSROM-Sport was sufficient, that is,  
 $\alpha = .62$ .

Reference to Author (2007) found evidence for convergent validity by comparing moral  
scores on the PSROM-Sport with scores on semi-structured interviews assessing moral  
reasoning competence (Gibbs, Basinger, & Fuller, 1992) and fair play attitude (Junge et al.,

2000; Loland & McNamee, 2000; Tamboer & Steenbergen, 2000). The PSROM-Sport moral reasoning scores were positively and moderately associated with both moral reasoning competence and fair play attitude. In the current study an open moral interview, based upon the Sociomoral Reflection Measure-Short Form (SRM-SF) (Basinger & Gibbs, 1987; Basinger, Gibbs, & Fuller, 1995; Gibbs, Basinger, & Fuller, 1992) was conducted in a sub sample of  $n = 100$  athletes in order to assess convergent validity. The interview was designed to provoke the athletes' highest levels of moral reasoning competence (four items) and practical moral reasoning about sport dilemmas (nine items). The correlations between the PSROM-Sport questionnaire on the one hand and moral reasoning competence and practical moral reasoning as measured with the interview on the other hand, were significant and in the expected directions, with  $r = .23, p < .01$  and  $r = .36, p < .001$ , respectively.

Discriminant validity of the PSROM-Sport was established in a study by Reference to Author (2008), who used nine of the original twelve questions. They found no significant relations with social desirability or verbal intelligence. Also in the current study the association with social desirability was non-significant.

*Fair play attitude.* Fair play attitude of the athletes was assessed with a self developed theoretically derived instrument, measuring the extent to which the athlete has respect for the opponent and the formal and informal rules of the game (Junge et al., 2000; Loland & McNamee, 2000; Tamboer & Steenbergen, 2000). Reference to Author (2008) found evidence for internal consistency ( $\alpha = .76$ ) and divergent validity of the instrument, that is, no significant correlations were found with social desirability and verbal intelligence. A 5-point Likert-type scale, ranging from 1 "not important" to 5 "very important", was devised to assess the attitude toward fair-play (twelve items). Two examples of items are: "Respect for one's opponent", and "Equal opportunities to perform well". The fair play scale demonstrated a satisfactory internal consistency reliability of  $\alpha = .80$ . Fair play was weakly associated with social desirability,  $r = .19, p < .001$ .

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3       *Relational support from the coach.* The Athlete-Coach scale of the Sport Interpersonal  
4 Relationships Questionnaire, the SIRQ-AC (Wylleman, 1995, 2000), was used to measure the  
5 degree to which athletes experience the interpersonal relationship with their coach as supportive.  
6  
7 The scale proved to have good psychometric properties concerning construct, content, and  
8 concurrent validity, and both internal and external reliability (Wylleman, 1995). Four out of six  
9 SIRQ-AC scales were completed: closed attitude from the athlete toward the coach (e.g. "I  
10 avoid having contact with my coach"); acceptance of the coach by the athlete (e.g. "I'm very  
11 attentive when my coach explains something to me"); caring behavior of the coach (e.g. "The  
12 coach is willing to give extra help"); and criticizing by the coach (e.g. "My coach only runs  
13 down on me"). The answers to the 44 questions were given on 5-point Likert-type scales,  
14  
15 varying from 1 "never agree" to 5 "always agree". The following internal consistency  
16 reliabilities were found: closed attitude,  $\alpha = .86$ ; acceptance,  $\alpha = .83$ ; caring behavior,  $\alpha = .91$ ;  
17  
18 and criticizing,  $\alpha = .79$ . As these scales intercorrelated highly, they were combined into one  
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20 scale designated as relational support from the coach. The internal consistency reliability of this  
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22 scale was  $\alpha = .78$ .

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38       *Attachment-related support from the coach in terms of psychological availability of and*  
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*reliance on the coach.* The PARA questionnaire (Psychological Availability and Reliance on Adult) (Zegers & Schuengel, 2006) was developed to tap the adolescents' perception of psychological availability (sample item from the version for athletes: "My coach is warm and understanding") and reliance ("Whenever I am distressed I will ask my coach for support or advice"). The questions had to be completed on 4-point Likert-type scales, varying from 1 "disagree" to 4 "agree". In research on institutionalized adolescents, the working models of the relationship with the individual mentors of these adolescents, as assessed with the PARA, were predicted over time by the generalized attachment representations of the adolescents as well as the mentors (Zegers, Schuengel, Van IJzendoorn, & Janssens, 2006), indicating that the questionnaire taps into the perception that a particular non-parental adult may be relied upon as

1  
2  
3 a “secure-base figure of convenience” (Waters & Cummings, 2000, p. 168) in times of need.

