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Empathy as a Mediator of the Relationship between Authoritative Parenting and Delinquent Behavior in Adolescence

Marlon Goering,

PhD student in the Department of Psychology at University of Alabama at Birmingham. Mr. Goering's research focuses on moral development and behavioral problems in adolescence.

Sylvie Mrug

Professor in the Department of Psychology at University of Alabama at Birmingham. Professor Mrug's research examines the interplay of risk and protective factors in the development of behavioral and emotional problems in adolescence.

Abstract

The characteristics of authoritative parenting, including high parental nurturance and appropriate control, are protective against adolescents' delinquency. However, the mediating psychological mechanisms are not well understood. This three-wave longitudinal study with 704 adolescents (52% males; 76% African American) investigated empathy at age 13 as a mediator of the prospective association between authoritative parenting (child's disclosure and parental nurturance) at age 11 with delinquency at age 18. The results of a structural equation model revealed a significant indirect effect of authoritative parenting on delinquency through empathy. Authoritative parenting at age 11 predicted increased empathy at age 13, which then predicted decreased delinquency at age 18. These findings suggest that authoritative parenting reduces adolescents' delinquency by promoting empathy.

Keywords

Authoritative parenting; Empathy; Delinquency; Mediation

Corresponding author: Marlon Goering, Department of Psychology, University of Alabama at Birmingham, 1720 2nd Avenue South, CH415, Birmingham, AL 35294, USA, mgoering@uab.edu, Phone: 205-975-2221.

Authors' Contributions

MG conceived of the study, performed the statistical analyses and drafted the manuscript; SM contributed to the study design, helped with statistical analyses and interpretation, and revised manuscript content. Both authors read and approved the final manuscript.

Conflicts of Interest

The authors report no conflicts of interest.

Data Sharing and Declaration

This manuscript's data will not be deposited.

Ethical approval

All study procedures were approved by the Institutional Review Board of the University of Alabama at Birmingham.

Informed consent

Informed consent was obtained from all individual participants included in the study.

Introduction

Authoritative parenting characterized by parental warmth and appropriate control is consistently associated with fewer delinquent behaviors in youth (Pinquart, 2017). Less studied, however, are the psychological mechanisms through which authoritative parenting contributes to less delinquency. A better understanding of these mechanisms would inform the development of theory-driven prevention and intervention strategies to reduce adolescents' delinquency (Hoeve et al., 2009). One possible mediator is adolescents' empathy, which has been linked with aspects of authoritative parenting (Mesurado & Richaud, 2017), as well as lower delinquency among adolescents (Jolliffe & Farrington, 2004). Given that adolescents' engagement in delinquent behaviors increases in early and middle adolescence (Barnes et al., 2006) and that parental knowledge and influence on their children declines over the course of adolescence (Keijsers & Poulin, 2013), early adolescence may be a critical period for parents to prevent or reduce later delinquency in their children (Kapetanovic et al., 2019). Thus, this study examines adolescents' empathy as a mediator of the prospective relationship between authoritative parenting in early adolescence and delinquency in late adolescence.

Parenting and Adolescents' Delinquency

Two key dimensions of authoritative parenting are parental warmth and control (Hoeve et al., 2009), with consistent warmth and appropriate control being associated with positive developmental outcomes in youth (Klevens & Hall, 2014). Research on parenting and adolescents' delinquency has focused primarily on parental monitoring, finding that high parental knowledge about children's activities predicts less delinquency (Fletcher et al., 2004). Parental knowledge can result from children's disclosure, where children voluntarily share information about their life and daily activities with parents, and/or parental interference and solicitation, where parents urge children to share information (Stattin & Kerr, 2000). Of these two processes, voluntary child's disclosure is protective against subsequent delinquent behavior, whereas active parental interference in adolescents' personal issues is unrelated to adolescents' delinquency (Keijsers et al., 2010) or even predicts more delinquency when trying to prohibit specific friendships (Keijsers et al., 2012). Although the relationship between child's disclosure and delinquency appears to be bidirectional (Keijsers et al., 2010), there is robust support for child's disclosure as a protective factor against future delinquent behavior (Keijsers et al., 2009).

In addition to child's disclosure, parental nurturance and support are also associated with lower engagement in delinquent and aggressive behaviors among adolescents (Windle et al., 2010). For example, children of parents who provided warm and consistent emotional support in early adolescence committed fewer delinquent behaviors in middle adolescence (Arim et al., 2011). By contrast, parental rejection (Barnow et al., 2005) and low levels of parental nurturance and support (Rohner, 2005) are linked with subsequent delinquent behavior, and parental neglect was the strongest predictor for adolescents' delinquency in one study (Hoeve et al., 2008). These two dimensions of authoritative parenting, parental nurturance and child's disclosure, are closely related, as children who receive affectionate

parental support are more likely to share information about their life and daily activities with their parents (Soenens et al., 2006).

