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Cognitive and Parenting Pathways in the Transmission of Antisocial Behavior From Parents to Adolescents

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This study examined the role of adolescent perceptions of parental behavior and disrupted parenting in the continuity of antisocial behavior across generations. Participants included 430 adolescents and their biological parents assessed during the period from the 9th to 12th grades (9th grade age in years: $M = 15.09$, $SD = 0.43$). Structural equation modeling provided support for the mediating role of adolescent perceptions and disrupted parenting in the familial transmission of antisocial behavior. Furthermore, the results were consistent across parent and adolescent gender. The findings extend previous research by suggesting a significant role for adolescent perceptions of parents' activities in the development and growth of antisocial behavior. Results also support significant stability in antisocial tendencies over the course of adolescence.

Research evidence suggests significant stability in antisocial behavior across time and generations (e.g., Caspi, Elder, & Bem, 1987; Coie & Dodge, 1998; Conger, Neppl, Kim, & Scaramella, 2003; Farrington, 1987; Patterson & Capaldi, 1991). In this report we focus specifically on the observed link between the problem behaviors of parents and their children (e.g., Earls, Reich, Jung, & Cloninger, 1988; Hussong, Curran, & Chassin, 1998; Kuperman, Schlosser, Lindral, & Reich, 1999). Although previous research documents this association, work remains to be carried out on identifying the specific processes through which parents' antisocial behaviors are related to adolescent conduct problems.

One possible pathway of influence involves adolescents' perceptions or awareness of parents' activities. For example, Harold and Conger (1997)

showed that adolescent awareness of marital conflict affected their own problem behavior, and there is some evidence that perceptions of parental substance use affect adolescents' drinking behaviors (e.g., Donovan & Jessor, 1985; Stephenson, Henry, & Robinson, 1996). These previous studies suggest that children's awareness or perception of parents' behaviors may provide an important cognitive mechanism through which behavior in one generation is transmitted to the next. These perceptions, formed through observation and modeling, may play a crucial role in determining the effects of parent antisocial behavior on adolescent adjustment. Most of the research linking parent and child behavior has focused on the actual occurrence of parent behavior rather than on the cognitive or psychological processes operating within the child that may be more proximal mediators and determinants of child behavior (Dubin & Dubin, 1965; Harist & Ainslie, 1998). As a first goal of the present study, we investigated the possibility that adolescent perceptions of parental deviance would serve as a mediator linking parent and adolescent antisocial behaviors.

In addition, many researchers argue that parent and adolescent problem behaviors are linked through inept parenting practices, characterized by poor monitoring, hostility, coercive interactions, and harsh and inconsistent discipline (e.g., Conger & Simons, 1997; Laub & Sampson, 1988; Patterson & Capaldi, 1991; Smith & Stern, 1997). For example,

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Patterson, DeBaryshe, and Ramsey (1989) reported that antisocial compared with more conventional parents were significantly more likely to be hostile and inconsistent in discipline practices. Furthermore, ineffective discipline was significantly associated with having an antisocial child. The second goal of this study was to examine this path to delinquency, which hypothesizes that quality of parenting mediates the effect of parent antisocial behavior on adolescent conduct problems.

Particularly important, this study examines the relative contributions of perceptions of parental deviance and parenting as explanatory mechanisms for intergenerational continuity. Such findings are important for a fuller understanding of the development and growth of antisocial behavior across adolescence, and may aid in designing prevention strategies aimed at reducing antisocial behavior during this formative period and protecting children of deviant parents from perpetuating a cycle of conduct problems. The importance of this issue is underscored by a number of studies that suggest that the transmission of antisocial behavior occurs across multiple generations (e.g., Conger et al., 2003; Robins, West, & Herjanic, 1975; Thornberry, Freeman-Gallant, Lizotte, Krohn, & Smith, 2003). For example, Elder, Caspi, and Downey (1983) demonstrated concordance in antisocial behaviors across three generations. An important question involves identifying the mechanisms through which intergenerational continuity is maintained.

Role of Perception or Awareness as a Mediator

Social learning theory proposes that individuals learn a wide range of behaviors through the observation of a model and that cognitive processes are important mediators of observational learning (Bandura, 1977). Early laboratory studies demonstrated this effect, whereby mere exposure to an aggressive model led to aggressive behavior (e.g., Bandura, Ross, & Ross, 1963). Within the context of the family, for example, parents may model positive or negative social behaviors that their children may observe and imitate. According to the theory, observers learn behaviors through cognitive processes that link the model's activities to the behaviors of the observer (Bandura, 1977; Lollis, Ross, & Tate, 1992).

Presumably, such vicarious learning involves the simple awareness or perception that parents have engaged in specific activities. For example, Chapman (2002) found that children who perceived one of their parents as drinking had higher intentions to use alcohol, and there is some evidence to suggest that

perceptions of parent drinking predict increases in adolescent substance use (Stephenson et al., 1996). Especially important, Chapman (2002) suggests that a child's construction (i.e., interpretation) of his/her experiences is shaped by what the child observes and pays attention to. These perceptions influence the meaning of these experiences for the child or adolescent. In support, several studies have demonstrated empirically that perceptions themselves are of great importance because they convey the salient aspects of adolescents' interpretations of their parents' behaviors (Grych & Fincham, 1990; Harold & Conger, 1997; Neiderhiser, Pike, Hetherington, & Reiss, 1998). This perspective highlights the fact that a child's perception of parent's behavior is not simply another indicator of that behavior. For example, if a parent engages in antisocial behavior that a child does not know about they may not view the parent as antisocial.

In addition, some studies suggest that awareness or perceptions of parent deviance or substance use may suggest to the child that he or she has permission to engage in such behaviors as well (Conger & Rueter, 1996; Melby, Conger, Conger, & Lorenz, 1993). Thus, in an important sense, antisocial behavior may be interpreted by the child as less wrong if the parent models the activities. Taken together, the research evidence suggests that perceptions of parental behavior may be particularly salient predictors of adolescents' subsequent activities, thus helping to explain the connection between parent and adolescent antisocial behavior.

Role of Parenting as a Mediator

A report by Farrington (1995) indicated that parents of delinquent youth were not only more likely to be delinquent themselves but also tended to use inept parenting practices, such as harsh or erratic discipline and passive and neglectful parenting. They were also lax in enforcing rules and supervised their children poorly. In addition, parents who abuse substances demonstrate decrements in parenting similar to those for antisocial parents in general (e.g., Reich, Earls, & Powell, 1988). These findings suggest that disrupted parenting may provide a second pathway through which parent and adolescent antisocial behaviors are linked.

The basic idea underlying this perspective is that antisocial or substance-abusing individuals tend to be impulsive, more irritable, and less competent in general. As parents these characteristics undermine effective caregiving, which requires patience and planning (see Gottfredson & Hirschi, 1990).

