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Original Paper

Procedural Justice in Family Conflict Resolution and Deviant Peer Group Involvement Among Adolescents: The Mediating Influence of Peer Conflict

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Abstract. The involvement of adolescents with deviant peer groups is one of the strongest proximal correlates to juvenile delinquency and stems from a variety of causes. Past research has linked ineffective parenting with peer variables, including deviant peer group involvement and peer conflict during adolescence. In this study, adolescents' appraisals of procedural justice within the family (adolescents' appraisals of how fairly they are treated by parents in the process of resolving family conflict) were examined as one aspect of effective parenting that may relate to deviant peer group involvement in early adolescence. Data from 1660 middle school students (ages 11–14, mean = 12.6) indicated that higher appraisals by adolescents of procedural justice during family conflict resolution were related to lower levels of both peer conflict and deviant peer group involvement. A structural model was tested in which the relationship between adolescents' appraisals of procedural justice in the family and deviant peer group involvement was partially mediated by measures of peer conflict. This model was found to have adequate fit to the data, indicating that part of the relationship between procedural justice appraisals and deviant peer group involvement can be explained by levels of peer conflict. Implications of these findings are discussed.

Introduction

A plethora of risk factors has been identified for the development of juvenile delinquency, including residence in low SES neighborhoods (Stouthamer-Loeber

et al. 2002), low levels of parental monitoring (Griffin et al. 2000), low IQ and residential mobility (Hawkins et al. 2000), gender, family structure (Stouthamer-Loeber et al. 2002), and association with delinquent peer groups (Agnew 1991; Elliott and Menard 1996; Moffitt 1993a; Warr 2005). A review of the research by Hawkins et al. shows that deviant peer group involvement is one of the most well-established risk factors across a variety of studies and is the strongest predictor of violent behavior for youth ages 12–14. Elliott et al. (1989) reported that 31% of the variance in general adolescent delinquency could be accounted for by deviant peer group involvement and gender. Furthermore, several other variables predicted delinquency only through deviant peer group involvement. Thus, deviant peer group involvement is of particular interest as a risk factor both because of the large amount of variance it explains in delinquent behavior and because of the implications it has for intervention and prevention.

During adolescence, individuals begin depending less on their families and more on their peer groups for approval and social validation (Fuligni et al. 2001). As they get older, adolescents spend increased amounts of unsupervised time with their peers and consider their friends' opinions to be as important as or more important than their parents' opinions on some issues. Given this opportunity for social influence, it is not surprising that studies have consistently found involvement with deviant peer groups to be a strong predictor of delinquent behavior during adolescence (Hawkins et al. 2000). Linden and Hackler (1973) found that those adolescents with the highest levels of bonding with de-

linquent peers had the highest rates of self-reported delinquency and that this relationship was influenced by the level of bonding to conventional peers and parents. Elliott et al. (1985) found that adolescents who were members of deviant peer groups were more likely to engage in delinquency, regardless of the presence or absence of other risk factors. More recently, Fuligni et al. found that youth with more extreme peer group orientations reported higher levels of deviant behavior. The proportion of adolescents' friends who consumed alcohol, used drugs, and skipped class strongly predicted problem behaviors. In line with this finding, Dishion and Owen (2002) concluded that the tendency to cluster in peer groups that used substances was the strongest proximal correlate of adolescent substance use. The results of these studies illustrate a strong link between deviant peer group involvement and adolescent deviant behavior.

Many assume that the link between deviant peers and deviant behavior exists because adolescents who engage in deviant behavior seek out others who engage in similar behavior. While this idea has been supported with cross-sectional correlational data, the opposite interpretation has gained more empirical support. Rather than emerging simply out of delinquent adolescents' preferences for like-minded friends, deviant peer groups seem to be a powerful vehicle for social learning during adolescence (Patterson et al. 2000). Elliott and Menard (1996) found that involvement with deviant peers precedes the onset of delinquent behavior in most cases. Index offenses (those serious offenses that would be illegal regardless of the offender's age) almost never occur before an individual has become involved with deviant peers. This is likely due to deviancy training, the process by which attitudes toward delinquent behavior are strengthened and delinquent behavior is reinforced (Elliott et al. 1985; Patterson et al. 1998; 2000). When adolescents are involved in deviant peer groups, they are exposed to new and more serious forms of delinquency and are able to practice and refine these behaviors. At the same time, adolescents in deviant peer groups receive more reinforcement for delinquent than for prosocial behaviors, making these behaviors more likely to persist throughout the lifespan (Dishion and Patterson 1997; Farrington 1991).