Through the course of adolescence, the closeness between children and parents decreases, whereas parent-child conflict increases (Marceau et al., 2014). Youth begin to spend more time away from their parents and the importance of peers as sources of guidance and support increases (Meeus, 2016). Thus, early adolescence is a time when links between parenting and delinquency are the strongest and when implementing parenting interventions to prevent later youth delinquency may be most critical (Hoeve et al., 2009). Therefore, this study aims to elucidate possible mediators of the link between authoritative parenting in early adolescence, conceptualized as child's disclosure and parental nurturance, and subsequent delinquent behavior, focusing on empathy.

Parenting and Adolescents' Empathy

The research on empathy typically distinguishes between cognitive and affective (or emotional) empathy (Singer, 2006). Cognitive empathy involves understanding others' feelings, whereas affective empathy describes the vicarious experience of others' emotions (De Kemp et al., 2007). Affective and cognitive empathy are strongly related and together enable individuals to understand other people's emotions and to respond supportively (Van Lissa et al., 2014). While the overall level of empathy increases through adolescence (Van Lissa et al., 2015), empathy levels also fluctuate during this time with some studies reporting a temporal decline in empathy during early adolescence (Van der Graaff et al., 2014). These findings indicate that adolescence is an important time for the development of empathy. Accordingly, research on brain development suggests that early adolescence is a critical period for the development of brain regions such as the medial prefrontal cortex and the posterior superior temporal sulcus that are involved in social-cognitive (Blakemore, 2008) and social-affective processes (Crone & Dahl, 2012) that include empathy.

It has long been theorized that parenting is critical for the development of empathy in children (Sroufe, 2005) and adolescents (Van Lissa et al., 2015). Indeed, high levels of empathy in adolescents have been linked with secure attachment to parents (Laible et al., 2004), as well as characteristics of authoritative parenting such as parental warmth and support (Miklikowska et al., 2011) and positive parent-child communication that encourages child autonomy (Carlo et al., 2011). Conversely, parent-child conflict during early adolescence predicted less empathy over time in girls (Batanova & Loukas, 2012) and parental psychological control during early adolescence was related to lower perspective taking in young adulthood (Choe et al., 2020). Support of autonomy may increase empathy through better perspective taking abilities and prosocial reasoning (Pratt et al., 2004), whereas excessive parental psychological control may diminish empathy through lower self-concept (Choe et al., 2020). High child's disclosure as an expression of child's autonomy and low parental psychological control may therefore be associated with higher empathy in adolescence.

Adolescent Empathy and Delinquency

Empathy appears protective against delinquency, with low levels of both cognitive and affective empathy being associated with more antisocial behavior and criminal offenses (Van Langen et al., 2014). Specifically during adolescence, low levels of affective empathy were associated with increased risk of engagement in delinquent behaviors (Lovett & Sheffield, 2007). Conversely, high levels of empathy predicted increased prosocial behavior and decreased risk of aggression in adolescence (Laible et al., 2004). Compared to adolescents in the community, incarcerated adolescents showed less cognitive and affective empathy, with responsive empathy predicting delinquency in this population as well (Robinson et al., 2007).

Therefore, empathy is often targeted by interventions to reduce violent behavior in high risk adolescents and adult offenders (Hanson, 2003). For example, the Reasoning and Rehabilitation training increases empathy and reduces criminal and delinquent behavior in adult offenders (Berman, 2005) and the Violence Prevention Program leads to improvements in empathy as well as anger and aggression control skills in youth offenders (Zhou et al., 2018). If empathy can protect adolescents from committing delinquent behaviors, it is important to investigate parenting predictors of empathy during early adolescence, before a normative increase in delinquency occurs from early to middle adolescence (Barnes et al., 2006).

Parenting, Empathy, and Delinquency

Several studies have examined the role of empathy in the link between parenting and adolescents' delinquency, mostly focusing on empathy as a moderator. For example, in a two-wave longitudinal study assessing youth at ages 14 and 15, parental support predicted delinquent behavior more strongly among adolescents with higher levels of empathy, suggesting that these adolescents benefit more from parental support (Van der Graaff et al., 2012). Similarly, parental control was only protective against subsequent delinquency among older youth with high empathy (Crocetti et al., 2016). A few studies have examined empathy as a mediator of the association between parenting and adolescents' delinquency. A cross-sectional study with college students found a link between maternal permissive parenting and students' delinquent behavior, which was mediated by lower cognitive and emotional empathy (Schaffer et al., 2008). However, it is not known whether empathy mediates prospective effects of authoritative parenting on delinquency in younger adolescents.

Sex Differences

The links between authoritative parenting in form of child's disclosure and parental nurturance, adolescents' empathy, and adolescents' delinquency may differ between males and females. Adolescent girls tend to disclose more information about their daily activities to their parents and engage in fewer delinquent behaviors than adolescent boys (Keijsers et al., 2009; Van der Graaff et al., 2014). Adolescent girls also show higher and more stable levels of empathy than adolescent males (Van der Graaf et al., 2014). Child's disclosure is protective against delinquency in both males and females (Keijsers et al., 2009). Similarly, parental nurturance is protective against engagement in delinquent behavior in both male and female youth (Arim et al., 2011). Authoritative parenting has been associated with

higher empathy in both males and females (Miklikowska et al., 2011), but only a few studies have examined the effects of empathy on delinquency in both boys and girls, finding lower levels of empathy in delinquent boys but not in delinquent girls (Jolliffe & Farrington, 2007). Thus, more research is needed to examine potential sex differences in the relationships between authoritative parenting, adolescents' empathy, and adolescents' delinquency.