In support of these views, Patterson et al. (1989) argue that antisocial behavior is directly related to deficits in family management skills. Parents who lack firmness, consistency, and discipline skills are more likely to use hostile and coercive methods. Less skilled parents, therefore, are more likely to inadvertently reinforce aggressive and antisocial behavior and fail to properly use appropriate disciplinary strategies for misdemeanors, further exacerbating antisocial tendencies (Patterson, 1982).

Discipline and monitoring are two aspects of parenting that have emerged as key correlates of antisocial behavior (Patterson, 1982; Patterson & Stouthamer-Loeber, 1984; Reiss et al., 1995). In a metaanalysis, Loeber and Stouthamer-Loeber (1986) found the use of harsh or inconsistent discipline and neglectful and inattentive parenting to be consistently associated with conduct problems. Several other studies have reported that patterns of inconsistent, lax, or harsh discipline, hostile/coercive parenting, poor monitoring, and parental rejection often occur in families of juvenile delinquents and antisocial youth (Ary, Duncan, Duncan, & Hops, 1999; Conger & Simons, 1997; Loukas, Fitzgerald, Zucker, & Von Eye, 2001; Patterson et al., 1989). Conversely, adolescents exposed to parenting characterized as high in warmth and involvement and low in hostility tend to display lower levels of externalizing behavior problems, as compared with their counterparts not receiving such treatment (Ge, Best, Conger, & Simons, 1996; Scaramella, Conger, & Simons, 1999; Simons, Chao, Conger, & Elder, 2001).

Perhaps the strongest evidence for the causal role of parenting practices in adolescent delinquency is provided by studies in which interventions designed to reduce adolescent problem behavior experimentally manipulate the parents' childrearing practices (Coie & Dodge, 1998). In well-controlled experiments, these studies report that specific interventions lead to improvements in discipline practices, which, in turn, reduce the risk for adolescent antisocial behavior (e.g., Dishion, Nelson, & Kavanagh, 2003; Dishion, Patterson, & Kavanagh, 1992).

In summary, in this study two developmental pathways are hypothesized to connect the activities of parents and their children. First, we hypothesize that an adolescent's interpretation of parent behavior as antisocial will increase the likelihood that a son or daughter will behave in a similar way (e.g., Harold & Conger, 1997; Neiderhiser et al., 1998; Stephenson et al., 1996). That is, we expect adolescent perceptions of parent behavior to mediate the effect of parent antisocial behavior on adolescent conduct problems. Following from theory and the research

evidence just reviewed, we hypothesize that parenting quality will also mediate the relationship between parent and adolescent antisocial behavior. Parent and adolescent antisocial behavior were assessed when youth were in the 9th grade (Time 1), adolescent perceptions of parent deviance and disrupted parenting were measured in the 10th grade (Time 2), and adolescent antisocial behavior was assessed a second time during the 12th grade (Time 3). Given the longitudinal design of the present study, both mediating pathways were evaluated while controlling for the adolescent's earlier level of antisocial behavior. Thus, if the hypothesized relationships are confirmed in the following analyses, we can conclude that parent antisocial behavior, adolescent perceptions, and parenting skills all predict change in delinquency over time.

We also expect that antisocial youth will tend to view their parents as more deviant. Gottfredson and Hirschi (1990) propose that these sometimes biased perceptions are part of a process of rationalization for a delinquent's own deviant activities. A final hypothesis derives from the notion that an antisocial child presents a greater challenge for parents, who may become more hostile, rejecting, and inconsistent in desperate attempts to control a delinquent adolescent. More specifically, a youth's antisocial behavior is hypothesized to disrupt effective parenting practices (e.g., Conger & Ge, 1999; Conger & Simons, 1997). As before, these hypothesized mediating processes influenced by adolescent antisocial behavior at Time 1 are expected to affect subsequent involvement in delinquent acts (Time 3).

While we do not have any *a priori* hypotheses about differences for mothers' and fathers' behavior, the same measures were available for both parents. Because of these equivalent measures, we examined the same hypothesized model separately for mothers and fathers. In addition, while we do not expect adolescent gender to moderate the hypothesized processes, the current study examined the development and growth of adolescent girls' and boys' antisocial behavior because studies of delinquent behavior too often only involve samples of boys (e.g., Capaldi, Pears, Patterson, & Owen, 2003; Farrington, 1995; Laub & Sampson, 1988).

Method

Participants

The present study was conducted using data from the Iowa Youth and Families Project (IYFP). The IYFP

is a longitudinal study that began in 1989 and ended in 1993. Presently, the IYFP continues as part of the Family Transitions Project, which was initiated in 1994 (see Conger & Conger, 2002). Participants included 451 rural families residing in central Iowa. The data for these analyses were collected at three different points in time: 1991 (9th grade), 1992 (10th grade), and 1994 (12th grade). Several important variables for the present study were not assessed during the other years of data collection; therefore, we focus on these three points in time. A family was eligible for participation if the 7th-grade target adolescent was living with both biological parents and had a sibling within 4 years of the target's age. Approximately 78% of the eligible families participated in the first wave of data collection.

Target adolescents' mean age in 1989 reported to the nearest month was 13.17 years ($SD = 0.42$). The sample consisted of 236 girls and 215 boys from White, middle- to lower middle-class families who lived on farms (34%), in nonfarm rural areas (12%), or in towns with a population not exceeding 6,500 (54%). The median family income in 1988 was \$33,399. The average ages of fathers and mothers upon first contact were 40 and 38 years, respectively. Sample retention was over 90% from 1989 to 1994. A total of 430 families were available for these analyses: 226 girls and 204 boys. Twenty-one families had missing data on all study variables and were dropped from the analyses.

Procedures

The participants were selected from 7th-grade classes in 34 public and private schools in eight selected counties in Iowa. Only schools in communities with a population of 6,500 or less were recruited, in order to maintain the rural character of the sample. Schools obtained contact information and letters were sent to all eligible families describing the project. Families were contacted either by phone or personal visit and asked to participate. Personal visits occurred when a family did not have a phone.

Families who agreed to participate were interviewed twice a year during each year of data collection. Trained interviewers conducted the sessions in the families' homes. Interviews lasted approximately 2 hr each. During the first visit, each family member completed a set of questionnaires, some of which addressed each parent's antisocial behaviors, the target adolescent's antisocial behaviors, perceptions of parental deviance, and parenting behaviors.

Measures

Parent antisocial behavior. Questionnaires were administered to each spouse when the adolescents were in the 9th grade. Mothers and fathers reported on various aspects of their spouse's behavior during the past 12 months. Four items were rated on a 5-point Likert-type scale, ranging from 1 (*strongly agree*) to 5 (*strongly disagree*). Items included: "(S)he has tended to drink too much alcohol," "(S)he has done many reckless things including breaking the law," "(S)he has had many arguments or conflicts with other people," and "(S)he doesn't always tell me the truth about things." Items were reverse coded so that high scores indicate higher levels of parent antisocial behavior. These four items were used as indicators to estimate a latent construct for mothers' and fathers' antisocial behavior ($\alpha = .68$ for mothers, $\alpha = .66$ for fathers).