Parenting Behavior

Because the trajectory toward deviant peer group involvement and subsequent delinquency appears to start early in life, a great deal of attention has been focused on the contributing role of parenting styles and parent/child interactions. Research has indicated that adolescents' peer relations are largely affected by their home environments.

Parental discipline and overall levels of family con-

flict have been linked to children and adolescents' behavior as well as their success in school and in peer groups. Patterson et al. (1989) noted that families of children described as "antisocial" were likely to use harsh and inconsistent discipline, thereby inadvertently reinforcing coercive patterns of behavior. Patterson et al. (1998) studied the impact of parenting practices and peer variables on the trajectory from childhood antisocial behavior to juvenile delinquency. The authors concluded that disrupted parenting practices, characterized by "nattering" or abusive interactions with the child as well as low levels of monitoring, predicted both the development of childhood antisocial behavior and its continuity into adolescence. Similarly, a study by Jaycox and Repetti (1993) indicated that preadolescent children in high-conflict families were likely to have poor perceptions of themselves and display externalizing behavior problems. The level of overall family conflict had an effect on behavior above and beyond the effects of marital discord or aversive parent-child interactions.

The impact of the home environment in general, and of parenting skills in particular, is especially important in adolescent populations, as parent-child relationships undergo a period of flux at that time (Granic et al. 2003). According to Granic et al., parent/adolescent relationships are characterized by an increasing variety of exchanges and a greater flexibility in the "repertoire" of interactions. Research on parenting styles indicates that authoritative parenting (characterized by maintenance of clear boundaries between moral, conventional, and personal issues and the allowance of some degree of autonomy on personal issues) helps alleviate the increased levels of conflict that normally occur during this period (Smetana 1995). The effect of parenting style on family functioning increases as adolescents get older and the demand for personal autonomy increases.

Procedural Justice

While a large body of research has supported the importance of parenting on the development of deviant behavior, efforts have increasingly focused on specific aspects of parent/child interaction that may also play a role. Adolescents' appraisals of procedural justice within the family have recently been linked to deviant behavior outside the family context (Jackson and Fondacaro 1999). Procedural justice refers to an individual's appraisal of the extent to which he or she was treated fairly during the course of conflict resolution or decision-making. Early work in the area has shown that people care as much or more about how they are treated in the process of making a decision or resolving a conflict (procedural justice) than they do about the outcome itself (distributive justice) (Thibaut and

Walker 1975; Tyler 1989). Recent research with older adolescents indicates that their appraisals of procedural justice within the family (i.e., their ratings of the extent to which their parents treated them fairly during the resolution of a specific conflict) were related to their feelings about the general cohesiveness of their families, their psychosocial functioning, and their levels of deviant behavior (Fondacaro et al. 1998; Jackson and Fondacaro 1999).

Factor analytic studies resulting in the preliminary development of a Family Justice Inventory have revealed that older adolescents use several distinct criteria for evaluating how fairly they were treated by parents in resolving a specific family conflict (personal respect, status recognition, process control, correction, and trust). These distinct criteria for evaluating procedural justice have been studied in relationship to individual and family functioning in a number of studies (Fondacaro et al. 1998, 2002; Jackson and Fondacaro 1999). In one such study, Fondacaro et al. (2002) found that procedural justice constructs were more important than distributive justice constructs in predicting family functioning. Consistent with expectations, older adolescents cared more about how they were treated in the process of resolving family conflict than they did about the final outcome. Several components of procedural justice in family conflict resolution (i.e., personal respect, status recognition, and trust) predicted levels of both family conflict and family cohesion. Accordingly, adolescents from more cohesive families reported being treated as more valued members of the family. This supports the idea that adolescents especially value the way they are treated in dispute resolution when interacting with in-group members such as their parents. Thus, the way adolescents perceive they are treated in the process of resolving family conflicts, rather than the final outcomes of these decisions, may be related to broader measures of family functioning.

While early procedural justice models posited that individuals are concerned with the fairness of decision-making procedures because of their indirect impact on decision-making outcome (Leventhal 1980; Thibaut and Walker 1975), more recent work has linked justice concerns to relational motivations (Tyler 1994; Tyler and Lind 1992). Across a variety of contexts, research has shown that people are concerned about procedural justice largely because their treatment during the decision-making process communicates important information about where they stand relative to the group (Tyler 1994; Tyler et al. 1996). Tyler (1994) asserts that people are predisposed to belong to social groups and so are particularly sensitive to these messages. The respect an individual receives from a group has been linked both to individual outcomes (such as self-esteem) and to subsequent behavior toward the group

(Tyler et al. 1996).

