Int. J. Sport Psychol., 2023; 54: 16-31
doi: 10.7352/IJSP.2023.54.016

Analysis of the influence of sports practice on prosocial and antisocial behaviour in a contemporary Spanish adolescent population

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The main purpose of this study was to analyse prosocial and antisocial behaviour in adolescent athletes in relation to the type of athletic practice, the motivation for engaging in sport, and sex. Three hundred and seventy-four students (130 girls and 244 boys) (age range = 13-18 years) were divided into five groups. The Interpersonal Reactivity Index, the Antisocial Behaviour Questionnaire and the Exercise Behaviour Regulation Questionnaire (BREQ-3) was employed. In the athletes group, girls displayed higher values than boys in perspective-taking (p=.021), fantasy (p=.006), anxiety (p<.001), intrinsic regulation (p=.012), however, showed lower values in external regulation (p=.036). In the nonathletes group, girls showed higher values than boys in perspective-taking (p=.038), personal distress (p=.002), and anxiety (p=.032).Interactions between groups and sex indicated significant differences between boys in fantasy, aggression, isolation, and anxiety; there were significant differences in aggression in girls. The girls engaged in more prosocial conduct than the boys, while the nonathlete boys displayed more antisocial behaviour than the athlete boys. In conclusion, the associations between sports practice and the degree of antisocial or prosocial behaviour in adolescents could not be established. Moreover, several of the motivational factors that were investigated had no clear impact on either type of behaviour.

KEY WORDS: Adolescent, Morality, Conduct, Sport.

Introduction

Youth involvement in conflict and violence is a common problem in many European countries (Mutz & Baur, 2009). Antisocial behaviour in

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childhood is a predictor of such behaviour in adulthood (Scott, Knapp, Henderson, & Maughan, 2001). There is an association between severe crime and school dropout (Rud, van Klaveren, Groot, & Van den Brink, 2018), suicidal ideation (Hatcher, King, Nordberg, Bryant, & Woolen, 2018), and increased risk of death in early adulthood (Maughan, Stafford, Shah, & Kuh, 2014). Several factors have been implicated in the premature emergence and persistence of serious behavioural problems and delinquency in adolescents: sociodemographic; peer; school; parenting; social-cognitive, psychophysiological; and neurocognitive (Pardini, 2016).

Social-psychological theories concerning the cause of delinquency focus on moral, cognitive, and childhood development, and interpersonal relationships (Kratcoski, Dunn Kratcoski, & Kratcoski, 2020). Kavussanu (2012) highlights the concept of moral behaviour, which refers to a wide range of intentional acts that can have positive or negative consequences on psychological and physical well-being. An individual's values are conceptions of desirable conduct concerning their choice of actions, the way they evaluate others and events, and how they explain those actions and evaluations in terms of principles (Schwartz, 1999). Social learning theory argues that prosocial behaviour can be taught (Milovanović et al., 2020).

Although adolescence is an important stage for prosocial development, knowledge about the factors that enhance empathy among young is lacking (Silke, Brady, Boylan, & Dolan, 2018). The ways that societal institutions (e.g., the family, education, and economic, political, and religious systems) function and their goals and modes of operation define people's cultural values (Schwartz, 1999). Adolescents' social responsibilities and altruistic and prosocial behaviour are influenced by several internal and external factors. These include parents, peers, sex, schools and community setting, mass media, culture, and engagement in sport (Silke, Brady, Dolan, & Boylan, 2019) (Silke et al., 2018). The development of prosocial behaviour during the teenage years is sex-specific, that is, it begins earlier amongst girls (Van der Graaff, Carlo, Crocetti, Koot, & Branje, 2018). Several studies have shown that adolescent girls have higher levels of empathic and prosocial response than boys (Silke et al., 2018) (Garaigordobil & Galdeano, 2006; Gorostiaga Manterola, Balluerka Lasa, & Soroa Martínez, 2014).