4  
5 The PARA scale was also associated with observed support seeking and support providing  
6  
7 between these adolescents and their mentors (Zegers & Schuengel, 2006). The items tapping  
8  
9 psychological availability of and reliance on the adult were highly interrelated, and were  
10  
11 combined in an overall availability and reliance score representing perceived attachment-related  
12  
13 support from the coach. The internal consistency reliability for this scale was  $\alpha = .89$ .

#### 14 15 16 17 *Control variables*

18  
19 *Externalizing behavior in general.* The scale for externalizing behavior of the Youth Self  
20  
21 Report, the YSR (Achenbach, 1991; Verhulst, Van der Ende, & Koot, 1997) was used in order  
22  
23 to measure externalizing behavior, or more specifically aggressive (19 items) and delinquent (11  
24  
25 items) behavior. The scale proved to be valid for measuring this type of behavior (Verhulst, Van  
26  
27 der Ende, & Koot, 1997). The adolescents indicated whether statements such as: “I fight a lot”,  
28  
29 applied to them during the last six months, using a three-point Likert-type scale: 1 “not at all”, 2  
30  
31 “a little or sometimes”, and 3 “obviously or often”. The internal consistency reliability was  $\alpha =$   
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53 *Prosocial behavior in general.* In order to assess prosocial behavior in general, the  
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55 Prosocial Behavior Questionnaire (PBQ; Weir & Duveen, 1981) was adapted (see also  
56  
57 Reference to Author, 2007). Validity and internal consistency of the adapted PBQ has been  
58  
59 established by Stams et al. (2008), who used it for research among  $n = 75$  juvenile delinquents  
60  
61 and adolescents from low socioeconomic backgrounds and cultural minority groups. The

1  
2  
3 instrument proved to be internally consistent ( $\alpha = .71$ ). Evidence for concurrent validity of the  
4  
5 PBQ was found in positive associations with empathy and victim-based moral orientation, and  
6  
7 negative associations with norm-trespassing, delinquent, and aggressive behavior. Divergent  
8  
9 validity was demonstrated by low to moderate correlations with verbal intelligence,  $r = .10$ ,  $p <$   
10  
11  $.05$ , and social desirability,  $r = .32$ ,  $p < .001$ . The adapted 20-item PBQ was based on a 4-point  
12  
13 Likert-type scale, ranging from 1 “never” to 4 “always”. The items represent positive social  
14  
15 behaviors, such as helping, sharing and supporting others. An example is: “I take the  
16  
17 opportunity to praise the work of those who are less able”. We found an internal consistency  
18  
19 reliability of  $\alpha = .88$ . The scale proved to be moderately associated with social desirability,  $r =$   
20  
21  $.35$ ,  $p = .001$ .

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26  
27 *Social desirability.* The social desirability scale (Reference to Author, 2007, 2008) purports  
28  
29 to measure the tendency to give socially desirable answers. The scale showed satisfying internal  
30  
31 consistency reliabilities, with  $\alpha = .83$  and  $\alpha = .82$ , respectively. The scale consists of  
32  
33 dichotomous items describing socially desirable attributes that are based upon the 11-item  
34  
35 Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960). Nederhof (1981)  
36  
37 validated this scale for the Netherlands. To increase the reliability, 4 items have been added by  
38  
39 Reference to Author (2001). Examples from the 15-items scale are: “I am always honest”, and “I  
40  
41 never boast”. Adolescents indicate whether statements apply to them by using the answer  
42  
43 categories “true” and “false”. In the current study, the internal consistency reliability was  $\alpha =$   
44  
45  $.79$ .