Target perception of parent antisocial behavior. Adolescent perceptions of parent behavior were assessed during the 10th grade, a year after parents' antisocial behaviors were measured. Target adolescents were asked to report on their level of agreement with statements regarding each parent's behavior. Each item was rated on a 5-point Likert-type scale, ranging from 1 (*strongly agree*) to 5 (*strongly disagree*). The five items asked about problem behaviors similar to those each spouse reported on including (1) substance use, (2) reckless behavior such as driving recklessly and breaking rules or laws, (3) having a temper and getting angry a lot, (4) lying, and (5) whether the parent provides a good example of how to stay out of trouble ($\alpha = .67$ for mothers, $\alpha = .63$ for fathers). Each item for the construct is coded such that a high score reflects higher levels of perceived antisocial behavior.

Parenting. During the 10th grade (1992) each parent responded to several questions regarding their parenting practices toward the target adolescent. Mothers and fathers rated the degree to which they know where the target adolescent is or are too busy or unavailable to do things with the target adolescent, aspects of parental monitoring. In terms of discipline, parents reported how often they discipline the target child by reasoning, explaining, or talking about a punishment and also how often the adolescent can get out of a decided punishment. To evaluate parental harshness or irritability, parents reported how often they yell at, criticize, or argue with the adolescent. All items were placed on the same 5-point-Likert-type scale, ranging from 1 (*always*) to 5 (*never*). Items were coded so that high scores indicate poorer quality parenting. These seven

parenting behaviors were used to estimate a latent construct for mothers' and fathers' disrupted parenting ($\alpha = .70$ for mothers, $\alpha = .65$ for fathers).

Target antisocial behavior. Siblings responded to four questions measuring the target adolescents' delinquent behavior in the 9th (Time 1) and 12th (Time 3) grades. Items included: "(S)he drinks alcohol and/or uses tobacco," "(S)he always gets into trouble," "(S)he gets into a lot of fights," and "People sometimes think (s)he is a bad kid." Each item was rated on a 5-point Likert-type scale, ranging from 1 (*strongly agree*) to 5 (*strongly disagree*). These four items were used to estimate a latent construct for adolescent antisocial behavior ($\alpha = .77$, Time 1 and $\alpha = .81$, Time 3).

The factor determinacies (or reliabilities), which represent the proportion of each latent factor's variance explained by the indicators, ranged from .78 to .95, indicating reasonably good precision of measurement for the factors estimated in the structural equation model (SEM) analyses.

Control variables. Because socioeconomic status relates to parent and child behaviors (Conger & Simons, 1997), we controlled for parent education and income in the analyses.

Results

The means and standard deviations for all study variables are provided in Table 1. Correlations among the manifest variables are provided in Appendix A (mothers) and Appendix B (fathers).

Correlations Among Constructs

Table 2 provides the zero-order correlations among the latent constructs for the study. There was a significant correlation between mothers' antisocial behavior and target antisocial behavior at Time 1, $r = .16$, $p < .05$, and Time 3, $r = .19$, $p < .05$. However, for fathers neither relationship was statistically significant. With regard to hypothesized mediators, parent antisocial behavior was related to target perception of parent antisocial behavior and disrupted parenting at Time 2, and both perception and disrupted parenting correlated with adolescent deviance at Time 3. There were also significant relationships between the initial level of target antisocial behavior and perceptions, disrupted parenting practices, and subsequent level of delinquency (Time 3). In most cases, the correlations among constructs in the mothers' and fathers' model were of similar magnitude.

Structural Equation Analyses

All SEMs used to evaluate study hypotheses were estimated using Mplus 4.0 (Muthén & Muthén, 2006). Because of some missing data parameters were estimated using full-information maximum likelihood. This method of estimation fits a covariance structure model to each person's observed raw data rather than to a covariance matrix among observed variables; thus, this method does not impute data but rather uses all available data to estimate parameters and standard errors.

As noted earlier, we estimated the proposed model separately for mothers and fathers. As a first step, we performed a multiple group analysis using adolescent gender as a grouping variable in each of the two models to determine whether the theoretical model is invariant or equivalent across target gender (Byrne, Shavelson, & Muthén, 1989; Widaman & Reise, 1997). To evaluate the validity of imposed equality constraints, the chi-square values for competing models were compared. Because the results were essentially the same with and without the control variables, we present the findings without the inclusion of parent income and education.

A baseline model with no equality constraints was estimated separately for mothers and fathers. Invariance constraints imposed on the factor loadings resulted in a significant deterioration in model fit for both the mothers' and fathers' model, $\chi^2_{\text{diff}} = (16, N = 430) = 36.81$, $p < .05$ and $\chi^2_{\text{diff}} = (16, N = 430) = 39.95$, $p < .001$, respectively. For mothers, 2 indicators of 24 were noninvariant: the adolescent's perception of mom as reckless and of mom as a good example. For fathers the indicator measuring parent reckless behavior differed significantly across adolescent girls and boys. Further invariance constraints imposed on the measurement intercepts of both models revealed no statistically significant differences in these parameters across girls and boys, $\chi^2_{\text{diff}} = (12, N = 430) = 11.62$, *ns* for mothers and $\chi^2_{\text{diff}} = (14, N = 430) = 13.43$, *ns* for fathers. Taken together, the results suggest few gender differences in the measurement properties of the constructs. This level of invariance permits stronger statements about cross-group differences (or similarities) in the parameters of substantive interest in the current study, namely the structural regression paths.

In both the mother and father models equality constraints imposed on the structural regression paths as well as on the factor variance-covariance matrix revealed no statistically significant differences in these parameters across girls and boys,