Relational aspects of procedural justice may be especially important in the family context, where bonds are expected to be close (Tyler and Degoey 1995). Fondacaro et al. (1998) studied the development of deviant behavior within the framework of Tyler's relational model of procedural justice and found that those adolescents who reported lower appraisals of procedural justice during family conflict resolution also reported higher levels of deviant behavior. Deviant behavior was significantly associated with less neutral, trustworthy, and respectful treatment by parents. Those adolescents who reported being treated more fairly by parents engaged in less deviance, even when gender and background variables were controlled. Similarly, Jackson and Fondacaro (1999) asserted that adolescents who have faith in the benevolence of their parents and are treated as valued members of the family during the resolution of conflicts will be less likely to engage in deviant behavior. The authors explained some of this effect by asserting that adolescents who are treated disrespectfully experience increased anger. This anger can both fuel ongoing conflict within the family and result in increased aggression in other contexts. Furthermore, these interactions can teach ineffective conflict resolution strategies. However, when decision-making processes are fair adolescents are taught competent conflict resolution strategies that they can then use in their relationships outside the family.

Peer Conflict

Ineffective conflict resolution strategies learned in the home may transfer to adolescents' behavior in other settings. Because of the salient role of the peer group during adolescence (Fuligni et al. 2001), peer conflict may have a particularly powerful influence during this time period. Conflictual relationships with one's peers, including rejection from the conventional peer group, have been identified as a motivator for entrance into deviant peer groups. Longitudinal data from the Oregon Youth Study (Dishion et al. 1991) show that difficulty in the conventional peer group is one of the most salient predictors of association with deviant peers. In that study, boys who were rejected at age 10 had higher levels of contact with deviant peers at age 12, regardless of whether the boys had previously displayed antisocial behavior. The role of poor peer relations is also supported by Krueger et al. (1994), who found that youth who reported participating in the widest variety of criminal behavior also reported low levels of social cohesion and high levels of alienation. They described themselves as being persecuted by their peers and as lacking interpersonal closeness. Dishion et al. (1991) explained the formation of deviant peer groups by speculating that individu-

als will seek out peer groups that maximize social reinforcement for a minimum amount of effort. According to this view, children and adolescents whose skills do not allow them to be successful in conventional peer groups will seek out groups in which they are accepted without having to change behavior. This suggests that the development of delinquent behavior involves bidirectional influences. While aggression and social skills deficits may precipitate the conflict that leads children and adolescents to associate with deviant peer groups, these peer groups then reinforce antisocial behavior and support the development of new and more serious forms of offending.

Explanatory Models

Several models have been developed to explain the relationship between family interaction and deviant peer group involvement. Moffitt (1993a) has put forth a social mimicry interpretation to explain why individuals become involved with deviant peer groups during adolescence. She proposed the existence of a maturity gap during adolescence, created when individuals reach biological maturity but are still constrained to childhood roles due to aspects of the present social structure. Individuals reach biological maturity by the early teen years but do not have the opportunity to assume adult roles until years later, so adolescents are forced to seek out other ways of asserting their adult status. This theory suggests that most adolescent delinquency can be explained as a normative response to conditions created by modern society (Moffitt 1993a). In support of this view, studies have shown that rates of adolescent delinquency have increased coincident with increases in the age of entry into the labor market (Moffitt 1993b).

The social mimicry interpretation holds that adolescents are attracted to peers and peer groups who are engaging in seemingly "adult-like" delinquent behavior and see this behavior as a means of asserting their autonomy. Adolescents become involved with deviant peer groups and emulate their deviant peers because of the possibility of achieving adult goals. According to this theory, the delinquent behavior is self-reinforcing and tapers off during early adulthood when costs outweigh the rewards. The attraction of both delinquent peers and delinquent peer groups is minimized when adolescents do not experience the maturity gap. Similarly, deviant peer group involvement decreases once adolescents gain access to adult roles through other means. For instance, Warr (1998) found that involvement with deviant peers decreases dramatically once individuals get married, while involvement with conventional peers increases. This body of research highlights the importance of both developmental processes and broad social influences in the evolution of deviant

peer group involvement.