#### 50 *Statistical analysis*

51  
52  
53 The separate contribution of the individual athletes' characteristics and features of the  
54  
55 sports team to antisocial and prosocial behavioral in the sports context were determined by using  
56  
57 the MLwiN program (Goldstein et al., 1998) for multilevel modeling (Goldstein, 1995), a  
58  
59 technique for analyzing linear models in samples with a hierarchical or clustered structure.  
60  
Multilevel analysis enables variation to be explained across teams separate from individual

1  
2  
3 behavior, adjusting for the non-independence of observations within groups. This is of  
4  
5 importance because “contextual effects are consequences of emergent properties of groups or  
6  
7 social settings, and thus they cannot be accounted for at the individual-level” (Osgood &  
8  
9 Anderson, 2004, p. 522). Traditional analyses, such as ordinary regression analysis, would only  
10  
11 account for the individual athlete as the unit of analysis, thereby ignoring the fact that athletes  
12  
13 are grouped into teams.  
14  
15

16  
17 Using multilevel analysis, control and explanatory variables were considered as both  
18  
19 characteristics of individual athletes (the perceptions, experiences or behaviors of the individual  
20  
21 athlete) and as team characteristics (the perception, experiences or behaviors of the team).  
22  
23 Group-mean centering was used to split explanatory variables into one variable at the individual  
24  
25 level and one at the team level (Snijders & Bosker, 1999). We calculated the mean score of the  
26  
27 team and subsequently subtracted these mean scores from the individual athletes' scores, which  
28  
29 resulted in uncorrelated explanatory variables representing the team level and the individual  
30  
31 level, respectively. By including both variables into the model, adjustments are made for  
32  
33 individual and team level effects.  
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39 A stepwise procedure was followed in analyzing the data. Firstly, it was examined whether  
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41 in a model without explanatory factors (the so-called null-model) team effects would be  
42  
43 significant, indicating team differences in antisocial and prosocial behavior in the sports context.  
44  
45 Then, in three consecutive steps, the control and explanatory factors were entered block wise in  
46  
47 order to test whether the more elaborate models would make a significant improvement over the  
48  
49 simpler models without control or explanatory factors and cross-level interactions. Improvement  
50  
51 of model fit was tested by the difference in deviance, which has a chi-square distribution and  
52  
53 can be used to test whether the more elaborate model fits significantly better than the simpler  
54  
55 model. Whenever an inserted block did not result in a significant improvement of the model, it  
56  
57 was removed. The resulting models were used as a reference for further comparison. The best  
58  
59 fitting multilevel regression models are presented, meaning that only the variables with  
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3 statistically significant effects are shown in the final models for antisocial and prosocial  
4  
5 behavior in the sports context.  
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## 7 8 Results

### 9 10 *Descriptive analyses*

11  
12 Table 1 presents the correlations between age, cultural background (Caucasian white or  
13 ethnic minority), socioeconomic status, level of education, extent of sport participation  
14 (standardized summation of the number of hours and days per week spent in sporting activity),  
15 type of sport (team or individual), social desirability, externalizing behavior and prosocial  
16 behavior in general, coach-athlete relationship quality in terms of attachment-related support  
17 and relational support, moral atmosphere, moral reasoning, fair play attitude, and antisocial and  
18 prosocial behavior in the sports context. Only effects at  $p < .001$  were considered significant in  
19 order to adjust for multiple statistical tests.  
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31 We found a number of significant correlations between control variables and explanatory  
32 and outcome variables (see Table 1). Age correlated negatively with type of sport ( $r = -.20$ ),  
33 indicating that athletes performing individual sports were somewhat younger than athletes  
34 performing team sports. Cultural background was negatively associated with both type of sport  
35 ( $r = -.24$ ) and relational support from the coach ( $r = -.19$ ), which indicates that athletes from  
36 cultural minority groups were slightly underrepresented in individual sports relative to team  
37 sports. They also experienced less relational support from their coach than athletes with a  
38 Caucasian white background. As expected, higher socioeconomic background was positively  
39 associated with more advanced education ( $r = .30$ ). A higher level of formal education was  
40 associated with a weaker tendency to provide socially desirable answers ( $r = -.18$ ). The extent of  
41 sport participation proved to be higher in team sports than in individual sports ( $r = -.31$ ), and  
42 was positively related to antisocial behavior in the sports context ( $r = .22$ ). Coach-athlete  
43 relationship quality, moral atmosphere, and fair play attitude were more positive in individual  
44 sports than in team sports ( $.22 < r < .44$ ), while athletes performing individual sports rated  
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3 themselves favorably on antisocial ( $r = -.38$ ) and prosocial behavior ( $r = .28$ ) in the context of  
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5 sport. Finally, a stronger tendency to give socially desirable responses was associated with  
6  
7 stronger fair play attitude ( $r = .19$ ), and more positive self-reports of externalizing and prosocial  
8  
9 behavior in general ( $r = -.21$  and  $r = .35$ , respectively).