Current Study

To better understand the psychological mechanisms underlying the relationship of authoritative parenting and subsequent delinquency, this study focuses on empathy as a mediator through which authoritative parenting, conceptualized as parental nurturance and child's disclosure, is protective against subsequent delinquent behavior during adolescence. Based on previous findings that characteristics of authoritative parenting are linked with more empathy in children and that empathy is negatively associated with engagement in delinquent behavior, it was hypothesized that authoritative parenting during early adolescence would be related to lower delinquency in late adolescence, and that this relationship would be mediated by adolescents' empathy. Specifically, it was hypothesized that authoritative parenting during early adolescence would predict higher levels of empathy, which would in turn predict less delinquency in late adolescence. Additionally, adolescents' biological sex was examined as a moderator of the links between authoritative parenting, empathy, and delinquency. However, no specific hypotheses were formulated due to the limited research examining sex differences in these relationships.

Methods

Participants and Procedures

The participants included 704 adolescents (52% male, 76% African American, 22% Non-Hispanic White, 2% other ethnicities) who took part in the longitudinal Birmingham Youth Violence Study (BYVS). The adolescents were initially recruited from 5th grade classrooms in 17 schools in Birmingham, Alabama, USA, through a two-stage probability sampling process. In the first stage, the schools were randomly selected based on the probabilities designed to achieve a sample that would be representative of all students attending public schools in the Birmingham metropolitan area. In the second stage, all 5th grade students at the selected schools were invited to participate, with 42% enrolling in the study and completing Wave 1 interviews (N=704).

As a result of this sampling procedure, the demographic make-up of the sample closely resembled the demographic composition of the Birmingham metropolitan area (74% African American, 24% Non-Hispanic White). The adolescent participants completed individual interviews at average ages 11.8 (Wave 1; N=704), 13.2 (Wave 2; N=603 or 86%) and 18.1 (Wave 3; N=502, 71%) between 2003 and 2014. Compared to those lost to follow up, the retained participants were more likely to be female (51% vs 41%, $\chi^2_{(1)} = 6.63$, $p < 0.05$) and African American (82% vs 62%, $\chi^2_{(1)} = 21.85$, $p < .001$). Although the sample was heterogeneous in terms of socioeconomic characteristics, there was an overrepresentation of adolescents from families of lower socioeconomic background (72% of participants were

recruited from inner city schools; 28% from suburban areas). Family income ranged from below \$5,000 to over \$90,000, with a median in the \$25,000-\$30,000 range.

At each wave, the adolescents provided written assent or informed consent and adolescents' caregivers provided informed consent for all youth younger than 19. All individual interviews were conducted in private spaces by trained interviewers using Computer-Assisted-Personal-Interviews, with sensitive questions being completed by the participants on their own through Audio-Computer-Assisted-Self-Interview (ACASI). The participants received monetary compensation for their time (\$20 in Waves 1 and 2, \$50 in Wave 3). All study procedures were approved by the Institutional Review Board.

Measures

Child's disclosure.—At Wave 1, adolescents reported how often they voluntarily share information about their daily activities and events happening in their lives with their parents on a five-item child's disclosure questionnaire adapted from the Child Disclosure scale developed by Stattin and Kerr (2000). In addition to the traditional three items, the scale also included two items addressing disclosure of experiences with violence (e.g., "Even when your parents don't ask, how often do you tell them about physical fights or other bad things that happened to you during your day?"). These items were included because many adolescents were recruited from low-income communities with high levels of violence. Moreover, the inclusion of these items improved the reliability of the scale. All items were rated on a three-point scale ranging from *never* (0) to *often* (2) and averaged ($\alpha = .74$). The sixth, reverse-coded item on this scale addressing child secrecy ("Do you keep secrets from your parents about what you do during your free time?") was excluded in order to achieve better scale reliability, which is consistent with prior research on child's disclosure (Frijns et al., 2010).

Parental nurturance.—At Wave 1, the adolescents reported on their perceptions of their parents' caregiving as supportive and warm using a five-item Parental Nurturance measure (Barnes & Windle, 1987). The questions addressed emotional support (e.g., "How often do your parents give you praise and encouragement?") as well as physical affection (e.g., "How often do your parents give you a hug or a kiss?"). The items were rated on a three-point scale ranging from *almost never* (0) to *almost always* (2) and averaged ($\alpha = .67$).