Another body of research has targeted peer relations as a mediating variable in the development of deviant peer group involvement. Dishion et al. (1994) proposed a coercion and confluence model to explain the relationships between parenting practices, peer interactions, and the development of deviant behavior. In this model, inconsistent parenting reinforces children for coercive and antisocial behavior. These behaviors then spill over into other settings, such as school and peer relationships. This antisocial behavior inhibits learning and leads to peer rejection. The failing child then selects social settings that maximize reinforcement and new forms of deviant behavior emerge within the context of these new peer relationships. In contrast to the social mimicry interpretation, this model implies that adolescents will be more likely to seek out deviant peer groups if they first experience failure in the conventional peer group. These disrupted peer relationships result in an unfulfilled need for social reinforcement, which adolescents then fill by selecting peer groups that share their aggressive behaviors or social skills deficits.

The role of disrupted peer relationships in the development of deviant peer groups has been supported by numerous studies (e.g. Dishion et al. 1991). Cairns and Cairns (1991) also found that aggressive middle school students who were rejected by the mainstream peer group joined together to form antisocial cliques. These findings make sense in light of research showing that adolescents have a strong need to belong and prefer to belong to any social group (even an "unpopular" group) rather than to none (Brown and Lohr 1987). However, because adolescents then learn additional forms of deviant behavior from their deviant peers, "antisocial cliques" can transform aggressive behavior into more serious forms of delinquency (Dishion and Patterson 1997). This body of literature highlights the importance of understanding the complex role of peer relations in the development of deviant peer group involvement.

More broadly, the tendency toward deviant peer group involvement can be understood within the framework proposed by Bronfenbrenner (1979). According to his theory, individuals interact with a variety of systems in their daily lives. Microsystems, such as the home and the school, are the settings with which children directly interact. Behavior learned in one microsystem is often carried over into another. In this case, behavior learned in the home, in the context of the parent-child relationship, is carried over into the school and used in peer relationships. Relationships with conventional peers may be disrupted, which may lead to deviant peer group association. The effect of the home environment is accentuated in the case of

children and adolescents, as they tend to interact with relatively few systems in their daily lives (Jackson and Fondacaro 1999).

Hypotheses

The purpose of the present study was to expand the research on procedural justice and its relationship to other areas of functioning while further exploring the roles of parenting and peer variables in the development of deviant peer group involvement. The specific aims and hypotheses were as follows:

1. To extend research in procedural justice by determining whether procedural justice appraisals in the family context are related to levels of involvement with deviant peers. We predicted that higher appraisals of procedural justice in family conflict resolution would be related to lower levels of deviant peer group involvement.
2. To determine whether peer conflict mediated the relationship between procedural justice appraisals in family conflict resolution and deviant peer group involvement. We predicted that the relationship between procedural justice appraisals and deviant peer group involvement would be partially mediated by peer conflict, consistent with literature linking parenting variables with peer variables (Vuchinich et al. 1992) and linking peer variables with deviant peer group involvement (Dishion et al. 1991). In the hypothesized model, poor family conflict resolution is associated with higher levels of peer conflict, which is linked to higher levels of involvement with deviant peers.

Additionally, we sought to determine whether gender moderated the relationship between procedural justice appraisals in family conflict resolution and involvement with deviant peer groups. Because of the limited amount of literature addressing differences in procedural justice appraisals between girls and boys, we conducted these analyses in an exploratory fashion.

Method

Participants

About 1,660 middle school students participated in the present study. Participants had an average age of 12.6 ($SD = .92$) and were predominantly female (61.9%). Participants identified as White (35.4%), Hispanic (30.2%), Black (17.3%), Asian (4.1%), Native American (2.4%), Multiracial (4.8%) and "other" (5.9%). Written parental consent and verbal assent were obtained from all participants prior to the beginning of the study. Schools were paid \$2 for every completed parental consent form returned.

The current study was part of a larger project on middle school youth violence designed to identify personal, school, and family characteristics that underlie individual differences in aggressive behavior (Miller et al. 2003). Participants were recruited from 27 middle schools located in five states: Florida, Texas, California, Connecticut, and New Jersey. Nine school districts from these five states agreed to participate in the study. A random subset of classes was then selected to receive the survey. Participants were included in the current study if they were within the traditional age range of middle school students (11–14 years), and if they completed the questions related to age, gender, and procedural justice, as well as at least 80% of the items related to deviant peer involvement or peer conflict. These criteria allowed us to minimize the impact of missing data on our statistical analysis (structural equation modeling) while ensuring that our participants were representative of the average middle school student.