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11  
12 Correlations among the independent control and explanatory variables varied between  $r = -$   
13  
14  $.17$  (externalizing and prosocial behavior in general) and  $r = .65$  (relational support from the  
15  
16 coach and moral atmosphere). Finally, associations between explanatory and outcome variables  
17  
18 ranged from  $r = .17$  (moral reasoning and prosocial behavior in the sport context) to  $r = -.55$   
19  
20 (relational support from the coach and antisocial behavior in the sports context).  
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### 23 *Antisocial behavior in the sports context*

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26 Table 2 depicts the results of the multilevel analysis of antisocial behavior in the sports  
27  
28 context, including unstandardized regression coefficients, standard deviations,  $t$ -values,  
29  
30 percentages of (explained) variance, the deviance, and  $\chi^2$ . The null-model indicates that 80% of  
31  
32 the variance in antisocial behavior in the sports context could be attributed to differences among  
33  
34 individual athletes within teams (individual level), and that the remaining 20% could be  
35  
36 attributed to differences between teams (team level). The best fitting multilevel regression  
37  
38 model [ $X^2(10, N = 439) = 239.95, p < .001$ ] accounted for 46% of the variance in antisocial  
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40 behavior in the sports context. Most of the variance accounted for was distributed at the  
41  
42 individual level, namely, 28%. The explained variance at the team level was 18%.  
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48 Greater attachment-related support and relational support from the coach were associated  
49  
50 with lower levels of antisocial behavior in the sports context both at the individual and team  
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52 level. More externalizing behavior problems were associated with higher levels of antisocial  
53  
54 behavior in the sports context at both levels, which indicates that antisocial behavior in the  
55  
56 context of organized youth sport is not only related to the tendency of the individual athlete  
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58 himself to show externalizing behavior, but also related to the average tendency towards  
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60 externalizing behavior problems of his team members. At the team level, the relation between

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3 moral reasoning and antisocial behavior just failed to reach significance ( $p = .06$ ), showing that  
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5 there was a trend towards the reduction of antisocial behavior through high levels of moral  
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7 reasoning within teams. A significant interaction effect was found for type of sport and moral  
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9 reasoning, indicating that the relation between moral reasoning and antisocial behavior in the  
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11 sports context was different for athletes involved in team sports compared with athletes  
12  
13 practicing individual sports. Only in individual sports, in particular athletics, a higher level of  
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15 moral reasoning was related to less antisocial behavior in the sports context ( $b = -.73, p < .001$ ).  
16  
17 The regression coefficient for soccer was  $b = -.05$ , for basketball  $b = -.15$ , and for taekwondo  $b$   
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19  $= .15$  (all non-significant).  
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24 A main effect for type of sport indicated that athletes who were involved in individual  
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26 sports reported less antisocial behavior than athletes involved in team sports. A series of post-  
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28 hoc  $t$ -tests ( $p < .05$ ) revealed that soccer players ( $M = 1.94, SD = .68$ ) reported more antisocial  
29  
30 behavior in the sports context than basketball players ( $M = 1.63, SD = .43$ ) and adolescents  
31  
32 involved in athletics ( $M = 1.37, SD = .45$ ) or taekwondo ( $M = 1.35, SD = .47$ ). Basketball  
33  
34 players reported less antisocial behavior in the sports context than soccer players, but more than  
35  
36 other athletes. No differences were found between the two individual sports.  
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#### 40 *Prosocial behavior in the sports context*

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43 Table 3 presents the results of the multilevel analysis of prosocial behavior in the sports  
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45 context. The null-model indicates that 87% of the variance in prosocial behavior could be  
46  
47 attributed to differences among individual athletes within teams, and that 13% of the variance in  
48  
49 prosocial behavior could be attributed to differences between teams. The best fitting multilevel  
50  
51 regression model [ $\chi^2 (8, N = 439) = 199.54, p < .001$ ] accounted for 39% of the variance in  
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53 prosocial behavior among athletes. Most of this variance was distributed at the individual level,  
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55 namely, 27%; the remaining 12% was distributed at the team level.  
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59 Both at the individual and team level, greater relational support from the coach, a favorable  
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moral atmosphere, and more prosocial behavior in general were related to more prosocial

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3 behavior in the sports context. More advanced moral reasoning was associated with more  
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5 prosocial behavior in the sports context, but only at the individual level.  
6

