



Prosocial reasoning and emotions in young offenders and non-offenders



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ABSTRACT

The aim of this study was to analyse the cognitive processes (prosocial moral reasoning, perspective taking) and emotional processes (empathic concern, emotional instability, state-trait anger) which interact in predicting aggressive behaviour and prosocial behaviour of adolescents who have committed a crime and those who have not, for the purpose of establishing the predictor variables in both groups. Participants were 440 adolescents, 220 of them young offenders residing in four youth detention centres in Valencia, in which they were serving court sentences (67.3% men and 32.7% women). The other 220 were enrolled in public and private schools within the metropolitan area of Valencia (65.9% men and 34.1% women). The two subsamples were equated in age (15–18 years) and sex, controlling the representation of social classes. Prosocial moral reasoning, empathy, emotional instability, state-trait anger, prosocial behaviour, and physical and verbal aggression were assessed. Hierarchical regression analyses show the differential weight of positive emotions (empathic concern) and negative emotions (emotional instability and anger) in relation to prosocial moral reasoning in predicting aggressive behaviour in adolescents, especially offenders. The results are discussed in terms of their implications for prevention and re-education oriented to social reinsertion of young offenders.

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Razonamiento prosocial y emociones en adolescentes delincuentes y no delincuentes

RESUMEN

El objetivo de este estudio ha sido analizar los procesos cognitivos (razonamiento moral prosocial, toma de perspectiva) y los procesos emocionales (preocupación empática, inestabilidad emocional, ira estado-rasgo) que interactúan en la predicción de la conducta agresiva y de la conducta prosocial de los adolescentes que han delinquido y los que no, con la finalidad de establecer las variables predictoras en ambos grupos. La muestra constaba de 440 adolescentes, 220 de los cuales eran adolescentes infractores internos en cuatro centros de menores de la Comunidad Valenciana, en los que estaban cumpliendo medidas judiciales (67.3% varones y 32.7% mujeres) y los 220 restantes estaban escolarizados en centros públicos y concertados dentro del área metropolitana de Valencia (65.9% varones y 34.1% mujeres). Se equipararon las dos submuestras en edad (15–18 años) y sexo, controlando la representación de las clases sociales. Se evaluó el razonamiento moral prosocial, la empatía, la inestabilidad emocional, la ira estado-rasgo, la conducta prosocial y la agresividad física y verbal. Los análisis de regresión jerárquica realizados muestran el peso diferencial de las emociones positivas (preocupación empática) y negativas (inestabilidad emocional e ira) en relación con el razonamiento moral prosocial en la predicción de la conducta agresiva de los adolescentes, especialmente los infractores. Se comentan los resultados en cuanto a sus implicaciones para la prevención y la reeducación orientada a la reinserción social de los jóvenes infractores.

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Palabras clave:

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The prevalence of aggressive behaviour and delinquency in adolescence is a worrying subject for society in general. Analysing and knowing the determinant factors is one of the main objectives of the research oriented to prevention. In the last decades, what can be called social variables of aggression have been studied, amongst which family and peers are highlighted (Contreras & Cano, 2016; Cutrín, Gómez-Fraguela, & Luengo, 2015; Del Barrio & Roa, 2006; Wertz et al., 2016), together with internal variables, amongst which emotions take central stage (Carlo, Mestre, Samper, Tur, & Armenta, 2010; Carlo et al., 2012; Herrero, Ordoñez, Salas, & Colom, 2002; Llorca, Malonda, & Samper, 2016; Rodríguez, del Barrio, & Carrasco, 2009). Parenting styles are important in personal development and in the socialisation process of children and adolescents, but the social factors of aggressive behaviour explain around 30% of the variance, which present the need to study the psychological, cognitive and emotional processes involved in aggressive and violent behaviour (Del Barrio & Roa, 2006).

Different studies establish that a negative emotionality together with an inability to regulate emotions predict antisocial and delinquent, maladaptive behaviours (Caprara, Gerbino, Paciello, Di Giunta, & Pastorelli, 2010; Eisenberg, 2000; McMahon et al., 2013; Moral & Suárez, 2016). As for empathy, it is considered an important factor that helps adolescents to stop or inhibit their aggressive and delinquent behaviour (Carlo et al., 2010; Mestre, Samper, & Frías, 2002; Van der Graaff, Branje, De Wied, & Meeus, 2012). Empathy, understood as the ability to understand and share the emotional state of another person, encompasses cognitive and affective components. Cognitive empathy, or the ability to put oneself in another's shoes, represents the ability to understand the internal state of the other person. Affective empathy or empathic concern means to share the emotions observed in the other person. It is an affective response to the distress of the other person and therefore it is more focused on the emotions and the estate of that person instead of our own situation (Davis, 1983; Eisenberg, 2000; Hoffman, 2001). The affective component in particular has an important role to inhibit aggressive and delinquent behaviours. People with higher empathy are more sensitive, respond better to the emotional expressions of others and are more likely to inhibit harmful behaviours. Different studies have related low empathy with a deficit in execution derived from the difficulty to think in abstract and of understanding the relationship between cause and effect in problems. All this could make it difficult to understand the situation or circumstances of the other person and, therefore, the possibility to share their emotional state (Jolliffe & Farrington, 2004).

However, the results of the relationship among empathy, aggressive behaviour, and delinquency are inconclusive. There are studies which confirm a negative relationship between empathy and delinquency, being the relationship between low empathy and delinquency particularly strong in the most violent delinquents (Jolliffe & Farrington, 2004). These studies also point out that the lack of empathy determines that individuals do not inhibit their behaviour to harm, while a high empathy is a protective factor against aggression (Carlo et al., 2010; Mayberry & Espelage, 2007; Mestre, Samper et al., 2002; Wang, Lei, Yang, Gao, & Zhao, 2016). On the other hand, other studies do not find significant differences between offenders and non-offenders in the cognitive and affective factors of empathy (Schalkwijk, Jan Stams, Stegge, Dekker, & Peen, 2016). It seems that the results differ through different samples and cultural contexts (Wang et al., 2016), depending on sex and whether the affective or the cognitive component of empathy is evaluated (Ashraf, Khalid, & Ahmed, 2014). Also, age seems to be a discriminating variable. In this sense, studies of meta-analysis with samples of adults result in a weak relation between empathy and aggressive behaviour (Vachon, Lynam, & Johnson, 2014). Along the same lines, results with samples of different ages indicate stronger relations

between empathy and delinquency amongst the younger set in relation to older subjects or adults (Jolliffe & Farrington, 2004).

Furthermore, the investigation in moral conduct has traditionally highlighted the need to include moral cognition as well as emotions when explaining said conduct. This highlights the importance to analyse and include moral reasoning. The debate between Kohlberg (1984) and Hoffman (2001) has broached the role of cognition (moral thought) and emotions (empathy) when explaining moral development. Following this line, Eisenberg (1986) defended the importance of prosocial moral reasoning, defined as the reasoning that precedes the making of a decision whether or not to carry out a helping behaviour when facing problems that generate a conflict between physical and psychological needs of others and our own wellbeing, in situations where there are no laws or formal social directives. This reasoning contrasts with the moral reasoning oriented to prohibition, which emphasises problems of justice, prohibitions, breaking of the law, dilemmas between the respect for life or death (Kohlberg, 1984).

Eisenberg (1986) defined five levels in the prosocial moral reasoning that develops throughout childhood and adolescence: hedonistic reasoning, oriented to approval, oriented to the needs of others, stereotyped, and internalised, which includes the reasoning based on empathy. The first three levels are present in early childhood, while the last two are developed later in childhood and in particular during adolescence.

In general, the prosocial moral behaviour is conceptually related to moral emotions, such as empathy (worry about others and perspective taking) (Eisenberg, 1986; Hoffman, 2001). Numerous researches have related in a positive way prosocial moral reasoning with prosocial behaviour (behaviour oriented to benefit others) with empathy (Carlo et al., 2010; Mestre, Frías, Samper, & Tur, 2002; Mestre, Samper et al., 2002) and in a negative way with aggressive behaviour (Carlo et al., 2010; Laible, Eye, & Carlo, 2008). Prosocial behaviour of children and adolescents has been related in a positive way with the prosocial moral reasoning oriented to the needs of others and in a negative way with hedonistic reasoning. However, in the later years of adolescence the interiorised reasoning becomes stronger, which includes a more abstract reasoning, the ability to put oneself in the place of the other, and internalised affection (Carlo, Mestre, Samper, Tur, & Armenta, 2011).

The research on moral reasoning and delinquency has been more focused on the cognitive theory of moral development and therefore in the evaluation of the stages of moral reasoning presented by Kohlberg, using instruments like the Sociomoral Reflection Measure by Gibbs, Basinger and Fuller (1992). The results point out that moral judgement competence, meaning the level of moral reasoning, is not a significant predictor of delinquent behaviour in adolescence (Leenders & Brugman, 2005; Tarry & Emler, 2007). Some conclusions give limited support to the relation between a moral reasoning deficit and delinquent behaviour, when the latter is self informed (Beerthuizen, Brugman, & Basinger, 2013).

Other studies are based on other instruments like The Moral Orientation Measure (Stams et al., 2008), which integrates the moral cognitive component (moral judgement) and the moral affective component (empathy). In this case, the results indicate that socio-moral reasoning and empathy are not decisive contributors to the prediction of delinquent behaviour

Therefore, the research on cognitive and emotional processes related to aggressive and delinquent behaviour shows the need to analyse in the offender a non-offender population how the empathy components and impulsiveness or lack of self-control interact with the different kinds of prosocial reasoning in the prediction of aggressive behaviour oriented to harm others physically or verbally, or prosocial behaviour, whose aim is to help the other person and therefore can be considered opposed to aggressive behaviour, having a protecting role against antisocial behaviour

in adolescence (Carlo et al., 2014). The thought about dilemmas as to whether oppose or break rules and laws can help understand the aggressive behaviour of young offenders. However, thinking of prevention, it is more coherent to analyse prosocial modal reasoning, meaning to analyse the reasoning as to whether to help or not to help others or to see personal interest instead; as to hurt someone to obtain a benefit or on the contrary avoid facing a problem; as to the ability to anticipate the consequences of the action to be taken; and as to follow the established social rules about what is considered good or bad, to do what gets us approval from others.

There is wide research about empathy, prosocial moral reasoning, and prosocial behaviour. However, the relation between prosocial moral reasoning and aggressive behaviour has been studied in a lesser degree, and even less how the mentioned cognitive processes interact with empathy, with negative emotions like anger and impulsiveness or lack of self-control in the offender population.

As we focus our study in adolescence, it is necessary to include the differences of sex in the evaluated variables. There is a wide body of research that confirms said differences. In general, the results show that girls score higher than boys in empathy, in its cognitive and emotional components, and boys reach higher levels in aggressive behaviour and delinquency (Mestre, Samper, Frías, & Tur, 2009; Van der Graaff, Branje, De Wied, Hawk, & Van Lier, 2014; Van der Graaff, Branje, De Wied, & Meeus, 2012).

Based on the research on cognitive and emotional processes related to aggressive behaviour and delinquency in adolescence, we focus our study on evaluating these processes in young offenders and non-offenders populations. Following this research, one of the hypotheses of the study would be that the offenders group was less empathic and had a more hedonistic reasoning and a higher impulsiveness and anger, as opposed to the non-offenders (Carlo et al., 2010; Jolliffe & Farrington, 2004; Mayberry & Espelage, 2007; Mestre, Samper et al., 2002; Wang et al., 2016). A second hypotheses we contemplated in the study would be that the prosocial moral reasoning could have predictor power both in prosocial behaviour and aggressive behaviour in both subsamples, although low empathy, anger, and emotional instability would be strong predictors of aggressive behaviour in particular in the offender population (Carlo et al., 2011; Laible et al., 2008).

The main objective, therefore, is to analyse the cognitive processes (prosocial moral reasoning, perspective taking) and the emotional processes (empathic concern, emotional instability, anger state-trait) that interact in the prediction of physical and verbal aggressive behaviour and prosocial behaviour in young offenders and non-offenders. The aim is to establish the differential profile depending on the predictor variables in both groups, which will help in the prevention of delinquent behaviour. The results obtained will allow us to conclude if the aggressive and prosocial behaviours perform differently in both groups of adolescents and if the reasoning processes as well as empathy and emotional regulation have to be taken into consideration in the explanation of the behaviours.

Other specific objectives are focused on analysing the differences based on sex and between young offenders and non-offenders.

Method

Participants

440 adolescents took part in the study, 220 of which were young offenders recruited from four youth detention centres of Valencia, in which they were serving court sentences, the adolescents being selected based on the crime committed, looking for a representation of the crimes.

Amongst the crimes for which these youngsters were serving different court sentences, violence against their parents, damage against property, public health crimes, and bodily harm stand out. The rest of the sample was randomly selected from eight public and private schools within the metropolitan area of Valencia, paying attention to a stratification of socio-demographic characteristics based on the kind of institution (public and private) to have representative samples of all socioeconomic levels and social groups. The selection of this subsample was carried out through a probabilistic cluster sample with various successive stages (multistage sampling). This kind of sampling is very efficient when the population is large and it is made out of natural groups like the school or classroom. The final selection for the study was carried out equating both subsamples in age and sex and controlling the representation of social classes.

The subsample of young offenders includes a total of 148 boys (67.3%) and 72 girls (32.7%); in the group of adolescents from the general population we find a total of 145 boys (65.9%) and 75 girls (34.1%). The ages of the subjects range from 15 to 18 years in both groups. As for the institutionalised boys and girls, we find a mean age of 16.22 and a standard deviation of 1.49. The mean age amongst the non-offender boys and girls is 16.40 with a standard deviation of 1.25.

If we consider the crime committed that has originated the stay in the centre for minors, it is verified that the more dominant one is child-to-parent violence (60.7%) followed by aggravated robbery (33.7%) and in a lesser degree other crimes as attempt against authority (2.6%), breach of parole (2%), and bodily harm (1%).

With regards to social class, we followed the Hollingshead Index (Hollingshead, 1975), according to which the representation is similar in both groups, although not identical. The young offenders are situated mainly in a lower middle class (51.4%), followed by middle class (23.2%), and to a lesser extent we find families that belong to upper middle class (3.2%) and lower class (6.8%).

As for the non-offenders group, there is a slightly higher percentage of families that belong to a middle class (35.9%) and the percentage of adolescents in lower middle class diminishes (37.7%). We find a slightly higher percentage of adolescents that belong to upper middle class (11.8%) and lower class (8.2%).

Procedure

This is a cross-sectional study. The adolescents that have taken part filled in self-assessment questionnaires. In the secondary schools the instruments were applied collectively in the classroom, with a 50 minutes maximum duration. In the youth detention centres the application of the questionnaires was carried out in small groups made out of two or three and when necessary it was carried out individually. The research project was presented to the school management teams and teachers of the selected schools and to the management of the youth detention centres in the Valencia Region that took part in the study. The cooperation of the centres and the evaluation carried out had the authorisation of the Valencian government and also had parental permission. The participation of the adolescents was voluntary and anonymous, taking into consideration all ethical principles pertaining to research with human beings included in the Helsinki Declaration, under the current regulations.

Instruments

All measures were adapted for use and validated in samples of adolescents from Spain (e.g., Del Barrio, Moreno, & López, 2001; Mestre, Pérez, Frías, & Samper, 1999; Mestre et al., 2009; Mestre, Samper et al., 2002). Other research with young offenders and non-offenders were used (Azimpour, Neasi, Shehni-Yailagh, Arshadi, & Beshlide, 2013; Carlo, Koller, & Eisenberg, 1998; Carlo,

McGinley, Roesch, & Kaminski, 2008; Llorca et al., 2016; Llorca, Malonda, & Samper, 2017).

Prosocial Reasoning Objective Measure (PROM) (Carlo, Eisenberg, & Knight, 1992; Mestre, Samper et al., 2002). This measure evaluates the reasoning the subject carries out when facing a problem or need of another person which implies a help response. The responses given by the subject to the stories given to him (Begoña's story, Story of the flood, Story of maths, Story of the accident and Ana's Story) score in the different kinds of reasoning: hedonistic reasoning, oriented to need, oriented to approval, stereotyped, and internalised. In each story there are five items that correlate to the five categories of reasoning. The subject gives a value of 1 to 5, where 1 is *non-important* up to 5 *maximum importance*. There would be 5 categories with scores: one score for the "hedonistic" category (which includes hedonistic and direct reciprocity items), one score oriented to need, one to approval, one stereotyped, and one internalised score (which includes friendliness, perspective taking, positive and negative affection, general reciprocity, and internalised value items).

This measure allows to discriminate amongst subjects who justify the behaviour based on their personal interests, those who feel pressure for outside approval, and people who are guided more by what society considers good or bad than rather by principles, equality criteria, responsibility, anticipating of positive or negative consequences that can result from an action.

Cronbach's alpha for each kind of reasoning evaluated in this study is for young offenders: Hedonistic $\alpha = .72$, Needs $\alpha = .67$, Approval $\alpha = .83$, Stereotyped $\alpha = .67$, Internalised $\alpha = .70$; and for non-offenders: Hedonistic $\alpha = .71$, Approval $\alpha = .80$, Internalised $\alpha = .71$, Stereotyped $\alpha = .65$, and Needs $\alpha = .70$.

The Interpersonal Reactivity Index (IRI) (Davis, 1983; Mestre, Samper et al., 2002). This index evaluates the empathic disposition through four factors, two cognitive ones and two emotional ones. It is made up of 28 items with 5 choices to answer ranging from 1 (*does not describe you well*) to 5 (*describes you very well*). In this study the cognitive factor Perspective Taking (PT), the ability to understand the point of view of the other person or to be able to put oneself in their place, has a Cronbach's alpha = .65 for young offenders and .70 for non-offenders; a sample item is "When I am upset with someone I try to put myself in their place for a moment". The emotional factor Empathic concern (EC), feelings of concern, compassion, and affection for others, has a Cronbach's alpha = .65 for young offenders and .67 for non-offenders; a sample item is "When I see someone who is being treated unjustly, I feel compassion towards them".

Prosocial Behaviour Scale (PB) (Caprara & Pastorelli, 1993; Del Barrio et al., 2001). The scale evaluates helping behaviour, trust, and sympathy. It is made up of 15 items with three response choices which score from 3 to 1, where 3 indicates *often*, 2 *sometimes*, and 1 *never*. A sample item is "I help my classmates to do their homework". The Cronbach's alpha is .81 (offenders) and .79 (non-offenders).

Physical and Verbal Aggression Scale (Caprara & Pastorelli, 1993; Del Barrio et al., 2001). This scale evaluates behaviours that harm others physically or verbally. It is made up of 20 items with three response choices which score from 3 to 1, where 3 indicates *often*, 2 *sometimes*, and 1 *never*. A sample item is "I speak badly of my peers". The Cronbach's alpha is .89 (offenders) and .86 (non-offenders).