Empathy.—At Waves 1 and 2, adolescents responded to the nine-item Social-Emotional Competence Empathy subscale from the student version of the Social Skills Rating System (SSRS) (Demaray et al., 1995; Gresham & Elliot, 1990). The items addressed the cognitive component of empathy (e.g., "How often do you try to understand how your friends feel when they are angry, upset, or sad?"), as well as the affective component (e.g., "How often do you feel sorry for others when bad things happen to them?"). An exploratory factor analyses supported unidimensionality of the scale based on the scree plot and eigenvalues greater than one. The items were rated on a 3-point scale ranging from *never* (0) to *very often* (2) and averaged ($\alpha = .79$ and $.71$ at Waves 1 and 2).

Delinquency.—At each wave, adolescents self-reported on their engagement in delinquent behaviors over the past 12 months using items from the Self-Report of Delinquency (Elliott et al., 1985). Based on developmental differences in delinquency across adolescence (e.g., Harden et al., 2012), delinquency at older ages was measured with more items that covered a broader range of severity. At Wave 1, the scale included eight items – physical fights (3 items), theft (2 items), running away from home, truancy, and breaking into a vacant home or building. At Wave 2, the measures included 27 items, including fighting and assaults (7 items), theft (5 items), fraud (4 items), public disorder (3 items), selling drugs (2 items), destruction of property (2 items), running away from home, truancy, breaking into a vacant home or building, and robbery. At Wave 3, two items were removed from the Wave 2 scale (“run away from home”, “hitchhiked”) and four items about armed violence and arrests were added (e.g., “pulled a knife or gun on someone”) for a total of 29 items. Responses at each wave were coded on a three-point scale of *never* (0), *once* (1), and *more than once* (2). This way of coding allowed differentiation between performing a delinquent act once versus several times in the past year while placing a cap on the number of reported offenses to avoid severe skewness caused by few respondents who report high frequency of delinquent behaviors (Krohn et al., 2010). Responses to the individual items were averaged for each Wave and treated as continuous variables in the model ($\alpha = .62, .79, \text{ and } .86$ across Waves 1 to 3).

Sociodemographics.—At Wave 1, adolescents reported on their biological sex and caregivers reported on the adolescents’ date of birth, race and ethnicity (Hispanic vs Non-Hispanic). At Waves 1 and 2, adolescents’ caregivers also reported on their annual family income (13-point scale ranging from below \$5,000 to above \$90,000). Adolescents’ age was computed at each wave from their date of birth and date of the interview. Given the small number of participants who were not African American or Non-Hispanic White (2%), race and ethnicity were recoded into a single dichotomous variable (Non-Hispanic White versus African American or Other).

Data Analysis

The amount of missing data was examined and t-tests and chi-square tests of independence were conducted to determine if missingness was related to any variables. Descriptive statistics were computed and bivariate correlations among all variables examined. The main analysis involved a mediation model conducted in Mplus 8.1 using maximum likelihood estimation with robust standard errors (MLR) due to non-normal distributions of the delinquency variables. Because the research questions focused on the mediating effects of empathy in the effect of authoritative parenting on delinquency, the model included a latent factor of authoritative parenting at Wave 1 with two indicators of parental nurturance and child’s disclosure. This Wave 1 authoritative parenting latent factor predicted Wave 2 empathy, and Wave 2 empathy predicted Wave 3 delinquency. These paths were adjusted for delinquency and empathy assessed at the previous wave (see Figure 1). All paths also adjusted for adolescents’ biological sex and race/ethnicity, parental income at Wave 2 (Wave 1 if Wave 2 data were missing), and adolescents’ age at the outcome time point. The indirect effect from Wave 1 authoritative parenting to Wave 3 delinquency through Wave 2 empathy was tested with bias-corrected bootstrapping using 5,000 bootstrap samples.

Sex differences in the links between authoritative parenting, empathy, and delinquency, as well as in the tested indirect effect, were examined using multi-group modeling. The Satorra-Bentler correction was used because the robust MLR estimator was utilized (Satorra & Bentler, 2010). The fit of a model in which all paths and covariances were constrained to be equal for males and females was compared to the fit of an unconstrained model, in which all paths and covariances were allowed to vary by sex. A significant difference in the model fit between the constrained and unconstrained model would be followed by tests comparing unconstrained individual paths of interests. Sex differences in the indirect effect were tested by comparing the fit of the model with all paths constrained to be equal by sex to a model in which only the paths of Wave 1 authoritative parenting to Wave 2 empathy, Wave 1 authoritative parenting to Wave 3 delinquency, and Wave 2 empathy to Wave 3 delinquency were free to vary by sex. Missing data in all models were handled with Full Information Maximum Likelihood (FIML), which preserves the overall sample size and minimizes bias when data are Missing At Random (Cham et al., 2017). The total sample size for the main analysis was 704 (i.e., the full Wave 1 sample).

Results

Preliminary Analyses

Due to occasional missing data points on one or multiple variables, 448 participants or 89% of the Wave 3 sample had complete data on all variables included in the analyses. Among the total 704 participants, 8.1% of data points were missing. Male and Non-Hispanic White youth were more likely to have any missing data points. Adolescents with missing data did not significantly differ from those with complete data in age across the three waves, parental income, child's disclosure, parental nurturance, empathy at Waves 1 and 2, or delinquency across the three waves.