### 7 8 Discussion

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10 This study focused on factors amenable to intervention in organized youth sport that may  
11  
12 contribute to adolescent athletes' antisocial and prosocial behavior in the sports context. These  
13  
14 factors were examined both at the level of individual athletes and at the sports team level. The  
15  
16 individual effects proved to be substantially greater than the team or contextual effects. Team  
17  
18 effects are independent of the contribution the athlete makes to the team. As a consequence,  
19  
20 these effects may be used to estimate the impact of participating in organized youth sport on  
21  
22 social behavior in the context of sport. A total of 20% of the variance in antisocial behavior and  
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24 13% of the variance in prosocial behavior were distributed at the team level. These contextual  
25  
26 effects are substantial. As a comparison, multilevel research in the school context showed that  
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28 19% of the variance in academic performance among students could be attributed to  
29  
30 characteristics of the school environment (Scheerens & Bosker, 1997). The effect of organized  
31  
32 youth sport on social behavior in the sports context, in the sense of belonging to a 'good' team  
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34 with a 'good' coach, seems to be comparable to the effect that attending a 'good' school has on  
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36 academic achievement.  
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#### 42 43 *Relationship with the coach*

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45 Supportive coach-athlete relationships proved to be associated with less antisocial and more  
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47 prosocial behavior in the sports context. Not only relational support was found to be important,  
48  
49 but also attachment-related support, indicating that coaches may have a positive impact by being  
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51 psychologically available and trustworthy. The effects were significant not only for supportive  
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53 coach-athlete relationships as perceived by the individual athlete, but also for the supportiveness  
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55 of the coach as perceived by the team, suggesting that coaches themselves might contribute to  
56  
57 these effects.  
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Findings from the present study are in line with studies emphasizing the mentoring role of the coach (Bloom, Durand-Bush, Schinke, & Salmela, 1998; Miller, Salmela, & Kerr, 2002). Coach-athlete relationship quality may not only be important for improving performance (Philippe & Seiler, 2006), it may also play a role in the development of antisocial and prosocial behavior in young athletes. The findings suggest that the positive or negative impact that coaches may have on prosocial and antisocial behavior may partly depend on the extent to which they are modeling positive relationship characteristics such as sociability, positive regard, and constructive criticism. Perceived relationship quality showed a strong bivariate association with moral atmosphere, as well as small but significant associations with moral reasoning and fair play attitude. When coaches are perceived as secure base figures of convenience (Waters & Cummings, 2000), they may engender a sense of emotional security among their pupils. Emotional security supports more adaptive regulation of emotions and behaviors during times of stress (e.g., Willemen, Schuengel, & Koot, 2009), reducing the likelihood of antisocial behavior and increasing the likelihood of prosocial behavior.

#### *Moral atmosphere*

Moral atmosphere proved to be positively related to prosocial behavior in the sports context. Comparable results for the school context were obtained by Power et al. (1989), who found a relation between moral atmosphere and prosocial behavior. Notably, collective responsibility, care, trust, and active participation make up a moral atmosphere that is conducive to prosocial behavior both in the context of organized youth sport and at school. The moral atmosphere in which human activity is embedded may be more important than the activity itself, regardless of whether it concerns sporting activities or the acquisition of skills and knowledge at school. In this sense, the findings provide support for the explanation Endresen and Olweus (2005) offered for the effects of power sports participation on antisocial behavior, namely that 'macho' culture prevails in these sports, which might negatively affect behavior (see Nixon, 1997; Rees, Howell, & Miracle, 1990). When moral atmosphere is conceptualized in terms of

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2  
3 the dichotomy between mastery and performance, moral atmosphere instead of the sporting  
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5 activity tends to be related to moral judgment and respect for opponents, as well as moral  
6  
7 behavior (see Gano-Overway, Guivernau, Magyar, Waldron, & Ewing, 2005; Miller, Roberts, &  
8  
9 Ommundsen, 2005; Ommundsen, Roberts, Lemyre, & Treasure, 2003).

