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RESEARCH ARTICLE

Longitudinal paths between parents' use of rewards and young adolescents' moral traits and prosocial behaviors

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Abstract

Background: Although prior research shows supportive evidence that parental practices are associated with adolescents' prosocial behaviors, limited evidence exists on the effects of parents' use of social and material rewards on distinct forms of prosocial behaviors, and the mediating effects of sociocognitive and socioemotive traits in these relations.

Aims: The present study was designed to examine the longitudinal relations among parents' use of social and material rewards, youth prosocial traits, and prosocial behaviors.

Materials & Methods: Participants were 417 adolescents (*M* age = 14.70 years; 225 girls) from Valencia, Spain who completed surveys on parents' use of social and material reward practices, prosocial moral reasoning, empathic concern, and six types of prosocial behaviors.

Results: Path analyses showed that parents' use of social rewards was indirectly, positively related to emotional, dire, altruistic, public (negatively), and compliant prosocial behaviors via empathic concern. The use of social rewards was also indirectly positively linked to altruistic prosocial behaviors via both empathic concern and prosocial moral reasoning. In contrast, parents' use of material rewards predicted less prosocial moral reasoning, which in turn, was linked to more altruistic, prosocial behaviors.

Discussion and Conclusions: The implications for parental socialization and self-determination theories of prosocial and moral development are discussed.

KEYWORDS

adolescents, empathy, moral reasoning, parenting, prosocial behaviors

1 | INTRODUCTION

Most parents desire their children to exhibit prosocial characteristics such as empathic concern (i.e., feelings of sorrow or concern for needy others), prosocial moral reasoning (i.e., express care-based norms and principles to reduce suffering and avoid harm in others), and prosocial behaviors (i.e., kind and generous actions intended to benefit others) (Carlo, 2014; Eisenberg et al., 2006). These characteristics form the basis for morality and cooperative families, communities, and societies, and are deemed to mitigate conflict and aggression. Moreover, there is growing evidence that youth who exhibit high levels of these characteristics are psychologically and behaviorally healthy, have better quality interpersonal relationships, and perform better academically (Carlo, 2014). Therefore, there is much value in understanding the socialization and personal mechanisms that predict prosocial characteristics in youth.

Developmental scholars have devoted much attention to understand the influence of parents' socialization on children's prosocial development. There is evidence, for example, that caregiver-child attachment, parental support, parental monitoring, and parenting styles (i.e., interaction levels of parental warmth and demandingness) are generally predictive of

children's and adolescents' prosocial outcomes (see Gross et al., 2017; Heynen et al., 2021; Spinrad et al., 2019; Wong et al., 2021), even from early childhood (Eisenberg et al., 2019). Similarly, other investigators have examined specific parental practices such as parents' use of inductions (i.e., explanations, reasoning, and inducement of others' viewpoints), love withdrawal (i.e., tactics that threaten disapproval and/or removal of affection), or power assertion (i.e., tactics based on social and power status; including the use of corporal punishment) in predicting mostly children's moral outcomes (Hoffman, 2000; Spinrad et al., 2019; Wong et al., 2021; for reviews).

As can be surmised, much of the work on parenting practices has focused on disciplining actions when youth transgress. Although parents' use of discipline influences youth prosocial development, some scholars have noted that parents' use of other practices in nontransgressive contexts could also influence adolescents' prosocial outcomes (Carlo et al., 2007; Grusec, 2019). These scholars note that youth can also receive moral messages from parents' practices when their youth enact prosocial behaviors and that there are relative more parent-youth interactions in non-transgressive contexts (Carlo & Conejo, 2019; Grusec et al., 2000; Grusec, 2019; Yusuf & Adiputra, 2020). Indeed, youth may be more apt to understand parents' moral messages in positive emotional contexts rather than in negative (especially intense anger) emotional contexts (such as disciplining contexts) (cf. Hoffman, 2000; White et al., 2019). Thus, there is a need to understand what other practices parents might use to teach their children moral norms and desirable behaviors, especially in prosocial contexts.

One set of practices that parents might use when children engage in prosocial behaviors is social and material rewards. Social rewards refer to the expression of love, support, praise, and approval when children exhibit desirable actions. In contrast, material rewards are expressions of gifts (e.g., new cell phone and computer), money, or privileges (e.g., can stay out later) that can be applied to encourage future desirable behaviors. Moral socialization theorists have speculated that, over time, the use of material and social rewards might affect children's and adolescents' disposition to engage in future moral behaviors (Carlo, 2014; Grusec et al., 2000).

Grusec and colleagues (Grusec et al., 2000; Grusec, 2019) noted that the frequent use of social rewards could lead to a strong sense of moral agency that results from continued associations between desired actions and pleasant social rewards. Frequent use of praise, love, and social approval can lead to a self-concept that can sustain future prosocial and moral actions. However, further work suggested that the use of praise about the child (e.g., *you are good child*) rather than no reward or praise for the behavior was more effective in predicting young children's prosocial behaviors (Mills & Grusec, 1989; see Grusec et al., 2000). Nonetheless, the general use of social rewards demonstrates relative effectiveness in promoting children's future prosocial behaviors (see e.g., Bower & Casas, 2016; Grusec & Redler, 1980; Toner, Moore, & Emmons, 1980). Importantly, investigators have also shown evidence that use of social rewards fosters intrinsic motivation to help others (e.g., Smith et al., 1979). This body of work also aligns well with scholars who admonish Self-Determination Theory (Deci & Ryan, 2008; Ryan & Deci, 2000, 2017), which suggests that the use of social rewards should facilitate an intrinsic motivation to act in desirable ways in the future because of the frequent associations between social rewards and prosocial behaviors. In essence, although there are some conditions under which praise can undermine performance (see Henderlong & Lepper, 2002), praise can facilitate intrinsic motives, which can lead to increases in volitional actions to benefit others.