Descriptive statistics and correlations among the variables of interest (child's disclosure, parental nurturance, empathy, and delinquency) at each wave of measurement are reported in Table 1. The engagement in one or more delinquent behavior in the past year was reported by 58% of youth at Wave 1, 71% at Wave 2, and 82% at Wave 3. Across the three waves, up to 15% to 26% reported engaging in any single delinquent behavior once and up to 22% to 36% reported engaging in the individual delinquent behaviors more than once in the last year, supporting the decision to differentiate between single versus multiple engagement in any delinquent act in the scoring of delinquency.

As expected, child's disclosure and parental nurturance were moderately positively intercorrelated and both were associated with higher concurrent and future empathy. Consistent with the hypotheses, adolescents who reported more parental nurturance and empathy in early adolescence reported lower levels of delinquency throughout adolescence. However, child's disclosure was only related to concurrent, but not future, delinquency. Females reported more child's disclosure, higher empathy at Waves 1 and 2, and fewer delinquent behavior at all three Waves compared to males. Adolescents' perception of parental nurturance did not vary by sex. At Wave 1, 16% of adolescents reported maximum values of child's disclosure and 22% of adolescents reported the maximum values of

parental nurturance. On average, empathy scores decreased from Wave 1 to Wave 2 ($t_{(602)} = -3.01, p = .003$).

Main Analyses

As shown in Figure 1, parental nurturance and child's disclosure loaded significantly on the latent construct of authoritative parenting. The loadings of parental nurturance ($\beta = .69, p < .001$) and child's disclosure ($\beta = .66, p < .001$) were similar in strength. The mediation structural equation model had an excellent fit to the data ($\chi^2_{(14)} = 28.86, p = .011$; CFI = .98, RMSEA = .04). In support of the hypotheses, the latent factor of authoritative parenting at Wave 1 predicted higher levels of empathy at Wave 2 ($\beta = .19, p = .003$), and higher empathy at Wave 2 predicted fewer delinquent behaviors at Wave 3 ($\beta = -.11, p = .029$). The results from the bootstrapping analyses confirmed a significant indirect effect of Wave 1 authoritative parenting on Wave 3 delinquency through Wave 2 empathy ($\beta = -.022$; CI_{95%} = [-.059; -.004]). In the exploratory analysis of sex differences, multigroup modeling showed no significant sex differences in the overall model ($\chi^2_{(40)} = 54.95, p = .058$) or in the indirect effect ($\chi^2_{(3)} = 7.618, p = .055$). Thus, no follow up tests of sex differences were conducted.

Sensitivity Analyses

Several sensitivity analyses were conducted to examine the robustness of the results when alternative decisions were made. First, the main model was rerun with listwise deletion of cases with missing data. The pattern of results remained unchanged and empathy still mediated the effect of authoritative parenting on subsequent delinquency ($\beta = -.015$; CI_{95%} = [-.044; -.001]). The second sensitivity analysis tested whether differences in the measurement of delinquency over time impacted the results. Unfortunately, this analysis could not be conducted with the same delinquency scale across all three Waves, because only six items were used at all waves and their internal reliability at multiple waves was unacceptably low ($\alpha < .50$). However, internal reliability was adequate for the 25 items common across Wave 2 and Wave 3 ($\alpha = .78$ and $.84$).

Thus, this sensitivity analysis utilized identical delinquency scales at Waves 2 and 3, replicating the main results and yielding a significant indirect effect ($\beta = -.021$; CI_{95%} = [-.059; -.003]). The third sensitivity analysis addressed the possibly differential roles of parental nurturance and child's disclosure by analyzing them as individual predictors in separate models instead of as two indicators of the latent authoritative construct. In these analyses, empathy mediated the effect of parental nurturance on subsequent delinquency ($\beta = -.016$; CI_{95%} = [-.037; -.004]) and empathy marginally significantly mediated the effect of child's disclosure on subsequent delinquency ($\beta = -.009$; CI_{90%} = [-.025; -.001]).

The final sensitivity analyses followed up on the nonsignificant effect of Wave 1 empathy on Wave 2 delinquency in the main model. A linear regression showed that Wave 1 empathy predicted lower Wave 2 delinquency ($\beta = -.10, p = .007$) when controlling for delinquency at Wave 1, but not authoritative parenting. These results suggest that the absence of a significant effect of Wave 1 empathy on Wave 2 delinquency in the main model is due to the overlap between Wave 1 empathy and authoritative parenting ($r = .57, p < .001$).