10  
11  
12 Several studies have found a relation between moral atmosphere and antisocial behavior,  
13  
14 both in the context of organized youth sport (e.g. Guivernau & Duda, 2002; Stephens, 2000),  
15  
16 and in the context of the school (e.g., Brugman et al., 2003; Høst et al., 1998; Mancini, Fruggeri,  
17  
18 & Panari, 2006). The current study showed no significant multivariate association between  
19  
20 moral atmosphere and antisocial behavior, but only a bivariate association. It is possible that the  
21  
22 effect of moral atmosphere is accounted for by the other predictors, given that moral atmosphere  
23  
24 was strongly associated with relational support, attachment-related support, as well as  
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26 externalizing behavior problems of team members.  
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### 30 31 *Moral reasoning*

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33 Athletes displaying higher levels of moral reasoning reported more prosocial behavior in  
34  
35 the sports context, but there was no significant effect of the average level of moral reasoning  
36  
37 within teams. A trend, however, was found towards a relation between higher levels of moral  
38  
39 reasoning within teams and less antisocial behavior in the sports context, which suggests that  
40  
41 more mature moral judgments that are shared by team members protect athletes from engaging  
42  
43 in antisocial behavior in the context of sport. Also higher levels of moral reasoning in individual  
44  
45 athletes were associated with less antisocial behavior in the sports context, but only among  
46  
47 adolescents participating in athletics, which is the most individual sport in the present study. For  
48  
49 that reason, differences in moral reasoning among individual athletes may translate more easily  
50  
51 into antisocial behavior than differences in moral reasoning among athletes performing  
52  
53 taekwondo or a team sport. Moreover, antisocial behavior tends to be highly regulated in martial  
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55 arts such as taekwondo (see Theeboom, 2001), which are characterized by a strict and specific  
56  
57 “moral code of behaviour” (p. 346). This might create a homogenizing effect on differences in  
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3 both moral reasoning and antisocial behavior among athletes within teams, which hampers to  
4  
5 possibility of finding effects at the individual level.  
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8 *Fair play attitude*

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10 Although there was a moderate bivariate association between fair play attitude and  
11  
12 prosocial behavior, fair play attitude of the athletes was not associated with antisocial and  
13  
14 prosocial behavior in the context of sport in the multivariate analyses. This was unexpected, as a  
15  
16 previous study by Reference to Author (2008) showed a team effect of fair play on antisocial  
17  
18 behavior in the context of sport. Possibly, those prosocial behaviors in the sports context that are  
19  
20 most closely connected with the concept of fair play do not show much variation, because such  
21  
22 prosocial behaviors are constitutive of sport itself. We suggest that the very practice of  
23  
24 organized youth sport is made possible by prosocial behaviors that reflect values, such as respect  
25  
26 for the opponent and fair competition.  
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30  
31 *Antisocial and prosocial behavior in the sports context*

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33 Soccer players reported the highest level of antisocial behavior in the sports context,  
34  
35 followed by basketball players. Athletes performing individual sports (athletics and taekwondo)  
36  
37 displayed the lowest levels of antisocial behavior, even after controlling for background  
38  
39 variables, such as socioeconomic status and educational level, social desirability and  
40  
41 externalizing and prosocial behavior in general. Notably, teams showing relatively high rates of  
42  
43 externalizing behaviors in general did also report high levels of antisocial behavior in the sports  
44  
45 context, which suggests that aggregation of antisocial youth might partly explain increases of  
46  
47 antisocial behavior in the context of organized youth sport. Such negative effects of aggregation  
48  
49 have also been found in peer-group interventions targeting behavior change in at-risk youth, and  
50  
51 was explained by deviancy training that involves positive reinforcement from antisocial peers  
52  
53 for aggressive talk and deviant behavior (Dishion et al., 1999). As we also found a team effect  
54  
55 of prosocial behavior in general on prosocial behavior in the context of sport, it is possible that  
56  
57 an aggregation of prosocial athletes might have a positive effect, which might result from  
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3 reinforcement of prosocial behaviors. As there is also evidence showing that peer contagion can  
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5 occur in natural environments (Dishion & Dodge, 2005), sports clubs that risk attracting youth  
6  
7 with antisocial behavior may attempt to avoid composing teams with a majority of adolescents  
8  
9 with such tendencies. These findings also suggest that attempts to reduce antisocial behavior  
10  
11 among youth at risk by organizing sports activities run the risk of only displacing antisocial  
12  
13 behavior and perhaps even stimulating the rate of this behavior (cf. Dodge, Dishion, &  
14  
15 Lansford, 2006).  
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18  
19 A possible explanation for the differences in antisocial behavior between the four types of  
20  
21 sports could be that the perceived legitimacy of aggressive behavior is greater in contact sports  
22  
23 than in non-contact sports (Conroy, Silva, Newcomer, Walker, & Johnson, 2001). Another  
24  
25 explanation is that team athletes may show a lower level of concern for the opponent compared  
26  
27 to individual athletes (Vallerand, Deshaies, & Cuerrier (1997). The relatively low level of  
28  
29 antisocial behavior in youth performing taekwondo might be somewhat surprising in light of  
30  
31 Endresen and Olweus' (2005) longitudinal study of power sports, showing highly negative  
32  
33 effects of power sports, which they attributed to repeated contacts with 'macho' attitudes,  
34  
35 norms, and ideals in the sports context. The positive results for taekwondo, however, might be  
36  
37 explained by the particular philosophy regarding discipline and emotional self-regulation that is  
38  
39 inherent to most martial arts (Theeboom, 2001), and which may prevent antisocial behaviors in  
40  
41 the context of sport. The relations between type of sport and degree of antisocial behavior  
42  
43 suggest an effect of either sporting activities itself, or environmental factors that may be related  
44  
45 to distinctions between contact and non-contact sports, team and individual sports (see  
46  
47 Kavussanu et al., 2006), and/or the degree to which "frustration occurs due to the blocking of  
48  
49 one's efforts to achieve goals", which explanation is consonant with the frustration-aggression  
50  
51 hypothesis (Nucci & Kim, 2005, p.124). Compared to taekwondo in which the goal is to beat the  
52  
53 opponent physically, opponents in soccer are more an obstacle for reaching the goal of the game  
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55 (scoring a goal). The role of the opponent is therefore substantially different in soccer compared  
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3 to taekwondo. As a consequence, the role of opponents in soccer is likely to cause more  
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5 frustration and may therefore evoke more antisocial behavior. Moreover, since in basketball the  
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7 rules are more stringent with regard to physical contact, soccer is thought to inflict most  
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9 antisocial behavior.  
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### 11 *Limitations*