Moreover, different environmental variables, for example, unstructured leisure activities, might explain antisocial adolescent comportment (Trinidad, Vozmediano, & San-Juan, 2018). As a social practice, sport influences individuals' socialization and moral values in terms of support for others, fair play, solidarity, and cooperation (Coulomb - Cabagno & Rascle, 2006). The European Commission's White Paper on Sport notes that participation in

sport inculcates a sense of team spirit, solidarity, tolerance, and fair play, and that it contributes to personal development and fulfilment (EC-European Commission, (2007). Therefore, sport is often assumed to be an instrument of moral and social development in children and adolescents (Bortoli, Messina, Zorba, & Robazza, 2012) and an appropriate way of inculcating values such as eagerness to improve. integration, respect for the person, tolerance, acceptance of rules, perseverance, teamwork, the overcoming of limits, and self-discipline (Ruiz Llamas & Cabrera Suárez, 2004). Gutiérrez (2004) has shown the socializing power of sport as an integrating element amongst immigrant groups, a means to teach responsibility to at-risk youth, a tool for the prevention and treatment of drug dependency, a mechanism that favours reintegration into institutions, and an aid to social recovery in slum districts and the socialization of older people. Sport also fosters empathic concern (Ettekal, Ferris, Batanova, & Syer, 2016).

However, poor sport programme design (e.g., too-early specialization) and negative adult influences (parents and coaches in particular) can encumber rather than enhance the positive development of young people (Fraser-Thomas, Côté, & Deakin, 2005). Participation in sport can have negative consequences, principally because it tends to be competitive and those involved are often under a great deal of pressure to win (Li, Koh, Keng, Wang, & Chian, 2015). This can lead to aggressive and *un*sporting behaviour (Pelegrin, Serpa, & Rosado, 2013). At the same time, some athletes can be overly influenced by high-level sport and its more negative manifestations, which can take the form of aggression, violence, an excessive desire for success, and other socially undesirable qualities (Gutiérrez, 2004). Sport at all competitive levels is replete with incidents of antisocial behaviour (Kavussanu & Stanger, 2017). Some athletes have stated that their involvement in sport provided them with positive experiences (e.g., meaningful adult and peer relationships, a sense of community, and so on) and some negative ones (e.g., poor relationships with coaches, unhelpful peer influences, parental pressure, and the challenging psychological environment of competitive sport) (Fraser-Thomas & Côté, 2009). Therefore, both positive (i.e., prosocial) and negative (i.e., antisocial) moral behaviour can manifest on the playing field (Spruit, Kavussanu, Smit, & IJntema, 2019). Although, the idea that sport builds character has been questioned; extensive participation in at least some types of sport may have detrimental effects on moral functioning (Kavussanu & Ntoumanis, 2003). Whether sport is a protective or a risk factor for adolescent delinquency is a controversial issue, though there is no definitive association in the latter case; adolescent athletes are neither more nor less delinquent than nonathletes (Spruit, van Vugt, van der Put, van der

Stouwe, & Stams, 2016). In this regard, participation in sport does not, by itself, ensure the learning and development of either positive or negative values (Sánchez et al., 2011).

On the other hand, motivation is a significant factor influencing moral action. Athletes' motives, as reflected in their goal orientation, have important repercussions on their moral functioning in the sport setting (Kavussanu & Ntoumanis, 2003). Constructs based on both achievement goal theory (e.g., ego orientation and the performance climate) and self-determination theory (e.g., controlled motivation and the controlling climate) have been linked to antisocial behaviour in sport (Kavussanu & Stanger, 2017). Task orientation, climate mastery, and autonomous motivation may promote prosocial behaviour; conversely, ego orientation, the performance environment, and controlled motivation may lead to the opposite (Kavussanu & Stanger, 2017). Consequently, there is a significant and positive relationship between the highest levels of self-determination, that is, of intrinsic motivation, which implies the commitment of an athlete to an activity for the pleasure, enjoyment, and satisfaction that it produces and the appearance of prosocial behaviour and intentions (Maquilón Sánchez & Hernández Pina, 2011). Therefore, both motivational and moral factors in sport predict prosocial and antisocial behaviour (Kavussanu & Stanger, 2017).

Moreover, the type of sport practised can also play a role in encouraging moral growth. Team sports involve working together toward common goals, while individual sports involve working toward one's own goals. Different types of sports improve different social skills like cooperation, communication, coping with pressure, support, and responsibility, all of which contribute to the overall development of moral competence (Bronikowska, Korcz, & Bronikowski, 2020). Finally, the issue of gender differences regarding moral behaviour in sport setting is controversial. It seems that there is no interaction between types of involvement in sport and levels of moral competence level between boys and girls (Bronikowska et al., 2020).