In contrast, material or tangible rewards function differently and could lead to distinct outcomes. Although material rewards are intended to encourage desirable, future actions, such practices could also lead to expectancies for concrete, material pleasant consequences if one behaves in a manner in accord with others' wishes (Grusec et al., 2000; Ryan & Deci, 2000). Moral socialization and self-determination theorists suggest that, in these cases, children will learn to act in desirable manners dependent upon expected materially rewarding consequences. In this case, the frequent use of material rewards is expected to promote material values (Li et al., 2021) and result in an extrinsic or externally-sourced motivation that can undermine moral agency and spontaneous and altruistically-motivated forms of prosocial behaviors.

Despite the research that generally supports the hypotheses, there are several gaps in our understanding. First, little is known regarding the links between parents' use of social and material rewards and specific forms of helping. Carlo and Randall (2001) proposed a typology of six forms of prosocial behaviors including: altruistic, public, anonymous, dire, compliant, and emotional. Altruistic behaviors were conceptualized as actions that benefit others with little or no expectations for self-rewards. Public prosocial behaviors are defined as actions conducted in front of an audience that benefit others and there is evidence that this form of action might be selfishly motivated (e.g., gain the approval of others; Carlo, 2014). Dire refers to actions enacted in crisis or emergency situations; whereas, emotional prosocial behaviors are conducted in strong affect-laden circumstances. Anonymous prosocial actions are observed when helping occurs without knowledge of who helped. Compliant helping occurs when someone requests assistance. Based on the notion that dire, emotional, compliant, altruistic, and anonymous prosocial behaviors are care-based and other-oriented forms of actions, we generally expected that parents' use of social but not material rewards would be positively linked to these specific forms of prosocial behaviors. In contrast, we expected that parents' use of social rewards would be negatively linked to selfishly-motivated prosocial behaviors (i.e., public).

Second, studies that examine the effects of parents' use of rewards on adolescents' prosocial behaviors are sparse. Most prior studies on links between parents' use of rewards and prosocial behaviors have been conducted with young children (see Grusec et al., 2000; Spinrad et al., 2015). A few cross-sectional studies have been conducted to date that focus on these

relations in adolescents (Davis & Carlo, 2019). Carlo et al. (2018) provided suggestive evidence that, among adolescents from Spain, material rewards indirectly, negatively predicted emotional, and dire forms of prosocial behaviors through both perspective taking (i.e., understanding the thoughts, feelings, and social situations of others) and empathic concern (or sympathy; i.e., feeling of sorrow or concern for needy others). In contrast, there were significant positive, indirect relations between social rewards and anonymous, emotional, dire, compliant, and public prosocial behaviors through both perspective taking and empathic concern. Carlo et al. (2007) showed that social rewards was positively associated with sympathy, which in turn, was positively associated with several forms of prosocial behaviors. In contrast, use of material rewards was not significantly related to sympathy, positively related to public (i.e., selfishly-motivated helping) prosocial behaviors, and negatively related to altruistic helping. Overall, then, the sparse evidence is based on cross-sectional study designs and, therefore, understanding the effects of parents' use of rewards on adolescents' prosocial behaviors over time is nonexistent.

And third, researchers focused on empathic concern (or sympathy) as a mediator of the relations between parents' use of rewards and adolescents' prosocial behaviors but relatively less work has examined the possible intervening role of other prosocial traits. Prosocial moral reasoning refers to thinking about the reasons for helping or not helping others when faced with an opportunity to help others (Eisenberg et al., 2006). These helping opportunities are presented in contexts that are absent of formal laws, social guidelines, or rules that guide behavior. Based on substantive prior evidence, investigators have found a developmental sequence of prosocial moral reasoning from childhood to young adulthood that reflects a transition from hedonistic and psychological or physical needs-oriented concerns (in early childhood), to approval-oriented (i.e., gaining the approval of others) and stereotyped (i.e., global, undifferentiated notions of good and bad, right or wrong, nice and mean) reasoning, to empathic, internalized (i.e., intrinsic and internalized expressions of concern for others and care-based mores, principles, and norms) reasoning in late childhood and adolescence.

Of particular interest is that moral developmental scholars suggest that empathic concern and moral reasoning are markers of moral internalization and agency (Carlo, 2014; Davis & Carlo, 2018; Eisenberg et al., 2015; Staub, 2005). Empathic concern reflects the affective basis of caring for others; whereas, prosocial moral reasoning reflects internalized care-based principles and norms (Eisenberg et al., 2006). High levels of both of these mechanisms are also deemed aspects of a strong moral identity (Hardy & Carlo, 2011). Substantive evidence demonstrates significant interrelations among these constructs and that earlier empathic concern predicts subsequent prosocial moral reasoning and prosocial behaviors in adolescents (e.g., Carlo et al., 2010; Mestre et al., 2019). Thus, moral internalization contributes to the process of achieving moral identity (Hardy & Carlo, 2011) and moral identity has been found to mediate the relations between parenting styles and prosocial behaviors (Fatima et al., 2022). However, in one study of low-income US adolescents, researchers showed indirect relations between parents' use of social rewards and youth altruistic, compliant, and emotional prosocial behaviors through prosocial moral reasoning but not empathic concern or perspective taking. In contrast, there were no significant indirect effects from parent's use of material rewards to youth prosocial behaviors (Davis & Carlo, 2018). Thus, further research is needed to examine these expected relations.