Measures

Procedural Justice in Family Conflict Resolution

Procedural justice was measured using 16 items adapted from The Family Justice Inventory-Youth Form (FJI-Y). The FJI-Y (Diamond 2003; Diamond et al. 2000) is a downward extension (ages 11–18) of the Family Justice Inventory (FJI) originally developed to assess older adolescents' appraisals of procedural justice during family conflict resolution (Fondacaro et al. 2002). The FJI-Y requires participants to write a description of a recent conflict they have had with their parents, and then rate the extent to which procedural justice concepts were applied to the situation. The final section of the questionnaire assesses the participants' satisfaction with the outcome of the situation. Examples of items related to procedural justice include, "Your parent(s) treated you with respect," and "Your parent(s) were truthful to you." Responses range from 1 "strongly disagree," to 5 "strongly agree." Cronbach's alpha for this sample was .945. The scale used in this study was shortened from the original version so that it could be incorporated into a larger survey instrument assessing a wide range of psychosocial variables in a diverse middle school sample. The shortened version contained 16 procedural justice items and two distributive justice items. Moreover, the wording of specific items originally developed for the FJI-Y was pilot tested and adapted for comprehension by a younger and more diverse middle school sample. Stuart (2006) conducted a factor analysis on the shortened version of the FJI-Y using data collected for the middle school youth violence study in order to evaluate whether a shortened version

of the measure would replicate the multidimensional nature of procedural justice appraisals previously found with the full versions of the measures. This factor analysis yielded one factor on which all positively worded procedural justice items loaded highly. A second factor emerged containing the three negatively worded items. This factor turned out to be uninterpretable. Because of these findings, only the 13 positively worded items are used in the present study.

Peer Conflict

Peer conflict was measured using five items¹ from the "Friends as Sources of Stress" subscale from The Life Stressors and Social Resources Inventory-Youth (LISRESY). The Life Stressors and Social Resources Inventory-Youth (LISRES-Y) was developed by Moos and Moos (1992) and assesses the stressors and resources in an adolescent's life. For adolescents, peer conflict serves as the predominant source of stress from peers. Sample items include "Do you have arguments or fights with any of your friends?" and "Do any of your friends get angry or lose their temper with you?" The sixth item ("Do any of your friends pressure you to smoke, drink, or try drugs?") was conceptually very similar to the outcome variable used in the study, and was thus removed from the analysis to reduce multicollinearity. Items are rated on a five point Likert scale ranging from 1 "never" to 5 "often." Cronbach's alpha for the current study was .82.

Deviant Peer Group Involvement

Deviant peer group involvement was measured using the Elliott Deviant Actions by Friends Scale. This scale assesses the extent to which adolescents' friends engage in deviant behaviors. The scale consists of 13 items and asks how many of the participants' friends have engaged in various behaviors within the past year. Examples include cheating on school tests, using drugs, using alcohol, and stealing something worth more than \$50. Items are rated from 1 "none of them" to 5 "all of them." Cronbach's alpha for this sample was .94.

Procedure

Participants completed the surveys in varying sized groups in their regular schools during regularly sched-

uled class time. School personnel and research assistants administered the surveys and students had between 45 minutes and 1 hour to complete them. The measures relevant to this study were interspersed among other measures as part of a larger survey on school violence and individual differences in aggressive behavior.

The specific aims of this study were examined using structural equation modeling. Preliminary bivariate correlations were used to determine whether procedural justice appraisals in family conflict were significantly related to deviant peer group involvement. A structural model including procedural justice in family conflict, peer conflict, and deviant peer group association was then examined to test the mediation hypothesis.

Results

Preliminary Analyses

Before testing any hypotheses, we first used mean substitution to address instances of missing data. Because of the large number of participants and our conservative approach to dealing with participants who were missing data, the influence of mean substitution on both the variability of our measures and the variance/covariance matrices should be minimized (Dillalla 2000). This method has been recommended for use with factor models because of the balance between its effectiveness and ease of implementation (Finkbeiner 1979). We chose this approach in order to retain the largest sample possible while minimizing the bias due to data imputation (Dillalla 2000). We then examined each measure for univariate normality. Descriptive statistics for each measure as well as zero order correlations between variables can be found in Table 1. Skewness (<3.0) and kurtosis coefficients (<10.0) were within acceptable limits indicating our data were univariate normal. We used Mahalanobis distance to identify multivariate outliers. After examining the dataset and finding nothing to indicate that these cases came from outside our target population, we opted not to remove them from the analyses (Tabachnick and Fidell 2001).