Therefore, the overall strength of the relationship between the prosocial and antisocial behaviour of young people in terms of sex has not been established. Socialization and moral development are important elements in school sports but the empirical data is still scarce and more studies are needed on the possible differences between sports, age, sex, and motivational factors. Taking into account the aforementioned information, the present study hypothesised that taking part in some form of organized sport develops prosocial and inhibit antisocial behaviour in young people. The primary objective of the study was to analyse prosocial and antisocial behaviour in adolescent athletes in terms of the type of athletic practice, motivational factors, and sex.

Method

Participants

Three hundred seventy-four students (130 girls and 244 boys) aged between 13 and 18 years participated in the study. They were selected from secondary schools in southern Spain. The inclusion criteria were attendance at a secondary school and not having any physical or cognitive disability. The participants were divided into five groups: football players (n = 162, 11.1% girls), basketball and handball players (n = 33, 48.5% girls), endurance athletes (n = 33, 45.5% girls), and those who did not participate in any sport (n = 146, 55.5% girls). An informed consent form was voluntarily signed by the children's parents. The norms of the Declaration of Helsinki (2013 version) were followed, and the Ethics Committee of Universidad de Jaen (Spain) approved the study.

Materials And Testing

The Spanish version of the Interpersonal Reactivity Index (IRI) was used to examine prosocial behaviour amongst the participants (Pérez-Albéniz, De Paúl, Etxeberría, Montes, & Torres, 2003). This is a scale comprising 28 items divided into four subscales that measure four different magnitudes of the general concept of empathy composed of seven items each: perspective-taking, fantasy, empathic concern, and personal discomfort. The instrument allows the measurement of cognitive and empathetic attitudes and emotional reactions. It has adequate psychometric properties (Cronbach's alpha = .76).

An antisocial behaviour questionnaire (CCA) was used (Martorell & González, 2011). This comprises 36 items with four response options ("Never," "Sometimes," "Many times," and "Always"). The instrument has three subscales: the first is aggression (i.e., verbally or physically aggressive behaviour towards others); the second is isolation (the need to be alone and escape and avoid situations that involve relating to others). The last subscale is called anxiety/withdrawal, and assesses the difficulty in relating to others, this time taking into account vital or functional reactions. This study obtained Cronbach's alpha = .75.

To analyse the motivations behind engagement in sport, the Spanish version of the Exercise Behaviour Regulation Questionnaire (BREQ-3) (González-Cutre, Sicilia, & Fernández, 2010).This includes six motivational types (amotivation, external, introjected, identified, integrated, and intrinsic regulation) and 23 items. It has adequate psychometric properties (Cronbach's alpha = .75).

Finally, an ad hoc socio-demographic survey was distributed amongst the parents. This was used to gather information on their age, marital status, and educational and socioeconomic level.

Procedure

After permissions were granted, the administration of the questionnaires began. They were completed by small groups of individual participants in the presence of an investigator. The participants were informed that their

responses would be confidential and anonymous. The questionnaires took approximately 40 minutes to complete. The data were collected during the 2017-2018 school year.

Statistical Analyses

Data was analysed using SPSS v. 22.0 for Windows (SPSS Inc., Chicago, USA). The significance level was set at $p < .05$. Descriptive data were reported in terms of means and standard deviations. Normality was tested using the Kolmogorov-Smirnov test. Differences between sex and sport groups were examined using analysis of variance (ANOVA) and post hoc analysis (Bonferroni correction) adjusted for age and sex. Effect sizes for group differences were expressed as Cohen's *d* (Cohen, 1988). These were reported as trivial (< 0.2), small (.2–.49), medium (.5-.79), and large (≥ .8) (Cohen, 1988). Partial correlation analysis of motivational factors and prosocial and antisocial variables adjusted for age and sex was also carried out. The magnitude of correlation between the variables was designated as < .1 (trivial), .1-.3 (small), .3-.5 (moderate), .5-.7 (large), .7-.9 (very large), and .9-1.0 (almost perfect) (Vilar et al., 2019).

Results

Sixty percent of the parents completed secondary schooling and 79.8% described themselves as being in the middle socioeconomic level. There were no significant differences between the groups.