Based primarily on Grusec and Goodnow's (1994) moral internalization model and Ryan and Deci's (2000) social determination model, we assert that parents' use of social rewards ought to foster markers of moral agency, and in turn, prosocial behaviors. As suggested by other scholars (Henderlong & Lepper, 2002), the examination of possible mediators are necessary next steps in understanding the effects of rewards on behavioral outcomes. In general, then, one might expect that both empathic concern and prosocial moral reasoning might explain the relations between parents' use of rewards (especially use of social rewards) and care-based and other-oriented forms of prosocial behaviors.

Specifically, it was hypothesized that parents' use of social rewards would positively predict both empathic concern and prosocial moral reasoning. In contrast, we expected material rewards to be not significantly related to empathic concern and prosocial moral reasoning. In turn, these empathic and moral reasoning traits were expected to positively predict care-based and altruistic forms of prosocial behaviors but perhaps negatively predict selfishly-motivated (i.e., public) prosocial behaviors (see Figure 1). Based on prior theory and research findings that suggest gender differences in prosocial tendencies (see Xiao et al., 2019), we also explored gender differences in parenting and prosocial tendencies and whether the proposed model differed across gender.

2 | METHODS

2.1 | Participants

This longitudinal study monitored participating adolescents for 3 years. In the first wave, adolescents were either in the third year of secondary school or the fourth year of secondary school (equivalent to middle school in the United States). Participants were 417 adolescents (225 girls) from Valencia, Spain. The sample ranged in age from 13 to 17 years ($M_{\text{age}} = 14.70$, $SD_{\text{age}} = .69$) at T1, 14–18 years ($M_{\text{age}} = 15.79$, $SD_{\text{age}} = .67$) at T2, and 15–19 years ($M_{\text{age}} = 16.74$, $SD_{\text{age}} = .64$) at

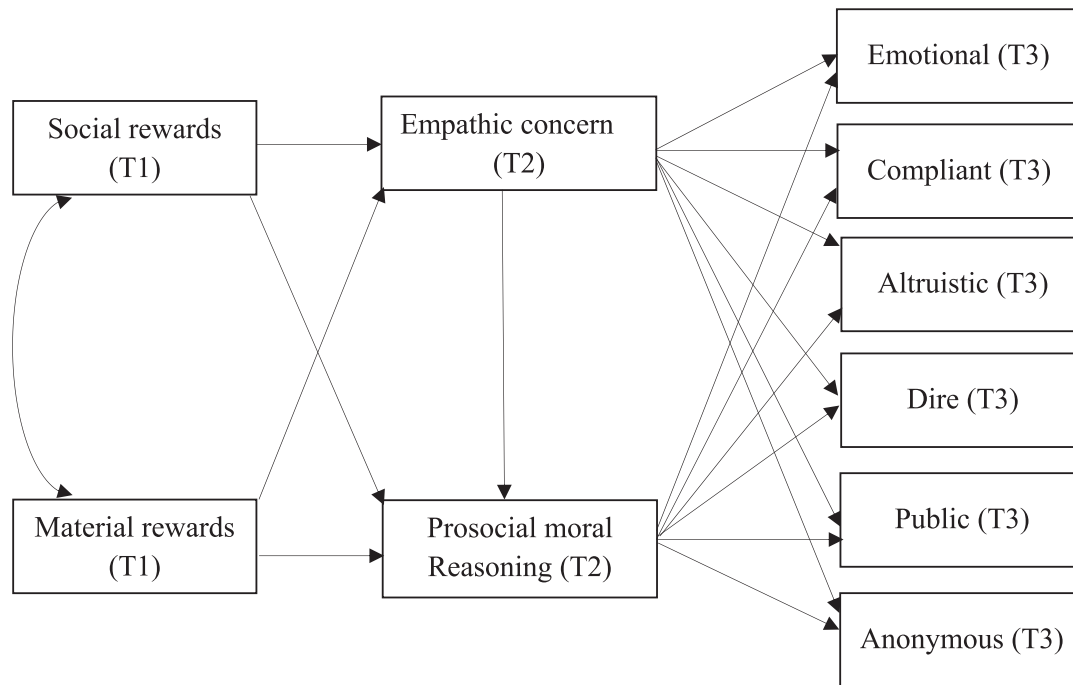


FIGURE 1 Conceptual model of the longitudinal relations among social rewards (Time 1), material rewards (T1), empathic concern (T2), prosocial moral reasoning (T2), and prosocial behaviors (T3) in youth. Although not depicted, the model also included direct paths between both social and material rewards (T1) and each of the prosocial behaviors (emotional, compliant, altruistic, dire, anonymous, and public) (T3). Prosocial behaviors were also covaried (not depicted). Gender and previous levels (Time 1) of the outcomes were statistically controlled (not depicted).

T3. Originally, 476 adolescents participated in the first wave but 59 were excluded because they did not complete any of the surveys. Most students (87.2%) reported being from Spain; whereas, others self-identified as Latin American (e.g., 2.9% Ecuadorian, 1.7% Colombian, and 1.2% Bolivian) or Eastern European (e.g., 1.4% Romanian). Most adolescents (82.5%) came from two-parent, married households. With regard to parents' educational level, 25.2% of mothers had less than a secondary school diploma, 42.7% had a secondary school diploma or equivalent and 32.2% had some university education. Similarly, 27.1% of fathers had less than a high school diploma, 43.5% had a high school diploma or equivalent and 29.5% had some university education.