Mediation

Structural equation modeling is generally the preferred method for testing mediation (Frazier, Tix and Barron 2004). For this analysis we used the two-step procedure for SEM suggested by Anderson and Gerbing (1988), which involves first conducting a confirmatory factor analysis to develop a measurement model and then conducting a structural model to test relationships among variables.

¹The original LISRES-Y subscale contained six items, one of which was highly collinear with the dependent variable. Analyses were also conducted using the full measure and results were stronger and in the same direction. Full results of these analyses are available upon request.

Table 1 Descriptive statistics and zero-order correlations

Measure	Mean (SD)	Skewness	Kurtosis	1	2	3
1. Procedural justice in family conflict resolution	47.9 (14.9)	-.668	-.567	–	-.267*	-.367*
2. Peer conflict	5.8 (4.3)	.825	5.41		–	.268*
3. Deviant peer involvement	21.0 (11.3)	1.806	2.86			–

* Correlations are significant at $p < .01$

Parcels

Because using responses to individual items as indicators for the latent variables can allow results to be influenced by idiosyncratic properties of individual items, we chose to create item parcels. We used the procedures described by Russel et al. (1998) to create three observed indicators for each of the latent variables. To achieve this, we first conducted an exploratory factor analysis for each of the three measures. We rank ordered the items based on their loadings on the factor, and then divided the items according to their ranked loading so that the average loading of items in each parcel was roughly equal. For instance, the first parcel for the procedural justice measure included items ranked 1, 4, 7, 10, and 13, while the second parcel included items ranked 2, 5, 9, and 12, and so on.

Model Testing

First we tested a measurement model in which each observed variable significantly loaded on the latent variable ($p < .01$). Fit indices generally indicated an acceptable fit to the data (GFI = .94; AGFI = .89; RMSEA = .098). We then tested the structural model, including our hypothesized relationships among the latent variables. We hypothesized that procedural justice appraisals in family conflict would be positively related to deviant peer group involvement, and that this relationship would be partially mediated by peer conflict. To test these hypotheses, we estimated a direct path from procedural justice appraisals to deviant peer group involvement, as well as a path from procedural justice appraisals to peer conflict and from peer conflict to deviant peer group involvement (see Figure 1). This partially mediated model resulted in an adequate fit to the data (GFI = .99, AGFI = .99, RMSEA = .021) and accounted for 14% of the variance in deviant peer group association.

Indirect Effect

The standardized indirect effect from procedural justice to deviant peer group involvement (through peer conflict) was -.06. We examined the significance of the indirect effect using bootstrapping procedures

suggested by Shrout and Bolger (2002). We used 200 bootstrap samples to determine the 95% confidence interval of the indirect effect. Because the confidence interval of the indirect effect did not include zero, the effect was significant at ($p < .05$).