Table I shows the prosocial and antisocial behaviour and motivation amongst the athletes and nonathletes according to sex. In the athlete groups, there were significant differences between the sexes regarding perspective-taking ($p = .021$), fantasy ($p = .006$), anxiety ($p < .001$) and intrinsic regulation ($p = .012$); the girls displayed higher values than the boys, however, in external regulation, boys displayed higher values than girls ($p= .036$). In the nonathlete group, the girls showed higher values than the boys in perspective-taking ($p = .038$), personal distress ($p = .002$), and anxiety ($p =.032$). Interactions between the boys in these groups revealed significant differences regarding fantasy ($p = .026$), aggression ($p = .024$), isolation ($p = .048$), and anxiety ($p = .002$), non-athletic boys reached high values. Moreover, there were significant differences in aggression amongst the girls ($p = .010$), non-athletic girls reached high values.

Table II shows the interactions between the groups in relation to prosocial and antisocial behaviour and motivation. In terms of perspective-taking,

TABLE I
Age, Prosocial And Antisocial Behaviors And Motivations Towards Sport Regarding Athletes And No Athletes (Separated By Sex)

	Athletes					No athletes				
	All	**Boys**	**Girls**	**p-value**	**Cohen's d**	**All**	**Boys**	**Girls**	**p-value**	**Cohen's d**
Age (years)	14.59 (1.57)	14.73 (1.64)	14.06 (1.15)	**.009**		14.95 (1.56)*	14.87 (1.51)	15.01 (1.61)**	0.602	
Perspective taking	22.51 (3.96)	22.21 (4.09)	23.65 (3.26)	**.021**	0.367	22.05 (4.19)	21.26 (4.33)	22.67 (3.99)	**0.038**	0.342
Fantasy	18.89 (4.77)	18.44 (4.80)	20.58 (4.32)	**.006**	0.456	20.47 (4.53)**	19.92 (4.16)*	20.90 (4.79)	0.200	0.218
Empathic concern	22.91 (4.02)	22.83 (4.00)	23.19 (4.15)	.520	0.089	22.99 (4.21)	22.51 (4.35)	23.38 (4.08)	0.211	0.208
Personal distress	16.80 (3.93)	16.58 (3.83)	17.63 (4.21)	.098	0.269	17.45 (4.26)	16.31 (4.11)	18.35 (4.18)	**0.002**	0.495
Aggression	27.29 (4.32)	27.45 (4.36)	26.66 (4.15)	.190	0.183	28.77 (5.16)**	29.00 (6.02)*	28.59 (4.40)*	0.642	0.079
Isolation	25.02 (4.08)	24.96 (4.08)	25.27 (4.10)	.917	0.076	25.93 (4.43)*	26.12 (4.69)*	25.79 (4.24)	0.686	0.074
Anxiety	15.64 (3.74)	15.12 (3.37)	17.56 (4.42)	**<.001**	0.678	17.53 (4.22)***	16.78 (4.43)**	18.13 (4.04)	**0.032**	0.322
Intrinsic regulation	3.10 (0.87)	3.05 (0.89)	3.30 (0.77)	**.012**	0.289					
Integrated regulation	3.01 (0.89)	3.01 (0.91)	3.01 (0.86)	.783	0.000					
Identified regulation	3.20 (0.76)	3.21 (0.74)	3.16 (0.81)	.909	0.066					
Introjected regulation	1.63 (0.92)	1.65 (0.92)	1.53 (0.94)	.636	0.130					
External regulation	0.84 (0.86)	0.88 (0.86)	0.68 (0.86)	**.036**	0.233					
Amotivation	0.85 (0.91)	0.88 (0.93)	0.72 (0.85)	.145	0.175					

*p<0.05, **p<0.01, ***p<0.001, indicated significant differences with athletes group.

basketball and handball players had the best values. Soccer players had lower fantasy and anxiety values than nonathletes and endurance athletes. In addition, endurance athletes had higher introjected regulation values than soccer

player ($p < .05$) and basketball and handball players ($p < .05$) and higher amotivation values than soccer players ($p < .05$).