2.2 | Procedure

The study followed all ethical guidelines pertaining to studies carried out on human beings included in the Helsinki Declaration, under current regulations, respecting respondents' anonymity for both data collection and data analysis. The study was approved by the Valencian Government, the University Ethics Committee, and the School Council. Parental consent and youth assent consent were also obtained.

Participating schools were randomly selected from both private and public schools (11 schools) in Valencia, Spain. However, participation by students was voluntary. The survey was administered by trained researchers in the educational center classrooms in 50-minute sessions (administered to groups of 30–35 students). The annual assessments took place in three successive years during the first trimester of each school year.

2.3 | Measures

All measures listed below were completed by youth and slightly adapted (e.g., names of the story protagonists were changed to a Spanish name) to use with youth from Spain. The measures were all translated into Spanish and back-translated into English by a team of bilingual moral development researchers from Spain. The few discrepancies were resolved via discussion.

Material and social rewards were assessed at Time 1 with the Spanish language version of the Parenting Practices Measure (PPM) (Carlo et al., 2007) to evaluate the types of practices (social and material rewards) that the adolescent's parent use in

the context of promoting prosocial behaviors. Items were measured on a 5-point scale (1 = *does not describe my parent well*, 5 = *describes my parent very well*). The *Social rewards* subscale taps into positive, nonmaterial reactions to youth when they engage in prosocial actions (five items, “My parent praises me when I help someone in need”, Cronbach's α for this study was .80 at T1). The *Material rewards* subscale evaluates the extent to which adolescents perceive their parents provide gifts or money to their teens' prosocial actions (four items “My parent has set up a reward system to get me to help around the house,” Cronbach's α for this study was .79 at T1).

Empathic Concern subscale was assessed at Time 2 with the Spanish language version of the Interpersonal Reactivity Index (IRI) (Davis, 1980; Mestre et al., 2004) to evaluate participants' empathic disposition, in its emotional dimension. This subscale factor had seven items such as “The problems of others worry me” (*Empathic Concern*: Cronbach's α for this study was .60 at T2). Items were measured on a 5-point scale (1 = *does not describe you well*, 5 = *describes you very well*). Several studies using European, North American, and Spanish samples have demonstrated the IRI's adequate psychometric properties (Davis, 1983; Mestre et al., 2004, 2009).

Prosocial moral reasoning was assessed at Time 2 using the Spanish language version of the Prosocial Reasoning Objective Measure (PROM) (Mestre et al., 2002). The measure presents five short-story vignettes (Begoña's Story, Flood Story, Math Story, Accident Story, and Ana's Story) that depict a protagonist that is faced with a helping opportunity that conflicts with their own goals, needs, or desires. A sample story (English-language version) is:

“One day Mary was going to a friend's party. On the way, she saw a girl who had fallen down and hurt her leg. The girl asked Mary to go to the girl's house and get her parents so the parents could come and take her to a doctor. But if Mary did run and get the girl's parents, Mary would be late to the party and miss the fun and social activities with her friends.”

Participants are asked what the protagonist in the story should do (help, not help, or unsure) and then presented with five reasons and asked to rate the importance (on a scale of 1–5, where 1 is “non-important” and 5 is “maximum importance”) of each reason. Each reason corresponds to each of the five levels of prosocial moral reasoning (Eisenberg, 1986). Specifically, hedonistic reasoning (e.g., “It depends how much fun she expects the party to be, and what sorts of things are happening at the party”), needs-oriented (e.g., “It depends whether the girl really needs help or not”), approval-oriented (e.g., “It depends whether their parents and friends will think she did the right or she did the wrong thing”), stereotyped (e.g., “It depends if she thinks it's the decent thing to do or not”) and empathic/internalized (which includes empathic, positive and negative affection, general reciprocity and internalized reasoning items; e.g., “It depends how she would feel about herself if she helped or not”) reasoning.

A raw score for each of the five levels were calculated by summing and averaging across the five stories. To obtain a preference for one reasoning type relative to the other reasoning types, a proportion score for each reasoning level was computed. Each of the five raw scores were divided by the sum of the five raw scores. Because each prosocial moral reasoning type reflects varying levels of sociocognitive development and to obtain an overall composite score, each proportion score was weighted and summed (see Carlo et al., 1992; Eisenberg et al., 1995). Hedonistic (which includes hedonistic and direct reciprocity items) and needs-oriented proportion scores were weighted by 1, approval-oriented and stereotypic proportion scores were weighted by 2, and the empathic/internalized proportion scores was weighted by 3. Cronbach's $\alpha = .81$ for the overall composite score, at T2. The PROM has demonstrated acceptable reliability, construct, convergent, and discriminant validity with adolescents, including research with adolescents from Spain (Carlo et al., 2013; Mestre et al., 2002).