Table 1
Means (Ms) and Standard Deviations (SDs) for All Study Variables

Variable	Mothers				Fathers			
	Girls		Boys		Girls		Boys	
	M	SD	M	SD	M	SD	M	SD
Parent substance use	1.21	0.44	1.17	0.40	1.36	0.60	1.29	0.50
Parent reckless behavior	1.27	0.49	1.21	0.40	1.26	0.49	1.30	0.56
Parent conflict	1.74	0.75	1.68	0.84	1.72	0.88	1.70	0.95
Parent lies	1.50	0.84	1.48	0.81	1.68	1.01	1.57	0.88
Target substance use (Time 1)	1.46	0.85	1.51	0.78	1.47	0.85	1.51	0.78
Target trouble (Time 1)	1.83	0.99	2.10	0.91	1.83	0.99	2.09	0.91
Target conflict (Time 1)	1.77	1.00	1.88	0.89	1.77	1.00	1.89	0.88
Target bad kid (Time 1)	1.60	0.91	1.77	0.97	1.60	0.91	1.77	0.97
Perception parent substance use	1.30	0.64	1.39	0.71	1.57	0.79	1.67	0.81
Perception parent reckless behavior	2.62	1.64	2.80	1.59	2.42	1.32	2.70	1.36
Perception parent conflict	2.17	1.00	2.13	0.99	2.44	1.13	2.36	1.01
Perception parent lies	2.18	1.19	2.35	1.18	2.26	1.15	2.47	1.19
Perception parent example	1.77	0.86	1.84	0.89	1.99	0.90	2.11	0.93
Parenting where	1.77	0.48	1.85	0.49	1.92	0.55	1.98	0.53
Parenting busy	2.16	0.55	2.20	0.65	2.52	0.66	2.53	0.68
Parenting explain	2.04	0.63	2.04	0.70	2.28	0.75	2.25	0.74
Parenting get out	2.22	0.70	2.28	0.79	2.52	0.72	2.47	0.76
Parenting yell	2.59	0.77	2.65	0.73	2.45	0.65	2.53	0.78
Parenting criticize	2.45	0.66	2.48	0.68	2.58	0.61	2.52	0.65
Parenting argue	2.73	0.59	2.70	0.60	2.77	0.49	2.62	0.74
Target substance use (Time 3)	2.01	1.06	2.40	1.20	2.01	1.05	2.42	1.21
Target trouble (Time 3)	1.98	1.01	2.16	0.93	1.98	1.00	2.18	0.94
Target conflict (Time 3)	1.58	0.83	1.75	0.84	1.58	0.83	1.76	0.85
Target bad kid (Time 3)	1.64	0.88	1.77	0.96	1.63	0.87	1.80	0.97

$\chi^2_{\text{diff}} = (14, N = 430) = 11.78$, *ns* and $\chi^2_{\text{diff}} = (14, N = 430) = 20.81$, *ns*, respectively, suggesting that the theoretical model operates similarly for both girls and boys. The only statistically significant gender difference in the factor means/intercepts was for adolescent antisocial behavior at Time 1. The standardized factor mean difference between boys and the reference sample (girls) was positive and significant for both models, $\alpha = .25$, $p < .05$, a moderate

effect size ($d = .64$) (Cohen, 1988). This finding indicates that boys in our sample had higher means on the latent antisocial trait during the 9th grade compared with girls.

The goodness-of-fit statistics for the final models provide evidence regarding the correspondence between the findings and the theoretical model (see Figure 1). The chi-square test statistics were significant; however, the root mean square error of

Table 2
Correlations Among Latent Constructs in the Theoretical Model (Full Information Maximum Likelihood Estimation, $N = 430$)

Theoretical construct	1	2	3	4	5
1. Parental antisocial behavior, Time 1	1.00	.08	.43*	.18*	.01
2. Target antisocial behavior, Time 1	.16*	1.00	.28*	.19*	.58*
3. Target perception of parental antisocial behavior, Time 2	.35*	.28*	1.00	.12	.38*
4. Disrupted parenting, Time 2	.21*	.27*	.13	1.00	.23*
5. Target antisocial behavior, Time 3	.19*	.58*	.32*	.29*	1.00

Note. Correlations for the mothers' model are shown below the diagonal and correlations for the fathers' model appear above.

* $p < .05$, two-tailed test.

Table 3
Unstandardized and Standardized Factor Loadings for the Final Models

	Factor loadings			
	Mothers		Fathers	
	Unstandardized	Standardized	Unstandardized	Standardized
$\lambda_{(\text{panti-psub})}$	1.00	.60 (.71)	1.00	.54
$\lambda_{(\text{panti-preckless})}$	1.07	.66	0.83 (1.69) ^a	.51 (.88)
$\lambda_{(\text{panti-pconflict})}$	1.68	.58	1.86	.61
$\lambda_{(\text{panti-plies})}$	1.90	.63	1.86	.59
$\lambda_{(\text{tanti1-tsub1})}$	0.69	.57	0.70	.58
$\lambda_{(\text{tanti1-ttrouble1})}$	1.00	.75	1.00	.74
$\lambda_{(\text{tanti1-tconflict1})}$	0.84	.64	0.84	.64
$\lambda_{(\text{tanti1-tbad kid1})}$	0.99	.74	0.99	.74
$\lambda_{(\text{percept-psub})}$	1.00	.62	1.00	.54
$\lambda_{(\text{percept-preckless})}$	1.46 (.36) ^a	.37 (.10)	1.41	.45
$\lambda_{(\text{percept-pconflict})}$	1.17	.49	1.17	.46
$\lambda_{(\text{percept-plies})}$	1.02	.36	1.18	.43
$\lambda_{(\text{percept-pexample})}$	1.54 (.91) ^a	.74 (.43)	1.42	.66
$\lambda_{(\text{parent-pwhere})}$	0.61	.37	0.54	.29
$\lambda_{(\text{parent-pbusy})}$	0.79	.39	0.73	.31
$\lambda_{(\text{parent-pexplain})}$	1.00	.44	1.00	.39
$\lambda_{(\text{parent-pget out})}$	1.11	.43	1.15	.45
$\lambda_{(\text{parent-pyell})}$	1.39	.54	1.38	.60 (.52)
$\lambda_{(\text{parent-pcriticize})}$	1.42	.62	1.29	.59
$\lambda_{(\text{parent-pargue})}$	1.33	.65	1.12	.62 (.46)
$\lambda_{(\text{tanti3-tsub3})}$	0.69	.54 (.46)	0.70	.55 (.46)
$\lambda_{(\text{tanti3-ttrouble3})}$	1.00	.80	1.00	.80
$\lambda_{(\text{tanti3-tconflict3})}$	0.84	.77	0.84	.77
$\lambda_{(\text{tanti3-tbad kid3})}$	0.99	.91 (.81)	0.99	.91 (.80)

Note. The following abbreviations are for latent factors: panti = parent antisocial behavior; parent = disrupted parenting; percept = adolescent perception of parent antisocial behavior; tanti1 = target antisocial behavior (Time 1); tanti3 = target antisocial behavior (Time 3). For the manifest variables: p refers to parent behavior and t refers to target behavior. For parameters constrained to be equal, the unstandardized coefficients are identical while the standardized coefficients may differ because of differences in the variances. Thus, for some factor loadings two parameter estimates are provided, with estimates for girls outside the parentheses and estimates for boys inside.

^aFactor loading significantly different for girls and boys. Estimates for girls are outside the parentheses and boys inside.