With respect to interaction between athlete groups and sex, in whole group, girls showed higher values in anxiety (girls= 17.53±4.38 vs. boys=15.12±3.37, p<.001), takin of perspective (girls= 23.57±3.27 vs. boys=22.21±4.09, p=.032), and fantasy (girls= 20.47±4.35 vs. boys=18.44±4.80, p=.008) than boys.

Comparing the different groups, girls noted higher values than boys in anxiety in soccer's group (girls =16.94±4.63 vs. boys=14.88±3.40, p=.036) and in athlete's group (girls =19.80±4.60 vs. boys=16.27±3.12, p=.004) and in distress in athlete's group (girls =20.27±3.55 vs. boys=17.56±4.46, p=.048). In addition, regarding motivational factors, girls exhibit higher values than boys

TABLE II
Iinteractions Between The Groups In Relation To Prosocial And Antisocial Behaviour And Motivation

	Non athletes	Soccer players	Endurance athletes	Basketball and hand-ball players	p-value	Post-hoc
Perspective taking	22.06 (4.20)	21.93 (3.80)	23.64 (4.47)	24.18 (3.54)	0.005	NA<BH*, BH>S*
Fantasy	20.51 (4.53)	18.17 (4.71)	21.48 (4.47)	19.70 (4.45)	0.002	NA>S**, S<EA**
Empathic concern	22.99 (4.22)	22.41 (3.86)	23.94 (4.29)	24.30 (4.08)	0.045	
Personal distress	17.45 (4.27)	16.28(3.84)	18.79 (4.24)	17.39 (3.34)	0.064	
Aggression	28.71 (5.13)	27.58 (4.46)	26.63 (3.38)	26.81 (4.78)	0.008	
Isolation	25.92 (4.44)	24.80 (4.10)	24.84 (3.13)	26.39 (4.64)	0.068	
Anxiety	17.54 (4.24)	15.11 (3.60)	17.87 (4.19)	16.00 (3.06)	<0.001	NA > S **, EA<S*
Intrinsic regulation		3.12 (0.88)	3.24 (0.67)	2.89 (0.98)	0.282	
Integrated regulation		2.99 (0.93)	3.29 (0.71)	2.84 (0.84)	0.190	
Identified regulation		3.19 (0.79)	3.43 (0.62)	3.04 (0.70)	0.163	
Introjected regulation		1.59 (0.89)	2.08 (0.78)	1.36 (1.04)	0.007	EA>S*, EA>BH*
External regulation		0.78 (0.80)	1.06 (0.99)	0.88 (0.98)	0.057	
Amotivation		0.80 (0.87)	1.15 (1.08)	0.78 (0.89)	0.036	EA>S*

NA: non athletes, S=soccer, EA: endurance athletes, BH=basketball and handball players. *p<0.05,**p<0.01,***p<0.001

in internal regulation in basketball and handball groups (girls =12.93±4.31 vs. boys=10.29±3.15, p=.024), however, in external regulation both in athlete's group (girls =2.80±3.27 vs. boys=5.50±4.20, p=.026) and basketball and handball group (girls =2.06±3.04 vs. boys=4.94±4.26, p=.013), boys noted higher values than girls. In demotivation, the athlete's girls showed lower values than boys (girls =2.73±2.96 vs. boys=6.22±4.69, p=.007).

Finally, the soccer boys showed lower values in introjected regulation (6.37±3.67 vs. 8.44±3.50, p.048), in external regulation (3.07±3.11 vs. 5 .50 ±4.20, p=.017), and in demotivation (3.09±3.48 vs. 6.22±4.69, p=.002) than the athlete boys and in empathy concern (22.49± 3.89 vs 25.06±3.97, p=.039) and in perspective taking (21.93±3.92 vs 24.24±4.23, p=.024) than boys in basketball and handball. In addition, the athlete girls present higher values of anxiety than the soccer and basketball and handball girls (19.80±4.60 vs. 16.94±4.63, p=.049 and 16.06±3.08, p=.007, respectively), or in fantasy and distress than soccer girls (22.67±3.92 vs. 18.94±4.51, p=.048, and 20.27±3.55 vs. 15.94± 4.26, p =.007, respectively).