The *Prosocial Tendencies Measure-Revised* (PTM-R, Carlo et al., 2003) assessed six different forms of prosocial behavior at Times 1 and 3. *Public* measures helping behavior in the presence of others (four items; e.g., “I can help others best when people are watching me”; Cronbach's α for this study was .84 at T3, and .74 at T1). *Emotional* assesses a tendency to help others in emotionally evocative situations (five items; e.g., “It makes me feel good when I can comfort someone who is very upset”; Cronbach's α for this study was .80 at T3, and .81 at T1). *Altruistic* refers to helping others when there is little or no expectation of receiving an explicit, direct reward (five items; e.g., “I think that one of the best things about helping others is that it makes me look good” (reversed scored); Cronbach's α for this study was .79 at T3, and .65 at T1). The *compliant* subscale assesses the helping or assistance when asked for by others (two items; e.g., “When people ask me to help them, I don't hesitate”; Cronbach's α for this study was .72 at T3, and .70 at T1). *Dire* helping measures prosocial behavior in crisis or emergency situations (three items; e.g., “I tend to help people who are in real crisis or need”; Cronbach's α for this study was .60 at T3, and .64 at T1). The *anonymous* subscale assesses the helping performed without knowledge of whom helped (five items; e.g., “I prefer to donate money anonymously”; Cronbach's α for this study was .80 at T3, and .72 at T1). Participants responded to the items by choosing a response from a scale ranging from 1 (*doesn't describe me at all*) a 5 (*describes me very well*). Strong psychometric properties, including confirmatory factor analysis and validity of the PTM-R, have been demonstrated in other samples of Spanish adolescents (Mestre et al., 2015).

2.4 | Main data analytic approach

First, the means, standard deviations, and group differences (based on ANOVA designs) on all study variables were calculated. Second, we carried out the correlation among all variables. Finally, structural equations modeling was employed

to explore the main longitudinal model. The fit of the theoretical model was analyzed using Mplus 6.1 (Muthén & Muthén, 2010). The model captured the relations among the variables in three waves. The model (see Figure 1) included paths between both social and material rewards (T1) and each of the prosocial behaviors (emotional, compliant, altruistic, dire, anonymous, and public) (T3) through empathic concern (T2) and prosocial moral reasoning (T2). A direct path from empathic concern to prosocial moral reasoning was also included. Gender and the previous level (at T1) of the forms of prosocial behaviors were included as statistical controls (see Cole & Maxwell, 2003).

To assess the model fit, the following indices were used: chi-square, chi-square divided by degrees of freedom ($\chi^2/d.f.$), and Bentler comparative fit index (CFI). Chi-square divided by degrees of freedom should be close to 3, and comparative fit index (CFI) should be greater than .90 (Hu & Bentler, 1999). Standardized root mean residual (SRMR) and root mean square error of approximation (RMSEA) were used to measure error (Hu & Bentler, 1999). For RMSEA and SRMR, values below .10 indicate acceptable fit and approximate values of .06 indicate a very good fit (Kline, 2011). Indirect effects were tested using the bias corrected bootstrap confidence interval method in *Mplus* (Lau & Cheung, 2012; MacKinnon et al., 2004; Williams & MacKinnon, 2008). Next, multigroup analyses were conducted to examine if the patterns of associations differed based on gender and type of the school.

3 | RESULTS

3.1 | Attrition analyses, gender differences, descriptive statistics, and correlational analyses

A series of *t*-tests on the main study variables showed no significant differences (all *ps* > 0.05) in social and material rewards (at Time 1; T1), empathic concern (T2), prosocial moral reasoning (T2), and emotional, compliant, altruistic, anonymous, public and dire prosocial behaviors (all T3) between adolescents with complete data and their counterparts without full data.

Table 1 presents means, standard deviations, and correlations for the study variables. *T*-tests also revealed that girls scored higher than boys on empathic concern ($d = .12$), prosocial moral reasoning ($d = -.03$), emotional ($d = -.48$), dire ($d = -.17$), compliant ($d = -.63$), and altruistic ($d = -.65$) prosocial behaviors. Boys scored higher than girls on public ($d = .64$) prosocial behaviors.

The correlations for the study variables (Table 1) showed that emotional, compliant, and dire prosocial behaviors (all T3) were positively correlated to social rewards (T1), empathic concern (T2), and prosocial moral reasoning (T2). Additionally, anonymous prosocial behavior was positively correlated to social rewards (T1), empathic concern (T2) and prosocial moral reasoning (T2). In addition, public prosocial behavior (T3) was positively correlated to material rewards (T1), and negatively correlated to empathic concern (T2) and prosocial moral reasoning (T2). Altruistic prosocial behavior (T3) was negatively correlated to material rewards (T1) and positively related to empathic concern (T2) and prosocial moral reasoning (T2).

3.2 | Longitudinal path model

Path analysis results indicated a good fit between the model (see Figure 2) and the empirical data: $\chi^2 = 245.58/56$, $p < .001$. All fit indices showed acceptable model fit, CFI = 0.95, RMSEA = 0.08 and SRMR = 0.08. As can be seen in Figure 2, social rewards (T1) were positively linked to empathic concern (T2), and to emotional and compliant prosocial behaviors (T3). Empathic concern (T2) was positively related to prosocial moral reasoning (T2), altruistic (T3), emotional (T3), dire (T3), and compliant (T3) prosocial behaviors but negatively linked to public prosocial behaviors (T3). Prosocial moral reasoning (T2) was positively associated with altruistic and compliant prosocial behaviors (T3). In contrast, material rewards (T1) were negatively related to prosocial moral reasoning (T2). There were no significant relations to anonymous prosocial behaviors.

The stability coefficient for emotional (between T1 and T3) was .33 ($p < .001$), compliant (between T1 and T3) was .29 ($p < .001$), altruistic (between T1 and T3) was .39 ($p < .001$), public (between T1 and T3) was .30 ($p < .001$), dire prosocial behavior (between T1 and T3) was .30 ($p < .001$), and anonymous (between T1 and T3) was .33 ($p < .001$).