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15 There are some limitations to the current study. First of all, there is a limitation to the causal  
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17 interpretation of the findings, as the study design was non-experimental, cross-sectional and not  
18  
19 longitudinal. Because only youth self-reports were used and no data from the coaches, it is  
20  
21 impossible to tell to what extent personal perceptions of the athletes colored their reports of  
22  
23 antisocial and prosocial behavior. Self-report instruments assessing antisocial and prosocial  
24  
25 behavior, though, have been shown to produce valid and reliable data on antisocial (Junger-Tas  
26  
27 & Haen Marshall, 1999; Thornberry & Krohn, 2000) and prosocial behavior (Carlo & Randall,  
28  
29 2002). Kavussanu et al. (2006) found that self-report of antisocial and prosocial behavior by  
30  
31 adolescent soccer players was significantly related to the independent observation of their  
32  
33 antisocial and prosocial behaviors in the context of sport. Moreover, we controlled for social  
34  
35 desirability because self-reports may be sensitive to socially desirable answering. Although the  
36  
37 role of team membership was examined statistically by means of multilevel modelling, no  
38  
39 instruments were used to assess team dynamics. It was therefore not possible to examine the role  
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41 of team mate relationships, the impact of explicit team norms regarding behavior on and off the  
42  
43 field, or the role attachment to peers might have. The team level effects that were found in the  
44  
45 present study, however, suggest that it is worthwhile to examine team functioning in a more  
46  
47 dynamic way, using instruments designed to tap team norms and values of on- and off-field  
48  
49 antisocial and prosocial behaviors and relationships between team mates. Finally, the assessment  
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51 of coach-athlete relationship quality might benefit from focusing on autonomy support from  
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53 coaches, in which also relational support expected to fulfil the need for social relatedness is  
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55 dealt with.  
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*Conclusions*

The current study uncovered factors explaining why the sporting context may contribute to antisocial and prosocial behavior in adolescent athletes. Apart from the behaviours that adolescents bring to the sporting context, behavior appeared to depend on the moral atmosphere of the sporting environment, the levels of moral reasoning about dilemmas that are salient to competitive sport participation and foremost, the relationship between coaches and their athletes. Because these factors are in principle amenable to intervention or rational decision making, future research may attempt to manipulate these factors as to test their causal role as well as to increase the promotive value of sports for social development and functioning in adolescence.

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Table 1.