Discussion

Previous research has shown that authoritative parenting is an important predictor of engagement in delinquent behavior, with children who receive greater parental nurturance (Windle et al., 2010) and who voluntarily disclose information to their parents engaging in fewer delinquent behaviors throughout adolescence (Keijsers et al., 2009). However, less has been known about the psychological mechanisms and potential mediators of the relationship between authoritative parenting and adolescents' subsequent delinquency (Simons et al., 2007), and the specific role of empathy in this relationship (Crocetti et al., 2016; Schaffer et al., 2008). No prior studies have examined adolescents' empathy as a mediator of the protective effects of authoritative parenting on later engagement in delinquent behavior. This study utilized a three-wave longitudinal design over the course of adolescence to examine whether adolescents' empathy mediates the effect of authoritative parenting in early adolescence on subsequent delinquency in late adolescence. The results supported the hypotheses that authoritative parenting predicts higher levels of empathy in early adolescence, which then is protective against engagement in delinquent behavior in late adolescence.

Authoritative Parenting, Empathy, and Delinquency

The present findings are consistent with previous evidence linking adolescents' empathy with both authoritative parenting (Mesurado & Richaud, 2017) and delinquency (Van Langen et al., 2014). The most novel contribution of this study is the longitudinal evidence of adolescents' empathy mediating the effect of authoritative parenting in early adolescence on delinquency in late adolescence. The mediation model demonstrated that adolescents who voluntarily shared information with their parents and who perceived their parents as nurturing and supportive during early adolescence developed higher levels of empathy over time, which then predicted lower engagement in delinquent acts in late adolescence. These results suggest that adolescents' development of empathy is nurtured by parents who provide warmth in the form of physical affection, as well as emotional support in the form of praise and encouragement, and parents who establish an atmosphere in which adolescents feel comfortable sharing information about their lives on a regular basis. Adolescents who voluntarily disclose information exercise autonomy and independence, which have been linked with better perspective taking abilities and thus enhance empathy development (Pratt et al., 2004). Additionally, parental nurturance may be internalized by the adolescents and thus promote empathy and prosocial behavior. Parents may also model empathic behavior when they provide emotional support and respond with understanding and empathy to children's disclosure of private information. In turn, these displays of empathy by parents may enhance the development of empathy in their adolescents (Strayer et al., 2004). It would be beneficial for future studies to directly assess caregivers' empathy and other interpersonal processes during interactions with their children to better understand how different aspects of authoritative parenting foster youth empathy.

The present results also suggest that empathy in early adolescence predicts less engagement in delinquent behaviors in late adolescence and emerging adulthood. Multiple studies have found similar concurrent negative links between empathy and delinquency among

adolescents (Jolliffe & Farrington, 2007; Lovett & Sheffield, 2007). The ability to understand and share the emotions of others may increase adolescents' concern for the well-being of others and reduce the likelihood of delinquent behaviors that would harm others. The present results suggest that promoting empathy during early adolescence may be one important way to prevent subsequent development of delinquency during later adolescence and emerging adulthood, when delinquent acts get more serious and youth become fully capable of tort and punishable by law (Dahlberg & Potter, 2001). In contrast to the significant path from Wave 2 empathy to Wave 3 delinquency, empathy at Wave 1 did not predict delinquency at Wave 2. As suggested by the sensitivity analyses, this may be attributed to the substantial overlap between empathy and authoritative parenting. Notable, Wave 1 empathy did predict changes in delinquency from Wave 1 to Wave 2 when authoritative parenting was not included in the model.

The overall model revealed no significant sex differences in the individual paths of interest or the indirect effect, suggesting that authoritative parenting is protective against subsequent delinquency through greater empathy in both male and female youth. Consistent with prior research, the protective effects of authoritative parenting in the form of child's disclosure and parental nurturance against subsequent delinquency were not moderated by sex (Arim et al., 2011; Keijsers et al., 2009). The present results are in line with previous findings of authoritative parenting promoting empathy development in both male and female youth (Miklikowska et al., 2011). Potential sex differences in the relationship between empathy and delinquency suggested by prior studies (Jolliffe & Farrington, 2007) were not found. Consistent with prior research, early adolescent girls disclosed more information about their lives to their parents and engaged in fewer delinquent behaviors throughout adolescence (Keijsers et al., 2009). Also in line with previous findings, early adolescent girls reported higher levels of empathy compared to adolescent boys at both age of 11 and 13 (Van der Graaff et al., 2014).

The results from bivariate correlations align with prior findings of moderate links between parental nurturance and child's disclosure (Soenens et al., 2006), but suggest that parental nurturance has more robust associations with delinquency across adolescence than child's disclosure. These findings are in contrast to prior studies that identified child's disclosure in early adolescence as a key predictor of delinquency in middle and late adolescence (Keijsers et al., 2009). The strong links between parental nurturance and child's disclosure confirm prior findings that children are more likely to disclose information about their lives to nurturing parents (Soenens et al., 2006). Both child's disclosure and parental nurturance loaded significantly and similarly in strength on the latent factor of authoritative parenting, which supports the rationale of conceptualizing authoritative parenting as a latent variable with indicators of parental nurturance and child's disclosure.

The present results support previous findings that the style of parenting is critical for adolescents' development of empathy during adolescence, a time period when empathy levels tend to fluctuate. Both child's disclosure as an expression of child's autonomy (Carlo et al., 2011) and parental nurturance (Mesurado & Richaud, 2017) were associated with greater concurrent and future empathy in early adolescence. The decrease in empathy from

age 11 to age 13 aligns with previous findings of a temporary decline in empathy levels during early adolescence (Van der Graaf et al., 2014).