Multigroup analysis to test moderation of gender on the model showed no significant difference [$\chi^2(22) = 21.21$, $p = .51$] between the unconstrained model [$\chi^2(122) = 300.10$] and the constrained model [$\chi^2(144) = 320.26$]. Multigroup analysis to test moderation of type of the school on the model also showed no significant difference [$\chi^2(29) = 37.62$, $p = .13$] between the unconstrained model [$\chi^2(126) = 358.16$] and the constrained model [$\chi^2(155) = 396.29$]. Therefore, the final model analyses used the full combined sample.

3.3 | Indirect effect tests

Bias-corrected bootstrap confidence interval tests were conducted to examine indirect effects. Results showed that there was a significant indirect effect from social rewards (T1) to emotional (T3) ($\beta = .06$; CI 95% = [0.03–0.09]), compliant ($\beta = .05$;

TABLE 1 Descriptives and correlation matrix for the study variables at times 1, 2, and 3

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. SR (T1)	-															
2. MR (T1)	.27***	-														
3. EC (T2)	.21***	.06	-													
4. PROM (T2)	.06	-.10**	.26***	-												
5. EM PB (T1)	.32**	.05	.35**	.10*	-											
6. CO PB (T1)	.27**	-.04	.27**	.18**	.61**	-										
7. AL PB (T1)	-.13**	-.35**	.16**	.19**	-.05	.08	-									
8. PU PB (T1)	.12*	.28**	-.02	-.13**	.23**	.08	-.46**	-								
9. DI PB (T1)	.31**	.03	.32**	.08	.64**	.48**	-.06	.15**	-							
10. AN PB (T1)	.18**	.22**	.14**	.03	.29**	.23**	-.18**	.22**	.25**	-						
11. EM PB (T3)	.24**	.04	.47***	.21***	.43**	.28**	.08	.05	.33**	.11*	-					
12. CO PB (T3)	.22**	-.01	.43***	.23***	.36**	.34**	.15**	.01	.27**	.09*	.67***	-				
13. AL PB (T3)	-.02	-.19***	.30***	.29***	.12*	.17**	.37**	-.22**	.06	-.02	.06	.24***	-			
14. PU PB (T3)	.01	.14**	-.26***	-.17**	-.04	-.09	-.26**	.31**	-.03	.04	-.08	-.22***	-.68**	-		
15. DI PB (T3)	.19***	.03	.36***	.15**	.37**	.25**	.04	.06	.38**	.13**	.69***	.49***	-.04	-.02	-	
16. AN PB (T3)	.174***	.24***	.16***	.09*	.13**	.08	.04	.03	.13**	.28**	.08	.08	-.02	.05	.13**	-
Gender	-.01	.07	-.33***	-.13**	-.26**	-.26**	-.24**	.16**	-.10*	.03	-.29***	-.35***	-.39**	.38**	-.11*	.03
Mean	3.76	1.90	3.47	1.95	3.52	3.82	3.60	2.02	3.42	2.20	3.55	3.81	4.02	1.75	3.29	2.23
SD	.90	.86	.59	.14	.82	.95	.87	.87	.83	.83	.83	.90	.85	.84	.76	.82

Note: T1 = Time 1; T2 = Time 2 and T3 = Time 3; Gender was coded as boys = 1, girls = 0.
 Abbreviations: AL PB, Altruistic prosocial behavior; AN PB, anonymous prosocial behavior; CO PB, compliant prosocial behavior; DI PB, direct prosocial behavior; EC, empathic concern; EM PB, emotional prosocial behavior; MR, material rewards; PROM, prosocial moral reasoning; PU PB, public prosocial behavior; SR, social rewards.
 *p < .05; **p < .01; ***p < .001.