All parameter estimates significant at $p < .05$, two-tailed test.

approximation (RMSEA) for both the mother and father models was less than or equal to the recommended .05 level for close fit (Browne & Cudeck, 1993). Furthermore, tests revealed small 90% confidence intervals around the RMSEA, indicating good precision of the point estimate (ranging from .03 to .05 for the mothers' model and .04 to .05 for the fathers). The comparative fit indexes and Tucker-Lewis indexes further suggest that the proposed model provides a reasonably good fit to the data (Bentler, 1990; Browne & Cudeck, 1993). Given evidence of reasonable model fit, we consider the specific findings related to study hypotheses in greater detail.

Table 3 provides the factor loadings for the final models. The standardized path coefficients for the final models for mothers and fathers are shown in Figure 1. The results indicate that both mothers' and

fathers' antisocial behavior predicted target adolescents' perceptions of parent behavior as antisocial, $\beta = .31$, $p < .001$ and $\beta = .41$, $p < .001$, respectively. In addition, mothers' antisocial behavior predicted poorer quality parenting, $\beta = .17$, $p < .05$; however, although of similar magnitude this relationship was only marginally significant for fathers, $\beta = .16$, $p < .10$. For both models, each of these hypothesized mediators was significantly related to target antisocial behavior measured 2 years later. Furthermore, the direct path between mother and adolescent antisocial behavior (Time 3) was not significant, suggesting that adolescent perceptions and disrupted parenting completely mediate the effect of mothers' antisocial behavior on adolescent adjustment (Kenny, Kashy, & Bolger, 1998). Although not shown in Figure 1, this direct effect was significant

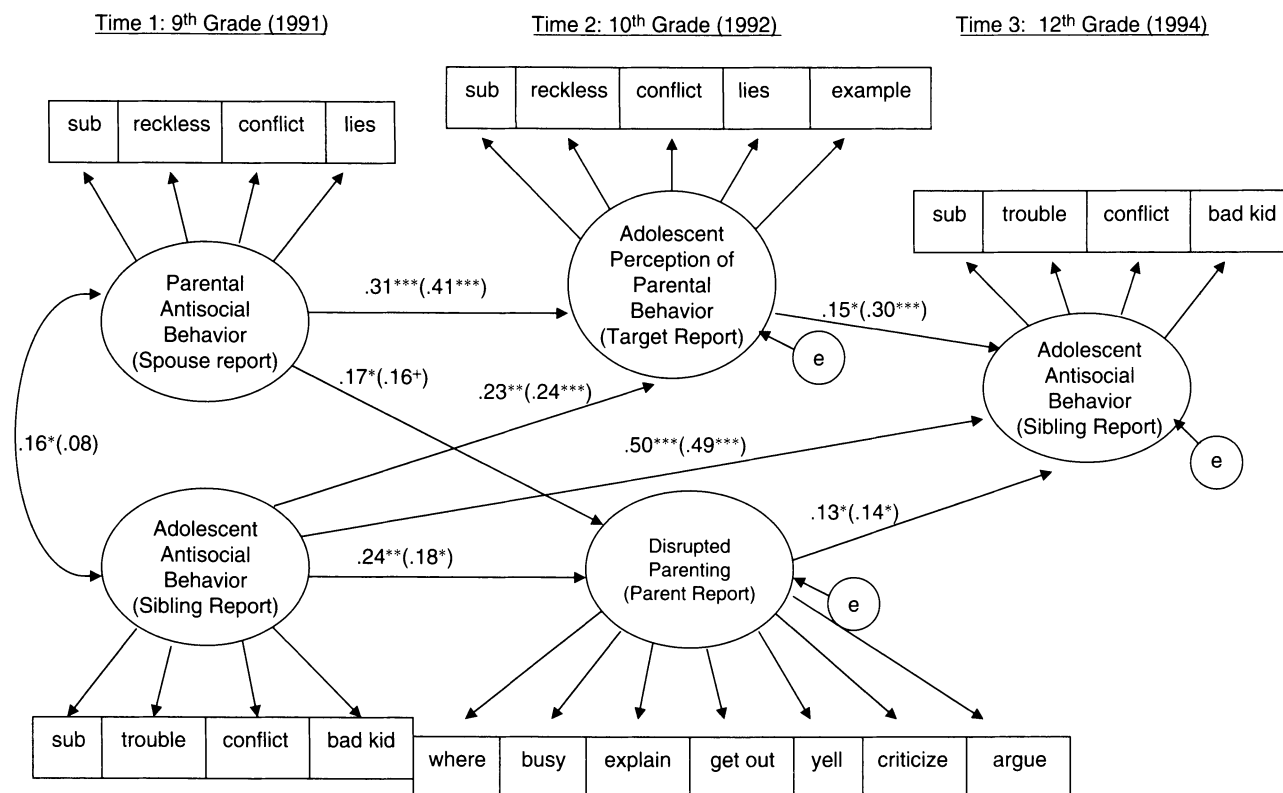


Figure 1. Full-information maximum likelihood estimation of the theoretical model predicting target adolescent antisocial behavior with perception and disrupted parenting as mediators, standardized regression coefficients ($N = 430$). Only significant paths are shown. Estimates for the mothers' model are outside parentheses and estimates for the fathers' model are inside. All parameters are constrained to be equal across adolescent girls and boys. Residuals were allowed to correlate for equivalent indicators (i.e., target antisocial behavior at Times 1 and 3). $\chi^2 = (556, N = 430) = 745.85, p < .001$, for mothers and $\chi^2 = (557, N = 430) = 811.78, p < .001$, for fathers; RMSEA = .04 for mothers and .05 for fathers model; comparative fit index = .91 for mothers and .88 for fathers; Tucker-Lewis index = .91 for mothers and .88 for fathers. * $p < .05$; ** $p < .01$; *** $p < .001$; + $p < .10$.

and negative for fathers in the SEM, $\beta = -.19, p < .05$; however, the estimated zero-order correlation between father and target antisocial behavior was not statistically significant (see Table 2). We will return to this anomaly in the findings in the Discussion section of this report.

For mothers and fathers the results provide support for our hypotheses that both the adolescent's perceptions of parent behavior as antisocial and disrupted parenting practices mediate the association between parent and adolescent antisocial behavior. To determine the magnitude of the mediated effects, we calculated the percentage of the total effect mediated by perceptions and parenting by dividing each indirect effect by the total effect (MacKinnon & Dwyer, 1993). For mothers' behavior the results indicate that 48% of the effect linking parent and adolescent behavior at Time 3 was mediated by the adolescents' perceptions and 23% of the effect was mediated by disrupted parenting practices. For the fathers' model perceptions ac-

counted for 38% of the effect of fathers' behavior on adolescent maladjustment at Time 3 and disrupted parenting mediated 7% of the effect. It is important to note the relatively large mediated effect for adolescent perceptions of parent behavior as antisocial in explaining the relationship between parent and adolescent antisocial behavior (Time 3).

As shown in Figure 1, there was a strong relationship between adolescent antisocial behavior at Times 1 and 3, $\beta_s = .49-.50, p < .001$. For both the mother and father models, target antisocial behavior at Time 1 also significantly predicted adolescent perceptions of parent antisocial behavior and parenting practices, which, in turn, predicted adolescent adjustment at Time 3. Relative to the indirect effects linking earlier and later adolescent behavior the direct effect accounted for 88% of the effect in the model for mothers and 82% of the effect in the fathers' model. Perceptions and parenting each accounted for 6% of the effect in the Mothers' Model. For fathers, adolescent perceptions mediated 12%

and parenting practices 7% of the relationship between earlier and later adolescent antisocial behavior.

As indicated by the squared multiple correlation (R^2), the theoretical model estimated separately for mothers' and fathers' behavior explained 38% and 43% (respectively) of the variance in adolescent antisocial behavior at Time 3. Mother and target antisocial behavior at Time 1 explained 17% of the variance in adolescent perceptions of mom and 10% of the variance in disrupted parenting practices, compared with 25% and 6% of the variance in the fathers' model.

Discussion

As its central focus, the present study investigated two possible mediating pathways hypothesized to connect parent and adolescent antisocial behavior. We proposed that adolescents' perceptions or awareness of their parent's antisocial behavior and the quality of parenting they receive are two mechanisms that may contribute to the development and growth of adolescent antisocial behavior. According to social learning theory, patterns of behavior, whether prosocial or antisocial, are learned in part by observing and interpreting parents' behaviors (Bandura, 1977; Kosterman, Hawkins, Guo, Catalano, & Abbott, 2000). These behaviors become guides for future interactions; therefore, how behaviors are perceived is fundamental in explaining their effects on subsequent behavior. Consistent with this prediction, parental antisocial behavior predicted the adolescent's perceptions of parent behavior as deviant, which in turn predicted the adolescent's subsequent involvement in deviant behaviors.

The results indicate that adolescent perceptions mediate a substantial portion of the variance in the familial transmission of antisocial behavior. These results are consistent with a social learning perspective, which suggests that both observation and interpretation are important parts of the learning process (Bandura, 1977). When adolescents are aware of their parents' behavior they tend to engage in similar types of activities. For example, children of alcoholics (COAs) not only drink more frequently than non-COAs but also possess more positive and reinforcing beliefs and expectations regarding alcohol use (i.e., Miller, Smith, & Goldman, 1990; Sher, Wood, Wood, & Raskin, 1996). It is reasonable to assume that these same socialization and learning processes influence the effects of parent antisocial behavior in general on child outcomes. Simply put, an adolescent's perception that their parent is antisocial may be a key component for choosing and

validating their own behaviors. In a sense, awareness of a parent's antisocial behavior may give the adolescent permission to engage in the same types of behavior. For the teenagers in our study, the recognition that mom or dad tends to engage in antisocial behavior played an important role in increasing their risk for similar conduct.

Equally important, the results also showed that parents' antisocial behavior significantly decreased parenting quality, which in turn predicted increases in adolescent antisocial behavior. This finding adds evidence to a large body of research suggesting that parental antisocial behavior contributes to inconsistent, inept, and hostile parenting behaviors predictive of antisocial activities by youth (e.g., Laub & Sampson, 1988; Patterson & Capaldi, 1991; Reich et al., 1988; Smith & Stern, 1997). While of similar magnitude to the path linking mothers' behavior and parenting, the effect linking fathers' behavior and parenting was only marginally statistically significant ($p < .10$). Overall, the results indicate that disrupted parenting is another mediator helping to account for the connection between parent antisocial behavior and adolescent adjustment.

Importantly, the results indicate that the adolescents' perceptions of parent behavior as antisocial mediated a relatively large proportion of the effect linking parent and adolescent antisocial behavior. Furthermore, the results were consistent across parent and target gender supporting the role of perceptions as general cognitive processes, perhaps as important to the parent-child relationship as parenting practices in helping to explain the link between the antisocial behaviors of parents and their children. Moreover, these findings suggest that family-centered interventions designed to reduce the risk for problem behavior could be facilitated by focusing on the adolescent's perceptions of mom and dad and the origin of these perceptions. According to the theoretical model, interventions that reduce parental antisocial behavior and improve parenting practices should also lead to reductions in adolescent problem behavior.

The negative and significant path linking father and target antisocial behavior at Time 3 in the full SEM was unexpected; however, we believe that this finding has little substantive importance. According to MacKinnon, Krull, and Lockwood (2000), the obtained pattern of coefficients may suggest inconsistent mediation or even a suppressor effect. However, given that the indirect effects were significant and in the expected direction as hypothesized in the theoretical model this artifact did not affect the major conclusions related to study hypotheses (see MacKinnon et al., 2000). Future research will be

needed to determine whether this interpretation is correct or whether there is a paradoxical suppressor effect that is replicated in other study samples.

As hypothesized, the prior level of adolescent antisocial behavior influenced adolescents' perceptions of their parent's behavior, which in turn predicted later antisocial behavior by the adolescent. These results suggest that the adolescents' perceptions may reflect their own personal circumstances. Studies have found that parents' perceptions of adolescent problem behavior may be more a function of their own adjustment than their child's actual level of delinquency (e.g., Seiffge-Krenke & Kollmar, 1998). Similarly, it appears that adolescents who are antisocial may perceive their parents' behavior as more antisocial than nonantisocial youth (e.g., Harold & Conger, 1997). However, the findings demonstrated that adolescent perceptions of parents predicted their future risk for conduct problems even after taking their earlier behavior into account. Therefore, it appears that adolescent perceptions play both a mediating and independent role in these processes. Also important, and consistent with earlier research (e.g., Conger & Ge, 1999; Conger & Simons, 1997), adolescent antisocial behavior predicted more harsh and inconsistent parenting practices. As expected, adolescents influence parenting as well as the reverse (Bell & Harper, 1977). Overall, the findings suggest that cognitive and parenting pathways help to explain the effects of the adolescents' initial level of antisocial behavior on subsequent behavior.

Notably, the strongest single predictor of subsequent antisocial behavior was the adolescent's prior level of behavior, measured 3 years earlier. Moreover, the strong effect remains after controlling for parenting factors. This finding not only demonstrates significant stability in antisocial tendencies over the course of adolescence but also indicates that the process is well underway by the 9th grade when youth are generally entering high school. Furthermore, there were significant mean differences in antisocial behavior between girls and boys at Time 1, indicating that boys were more antisocial than girls during the 9th grade. However, by late adolescence (Time 3) there were no significant mean gender differences on the delinquency construct. Thus, prevention efforts designed to reduce risk for problem behavior during the adolescent years should begin before adolescence before young people have established delinquent tendencies and become significantly involved in delinquent activities.

It is also worth noting that the longitudinal design of the present study is an important methodological strength because it allowed us to control for the ado-

lescent's earlier level of antisocial behavior, thus providing an estimate of rank order change in antisocial behavior over time. In addition, prospective longitudinal designs place variables in the appropriate, time-ordered sequences, allowing us to examine developmental change and draw stronger inferences about possible causal effects than would be possible with a cross-sectional research design (Lorenz, Wickrama, & Conger, 2004). Another strength of the present study was the use of a community-based sample. Families in the current study were not selected based on their extreme scores or involvement in alcohol treatment programs or psychiatry clinics (e.g., Earls et al., 1988; Frick et al., 1992; Hussong et al., 1998). Thus, the participants represent a wide cross section of the population in terms of range and diversity of behavior. We believe that the community sample of parents and adolescents in the present study increases the external validity of our findings.

Moreover, studies of delinquent behavior too often only involve samples of boys (e.g., Capaldi et al., 2003; Farrington, 1995; Frick, Strauss, Lahey, & Christ, 1993; Glueck & Glueck, 1968; Johnson, Simons, & Conger, 2004; Loukas et al., 2001; Patterson & Stouthamer-Loeber, 1984). This study extends the literature by examining the development and growth of adolescent girls' and boys' antisocial behavior in response to their mothers' and fathers' antisocial behaviors. Finally, the current study utilized multiple informants to assess study measures. Each construct in the model was estimated using information from a different family member, which helps reduce biased parameter estimates that may inflate the associations among constructs (Lorenz, Conger, Simons, Whitbeck, & Elder, 1991).

Finally, we must note certain limitations of the study. Our sample consisted of two-parent, intact families; thus, these findings may not be generalizable to single or step parent families. This sample is also limited, in that, it consists of entirely White families residing in rural areas. Future studies should examine these processes with more diverse samples in terms of family structure, ethnicity, geographic location, and socioeconomic status in order to evaluate the generalizability of the findings. However, because several other investigations have replicated many of the major findings from this program of research using minority and urban study populations with various family structures (e.g., Conger, Patterson, & Ge, 1995; Conger et al., 2002), we expect that these findings are likely to generalize as well. In addition, given sample limitations we could not have separate mother and father constructs in the same model. Future studies with larger sample

sizes should consider mom and dad's behavior simultaneously to assess both the unique and additive contribution of each parent's behavior to adolescent maladjustment.

Despite these limitations, these findings extend previous research by examining how adolescents' perceptions of parental antisocial behavior affect their subsequent involvement in antisocial acts. Previous research has generally focused on the actual occurrence of parent behavior rather than on the cognitive or psychological processes operating within the child that may be more proximal mediators and determinants of child behavior (Dubin & Dubin, 1965; Harrist & Ainslie, 1998). Thus, previous studies investigating the transmission of antisocial behavior across generations typically have ignored this seemingly important cognitive mechanism for explaining behavioral continuity. The current results suggest that a child's perception may provide an important link in explicating the processes involved in the intergenerational transmission of problem behaviors.

Because the adolescent's interpretation of parental behavior has received far less attention than parenting, future studies should investigate this potential mediator in order to identify different pathways leading to problematic behavior among adolescents. Future studies should also investigate whether the role of perception in linking the behavior of family members' can be generalized beyond the parent-child relationship to other members within the family system, such as siblings. In addition, the current study used agreement-disagreement rating scales to assess the adolescent's perception of mom and dad. Future studies should assess this construct using frequency and severity measures to see if the adolescents' general perception of mom and dad, as assessed in this study, is formed based on knowledge of the frequency and/or severity of the parent's antisocial behaviors. It should be noted that several other factors might contribute to the transmission of antisocial behavior across generations that were not investigated in the current study such as various biological substrates. Clearly, this study provides preliminary empirical support for the role of both perception and parenting in the intergenerational transmission of antisocial behavior.

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Appendix A

Table A1

Zero-Order Correlations Among Items Measuring Mother and Adolescent Antisocial Behavior, Adolescent Perception, and Parenting

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	.51	.42	.52	.06	.06	.02	.02	.14	.02	.07	.05	.13	.11	.00	.04	.01	.02	.03	-.10	.05	.09	.08	.10
2	.37	1	.36	.36	.14	.03	.11	.11	.15	.01	.06	-.02	.16	.10	.13	.01	.11	-.01	.06	-.10	.01	.08	.02	.12
3	.31	.38	1	.44	.02	.09	.11	.06	.09	.03	.15	-.01	.01	.08	.17	.15	.09	.15	.28	.11	.13	.14	.06	.19
4	.28	.43	.34	1	.14	.15	.10	.11	.07	.04	.09	.12	.13	.20	.11	.11	.08	.20	.11	.03	.13	.13	.09	.07
5	.04	.14	.03	.10	1	.40	.41	.42	.26	.12	.13	.09	.16	.08	.17	.09	.15	-.06	-.02	.01	.40	.17	.25	.21
6	.06	.12	.04	.17	.39	1	.49	.53	.08	-.01	.07	.10	.16	.14	.07	.10	.12	.10	.14	.14	.20	.35	.29	.27
7	.03	.06	.06	.13	.29	.58	1	.49	.11	.02	.10	.04	.01	.02	.14	.11	.16	.06	.15	.08	.15	.29	.37	.28
8	-.07	.07	-.01	.06	.37	.58	.51	1	.02	.04	.08	.07	.01	.07	.07	.09	.14	.02	.09	.10	.11	.23	.28	.38
9	.22	.24	.16	.15	.11	.15	.10	.11	1	.07	.33	.32	.30	.07	.18	.11	.01	.01	.01	.03	.28	.06	.11	.17
10	.03	.10	.16	.02	.02	.13	.06	.10	.14	1	-.03	.03	.16	.11	.04	.06	.02	.04	.04	.00	.11	.01	-.04	-.03
11	.05	.05	.10	-.03	.12	.09	.06	.01	.31	.16	1	.26	.22	.14	.16	.27	.08	.10	.05	.20	.24	.09	.01	.22
12	.16	.22	.13	.15	.15	.12	.01	.07	.19	.07	.21	1	.10	.00	.04	.12	-.02	-.02	.02	.10	.30	.06	.08	-.03
13	.14	.23	.11	.19	.16	.16	.16	.15	.44	.34	.35	.18	1	.05	-.10	-.02	.00	-.12	-.04	-.05	.18	.09	.08	.11
14	.17	.10	.11	.14	.10	.12	.14	.14	.09	.09	.08	-.03	.01	1	.34	.28	.12	.19	.31	.27	.08	.10	.09	.09
15	.04	.11	.10	.17	.03	.04	.08	.00	.25	.17	.06	.00	.20	.21	1	.27	.24	.13	.33	.23	.11	.13	-.03	.08
16	.06	.13	.07	.15	.02	.17	.15	.21	.01	.12	.05	.00	.15	.12	.06	1	.31	.35	.32	.20	.08	.16	.06	.09
17	.13	.16	.08	.08	.01	.05	.10	.05	.02	.13	.06	.06	.08	.12	.07	.20	1	.26	.24	.21	.09	.08	.09	.15
18	-.05	.00	.08	-.06	.00	.14	.12	.03	.10	.07	.37	.12	.18	.09	.22	.22	.34	1	.23	.39	.06	.09	.06	.09
19	.05	.04	.05	.01	-.06	.10	.20	.08	.13	.28	.22	.04	.14	.14	.19	.09	.25	.31	1	.52	.05	.23	.08	.10
20	.07	-.02	.02	.05	-.02	.14	.23	.10	.16	.24	.29	.08	.26	.11	.17	.20	.25	.39	.45	1	.18	.14	.10	.11
21	.04	.05	.04	.14	.54	.33	.27	.29	.12	.06	.13	.14	.19	.11	.16	.09	.07	-.01	-.03	.16	1	.37	.38	.42
22	.09	.07	.07	.12	.14	.39	.30	.40	.15	.19	.11	.14	.20	.21	.14	.18	.04	.15	.10	.28	.43	1	.62	.63
23	.07	.20	-.02	.11	.24	.40	.35	.47	.20	.15	.24	.15	.25	.17	.04	.07	.04	.12	.16	.26	.43	.61	1	.63
24	.06	.11	.04	.14	.27	.48	.40	.53	.15	.09	.19	.10	.21	.28	.11	.19	.10	.13	.02	.16	.58	.73	.66	1