*Individual Athlete Level Means, Standard Deviations, and Correlations between Control Variables, Explanatory Variables, and Outcome Variables*

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<u>Control variables</u>																		
1. Age (years)	15.3	1.4	1.00															
2. Cultural background <sup>a</sup>	0.34	.47	.08	1.00														
3. SES	8.9	2.9	.04	-.03	1.00													
4. Level of education	2.2	.78	-.01	-.08	.30*	1.00												
5. Extent of sport participation	10.0	6.3	.01	.10	-.06	.02	1.00											
6. Type of sport <sup>b</sup>	0.42	.49	-.20*	-.24*	.04	.00	-.31*	1.00										
7. Social desirability	1.41	.24	-.07	.10	-.08	-.18*	.00	.07	1.00									
8. Externalizing behavior in general	12.76	8.50	.06	.10	-.02	.02	.03	-.08	-.21*	1.00								
9. Prosocial behavior in general	2.65	.47	.04	-.02	.04	-.02	.12	.17*	.35*	-.17*	1.00							
<u>Explanatory variables</u>																		
10. Relational support	.80	.60	.02	-.19*	.12	.15	-.13	.39*	.01	-.31*	.22*	1.00						
11. Attachment-related support	2.46	.66	-.04	-.01	-.04	-.08	.05	.24*	.12	-.17*	.46*	.39*	1.00					
12. Moral atmosphere	3.61	.59	-.09	-.15	.08	.06	-.05	.44*	.12	-.25*	.42*	.65*	.44*	1.00				
13. Moral reasoning	2.89	.42	.09	-.06	.07	.07	-.03	.08	-.14	-.08	.04	.20*	-.04	.11	1.00			
14. Fair play attitude	3.92	.62	.00	-.02	.08	-.06	-.02	.22*	.19*	-.15	.45*	.23*	.29*	.32*	.08	1.00		
<u>Outcome variables</u>																		
15. Antisocial behavior in the sports context	1.63	.60	.04	.13	-.06	-.12	.22*	-.38*	-.08	.41*	-.06	-.55*	-.04	-.39*	-.22*	-.16	1.00	
16. Prosocial behavior in the sports context	2.92	.57	.07	-.15	.01	.02	.03	.28*	.06	-.12	.47*	.46*	.36*	.52*	.17*	.27*	-.07	1.00

*Note.* *N* = 439 athletes.<sup>a</sup> Caucasian white = 0; Ethnic minority = 1.<sup>b</sup> Team sport = 0; Individual sport = 1.\* *p* < .001.

Table 2.

*Multilevel Analysis of Antisocial Behavior in the Sports Context*

	Null-model	Explanatory model		
		<i>b</i>	<i>s.e.</i>	<i>t</i>
Intercept	1.57 (0.04)			
Individual level				
Relational support		-.47	.05	9.40***
Attachment-related support		-.21	.04	5.25***
Moral reasoning		.02	.07	0.29
Externalizing problems		.59	.08	7.38***
Team level				
Relational support		-.40	.10	4.00***
Attachment-related support		-.21	.08	2.63**
Moral reasoning		-.30	.16	1.88
Externalizing problems		.67	.20	3.35***
Type of sport (team vs. individual)		-.29	.06	4.83***
Interactions				
Type of sport*moral reasoning		-.32	.12	2.67**
Variance components				
Individual level	.281 (80%)	.182		
Team level	.071 (20%)	.007		
Explained variance				
Individual level		28%		
Team level		18%		
$X^2$		239.95***		

*Note.* Team level:  $N = 67$  teams; Individual level:  $N = 439$  athletes.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

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Table 3.

*Multilevel Analysis of Prosocial Behavior in the Sports Context*

	Null-model	Explanatory model		
		<i>b</i>	<i>s.e.</i>	<i>t</i>
Intercept	2.95 (0.04)			
Individual level				
Relational support		.19	.06	3.17**
Moral atmosphere		.19	.06	3.17**
Moral reasoning		.14	.06	2.33*
Prosocial behavior		.42	.06	7.00***
Team level				
Relational support		.28	.11	2.55*
Moral atmosphere		.26	.12	2.17*
Moral reasoning		.01	.15	0.17
Prosocial behavior		.33	.13	2.54*
Variance components				
Individual level	.285 (87%)	.197 (60%)		
Team level	.042 (13%)	.003 ( 1%)		
Explained variance				
Individual level		27%		
Team level		12%		
$X^2$		199.54***		

*Note.* Team level:  $N = 67$  teams; Individual level:  $N = 439$  athletes.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .