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Feelings or Cognitions? Moral Cognitions and Emotions as Longitudinal Predictors of Prosocial  
and Aggressive Behaviors

## Abstract

There has been some debate regarding the roles of moral cognitions and emotions in understanding moral development. We examined the short-term longitudinal relations among perspective taking, sympathy, prosocial moral reasoning, prosocial behaviors and aggression in adolescents. The final sample included of 489 students ( $M$  age = 12.28 years,  $SD = .48$ ; 232 boys and 257 girls) in public and private schools from predominantly middle class families in Valencia, Spain. Students completed measures of perspective taking, sympathy, prosocial moral reasoning, prosocial behaviors, and aggressive behaviors twice in a one year interval. In general, path analyses showed that social cognitions and emotions were interrelated and predicted both prosocial behaviors and aggression. Furthermore, residual change analyses revealed that developmental changes in social cognitions and sympathy were linked to developmental changes in prosocial and aggressive behaviors. Discussion focuses on support for cognitive developmental theory and on implications for debate regarding the relevance of cognitions and emotions in moral development.

**KEYWORDS:** prosocial behaviors, moral reasoning, perspective taking, sympathy, aggressive behaviors

For centuries, philosophers have debated the roles of emotions and cognitions in morality (Hume, 1751/1957; Kant, 1785/1993). More recently, among psychologists, such debates have resurfaced in the writings of major moral theorists such as Kohlberg (1984) and Hoffman (2000). Cognitive developmental theorists emphasized the role of moral cognitions in moral development and this perspective continues to heavily influence contemporary research (Turiel, 1998; Lapsley, 1996). However, other theoretical perspectives have attempted to understand the interplay of moral emotions and cognitions (Eisenberg, 1986; Gibbs, 2003; Staub, 2005) and some recent theories have suggested that moral emotions are primary to moral cognitions (Haidt, 2001). Although this debate is likely to continue, research on examining the simultaneous influence of moral cognitions and moral emotions processes is needed. Furthermore, because moral developmental scholars are interested in change across time, longitudinal studies on these processes are needed to understand developmental changes in moral behaviors. The present study was designed to examine the longitudinal relations and changes in perspective taking, sympathy, prosocial moral reasoning, prosocial behaviors, and aggression in adolescence.

Cognitive developmental scholars have identified two primary social cognitions that are conceptually and empirically associated with moral behaviors: prosocial moral reasoning and perspective taking. Prosocial moral reasoning is defined as decision making regarding helping opportunities when there is a conflict between another's and one's psychological or physical needs in situations where there are no laws or formal social guidelines. Unlike prohibition-oriented moral reasoning that emphasizes issues of justice and life-and-death (see Kohlberg, 1984), prosocial moral reasoning is an aspect of morality that entails issues of caring and interpersonal relationships (Eisenberg, 1986; Gilligan, 1982; Pratt, Skoe, & Arnold, 2004). Eisenberg (1986) outlined five levels of prosocial moral reasoning commonly observed among

children and adolescents: hedonistic, approval-oriented, needs-oriented, stereotyped, and internalized (including reasoning about empathy). Eisenberg (1986) proposed that prosocial moral reasoning becomes progressively more complex as cognitive maturation and social experiences accumulate, including the development of perspective taking skills (i.e. understanding another's thoughts, emotions, and social situations). Furthermore, prosocial moral reasoning is conceptually linked to moral emotions such as sympathy (i.e. feelings of sorrow or concern for others) such that moral reasoning (and perspective taking) can induce or prime sympathy and vice versa (Eisenberg, Shea, Carlo, & Knight, 1991; Hoffman, 2000). Based on prior empirical work, Eisenberg and her colleagues have found that hedonistic, approval-oriented, and needs-oriented prosocial moral reasoning types are frequently expressed by elementary school age whereas stereotyped and internalized emerge in middle school and high school ages (Eisenberg, Miller, Shell, McNalley, & Shea, 1991; Eisenberg, Carlo, Murphy & Van Court, 1995). Furthermore, several investigators have shown that prosocial moral reasoning is related positively to prosocial behaviors (i.e. actions intended to benefit others), sympathy, and perspective taking (Carlo, Eisenberg, & Knight, 1992; Carlo, Hausmann, Christiansen, & Randall, 2003; Eisenberg et al., 1995; Eisenberg, Zhou, & Koller, 2001), and negatively related to aggression (Laible, Eye, & Carlo, 2008; Wyatt & Carlo, 2002).

Another social cognition that is hypothesized to be related to moral behaviors is perspective taking. Similar to prosocial moral reasoning, perspective taking is believed to become more sophisticated with age and continues to develop well into adolescence (Kurdek, 1978; Selman, 1980). Batson (1998), Davis (1983), Hoffman (2000), and Eisenberg (1986) have all speculated that perspective taking is required for sympathy responding and ought to facilitate prosocial behaviors and mitigate aggression. According to these scholars, understanding how

others are feeling, their intentions and desires, and their social circumstances should lead to greater sympathy and prosocial behavioral responding for those who need assistance or who are suffering. Indeed, cognitive developmental scholars have noted that age-related changes in prosocial behaviors might be associated with age-related changes in perspective taking (Eisenberg, 1986; Underwood & Moore, 1982). However, direct empirical evidence on this notion is sparse (see Carlo, Knight, McGinley, Goodvin, & Roesch, in press). Furthermore, prior researchers have found somewhat mixed relations between perspective taking and prosocial behaviors; though meta-analytic reviews have revealed that there is an overall modest positive association between these constructs (Carlo et al., in press; Underwood & Moore, 1982). Other studies have shown that aggression and externalizing behaviors are negatively associated with perspective taking (see Miller & Eisenberg, 1988). In addition, recent studies have shown that sympathy is positively associated with perspective taking (Eisenberg et al., 2001).

As mentioned previously, there has been a great deal of interest in the role of emotions in morality, with a special focus on sympathy or compassion. Several scholars have noted the conceptual importance and relevance of sympathy in prosocial behaviors and in aggression. By definition, sympathy pulls individuals to emotionally respond to the plight and needs of others to reduce their suffering. Consequently, feelings of compassion are also believed to inhibit causing harm to others (Feshbach, 1987). Indeed, the lack of compassion for others is noted as a central component of clinical psychopathy and has been linked to delinquency (Hare, 2006). Batson (1998) asserts that sympathy (or the closely related notion of empathy, or feeling the same as another) is the basis for altruistic behaviors (i.e., selflessly motivated behaviors primarily intended to benefit others often under risky circumstances and without reward expectations). Similarly, Hoffman (2000) argues that sympathy frequently serves as the primary motive behind

prosocial behaviors. Thus, although perspective taking enables the individual to understand the social situation and thereby foster sympathy, sympathy is the emotional component that moves the individual toward prosocial action and away from harming or injuring others. There is relatively substantial evidence on the significant associations between sympathy and both prosocial and aggressive behaviors (Batson, 1998; Carlo, 2006; Eisenberg & Miller, 1987; Miller & Eisenberg, 1988).

Despite the available evidence on the links among perspective taking, prosocial moral reasoning, sympathy, prosocial and aggressive behaviors, several questions remain. First, most studies on the relations between prosocial and aggressive behaviors and these sociocognitive and socioemotive predictors are cross-sectional designs, which limit our ability to infer causality and to examine hypothesized developmental changes. Second, studies that examine whether changes in these sociocognitive and socioemotive traits account for changes in levels of moral behaviors are extremely rare. In one notable exception, investigators have reported that longitudinal changes in prosocial behaviors were accounted for by longitudinal changes in sympathy (Eisenberg et al., 1999). And third, few studies have had large enough samples to examine the multivariate relations between perspective taking, prosocial moral reasoning, and sympathy, and these social behaviors. In a cross-sectional study, Eisenberg et al. (2001) reported that perspective taking was related positively to sympathy and prosocial moral reasoning, sympathy was related positively to prosocial moral reasoning and prosocial behaviors, and prosocial moral reasoning was associated positively to prosocial behaviors (in a sample of Brazilian adolescents). The present study was designed to further examine these multivariate relations in a longitudinal sample of adolescents from Spain.

To examine the relations among social cognitions, emotions, and behaviors, data was collected from adolescents in Spain. Although it is difficult to adequately characterize people from countries because of within group heterogeneity, researchers have often done so to contextualize their findings. Spain is similar to most other Western, industrialized societies and is a member of the European Union. There is much diversity in Spain because of its long history of Roman, Moorish, and Christian traditions and because of recent immigration trends. The primary language in Spain is Spanish though there are 3 other major languages and various dialects. However, like many other Hispanic cultures, Spain is generally characterized as a society that values the family (Elzo, 2004; Samper, 1999). Recent surveys reveal that the family and health are rated higher than work, friends, and religion (CIS, 2004). Although religion is not rated as highly as family and health, religion (primarily Christianity) continues to play a major role in the culture and social customs of Spanish life (CIS, 2004). With regard to other social aspects and traditions, in general, Spain ranks higher on individualism, and somewhat lower in masculinity, than other Latino cultures (Hofstede, 1984, 2001). However, Spain is substantially lower on individualism than the USA (Hofstede, 1984). Therefore, Spain is considered a moderately collectivist, feminine-oriented society (Basabe et al., 2000; Fernández-Berrocal, Salovey, Vera, Ramos & Extremera, 2001; Páez & Vergara, 1995). Despite these generalizations regarding Spanish culture, prior research on perspective taking, sympathy, prosocial moral reasoning, prosocial and aggressive behaviours in Spain show similar developmental patterns to those in studies conducted in the United States (Mestre, Samper & Frías, 2002; Mestre, Samper & Frías, 2004; Mestre, Samper, Nácher, Tur & Cortés, 2006; Mestre, Samper, Tur, Cortés & Nácher, 2006; Mestre, Tur, Samper, Nácher & Cortés, 2007).

In summary, based on prior theory and research, significant positive relations were expected among perspective taking, sympathy, prosocial moral reasoning, and prosocial behaviors. In contrast, aggression was expected to be negatively related to perspective taking, sympathy, and prosocial moral reasoning. Furthermore, we expected that changes in perspective taking, sympathy, and prosocial moral reasoning would be associated with changes in prosocial and aggressive behaviors. Finally, based on prior empirical findings and theory (Gilligan, 1982; Eisenberg, 1986), adolescent girls were expected to report more perspective taking, sympathy, prosocial moral reasoning, and prosocial behaviors than adolescent boys, but less aggression than adolescent boys.

### Method

Five hundred and five adolescents were recruited to participate in a longitudinal study examining positive and negative social behaviors. Participants completed measures of perspective taking, sympathy, prosocial moral reasoning, prosocial behaviors, and aggression (described below) at two separate time points. Sixteen adolescents failed to complete both waves completely and thus were excluded from all analyses. The final sample included 489 adolescents with an average age of 12.28 years ( $SD = .48$ ). The sample was composed of 232 (47%) boys and 257 (53%) girls. One hundred and forty eight (30%) were from public schools and 341 (70%) were from private schools. SES was calculated using the Hollingshead classification scheme (adapted for use in Spain; Ibáñez, 2005). The scale ranges from 1 to 7 (1 = top level administrative and business executives; 3 = mid-level administrators including administrative secretaries, insurance agents; 5 = skilled manual laborers such as auto mechanics, carpenters; 7 = unskilled workers such as cleaning workers, porters). The mean SES of the sample was 3.25 ( $SD = 1.20$ ).



### *Measures*

Each of the measures were previously translated into Spanish by a moral developmental researcher from Spain who is fluent in Spanish and back translated by a fellow, bilingual researcher.

*Sympathy* was assessed with the sympathy subscale of the Interpersonal Reactivity Index (IRI; Davis, 1980). Participants responded to 7 items, such as “The problems of the others worry me” on a 5-point scale, anchored by 1 (*does not describe you well*) and 5 (*describe you very well*). This scale showed acceptable internal consistency across at both waves ( $\alpha = .63$  &  $.61$ , for waves 1 and 2, respectively); thus, composite scores were created by averaging across the items.

*Perspective taking* was assessed with the perspective taking subscale of the IRI. Participants responded to 7 items, such as “When I must decide, I listen to different opinions” on a 5-point scale, anchored by 1 (*does not describe you well*) and 5 (*describe you very well*). This scale showed to be reliable at both waves ( $\alpha = .62$  &  $.64$ , waves 1 and 2, respectively); thus, composite scores were created by averaging across the items.

*Prosocial moral reasoning* was assessed with the Prosocial Reasoning Objective Measure (PROM; Carlo, Eisenberg, & Knight, 1992). The PROM contains stories designed to invoke a conflict between the actor's needs, wants, and desires and those of another (or others). The stories depict situations in which (a) helping a peer who is being teased versus incurring rejection from peers, (b) donate blood to a needy other at the cost of losing money at work and school, (c) go to the beach with friends or help a peer study to pass a math exam, (d) go to a party with friends or miss the party to help an injured boy, and (e) take food to the people of his

or her flooded village at the cost of not having sufficient food for him or herself. For illustration, the teasing story is as follows:

Sandy (Begoña) was a student at school. One day Sandy was walking into her new class early and saw an older girl teasing and making fun of another girl's clothes. The girl was crying. There was no one else around and Sandy did not know the girls very well, but she had heard that the girl that was being teased was very poor and the older girl had a lot of friends. Sandy thought that maybe she should try to stop the older girl but she was afraid that the older girl and her friends might pick on her and tease her also.

For each story, adolescents indicated whether the protagonist in the story should or should not help and then indicated the importance of five different reasons for making this decision. The reasons reflect Eisenberg's (1986) empirically supported theoretical perspective, which suggests that prosocial moral reasoning undergoes a developmental progression from childhood through adolescence. Thus, in the order of progression from less to more mature forms of moral reasoning, each story included reasons reflecting hedonistic moral reasoning (e.g., "it depends whether Sandy can find other friends to do things with in school"), needs-oriented moral reasoning (e.g., "it depends whether the other girl is crying a lot"), approval-oriented moral reasoning (e.g., "it depends whether Sandy's classmates would approve of what she does"), stereotypic moral reasoning (e.g., "it depends whether Sandy thinks the older girl is mean or not"), and internalized moral reasoning (e.g., "it depends whether Sandy thinks that she is doing what she believes she should do"). Adolescents rated each reason on a 5-point scale, anchored by 1 (*not at all*) and 5 (*greatly*).

Scale scores were calculated through four-stage process (as described in prior research, e.g., Carlo et al., 1992). First, scale scores for each type of prosocial moral reasoning were

derived by averaging across each type of item from the three stories. Second, because all adolescents are expected to engage in each type of moral reasoning but show greater preference for some over others, proportion scores were computed by dividing each scale score by the sum total of responses to all five scale scores. Third, because the five types of prosocial moral reasoning reflect varying levels of development, weights were applied to the proportion scores; hedonistic and needs oriented were weighted by 1, approval-oriented and stereotypic were weighted by 2, and internalized was weighted by 3. Finally, composite prosocial moral reasoning scores were computed by summing across the weighted proportion scores. This composite score (15 item scale) has a theoretical range from 1.43 (total preference for hedonistic moral reasoning) to 5.31 (total preference for internalized moral reasoning). The actual range for the current sample was 1.53-2.08 for wave 1 and 1.60-2.19 for wave 2, which reflects the expectation that adolescents show varying degrees of preference for each type of prosocial moral reasoning. The final composite scores showed acceptable internal consistency for both waves ( $\alpha$ s = .73 & .76, waves 1 and 2, respectively). The PROM has demonstrated acceptable reliability, construct, convergent, and discriminant validity in other studies with adolescents, including research with adolescents from Spain (Carlo, Koller, Eisenberg, Da Silva, & Frohlich, 1996; Carlo, McGinley, Roesch, & Wyatt, in press; Eisenberg, Carlo Murphy, & Van Court, 1995; Mestre, Frias, Samper, & Tur, 2002).

*Aggression* was assessed with the Physical and Verbal Aggression Scale (Caprara & Pastorelli, 1993; Del Barrio, Moreno & López, 2001). Participants responded to 20 items, such as “I kick or punch” on a 3-point scale, anchored by 1 *never*), 2 (*sometimes*), and 3 (*always*). This scale showed acceptable reliability ( $\alpha$ s = .80 & .82, waves 1 and 2, respectively) and composite scores were computed by averaging across the items.

*Prosocial behavior* was assessed with the 10-item prosocial subscale of the Prosocial Behavior Scale (Caprara & Pastorelli, 1993; Del Barrio, Moreno, & Lopez., 2001). Participants indicated the degree to which they engage in different types of prosocial behaviors, such as “I help my classmates do their homework,” on a 3-point scale, using the response options of 1 (*never*), 2 (*sometimes*), and 3 (*always*). This measure showed adequate reliability at both waves ( $\alpha = .75$  &  $.76$ , waves 1 and 2, respectively); thus, scores were computed by averaging across the items.

### *Procedure*

The schools that participated were randomly selected from the total schools centers in Valencia, Spain that had students enrolled in the first level of Secondary Obligatory Education (SEO). A total of 22 schools (67 classrooms) participated. Institutional Review Board approval from the School Council and informed parental consent were obtained before participating in the study and participation by students was voluntary. The measures, including others not described here, were completed by groups of students in two 45-minute sessions in their classrooms during school hours. Students participated in two successive annual evaluations (assessments occurred during the first quarter of the school course).

## Results

### *Preliminary analyses and descriptive statistics*

Means, standard deviations, and repeated measure analysis of variances (ANOVAs) testing mean differences at each wave for each variable are reported in Table 1. Overall, the sample showed moderate levels of perspective taking and sympathy, high levels of prosocial behavior, and somewhat low levels of prosocial moral reasoning and aggression. ANOVAs showed that there was an increase between wave 1 and wave 2 in sympathy and a slight decrease

in prosocial moral reasoning. There were no other significant differences across the two waves.

Mean differences between boys and girls for each variable at each wave were examined using one-way ANOVAS. As shown in Table 2, across both waves, girls were higher than boys in perspective taking, sympathy, prosocial moral reasoning and prosocial behavior but lower in aggression. Zero-order correlations among the variables within each wave are reported in Table 3. As shown in the table, the correlations were consistent across the two waves. Perspective taking, sympathy, prosocial moral reasoning, and prosocial behavior were all positively associated with each other and negatively associated with aggression. SES, as reported at wave 1, was negatively associated with prosocial moral reasoning at both waves but not significantly associated with any of the other variables.

#### *Analytic strategy*

Two longitudinal path models, using observed variable scores, were tested using maximum likelihood estimation with robust standard errors (base models). The first model included a path from wave 1 perspective taking to wave 1 sympathy, from these two variables to wave 1 prosocial moral reasoning, and from these three variables to prosocial behavior and aggression (longitudinal path model). The second model was a cross-lagged path model in which the same model was tested using all the variables at wave 2 but controlling for all variables at wave 1 (cross-lagged path model). For this model, the association between any two variables indicates the degree to which change in one variable from wave 1 to wave 2 is associated change in a second variable from wave 1 to wave 2, above and beyond any change that is due to initial levels of the respective variables. Models were determined to fit the data well if they produced values of CFI > .95, RMSEA < .06, and SRMR < .08 (Hu & Bentler, 1999).

Gender was next examined a moderator of the models using multiple group path analyses (moderation models). For each model, a fully *unconstrained* model, in which each model parameter was allowed to vary across the groups, was compared to a model in which the path coefficients were *constrained* to be equal across groups. The Satorra-Bentler (*S-B*; Satorra & Bentler, 1994)  $\Delta\chi^2$  test was used to compare the fit of the constrained models relative to the unconstrained models.

#### *Tests of Base Models*

*Longitudinal path model.* To examine the longitudinal relations between social cognitions and emotions and the social behaviors, a structural equation model analysis was conducted. The longitudinal path model is fully saturated; thus, fit indices were not available. Standardized path coefficients are shown in Figure 1. As expected, perspective taking (wave 1) was positively related to sympathy (wave 1), prosocial behaviors (wave 2), and (marginally) to prosocial moral reasoning (wave1) but negatively related to aggression (wave 2). Sympathy (wave 1) was positively associated to prosocial moral reasoning (wave 1), prosocial behaviors (wave 2), and negatively related to aggression (wave 2). Prosocial moral reasoning (wave 1) was positively related to prosocial behaviors (wave 2) and negatively (marginally) related to aggression (wave 2).

*Cross-lagged path model.* To examine whether changes in predictor variables were associated with changes in outcomes, a cross-lagged path model analysis was conducted. The cross-lagged path model fit the data well [*S-B*  $\chi^2(20) = 53.23, p < .01$ , Correction Factor (*CF*) = 1.20, CFI = .97, RMSEA = .06, SRMR = .05]. Standardized path coefficients are shown in Figure 2. As can be seen in the figure, changes in perspective taking were positively associated with changes in sympathy, prosocial behaviors, and prosocial moral reasoning (marginally), and

negatively associated with changes in aggression. Changes in sympathy were positively related to changes in prosocial moral reasoning and prosocial behaviors, but not associated with changes in aggression. Changes in prosocial moral reasoning were linked negatively with changes in aggression and positively linked (marginally) with changes in prosocial behaviors. It should also be noted that there were moderate one-year stability coefficients across the main study variables.<sup>1</sup>

#### *Tests of Moderation by Gender*

To examine whether gender moderated the hypothesized relations, multigroup analyses were conducted. For the longitudinal path model, the model in which the path coefficients were constrained to be equal across boys and girls fit the data well [ $S-B \chi^2(9) = 4.63, p > .05, CF = 1.02, CFI > .99, RMSEA = .03, SRMR < .01$ ]. The  $\chi^2$  value of this test also shows that it did not differ from the fully unconstrained model, which was fully saturated and thus had a  $\chi^2$  value of 0. Thus, there was no moderation of gender in this model. For the cross-lagged path model, the fully unconstrained model fit the data well [ $S-B \chi^2(40) = 76.22, p < .01, CF = 1.15, CFI = .96, RMSEA = .06, SRMR = .05$ ] as did the model in which the path coefficients were constrained to be equal across boys and girls [ $S-B \chi^2(54) = 106.08, p < .01, CF = 1.15, CFI = .94, RMSEA = .06, SRMR = .06$ ]. However, the constrained model showed a significant drop in fit relative to the unconstrained model [ $S-B \Delta\chi^2(14) = 26.06, p < .05$ ]. Thus, an additional model was tested in which the path from perspective taking to empathy was allowed to vary across boys and girls. This decision was based on the modification indices, which indicated that releasing this constraint would result in the largest increase in model fit. The resulting model fit the data well [ $S-B \chi^2(53) = 100.54, p < .01, CF = 1.14, CFI = .95, RMSEA = .06, SRMR = .06$ ] and did not lead to a significant decrease in model fit relative to the fully unconstrained model [ $S-B \Delta\chi^2(13)$

= 21.68,  $p > .05$ ]. Results showed that the association between perspective taking and empathy was stronger for boys ( $\beta = .43, p < .01$ ) than for girls ( $\beta = .26, p < .01$ ).

### Discussion

The overall pattern of findings regarding the longitudinal relations among perspective taking, sympathy, prosocial moral reasoning, prosocial and aggressive behaviors was as expected. Moral cognitions (perspective taking, prosocial moral reasoning) and moral emotions (sympathy) had predictive effects on prosocial and aggressive behaviors. Furthermore, perspective taking was related to both sympathy and prosocial moral reasoning, and sympathy was related positively to prosocial moral reasoning. Moreover, the residual path analyses revealed that changes in perspective taking and prosocial moral reasoning were associated with changes in aggressive and prosocial behaviors. Changes in sympathy were associated with changes in prosocial behaviors but not aggressive behaviors. Although there were a few marginally significant relations, the general pattern of relations was as hypothesized even after statistically controlling for SES and when examining the predictive effects of social cognitions and emotions on behaviors one year later. The findings yielded evidence consistent with the notion that both moral cognitions and emotions are relevant processes necessary for understanding moral behaviors and development.

Although scholars have debated the relative importance of moral emotions and cognitions in understanding moral development, the present findings add to the accumulating evidence that both emotions and cognitions are important. Analyses confirmed prior theorizing that perspective taking and prosocial moral reasoning are sociocognitive traits that facilitate prosocial actions and mitigate aggressive behaviors. Furthermore, perspective taking was strongly associated with sympathy as several scholars have noted that perspective taking is an important dimension in



sympathy responding (Batson, 1998; Davis, 1983; Eisenberg, 1986; Hoffman, 2000). Although somewhat less strongly associated, there was also a marginally significant positive link between perspective taking and prosocial moral reasoning suggesting that understanding the social situation of others can foster higher moral reasoning (Kohlberg, 1984; Selman, 1980). In addition, there were significant paths from sympathy to prosocial moral reasoning and to prosocial and aggressive behaviors as well. In general, the relations confirm prior research (mostly conducted in North American samples) that show that perspective taking, prosocial moral reasoning, and sympathy are all significant correlates of prosocial and aggressive behaviors (Carlo, 2006; Eisenberg, Fabes, & Spinrad, 2006; Coie & Dodge, 1998).

Recent concerns regarding the importance of cognitions in moral functioning has often centered on the limitations of cognitive processing and methodological issues (see Haidt, 2001) but prior and present evidence shows that moral cognitions have somewhat stable qualities with enduring consequences. In addition, the present findings remind us that moral cognitions can play significant roles in predicting moral emotions and other important moral cognitions, and that emotions can also predict moral cognitions (Eisenberg, Shea et al., 1991; Hoffman, 2000). The fact that moral cognitions (and emotions) have enduring effects on social behaviors across time is probably due to the relative stability of these traits due to stable biological factors (e.g., temperament), psychological processes (e.g., sense of moral self), and socialization processes (e.g., relatively consistent family, peer, media experiences) (see Carlo, 2006; Eisenberg et al., 2006). Recent work has begun to focus on the impact of moral identity on moral behaviors and there is evidence that moral cognitions are central factors in moral identity (Blasi, 2004; Hardy & Carlo, 2005; Hart, 2005; Narvaez, 2005). Thus, although it might be challenging to disentangle cognitive and emotional aspects of moral functioning due to methodological constraints, the

accumulated evidence to date points to likelihood that both processes are relevant and central aspects of moral functioning.

Moreover, it is likely that moral cognitions and emotions might play somewhat different roles depending upon the specific form of moral behavior. Some forms of prosocial behaviors might require more thoughtful decision making (e.g., cost and benefit analyses) whereas other forms of helping might not (e.g., assisting someone in an unambiguous emergency situation). For example, when choosing to donate money to a charity organization, individuals likely consider the various advantages and disadvantages of different charity organizations. However, if someone observes a person in obvious distress that is physically injured, then cognitive processes such as moral reasoning might be less relevant or necessary than sympathy for prosocial responding. Analogously, in predicting different forms of aggressive behaviors, moral cognitions might be less relevant (e.g., impulsive, rage like aggression) or more relevant (e.g., purposeful, planned proactive aggression). Consistent with this notion, developmental scholars have found specific sociocognitive correlates of different types of prosocial behaviors and aggressive behaviors (Carlo et al. 2003; Carlo & Randall, 2002; Coie & Dodge, 1998; Crick & Dodge, 1996). Moreover, recent research using neuroimaging techniques supports the contention that the specific characteristics of moral tasks activate different regions of the brain associated with both emotions and cognitions (Greene, Sommerville, Nystrom, Darley, & Cohen, 2007; Moll, Oliveira-Souza, Branati, & Grafman, 2002). Therefore, the present findings and these various avenues of research suggest that future theoretical debates concerning the roles of emotions and cognitions would benefit from a focus on discerning the circumstances that engage cognitive and emotional moral processes.

Although much theorizing exists on how social cognitions might account for

developmental changes in moral behaviors, few studies directly examine this notion. The present findings showed general support for the contention that changes in perspective taking, prosocial moral reasoning (marginally related to prosocial behaviors), and sympathy (was not related significantly to aggressive behaviors) accounted for changes in prosocial and aggressive behaviors. The findings are in accord with cognitive developmental theorists who assert that the changes in perspective taking, sympathy, and prosocial moral reasoning skills accounts for changes in prosocial and aggressive behaviors. The pattern of findings was relatively impressive given that change was examined over a relatively short period of time and during adolescence where one might expect development to be somewhat less dramatic than in earlier childhood. The effect of changes in perspective taking was particularly impressive given that it accounted for changes in both moral behaviors as well as in changes in sympathy and prosocial moral reasoning (marginally). Moreover, in light of scholars' assertions that perspective taking can be used to cause harm in others (Feshbach, 1987), the present findings suggest that such tendencies generally promote prosocialness and inhibit harm to others. Taken together, these findings are consistent with prior effective intervention efforts that focus on both moral cognitions and emotions to foster prosocial behaviors and to mitigate aggressive behaviors (Lewis, Watson, & Schaps, 2003; see Lapsley & Narvaez, 2006).

Tests of mean differences in gender and from wave 1 to wave 2 revealed some interesting results. Consistent with prior theorizing and research on gender differences (Maccoby & Jacklin, 1974; Lennon & Eisenberg, 1987; Coie & Dodge, 1998), girls reported higher levels of perspective taking, sympathy, prosocial moral reasoning, and prosocial behaviors, and lower levels of aggression than boys. These findings suggest that girls and boys are subject to gender-specific socialization experiences (e.g., gender specific parenting practices, different peer norms

and expectations) and/or biologically based processes (e.g., differential physical maturation rates) that result in distinct developmental trajectories of moral development (Brody, 1999; Maccoby & Jacklin, 1974). Interestingly, analyses of variance tests revealed that there was a group mean increase in sympathy between wave 1 and wave 2 but prosocial moral reasoning decreased during that same period. Furthermore, there were no group mean differences in perspective taking, aggression, or prosocial behaviors from wave 1 to wave 2. Previous research with samples of European Americans from the US had yielded evidence of increases in sympathy, perspective taking, prosocial moral reasoning, and aggressive behaviors, and decreases in prosocial behaviors during middle adolescence (Carlo et al., 1992; Eisenberg et al., 1995; Estrada, 1995). Given the fact that the present sample is from Spain and most prior studies examining age trends in these constructs are from samples in the US, further research will be needed to confirm these findings. Finally, it is worth noting that the results of the residual path analyses and the analyses of variance clearly showed that significant changes across time can occur though those changes might not be observed when examining group mean differences.

Several methodological concerns limit our confidence in the present findings. First, all the measures used in the present study were self-report and therefore subject to self presentational biases. Although the measures are relatively established and commonly used instruments, one must always be cautious because participants might be susceptible to such biases. Second, the sample consists of adolescents from Spain and thus generalizations must be necessarily limited to adolescents with similar characteristics. Given that most prior research on moral development in adolescence has been conducted with samples from the US, comparability to those studies must be made cautiously. However, studies such as the present one are necessary to examine the universality of prosocial development models. And third, although longitudinal

studies improve our ability to make inferences regarding direction of causality, tests of alternative models including bidirectional models are desirable. It is likely that prosocial and aggressive actions result in feedback effects on adolescents' perspective taking, sympathy and prosocial moral reasoning tendencies. Future research using multiple methods of assessment, adolescents from diverse samples, and examining alternative models of development are needed.

Despite the limitations, the findings yielded additional evidence on the importance of both moral cognitions and emotions in predicting moral behaviors. Evidence showed that perspective taking, sympathy, and prosocial moral reasoning directly or indirectly facilitate prosocial behaviors and mitigate aggressive behaviors. Furthermore, the methodology allowed for examination of developmental change processes in a relatively large sample of adolescents and revealed that changes in social cognitions and emotions predicted changes in moral behaviors. The results further our understanding of moral development in Spanish adolescents and suggest that cognitive developmental models of moral development replicate in this different context. Clearly, much more research examining these models of moral development in other countries and societies are needed. However, thus far, the accumulated evidence from prior studies and the present study suggest that perspective taking, sympathy, and prosocial moral reasoning are theoretically important moral constructs relevant to understanding adolescents' moral development.

Footnote

<sup>1</sup>A separate set of model tests were conducted statistically controlling for SES to examine whether the pattern of findings were similar across SES levels. Results showed that the relations in both the longitudinal and residual model tests were interpretably the same.

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Table 1. Descriptive statistics and repeated measures ANOVAS.

	Wave 1		Wave 2		<i>F</i> Test
	Mean	<i>SD</i>	Mean	<i>SD</i>	<i>F</i> (1, 488)
Perspective Taking	3.27	.64	3.32	.65	3.53
Sympathy	3.45	.65	3.56	.62	19.19**
Moral Reasoning	1.85	.07	1.84	.07	6.04*
Aggression	1.46	.28	1.45	.28	.06
Prosocial Behavior	2.55	.29	2.54	.29	.12

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



Table 2. ANOVAS for waves 1 and 2 variables by sex.

	Wave 1					Wave 2				
	Boys		Girls		<i>F</i> Test	Boys		Girls		<i>F</i> Test
	Mean	<i>SD</i>	Mean	<i>SD</i>	<i>F</i> (1,487)	Mean	<i>SD</i>	Mean	<i>SD</i>	<i>F</i> (1,487)
Perspective Taking	3.09	.60	3.43	.64	34.57**	3.15	.65	3.48	.62	31.80**
Sympathy	3.19	.64	3.68	.57	78.44**	3.32	.60	3.79	.54	82.83**
Moral Reasoning	1.83	.07	1.85	.07	12.95**	1.82	.07	1.85	.07	15.46**
Aggression	1.51	.27	1.41	.27	14.49**	1.52	.29	1.39	.25	28.49**
Prosocial Behavior	2.46	.30	2.62	.25	39.45**	2.44	.30	2.64	.24	68.38**

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

Table 3. Correlations among the variables at waves 1 (below diagonal) and 2 (above diagonal).

	Perspective Taking	Sympathy	Moral Reasoning	Aggression	Prosocial Behavior	SES
Perspective Taking	.51**	.54**	.23**	-.32**	.45**	.03
Sympathy	.52**	.56**	.30**	-.28**	.40**	-.02
Moral Reasoning	.24**	.31**	.54**	-.22**	.27**	-.12**
Aggression	-.36**	-.28**	-.26**	.54**	-.33**	.02
Prosocial Behavior	.52**	.49**	.25**	-.32**	.55**	-.03
SES	-.02	-.08	-.09*	-.05	.03	-

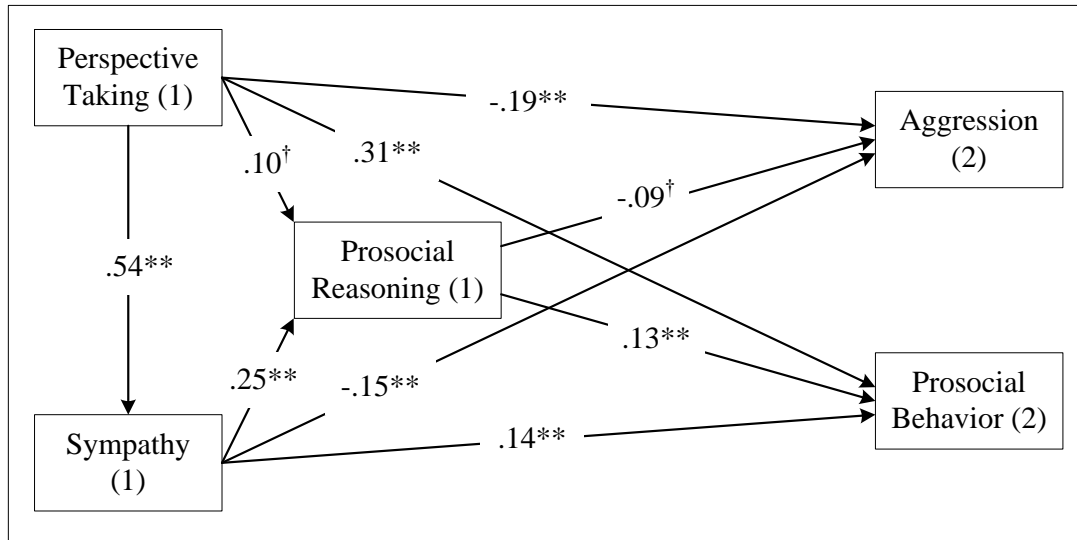
Note: Values on the diagonal are cross wave correlations.

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

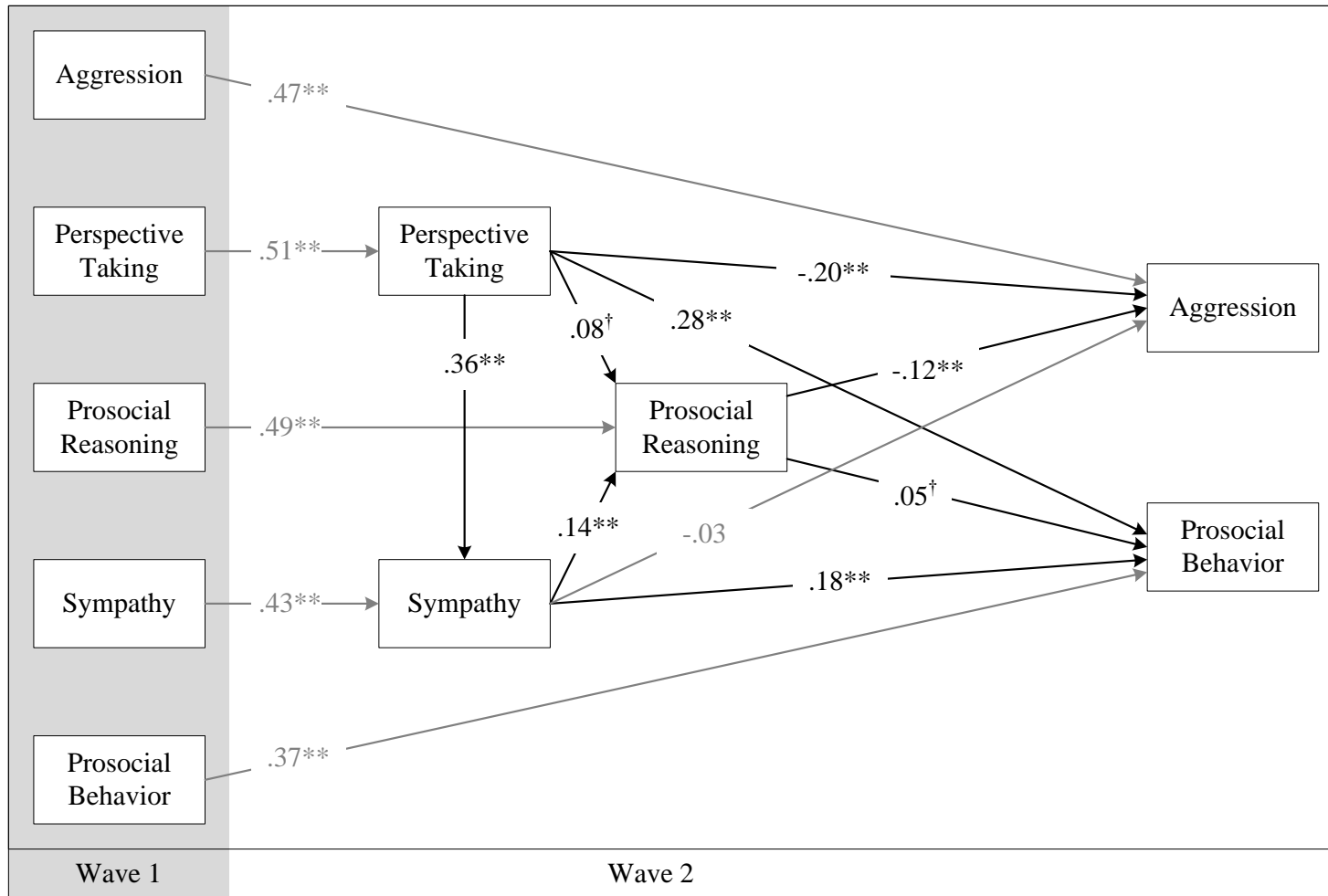
Figure Captions

Figure 1. Longitudinal path model testing the associations between perspective taking (wave 1), sympathy (wave 1), prosocial moral reasoning (wave 1), aggression (wave 2) and prosocial behavior (wave 2).

Figure 2. Residual change path model testing the associations between perspective taking, sympathy, prosocial moral reasoning, aggression and prosocial behavior.



\*\*  $p < .01$ . \*  $p < .05$ .  $^{\dagger} p < .10$ .



\*\*  $p < .01$ . \*  $p < .05$ . †  $p < .10$ .