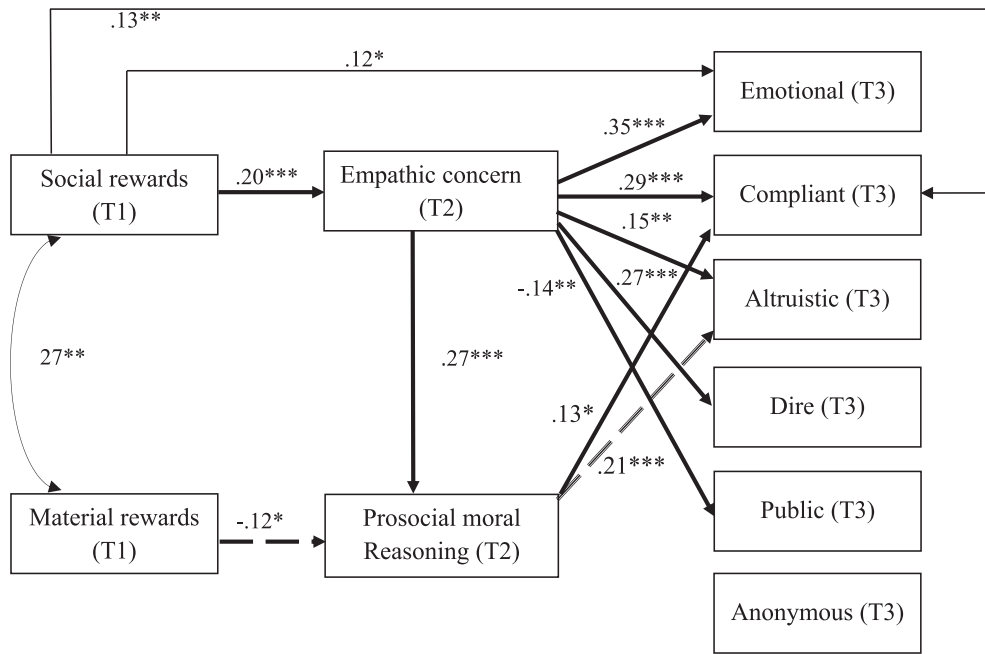


FIGURE 2 Final path model results of the longitudinal relations among social rewards (T1), material rewards (T1), prosocial moral reasoning (T2), empathic concern (T2), and prosocial behaviors (T3) in youth. Significant standardized coefficients are depicted. Indirect effects are depicted in bold and dashed lines. Gender and previous levels of the outcomes were statistically controlled (not depicted). Prosocial behaviors were also covaried (not depicted). Note: $\chi^2 = 245.58/56$, $p < .001$; CFI = 0.95; RMSEA = 0.08 and SRMR = 0.08. * $p < .05$, ** $p < .01$, *** $p < .001$.

CI 95% = [0.03–09]), altruistic ($\beta = .03$; CI 95% = [0.01–05]), public ($\beta = -.02$; CI 95% = [-0.05, -0.01]), dire prosocial behaviors ($\beta = .04$; CI 95% = [0.02–06]) at T3 via empathic concern (T2). There was also a significant indirect effect from social rewards (T1) to altruistic prosocial behavior ($\beta = .01$; CI 95% = [0.005, 02]) at T3 via empathic concern (T2) and prosocial moral reasoning (T2). There was a significant indirect effect from material rewards to altruistic ($\beta = -0.02$; CI 95% = [-0.05, -0.006]) at T3 via prosocial moral reasoning (T2).

4 | DISCUSSION

As expected, parents' earlier use of social rewards (but not material rewards) positively predicted self-reported, care-based, and altruistic forms of prosocial behaviors (dire, emotional, compliant, and altruistic) via adolescents' empathic concern. Furthermore, earlier use of social rewards was negatively linked to public prosocial behaviors via empathic concern. Importantly, there was also evidence that use of social rewards positively predicted altruistic prosocial behaviors via both empathic concern and prosocial moral reasoning. In contrast, parents' use of material rewards was negatively associated with prosocial moral reasoning, which in turn, was positively related to altruistic prosocial behaviors. There were also two direct paths such that earlier use of social rewards was directly positively associated with later emotional and dire prosocial behaviors. These complex patterns of relations were robust across gender while controlling for previous levels of prosocial behaviors. The pattern of longitudinal relations across adolescence has important implications for theories of prosocial and moral socialization (Grusec, 2000; Eisenberg et al., 2006) and self-determination (Deci & Ryan, 2008; Ryan & Deci, 2000, 2017).

4.1 | Relations between parent's use of social rewards and prosociality

The most consistent pattern of links was that, as expected, the use of social rewards was positively related to other-oriented, care-based helping behaviors via empathic concern (Bower & Casas, 2016; Carlo, 2014; Grusec, 2019). These findings suggest a central and important role of empathic concern as accounting for relations between parenting and youth prosocial behaviors. These youth-reported findings support moral development theories (Carlo et al., 2018; Eisenberg et al., 2006; Eisenberg, 1986; Hoffman, 2000) on the central role of empathic concern in predicting prosocial behaviors but extend such notions to predicting several distinct forms of prosocial behaviors. However, the findings also importantly align with

theorists (Grusec et al., 2000; Ryan & Deci, 2000, 2017) who claim that the use of social reward practices may foster intrinsic moral motivation to respond to others' difficult and needy circumstances. Indeed, the fact that use of social rewards was indirectly negatively linked to public prosocial behaviors via empathic concern adds to the notion that such selfishly-motivated prosocial actions might be undermined by empathic concern and parents' use of social rewards. Given the sparse prior evidence on these relations in adolescents, the findings extend prior similar findings with young children (see Davis & Carlo, 2018; Eisenberg et al., 2019), and suggest that such parenting practices might be effective to use with young adolescents and demonstrate such effects 2 years later into adolescence.

Importantly, there were several significant indirect paths from parents' use of rewards to altruistic prosocial behaviors. Parents' use of social rewards was indirectly associated with later altruistic prosocial behaviors via both empathic concern and prosocial moral reasoning. These effects are in accord with scholars who assert that altruistic prosocial behaviors may be motivated by empathic concern and/or strong internalized moral principles (Eisenberg et al., 2015; Grusec, 2019). Moreover, consistent with moral internalization scholars (Grusec & Goodnow, 1994), the present findings yield suggestive evidence that parents' use of social rewards can foster internalization of prosocial traits (Bower & Casas, 2016). The findings highlight the possible complex interplay of prosocial cognitions (prosocial moral reasoning) and emotions (empathic concern) in predicting moral agency and altruistic forms of prosocial behaviors. Such evidence also supports the notion that specific forms of prosocial behaviors might be uniquely linked to specific forms of prosocial cognitions and emotions (Carlo & Davis, 2016).