Pearson correlation analysis (which was carried out only on the athlete groups only) revealed several significant correlations. Perspective-taking had a significant correlation with integrated regulation and identified regulation ($r = .233$, $p < .001$ and $r = .253$, $p < .001$, respectively). Isolation was correlated with intrinsic regulation ($r = -.235$, $p < .001$), identified regulation ($r = -.270$, $p < .001$), and external regulation ($r = .269$, $p < .001$). Anxiety was significantly correlation with fantasy and personal distress ($r = .223$, $p < .001$ and $r = 0.315$, $p < .001$) amongst all the participants.

Discussion

The present study aimed to analyse prosocial and antisocial behaviour in adolescent athletes in terms of the type of athletic practice, motivational factors, and sex. The relationships between the type of sports practice and the degree of antisocial or prosocial behaviour were not clear. In particular, the girl athletes manifested better prosocial behaviour than the boys, and the nonathlete boys displayed higher values of antisocial behaviour than their athlete peers. In the sports context, girls showed higher values of anxiety and prosocial behaviours than boys, although the specific interrelationships between the type of sports practice and sex regarding motivational, prosocial and antisocial factors were not clear. Perspective-taking and insolation were the prosocial and antisocial factors that showed moderate correlations with motivation.

The sociodemographic characteristics of the participants' parents did not influence either prosocial or antisocial behaviour. In his regard, a recent study showed that prosocial and aggressive behaviour in children and young people in sports was uniform and did not depend to any great extent on wider socio-economic characteristics (Milovanović et al., 2020).

Prosocial behaviour implies humane behaviour, while inhibitory aspects represent antisocial behaviour (Bortoli et al., 2012). For example, verbal encouragement of a teammate and physical intimidation of an opponent would be considered prosocial and antisocial behaviour, respectively (Hodge & Gucciardi, 2015). Socialization through sport refers to the learning of the attitudes, values, and general skills (such as fair play, camaraderie, or aggressive behaviour) that are acquired in the practice of sport. The agents of socialization, organizational structure, the philosophy of sports programmes, the family, and the orientations and behaviour of coaches can impact the sports experience and the values of children who participate (Boixadós, Valiente, Mimbrero, Torregrosa, & Cruz, 1998). The socializing potential of sport can lead to negative or positive consequences, depending on the way the interactions between the person being socialized, the socializing agents, and the social contexts are established (Ramírez, Vinaccia, & Ramón, 2004). The determinants of the socialization process comprise (1) the agents of socialization (i.e., parents, coaches, and organizers of sports competitions); and (2) different socializing situations (i.e., when, where, with whom, under what circumstances, and with what consequences does the child start engaging in sport?) (Cruz, Boixadós, Torregrosa, & Mimbrero, 1996). Therefore, sport per se is a neutral environment in terms of socialization.

A recent study showed that sports practice both in competition and in the classroom encourages more prosocial behaviour; prosocial or antisocial behaviour were determined by factors relating to the style and motivation of the physical education coach or teacher, the motivational orientation of the student, the parents, moral reasoning, and other variables (Vilar, Sala, & Domínguez, 2019). In this regard, Pelegrín, Garcés de los Fayos, & Cantón (2010) argue that young people who practise a sport have a lower risk of developing aggressive behaviour and manifest more extroverted, sensitive, and respectful behaviour towards others. Laborde, Guillén, & Mosley (2016) showed that athletes scored higher than non-athletes on personality traits such as positivity, perseverance, resilience, self-efficacy, and self-esteem, and those in individual sports scored higher than those in team sports. In addition, empathy and moral identity led athletes to refrain from being aggressive and avoid experiencing guilt (Kavussanu & Stanger, 2017). A recent study carried out in six European countries

showed a high occurrence of prosocial behaviour in young athletes (Milovanović et al., 2020). However, McQuade (2014) demonstrated no significant relationship between pro-social scores and sports participation. In this regard, another study noted that soccer players reported the highest level of antisocial behaviour in the sports context, followed by basketball players; individual sport athletes (i.e., those participating in athletics and taekwondo) displayed the lowest levels of antisocial behaviour (Rutten et al., 2011). Likewise, a recent study carried out amongst 8-12-year-old children concluded that their participation in sports was not directly related to more prosocial behaviour or less antisocial behaviour, though the group of footballers displayed less perspective-taking and greater aggression than the other groups (Latorre-Román, Bueno-Cruz, Martínez-Redondo, & Salas-Sánchez, 2020). In the same way, the participants in the present study manifested no better prosocial behaviour than the nonathletes, though they displayed lower antisocial behaviour. Therefore, simply taking part in sport does not guarantee the building of positive personality characteristics or the acquisition of sporting behaviour (Cruz et al., 1996). In sum, there is little evidence either to prove or disprove the relationship between sports participation and prosocial behaviour.