Implications

The present finding of empathy mediating the prospective link between authoritative parenting and subsequent delinquency corroborates the important role of empathy in preventing or reducing delinquent behavior (Van Langen et al., 2014) and suggests that parenting is critical for the development of empathy. These findings have implications for parenting interventions that aim to prevent or reduce adolescent delinquency. Many existing parenting and family-based interventions focus on improving parents' attitudes towards child rearing and parents' communication skills when interacting with their children, in an effort to prevent interaction patterns in which negative child behavior and unsupportive parenting behavior reinforce each other (Van Aar et al., 2017). The present findings support interventions such as the Parent and Children Talking Together program (PCTT), which focus on promoting authoritative parenting techniques, especially positive parent-child communication with support for child autonomy, and help explain their success in reducing adolescent delinquency (Leitjen et al., 2012). Based on the present findings, parenting and family interventions may be enhanced by content that directly targets adolescents' empathy. Family-centered interventions to improve adolescents' empathy may benefit from modeling empathy during parent-child interactions, especially in the form of parental nurturance, and by creating an atmosphere that supports child's disclosure. Other successful empathy interventions aim to improve perspective taking either through direct practice such as active role playing or indirectly through imagining the feelings of others (Davis & Begovic, 2014).

In addition to family-centered programs, delinquency may also be reduced by empathy interventions in different contexts such as in the school environment. By not requiring parental involvement, such school-based interventions may be accessible to more adolescents. One example of a successful classroom-based approach is the Roots of Empathy Program, which has been found effective in both promoting empathy and reducing aggression in early adolescents (Schonert-Reichl et al., 2012). The present results showed that empathy levels decline from age 11 to age 13, which is consistent with previous research suggesting a temporary decline in empathy around the time of puberty (Van der Graaff et al., 2014). These findings suggest that early adolescence may be an especially critical time for empathy interventions.

Strengths and Limitations

The present study has several strengths, which enabled the examination of the mediation hypothesis over a critical developmental period using robust methodology. A key strength of this study is the longitudinal design spanning the course of adolescence, which allowed linking authoritative parenting and empathy during early adolescence with delinquent behavior in late adolescence. The three-wave longitudinal design also allowed the modeling of temporal separation between the predictor, mediator, and outcome, as recommended by methodological studies on mediation (Maxwell et al., 2011). Another strength is the inclusion of two key aspects of authoritative parenting in relation to empathy and delinquency.

Despite these strengths, several limitations need to be taken into account when interpreting the present results. The study was limited by reliance on adolescents' self-reports, which may have inflated associations among variables due to shared method variance. Nevertheless, self-reports are commonly used to assess empathy, which may not always be observable in its behavioral manifestations, as well as adolescents' delinquent behavior, which is often hidden from others, especially from parents. Self-reports of both empathy and delinquency have previously shown high validity in assessments of both empathy (Jolliffe et al., 2003) and delinquency (Neumann et al., 2015). Aspects of authoritative parenting can be more easily assessed through parents' report or observations of parent-child interactions, but youth perceptions tend to be most relevant for youth outcomes (Kapetanovic et al., 2019). Another limitation is the unavoidable attrition that occurs in all longitudinal studies. Although the bias from selective attrition was minimized with the use of Full Information Maximum Likelihood in the main analytic model, the results may be less generalizable to Non-Hispanic White and male adolescents who were more likely to drop out from the study and thus were more likely to have missing data. The internal consistency of the parental nurturance scale was lower ($\alpha = .67$) than in other studies with early and middle adolescents that used this scale ($\alpha = .76$ to $.80$) (Barnes et al., 2000; Windle et al., 2010). The internal reliability of delinquency was low at Wave 1 ($\alpha = .62$), but improved at Wave 2 ($\alpha = .79$) and Wave 3 ($\alpha = .86$) when more items were used. These lower levels of internal reliability may have attenuated the relationships among the studied constructs.

Another limitation is that some potentially relevant constructs were not measured. While parental nurturance and child's disclosure are important dimensions of authoritative parenting the present results are limited by not including other relevant aspects of authoritative parenting such as conflict resolution and psychological control that have not been measured. Additionally, the present study included no measures of adolescents' self-control, which has been found to mediate links between parenting and delinquency (Simons et al., 2007) and may be linked with adolescents' empathy. These constructs should be included in future research. A few prior studies suggest that authoritative parenting from the same-sex parent has stronger effects on adolescents' empathy compared to the parenting from the opposite-sex parent (Miklikowska et al., 2011). In the absence of mother- and father-specific data on child's disclosure and parental nurturance, these potential differences could not be investigated in this project but should be addressed in future research. Additionally, this study was not able to distinguish between cognitive and affective empathy. These two dimensions of empathy may show differential relationships with authoritative parenting and delinquency that would be valuable to address in future studies. Finally, the items used to measure delinquency varied across the three time points, which may have reduced the comparability of the delinquency scores over time. A sensitivity analysis demonstrated robustness of the results using the same delinquency items at Waves 2 and 3, but the limited measurement of delinquency at Wave 1 remains a limitation.