Escala de Inestabilidad Emocional [Emotional Instability Scale] (Caprara & Pastorelli, 1993; Del Barrio et al., 2001). This scale describes the behaviour that indicates a lack of self-control in social situations as a result of the scarce ability to curb impulsiveness and emotionality. It is made up of 15 items with three response choices which score from 3 to 1, where 3 indicates *often*, 2 *sometimes*, and 1 *never*. A sample item is "I interrupt others when they talk". Cronbach's alpha is .82 (offenders) and .82 (non-offenders)

Inventory of Expression of Anger State-Trait (STAXI-N, Del Barrio, Aluja, & Spielberger, 2004; Del Barrio, Spielberger, & Moscoso, 1998). This inventory evaluates anger as a state (feeling, expression, and total score of anger) and as a trait (disposition, reaction, and total score). Sample items are "I am furious", "I want to shout". Cronbach's alpha is .90 (offenders) and .88 (non-offenders).

Data Analysis

First, factorial 2 x 2 ANOVAs between subjects were also carried out to analyse the possible interaction effect, should there be one, to calculate the differences of averages between boys and girls and between young offenders and non-offenders for each of the variables (hedonistic reasoning, oriented to the needs of others, oriented to approval, stereotyped and internalised, perspective taking, empathic concern, physical and verbal aggression, prosocial behaviour, anger trait, anger state, and emotional instability). Second, Pearson's correlation analyses were carried out amongst the variables object of study to observe the degree of relation and the relation trends amongst them, as well as to observe possible problems with correlation amongst them for each subgroup. Finally, we carried out two hierarchical regression analyses, being the dependent variables physical and verbal aggressive behaviour on the one hand and prosocial behaviour on the other, with the aim to include the variables with stronger predictor power over both kinds of behaviour and analyse if the cognitive variables or the emotional variables studied have greater bearing.

The multivariate technique of regression analysis allowed us to summarise the findings of the research with the construction of a predictor profile of the variables included in the research.

Results

The results of the 2 x 2 ANOVAs carried out to analyse the effects of interaction between the factors of sex and young offenders – non-offenders on the emotional and cognitive variables evaluated, point out that it does not exist a statistically significant interaction effect, except on the empathic concern variable, $F(1, 436) = 4.19$, $p = .04$. The results of the comparison of the effects point out that non-offender adolescent girls are more empathic than the boys in their group. There are no differences between offender boys or girls. From these results, we analyse each of the variables separately.

The ANOVAs carried out to analyse the differences in the variables included in the study between young offenders and non-offenders show that there are significant differences amongst all evaluated variables except for the categories of internalised, stereotyped, and oriented to needs reasoning (see Table 1). The young offenders score significantly higher in the hedonistic and oriented to approval reasoning categories. They also manifest more emotional instability, more anger (state-trait) and physical and verbal aggressive behaviour. On the other hand, the non-offender adolescents scored higher in empathy (both in the cognitive and in the emotional dimensions) and in prosocial behaviour (see Table 1). The effect size was small for the hedonistic reasoning and the reasoning oriented to the approval of others, empathic concern, anger state, and prosocial behaviour, medium for perspective taking and anger trait, and big for emotional instability and aggressive behaviour.

The ANOVA shows that differences based on sex are not reached in any of the reasoning levels, neither in emotional instability nor anger. Gender differences between young offenders and non-offenders can be observed in empathy, reaching the girl offenders, $F(1, 439) = 6.39$, $p < .01$, $\eta_p^2 = .02$, and non-offenders, $F(1, 439) = 4.46$, $p < .05$, $\eta_p^2 = .02$, higher scores in perspective taking in comparison with the males of their groups; however, only the non-offender

Table 1
ANOVAs. Typical Measurements and Deviations.

		M	DT	F	η_p^2
Hedonistic	Offenders	2.59	0.97	12.77***	.02
	Non-offenders	2.29	0.79		
Approval	Offenders	2.53	1.11	17.67***	.03
	Non-offenders	2.12	0.90		
Internalised	Offenders	3.57	0.91	0.26	.00
	Non-offenders	3.52	0.82		
Stereotype	Offenders	3.15	0.91	1.06	.00
	Non-offenders	3.23	0.77		
Needs	Offenders	3.38	0.92	3.95	.00
	Non-offenders	3.21	0.84		
Perspective taking	Offenders	2.99	0.65	28.08***	.06
	Non-offenders	3.33	0.65		
Empathic concern	Offenders	3.29	0.61	10.35***	.02
	Non-offenders	3.48	0.64		
Anger state	Offenders	1.34	0.49	14.96***	.03
	Non-offenders	1.18	0.33		
Anger trait	Offenders	1.99	0.44	28.19***	.06
	Non-offenders	1.78	0.38		
Emotional instability	Offenders	1.93	0.37	60.77***	.12
	Non-offenders	1.67	0.35		
Prosocial behaviour	Offenders	2.38	0.38	14.87***	.03
	Non-offenders	2.51	0.33		
Aggressive behaviour	Offenders	1.65	0.39	91.87***	.17
	Non-offenders	1.32	0.31		