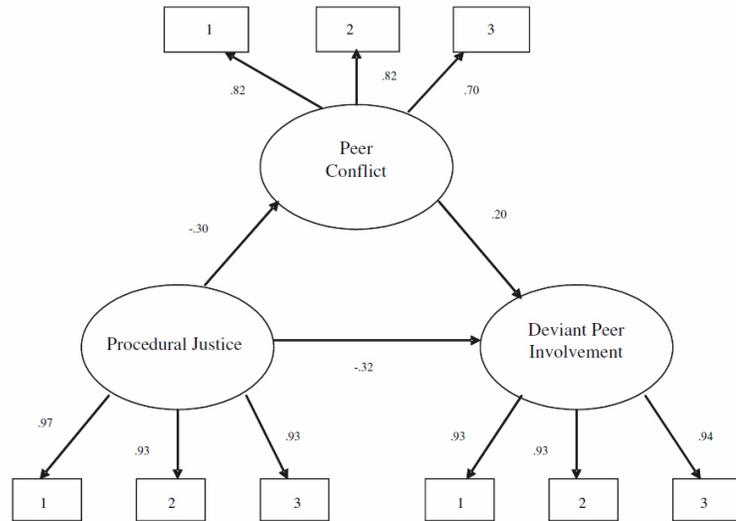
Moderation

Before including the possible moderators of gender in our structural model, we first used a hierarchical regression to determine whether either variable interacted with our predictor variables to explain additional variance. According to Baron and Kenny (1986) a moderating relationship is found when the relationship between two variables changes based on levels of a third variable. To determine whether such an interaction existed, we first centered the variables of gender and procedural justice appraisals using the methodology described by Aiken and West (1991). An interaction term was then created between procedural justice appraisals and gender. We then conducted a hierarchical regression analysis to determine whether the relationship between procedural justice appraisals in family conflict and deviant peer group involvement was moderated by the participants' gender. After including gender and procedural justice appraisals in a regression equation, the interaction between gender and procedural justice did not explain significant additional variance in deviant peer group involvement, $\beta = .031$, $t(1659) = 1.384$, $p = .167$. Because the relationship between procedural justice appraisals and deviant peer group involvement was not moderated by participants' gender, we did not include gender in our final model.

Discussion

The purpose of this study was to extend previous literature in the area of procedural justice by determining whether procedural justice appraisals in family conflict resolution could predict early adolescents' involvement with deviant peer groups, an important known correlate of juvenile delinquency (Elliott et al. 1985). In order to achieve this goal, structural equation modeling was used to examine a partial mediation model in which procedural justice appraisals were

Fig. 1 Peer conflict partially mediated the relationship between procedural justice appraisals and deviant peer involvement (GFI = .99, AGFI = .99, RMSEA = .021)



related to deviant peer group involvement both directly and through measures of peer conflict. As hypothesized, procedural justice appraisals during family conflict resolution significantly predicted deviant peer group involvement. This finding builds on previous work on the relationship between family conflict resolution and adolescents' interactions outside the family (Jackson and Fondacaro 1999). It extends previous literature in the area of procedural justice because it provides empirical support for the link between the fairness of family conflict resolution and peer relationships, specifically during early adolescence.

This study also aimed to enrich our understanding of the relationship between procedural justice in family conflict resolution and deviant peer group involvement by examining possible mediating influences. Peer conflict was chosen as a potential mediator for this study because of its established relationship with deviant peer group involvement (Dishion et al. 1991). The hypothesis that peer conflict would mediate the relationship between procedural justice appraisals and deviant peer group involvement was supported by the current study. Peer conflict partially mediated the relationship, meaning that some of the relationship between procedural justice appraisals and deviant peer group involvement occurs because procedural justice relates to levels of peer conflict, which in turn relates to deviant peer group involvement. In this case, lower appraisals of procedural justice were related to higher levels of peer conflict, which in turn were related to higher levels of deviant peer group involvement. This result is consistent with Bronfenbrenner's (1979) framework in which behaviors learned in one microsystem are carried over into other microsystems. More specifically, the result is consistent with research by Dishion et al. (1994) suggesting that parenting practices impact children's interactions outside the family. It is important to note, however, that while the indirect effect

(the path through peer conflict) was significantly different from zero, it was much smaller than the direct effect from procedural justice to deviant peer group involvement. In this study, procedural justice directly accounted for approximately 10% of the variance in deviant peer group involvement. The indirect effect carried through peer conflict accounted for less than 1%. This indicates that while peer conflict explains some portion of the relationship between procedural justice appraisals and deviant peer group involvement, most of the influence of procedural justice occurs either directly or through other means not measured in this study.

This study also sought to explore whether gender moderated the relationship between procedural justice appraisals in family conflict resolution and involvement with deviant peers. Exploratory analyses revealed that gender was not a significant moderator. It was therefore not included in our final model. Despite this finding, future research might address additional moderating variables. For instance, since adolescence is such a crucial developmental time, it is possible that appraisals of procedural justice might relate to adolescents' peer relations differently as they get older. Specifically, past research has suggested that parental influence may decrease as adolescents age while peer influence increases (Fuligni et al. 2001). This suggests that adolescents may place a different value on family conflict resolution (as measured by their appraisals of procedural justice) in late adolescence than they do in early adolescence. Because we were interested primarily in this study's generalizability to middle school students, our sample only included students from age 11 to 14. This relatively narrow age range and cross-sectional design made it impossible to detect developmental changes. Future research including a broader range of adolescent development or a longitudinal design may be able to better address this question.

Implications

This study represents an important extension of previous work examining adolescents' procedural justice appraisals. Results of the current study support the idea that the way parents resolve conflicts with their adolescents may in fact relate to adolescents' peer relationships (Jackson and Fondacaro 1999). These poor peer relationships are shown to be related to deviant peer group involvement and delinquent behavior (Cairns and Cairns 1991; Dishion 1990; Patterson et al. 2000). While the data from the current study are not sufficient to determine the specific causal mechanisms involved, future research could further illuminate the way conflict resolution is learned within the family and transferred to outside settings.