4.2 | Relations between parent's use of material rewards and prosociality

The pattern of youth-reported relations between parents' use of material rewards and youth prosocial behaviors was quite distinct to that of parents' use of social rewards. The use of material rewards was negatively linked to prosocial moral reasoning, which in turn, was associated positively to altruistic prosocial behaviors (Davis & Carlo, 2018). Furthermore, as expected, there were no significant relations between parents' use of material rewards and either empathic concern or other forms of prosocial behaviors. The overall pattern of relations is in accord with moral socialization scholars (Carlo, 2014; Eisenberg et al., 2015; Grusec et al., 2000) suggesting that such practices do not promote internalized principles nor most forms of care-based and other-oriented helping behaviors. Indeed, the findings yield evidence that the use of material rewards might undermine selflessly-motivated forms of prosocial behavior because such practices are negatively associated with prosocial moral reasoning (Davis & Carlo, 2018). Perhaps such practices encourage youth to consider selfish or external reasons (e.g., hedonistic, approval-oriented reasoning) when faced with opportunities to help others, which is characteristic of lower levels of prosocial moral reasoning (Carlo, 2014). Alternatively, the use of material reinforcements by parents might foster materialistic values (Li et al., 2021), which might present challenges in integrating moral principles (Fatima et al., 2022).

4.3 | Direct relations among parents' use of rewards and prosociality

The pattern of significant direct effects of parents' use of social rewards was also interesting and contrasted with the evidence of no significant direct paths from parents' use of material rewards to prosocial behaviors. Earlier use of social rewards was positively related to emotional and compliant prosocial behaviors 2 years later. These findings suggest that use of social rewards might directly facilitate helping tendencies when persons are visibly distressed and when they ask for assistance (Bower & Casas, 2016; Grusec et al., 2000; Grusec, 2019). This pattern of relations yields evidence that parents' use of social rewards could directly evoke responsiveness to, and consideration of, others' needs in difficult and needy situations. Perhaps emotional and compliant forms of prosocial behaviors are directly associated with parents' use of social rewards because these two specific forms of prosocial behaviors are common helping opportunities that young adolescents encounter (Carlo, 2014; Grusec et al., 2000). Indeed, these helping circumstances might be common within the home environment and parents might frequently use social rewards at home to encourage their youth to help around the house or to help under emotionally distraught situations.

There were several other direct relations that were of additional interest. Both empathic concern and prosocial moral reasoning were positively linked to other-oriented forms of helping (including altruistic) and negatively linked to public prosocial behaviors, similar to recent research with low-socioeconomic class European American and U.S. Latino/a adolescents (Davis & Carlo, 2018). These findings are consistent with theoretical expectations and prior research suggesting that empathic concern and prosocial moral reasoning can facilitate selflessly-motivated forms of helping (e.g., altruistic) and undermine selfishly-motivated and instrumental forms of helping (e.g., public) (Carlo, 2014; Eisenberg et al., 2006). In addition, these relations support cognitive-developmental and social cognitive theories that postulate the central roles of both

sociocognitive and socioemotive traits as predictors of prosocial and moral behaviors (Bandura, 1986; Carlo & Davis, 2016; Eisenberg, 1986).

4.4 | Study limitations

The present study had several limitations. First, the study relies on youth reports of parenting practices, moral traits, and prosocial behaviors. This aspect of the design raises concerns regarding shared method variance and self-presentational demands. Although the distinct pattern of longitudinal findings reduces the likelihood of a general problem with self-presentational demands, future research would benefit from the use of multiple methods (e.g., multiple reporters) to replicate the present pattern of relations. Second, although the sample is from a three-wave longitudinal study and previous levels of behaviors were statistically controlled, the correlational design mitigates strong inferences regarding causality and direction of effects. For example, there are possible alternative and bidirectional models that could be tested in future studies to determine the extent to which youth prosocial behaviors might induce parents to use social or material rewards. Therefore, to better ascertain directionality, research should be conducted using experimental designs (e.g., interventions) and studies that investigate alternative causal models. Third, the reliability coefficients of some of the measures were relatively low. Although these measures are relatively short scales (which could attenuate alpha coefficients) and similar to coefficients reported in prior studies of adolescents from Spain (Mestre et al., 2019), caution is needed in interpreting the present findings. Future studies using multiple and/or alternative methods (e.g., peer ratings, behavioral tasks) are needed to confirm the present findings. And fourth, the generalizability of the findings to Spanish youth in other parts of Spain (and to non-Spanish youth) might be limited. Schools were randomly selected and the present sample was relatively diverse with regard to income and ethnicity/race in the city of Valencia. However, participants were not randomly selected and ethnicity and race of youth in other parts of Spain are not adequately represented; thus, more research will be needed to examine the generalizability of the present findings.

5 | CONCLUSIONS

Despite these concerns, there were several notable strengths of the present study. The present findings support moral internalization and self-determination theories that parents' use of social rewards (in contrast to material rewards) generally promote moral agency and altruistic, care-based prosocial behaviors in adolescents. The findings significantly advance prior research by demonstrating that such effects transpired across 3 years during adolescence, that the effects of parental reward are a function of specific form of prosocial behavior, and that the relations between parents' use of rewards and prosocial behaviors are partly accounted for by empathic concern and/or prosocial moral reasoning. The findings suggest the development of intervention efforts aimed at educating and encouraging parents to emphasize the use of social, rather than material, rewards to more effectively foster adolescents' prosocial traits and altruistic actions. Future research is also needed to further examine other possible intervening agency mechanisms that might help us further understand the relations between the use of rewards and adolescents' prosocial outcomes. Such work could help extend our understanding of self-determination theory and how parents can effectively socialize moral agency and prosocial behaviors in adolescents.

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

Data is available from the second author upon request.

ETHICS STATEMENT

The project was approved by the Ethics Review Board at the University of Valencia, Spain. Permission to reproduce materials must be obtained from the publisher.

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