Note. F = statistics based on one-way ANOVAs; η_p^2 = partial eta squared, effect size measure (.01 = small effect, .06 = medium effect, .13 = large effect; Cohen, 1988). ** $p < .01$, *** $p < .001$.

girls show a higher empathic concern than the non-offender boys, $F(1, 439) = 17.99, p < .001, \eta_p^2 = .07$. In regards to prosocial and aggressive behaviour, it is shown that the non-offender girls report more prosocial behaviours than the boys, $F(1, 439) = 4.11, p < .05, \eta_p^2 = .01$, while both offender boys and girls have lower levels of prosocial behaviour, with non-significant differences between them. An opposite effect can be observed in aggressive behaviour, in a way that even though differences are observed in the non-offenders group, it is the boys who reach higher scores, $F(1, 439) = 6.31, p < .01, \eta_p^2 = .02$. The effect size was small in all cases except in empathic concern, in non-offender adolescents, where the scale was medium.

Table 2 shows the bivariate correlations for all variables included in the research in both young offenders and non-offender samples.

Aggressive behaviour correlates positively and significantly in both subsamples (offenders and non-offenders) with anger as state and trait, with emotional instability, and hedonistic reasoning. Moreover, it does it in equal measure in the young offenders subsample with the reasoning oriented to approval and the stereotyped. As for empathy, the correlations are significant and inverted in both subsamples. It also correlates inversely with the internalised reasoning in the case of non-offender adolescents (see Table 2).

Prosocial behaviour correlates positively and significantly in both subsamples (offenders and non-offenders) with empathy (perspective taking and empathic worry) and with the internalised reasoning. In the case of the young offenders, an also positive correlation appears although weaker with the stereotyped reasoning and oriented to needs. Finally, prosocial behaviour correlates negatively with anger state in the young offenders' subsample and with anger trait in the non-offenders' subsample (see Table 2).

Given that ANOVAs have shown that there are few significant differences between boys and girls in the evaluated variables, regression analyses were carried out in both groups, young offenders and non-offenders, taken as a whole (boys and girls). Hierarchical regression analysis were carried out to test the unique contribution of the cognitive variables (prosocial reasoning and perspective taking) to physical and verbal aggressive behaviour and to prosocial behaviour in young offenders and non-offenders, controlling for the influence of emotional variables; and the unique contribution of the emotional variables (empathic concern, emotional instability, anger trait and state), controlling for the cognitive variables.

The first block of the equation includes the cognitive variables, while the second block includes the emotional variables. The multicollinearity tests were satisfactory in all factors of variance inflation less than 2.00 and the tolerance of the variables all close to 1.00.

Table 2
Bivariate Correlations in both Subsamples.

	Offenders		Non-offenders	
	Aggressive Behaviour	Prosociality	Aggressive Behaviour	Prosociality
Hedonistic	.20**	-.07	.22**	-.06
Approval	.16*	-.04	.05	-.08
Internalised	.09	.21**	-.19**	.19**
Stereotyped	.15*	.16*	-.10	.06
Needs	.103	.14*	-.05	.12
Perspective taking	-.26**	.35**	-.25**	.31**
Empathic concern	-.15*	.33**	-.30**	.46**
Anger state	.49**	-.24**	.32**	-.13
Anger trait	.44**	-.04	.42**	-.18**
Emotional instability	.70**	-.09	.63**	-.09

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

Table 3
Summary of Aggressive Behaviour and Prosocial Behaviour Regression Analysis.

Predictors	Offenders							
	Aggressive Behaviour				Prosocial Behaviour			
	Beta	t	R ²	ΔR ²	Beta	t	R ²	ΔR ²
<i>Block 1</i>								
Perspective taking	-.30	-4.52***	.13	.13	.30	4.64***	.17	.17
Hedonistic	.08	ns			-.01	ns		
Approval	.02	ns			-.14	ns		
Internalised	.09	ns			.07	ns		
Stereotyped	.06	ns			.10	ns		
Needs	-.11	ns			-.00	ns		
<i>Block 2</i>								
Empathic concern	-.057	ns	.59	.46	.19	2.62***	.24	.07
Anger state	.26	5.63***			-.24	-3.66***		
Anger trait	.05	ns			.03	ns		
Emotional instability	.53	9.36***			.05	ns		
Non-offenders								
Predictors	Aggressive Behaviour				Prosocial Behaviour			
	Beta	t	R ²	ΔR ²	Beta	t	R ²	ΔR ²
<i>Block 1</i>								
Perspective taking	-.17	ns	.15	.15	.28	3.91***	.13	.13
Hedonistic	.21	2.60*			.10	ns		
Approval	-.19	-2.49*			.04	ns		
Internalised	-.11	ns			.12	ns		
Stereotyped	.01	ns			.20	2.20*		
Needs	.05	ns			.09	ns		
<i>Block 2</i>								
Empathic concern	-.20	-3.27**	.48	.32	.44	6.09***	.27	.14
Anger state	.09	ns			-.08	ns		
Anger trait	.04	ns			-.03	ns		
Emotional instability	.53	8.59***			.054	ns		