The identification of procedural justice as an important aspect of the family environment is consistent with the recent procedural justice literature claiming that adolescents place particular importance on the way they are treated during dispute resolution when interacting with in-group members such as their parents (Fondacaro et al. 2002). These findings can have important implications for intervention and prevention. These results underscore the importance of taking multiple systems into account when trying to implement prevention or treatment programs for adolescents or when consulting with schools or other youth-oriented organizations. These findings also highlight a specific facet of parent-child interaction that can be addressed when working directly with families.

Limitations

As with any empirical study, the present research has some limitations. The sample for this study, while large and diverse, was unrepresentative of the population in a few potentially significant ways. For instance, female participants outnumbered male participants considerably. This difference is not representative of the schools from which the students came, so the difference is apparently the result of a self-selection factor. Namely, parents of girls may have been more willing to consent to the study than parents of boys. Similarly, girls may have been more willing to give assent than boys were. The ethnic breakdown of the sample is also slightly unrepresentative of the national population. Asian-Americans, in particular, seem to be underrepresented and Hispanic-Americans seem to be overrepresented.

Another limitation of the study is the large proportion of variance left unaccounted for in the outcome variable. However, as with most social phenomena, deviant peer group involvement is expected to have multiple determinants (Quinsey et al. 2004). With this in mind, the 14% of the variance explained by procedural

justice is substantial. This result is consistent with the body of research connecting parenting practices with deviant peer group involvement (Patterson et al. 1989) and invites future research on other possible determinants of deviant peer group involvement.

Finally, the correlational nature of the study and the fact that the data were collected at only one time point makes it impossible to establish a causal relationship between the variables of interest. For example, it is possible that deviant peer group involvement may contribute both to family conflict and to family decision making that is perceived to be less fair (lower appraisals of procedural justice). It is also possible that these constructs have bidirectional influence, with each impacting the other. While the cross-sectional nature of our study makes it impossible to firmly establish directionality and causation, previous literature on parent and peer relationships sheds light on some mechanisms that may be at work. First, a substantial body of research has established that children's relationships within the home environment impact their relationships in other settings (i.e. Jaycox and Repetti 1993; Patterson et al. 1989). This can be explained within an ecological framework. Because children's earliest relationships are often with their parents, these relationships form the context in which children learn relationship skills. When children get older and develop broader social networks, they transfer the skills they learned at home to their new environments (Bronfenbrenner 1979, Patterson et al. 1989). Thus, it seems that characteristics of the parent/child relationship temporally precede the emergence of peer relationships. The causal order of the mediator and outcome variable is more difficult to establish.

Because our data were collected at only one time point, we cannot determine the exact nature of the conflict reported by participants. In particular, past research has suggested that adolescents experience increased conflict within deviant peer groups because of a shared disregard for social norms (Dishion and Patterson 1997). The results of our study do not help us distinguish between conflict the participants may have experienced within the conventional peer group and conflict the participants may have experienced within a deviant peer group. Instead, we interpret the peer conflict variable to represent a broader pattern of disrupted peer relationships. Further research using more temporally controlled variables would be able to more firmly establish the causal order of these variables and increase confidence in the mediation model.

Conclusion

The results of our study show that procedural justice appraisals in family conflict resolution are linked to deviant peer group involvement among adolescents.

Some of this relationship can be explained in terms of peer conflict.

When adolescents perceive that the way they are treated in the resolution of family conflict is unfair, they are more likely to report disrupted peer relationships, which can include deviant peer group involvement. This study fills a gap in previous literature by establishing preliminary relationships among parenting and peer variables that may affect the trajectory toward delinquent behavior. This study also strengthens the relationship between two seemingly separate lines of research, delinquency prevention and procedural justice, and highlights the importance of future study in the area of family conflict resolution. Moreover, this study helps define a theoretical basis for later work in the area. The results of this study are consistent with the theoretical framework linking parenting behaviors with peer relations and peer relations with delinquent behavior (i.e. Dishion and Patterson 1997; Jaycox and Repetti 1993). The results of this study confirm the importance of adolescents' appraisals of procedural justice in family decision-making. When adolescents report that their parents use unfair conflict resolution procedures, they are more likely to also report conflicted peer relationships and involvement with deviant peer groups.

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