On the other hand, in the present study, integrated regulation and identified regulation were moderately associated with prosocial behaviour, while isolation (an antisocial factor) was associated with other motivational factors. Autonomous motivation has been positively associated with prosocial behaviour (Kavussanu & Stanger, 2017). Moreover, motivational climate (which is associated with peers, coaches, and parents) has been shown to be negatively correlated with antisocial behaviour; ego-orientation, which is generated in part by the aforesaid groups, has been positively related to antisocial actions (Bowler, 2009). A study of 12-17-year-old soccer players concluded that task orientation and domain climate were positive predictors of prosocial behaviour, while ego orientation and performance climate were positive predictors of antisocial behaviour (Kavussanu, 2006). There is a trend to find low values of introjected regulation in the group of soccer players, especially in boys, high values of internal regulation and low of external regulation, especially in girls in the group of basquetball and handball. In this sense, both empathic concern and perspective taking were low in the boys soccer players. Finally, it is noteworthy that athletes show the highest levels of introjected regulation. Individual responsibility, especially in the face of failure, might be the reason for this. Furthermore, in general, girls showed high values of internal regulation, on the contrary, boys exhibited high values of external regulation.

Studies on the influence of sex are scarce and sometimes contradictory. Although males and females are generally similar rather than different in their prosociality, the type of prosocial behaviour must be taken into account (Xiao, Hashi, Korous, & Eisenberg, 2019). Girls have been shown to be more empathetic than boys (Van der Graaff et al., 2018), with boys engaging in significantly higher levels of antisocial behaviour (Burt, Slawinski, & Klump, 2018). However, Kavussanu, Stamp, Slade, & Ring (2009) found no differences in empathy between 15-47-year-old men and women soccer players. Bronikowska et al. (2020) concluded that adolescent boys and girls both presented similar levels of moral competence irrespective of whether they trained professionally or recreationally. Conversely, other authors have indicated that male soccer players were more prosocial in their relationships with their teammates and opponents than their female counterparts; indeed, they engaged in less antisocial behaviour in general (Kürşat et al., 2021). However, Coulomb-Cabagno & Rascle (2006) noted that male athletes were more aggressive whatever the sport, the level of competition, or the nature of the aggression observed. Meanwhile, Latorre-Román, Bueno-Cruz, Martínez-Redondo, & Salas-Sánchez (2020) found that the differences in prosocial and antisocial behaviour in 8-12-year-old children began in groups of athletes, with girls showing greater empathy than boys and boys showing greater antisocial behaviour; these differences were not apparent in the sedentary group. In the present study, girls in the athlete and nonathlete groups displayed high values of perspective-taking than boys and high values of anxiety. It is clear that more research is needed before an association between sex and moral behaviour in adolescent populations can be confirmed.

For the development of a peaceful and cohesive society, citizens must manifest prosocial behaviour. Educational strategies should be formulated and implemented to this end. For instance, children should be initiated into sports in a way that encourages cooperation and intrinsic motivation. However, more studies that control for different confounding variables are needed.

The present study has several limitations so its findings should be treated with caution. First, its cross-sectional design prevented us from inferring cause and effect. Second, the data relating to moral competence was based on the responses of adolescents, so they may have been subject to some bias. Third, no consideration was given to environmental influences such as the nature of the participants' neighbourhoods (e.g., urban or rural). Fourth, certain moral correlates and the behaviour of coaches, peer groups, clubs, and parents were not analysed.

In conclusion, the associations between sports practice and the degree of antisocial or prosocial behaviour in adolescents could not be established.

Overall, the girls exhibited more prosociality than the boys regardless of sports practice, while the nonathlete boys displayed higher antisocial behaviour than the athlete boys. Several of the motivational factors that were investigated had no clear impact on either type of behaviour.

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Manuscript submitted July 2022. Accepted for publication November 2022.