Conclusion

Authoritative parenting has been established as a protective factor against adolescents' delinquent behavior, but little has been known about the potential mediators of this relationship. To better understand the mechanisms underlying the relationship of

authoritative parenting with subsequent delinquency, this prospective study examined the mediating role of adolescents' empathy in the effect of authoritative parenting during early adolescence on delinquency in late adolescence. The results suggest that adolescents who receive authoritative parenting develop more empathy, which then protects them against subsequent engagement in delinquent behavior. These findings highlight the important role of empathy development during early adolescence in preventing delinquent behavior in late adolescence and suggest that adolescents are best positioned to develop empathy when their family environment is warm and nurturing and supportive of child's disclosure. These findings extend the understanding of how parenting and delinquent behaviors are linked over the course of adolescence and suggest that authoritative parenting is a key way to develop empathy, which then protects adolescents from engaging in delinquent behavior.

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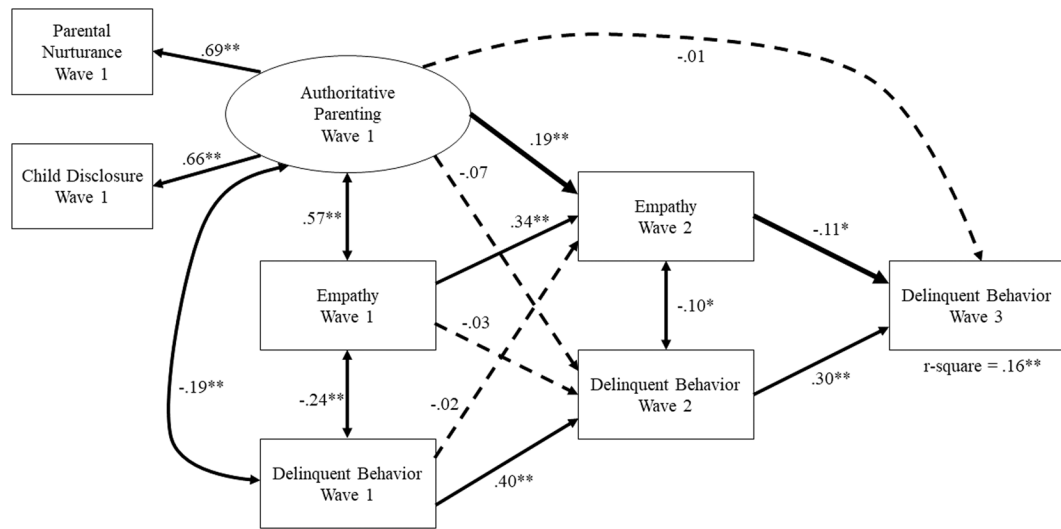


Figure 1. Mediation Model

Note: Standardized path coefficients are shown. Bold paths indicate a significant indirect effect. All paths are adjusted for adolescents' sex, race, age, and family income. Solid paths are significant; non-significant paths are dashed.

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

Table 1
Descriptive Statistics and Correlations among Main Variables and Key Covariates

	M (SD)	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Parental Nurture (W1)	1.55 (0.24)	1.00									
2. Child's Disclosure (W1)	1.31 (0.51)	.46 ^{***}	1.00								
3. Empathy (W1)	1.62 (0.34)	.38 ^{***}	.39 ^{***}	1.00							
4. Empathy (W2)	1.58 (0.30)	.30 ^{***}	.24 ^{**}	.49 ^{***}	1.00						
5. Delinquency (W1)	0.20 (0.24)	-.16 ^{**}	-.09 [*]	-.24 ^{**}	-.18 ^{**}	1.00					
6. Delinquency (W2)	0.13 (0.16)	-.18 ^{**}	-.06	-.21 ^{**}	-.23 ^{**}	.46 ^{**}	1.00				
7. Delinquency (W3)	0.19 (0.23)	-.15 ^{**}	-.05	-.15 ^{**}	-.21 ^{**}	.30 ^{**}	.35 ^{**}	1.00			
8. Female (W1)	0.48 (0.50)	.05	.10 ^{**}	.13 ^{**}	.13 ^{**}	-.12 ^{**}	-.11 ^{**}	-.20 ^{**}	1.00		
9. Minority (W1)	0.78 (0.42)	-.06	-.04	-.17 ^{**}	-.14 ^{**}	.15 ^{**}	.16 ^{**}	.12 ^{**}	.10 ^{**}	1.00	
10. Parental Income (W2)	6.50 (3.89)	.09 [*]	.02	.13 ^{**}	.15 ^{**}	-.23 ^{**}	-.15 ^{**}	-.03	-.07	-.34 ^{**}	1.00

Note: W1 – Wave 1, W2 – Wave 2, W3 – Wave 3.

* $p < .05$

** $p < .01$