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

ns = non-significant

Table 3 shows the summary of hierarchical regression analyses for the cognitive variables and the emotional variables about physical and verbal aggression and about the prosocial behaviour in young offenders and non-offenders. Due to the sample being relatively big which results in a bigger power α was fixed as $\leq .01$.

The global prediction of physical and verbal aggressive behaviour was significant for the whole of the sample of young offenders, $F(10, 209) = 29.062$, $p = .000$, and non-offenders, $F(10, 209) = 18.957$, $p = .000$. The general model explained 58% of the variance in physical and verbal aggressive behaviour in young offenders and 46% of the variance in the physical and verbal aggressive behaviour in non-offenders. The low perspective taking, emotional instability, and anger state are the variables that intervene in the prediction of aggressive behaviour in young offenders, while in the case of non-offenders the prosocial reasoning determined by the categories of hedonism and low approval from other has a clear weight, although it also comes into the prediction of empathy (low perspective taking and low empathic concern) and emotional instability (see Table 3).

The global prediction of prosocial behaviour was significant for the whole of the sample of young offenders, $F(10, 209) = 6.662$, $p = .000$, and non-offenders, $F(10, 209) = 7.650$, $p = .000$. The model explained the 22% of the variance in the prosocial behaviour of young offenders and 23% of the variance of the prosocial behaviour of non-offenders. Perspective taking and empathic concern are the variables that intervene in the prediction of prosocial behaviour in both subsamples of adolescents (offenders and non-offenders). Moreover, in the case of young offenders, the low anger state intervenes also in the prediction of prosocial behaviour, while in the case of young non-offenders the stereotyped reasoning comes into prediction as an important variable (see Table 3).

Discussion

It is important to examine the cognitive processes together with the emotional ones to better understand delinquent behaviour. Results are more conclusive if we compare these processes in the population that has committed a crime and another of similar socio-demographic characteristics but which has not committed a violation punished by law that brings about a sentence.

The main aim of this study was to analyse how the cognitive processes (prosocial moral reasoning and perspective taking) interact with the emotional adaptive processes (empathic concern) and the non-adaptive ones (emotional instability, state and trait anger) in the aggressive behaviour and prosocial behaviour displayed by adolescents who have broken the law and are serving a sentence and those who have not and therefore are considered socially adapted. The aim is to pinpoint the cognitive and emotional processes which have a higher predictor power of behaviour, which will help to better understand the factors that propel antisocial behaviour in adolescence.

The results show that there are no differences based on sex in any of the levels of prosocial moral reasoning; however, as expected, girls are more empathic than boys (Mestre et al., 2009; Van der Graaff et al., 2012; Van der Graaff, Branje, De Wied, Hawk, & Van Lier, 2014), even though the empathic concern is only higher in girls who have not committed a crime; in the young offenders sample, it stops being a prominent characteristic in women, who would not have this inhibitor of the behaviour to harm. Differences have not been established in the other evaluated emotions. In relation to behaviours, non-offender girls report more prosocial behaviours, while it is the boys in the same group who indicate more physical and verbal abuse – one more time, prosocial behaviour and

aggressive behaviour is on the same level between offender boys and girls.

Relative to the hypotheses formulated, the results indicate differences between young offenders and non-offenders in most of the cognitive and emotional variables evaluated. The adolescents who have broken the law show lower levels of empathy (perspective taking and empathic concern) and of prosocial behaviour and higher levels of aggressive behaviour, emotional instability, and (state-trait) anger. Regarding prosocial moral reasoning, it is young offenders who use arguments oriented to personal benefit or to seeking approval of others to a greater extent when deciding on a helping behaviour. These results corroborate the first hypothesis and correlate with the research that highlights the relationship between empathy and antisocial behaviour, as well as the importance of emotions and their regulation in aggressive behaviour (Arce, Fariña, & Novo, 2014; Arce, Seijo, Fariña, & Mohamed-Mohand, 2010; Carlo et al., 2010; Jolliffe & Farrington, 2004; Mayberry & Espelage, 2007; Mestre, Samper et al., 2002; Wang et al., 2016).

As for the second hypothesis, in terms of cognitive and emotional processes which predict behaviour, the way they work is different in prosocial behaviour and aggressive behaviour and these differences are shown when comparing offender and non-offender population. That is to say, the results of the regression analysis show that prosocial moral reasoning, the ability to put oneself in another's shoes (perspective taking) and emotional processes, like empathic concern, emotional instability or anger, are present and therefore a different relevance in young offenders and non-offender, as well as in the prediction of their prosocial or aggressive behaviour.

In both samples, prosocial moral reasoning has little weight in the prediction of the two evaluated behaviours. Empathy in both its cognitive and emotional components is the strongest predictor of prosocial behaviour in adolescents, independently of whether they have committed a crime or not; moreover, a reasoning based on what is considered socially accepted (stereotyped reasoning) also predicts the helping behaviour in non-offenders, while lower levels of anger (state) predict it in young offenders.

These results correlate with the research that considers empathy as a strong motivator of prosocial behaviour. This pattern is repeated in offender and non-offender samples; therefore, empathy would be a strong motivator of helping behaviour in adolescents serving a sentence for having had antisocial behaviour which imply harm to others. So, regulation of anger (Caprara et al., 2010; McMahon et al., 2013) and development of empathy (Mestre, Samper et al., 2002) could benefit helping behaviour in young offenders, behaviour that also acts as an inhibitor of aggressive behaviour (Carlo et al., 2014).

In the prediction of aggressive behaviour, cognitive and emotional processes also act differently in both groups. Emotional instability, meaning lack of selfcontrol and impulsiveness in situations that cause tension, is a strong predictor of aggressive behaviour in young offenders and non-offenders, while state anger also affects those who have committed a crime, that is, uncontrolled emotions are strong predictors of aggressive behaviour in adolescence, but they have a bigger role in the young offenders' sample. As for the role played by empathy, although it appears as an inhibitor of aggressive behaviour, both in its cognitive and affective components in the non-offender sample, in the young offender sample only perspective taking reaches predictor power, meaning that the concern for the discomfort of another person and to share their emotions are not feelings in the young offender when deciding aggressive behaviour. These results correlate with other research that establishes the relationship between empathy and antisocial and aggressive behaviour in childhood and adolescence (Arce, Fariña, & Vázquez, 2011; Fariña, Arce, & Novo, 2008;

Mayberry & Espelage, 2007; Mestre, Samper et al., 2002; Van der Graaff et al., 2012; Wang et al., 2016) and differ from those which suggest that they are unrelated constructs.

Once again, prosocial moral reasoning makes itself present only in the prediction of aggressive behaviour in non-offenders. The arguments used are situated on a more basic level of hedonistic reasoning, meaning reasoning focused on personal benefits that can be obtained by the action or the approval of significant people. These results partially confirm the second hypothesis, given that although the importance of emotions and the low empathy in predicting aggressive behaviour and the important role of empathy in prosocial behaviour are confirmed, the prosocial moral behaviour only reaches predictor power in the non-offender population, while it is not a significant predictor of antisocial behaviour in adolescence (Leenders & Brugman, 2005; Tarry & Emler, 2007), only the low ability to put oneself in another's shoes is the cognitive variable that participates in the prediction. Other studies also indicate that young offenders practise more immature ways of perspective taking and moral reasoning (Lahat, Gummerum, Mackay, & Hanoch, 2015; Stams et al., 2006).

Even if this research has limitations, it is based in self assessments and follows a cross-sectional design with a specific age range, these results contribute relevant information for the prevention of delinquent behaviour as well as for the development of intervention programmes directed to social rehabilitation. A sole process does not predict prosocial behaviour or aggressive behaviour. The adapted prosocial behaviour depends on cognitive and affective processes which interact (Stams et al., 2008). To better know factors associated to aggressive behaviour, it is important to understand the moral judgements that adolescents carry out, how they think when they direct or decide their behaviour, as their thoughts and moral affects can drive antisocial behaviour (Lahat et al., 2015).

Intervention programmes focused on cognitive restructuring can increase the level of socio-moral reasoning, which is a cognitive process that contributes to moral maturity, but it is also necessary to consider empathy together with prosocial moral reasoning, anger, and impulsiveness to understand prosocial behaviour and aggressive behaviour. Our results are conclusive about the importance of the ability to put oneself in another's shoes and the control of impulsiveness and anger in inhibiting aggressive behaviour in young offenders.

Therefore, for the prevention, as well as the re-education programmes, it is necessary to include emotional regulation and empathy (perspective taking and empathic concern), but also prosocial moral reasoning which includes the anticipation of consequences, principles of respect and equality (internalised reasoning), respect for rules (stereotyped reasoning) that give adolescents arguments besides hedonism or the seeking of approval when deciding their behaviour, an internalised reasoning that is absent in the prediction of adolescent behaviour and that correlates positively with prosocial behaviour and negatively with aggressive behaviour (Carlo et al., 2014).

Conflict of Interest

The authors of this article declare no conflict of interest.

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