Note. Correlations for girls ($N = 226$) are shown below the diagonal and correlations for boys ($N = 204$) above. 1 = M substance use; 2 = M reckless; 3 = M conflict; 4 = M lies; 5 = T substance use; 6 = T trouble; 7 = T conflict; 8 = T bad kid; 9 = T perception M substance use; 10 = T perception M reckless; 11 = T perception M conflict; 12 = T perception M lies; 13 = T perception M good example; 14 = M where; 15 = M busy; 16 = M explain; 17 = M get out; 18 = M yell; 19 = M criticize; 20 = M argue; 21 = T substance use; 22 = T trouble; 23 = T conflict; 24 = T bad kid; M = mothers; T = target adolescent.

Bold correlations significant at $p < .05$, two-tailed test.

Appendix B

Table B1

Zero-Order Correlations Among Items Measuring Father and Adolescent Antisocial Behavior, Adolescent Perception, and Parenting

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	.45	.28	.28	.00	-.09	-.01	-.01	.19	.17	.09	.25	.06	.00	.08	-.05	.07	.14	.14	.14	.15	.10	.15	.00
2	.36	1	.55	.49	.14	.08	.04	.06	.14	.16	.12	.10	.16	.07	.08	-.01	.02	.06	.08	.19	.05	-.01	-.01	-.08
3	.34	.31	1	.36	.03	.04	.03	.11	.06	.03	.07	.01	.02	.08	.02	-.09	.07	.03	.06	.11	-.01	-.11	-.02	-.07
4	.27	.29	.41	1	-.04	.07	.10	.02	.20	.17	.23	.05	.15	.05	.01	.07	.17	.21	.01	.15	.06	.03	-.08	-.01
5	.09	.04	.04	.10	1	.40	.41	.41	.21	.17	.18	.06	.21	.15	.02	-.03	.07	-.05	.10	.16	.40	.16	.24	.22
6	.06	.09	.03	.11	.39	1	.49	.53	.08	-.05	-.01	.06	.13	.05	.03	-.04	-.02	.02	-.05	.01	.23	.37	.30	.29
7	.02	.10	-.01	-.07	.29	.58	1	.49	.03	.08	.09	.11	.13	.06	.07	-.02	-.07	-.02	.02	.05	.14	.28	.36	.28
8	-.09	-.03	-.08	.03	.38	.58	.51	1	-.09	-.08	.11	.12	.08	.04	.06	-.12	.04	.00	.02	.00	.10	.23	.28	.38
9	.34	.04	.22	.30	.17	.20	.09	.16	1	.17	.36	.28	.30	.18	.08	.08	-.03	.09	.03	.25	.31	.14	.18	.09
10	.19	.09	.14	.27	.18	.20	.21	.11	.20	1	.07	.09	.30	.10	.03	.09	-.06	.07	-.02	.08	.26	.07	.10	.04
11	.10	.06	.23	.12	.10	.12	.03	.08	.28	.09	1	.29	.35	.03	.10	.21	.01	.23	.13	.21	.20	.06	.18	.10
12	.20	.14	.08	.14	.14	.08	.05	.12	.20	.25	.17	1	.17	.14	.11	.20	.02	.15	.00	.02	.29	.14	.14	.02
13	.13	.05	.19	.22	.10	.09	.10	.13	.35	.45	.30	.35	1	.20	.01	.11	.03	.07	.17	.18	.22	.20	.23	.14
14	-.01	-.02	-.02	.05	.07	-.01	.01	.07	.11	.03	.05	.04	.12	1	.26	.18	.17	.10	.06	.15	.08	.03	.01	.03
15	-.03	.03	.04	.13	.05	-.06	-.04	-.07	.00	.11	.10	-.11	.18	.23	1	.24	.25	.29	.19	.13	-.01	.06	.02	.09
16	.00	.06	-.01	.12	.19	.18	.17	.21	.20	.06	.08	-.03	.11	.32	.09	1	.14	.23	.11	.18	.09	-.02	-.03	.01
17	.02	.07	.01	-.01	.14	.03	.12	.07	.13	.07	.05	.11	.20	.18	.19	.20	1	.36	.27	.21	.08	.07	.08	.04
18	.01	.06	.11	.06	.07	.15	.14	.14	.19	.03	.13	.08	.10	.06	.09	.23	.30	1	.26	.32	.17	.12	.10	.06
19	.09	.05	.10	.01	.09	.23	.26	.16	.11	.21	.15	.09	.23	.22	.08	.20	.20	.37	1	.53	.02	-.04	.03	.01
20	.00	-.08	.06	.03	.04	.17	.21	.15	.18	.17	.05	.03	.15	.08	.03	.27	.15	.30	.40	1	.01	.09	.16	.09
21	.08	-.13	.02	.06	.54	.34	.27	.29	.16	.21	.17	.19	.24	.18	.08	.06	.07	.12	.22	.11	1	.38	.39	.43
22	-.01	-.08	.09	.06	.14	.39	.30	.39	.14	.22	.11	.17	.20	.14	.08	.23	.05	.15	.27	.26	.43	1	.63	.63
23	.05	-.06	.06	.08	.25	.41	.35	.48	.19	.21	.18	.21	.22	.06	.07	.17	.03	.22	.20	.16	.43	.60	1	.63
24	-.01	-.10	.04	.12	.27	.49	.40	.52	.16	.17	.19	.14	.26	.12	.12	.23	.10	.14	.24	.23	.58	.73	.67	1

Note. Correlations for girls ($N = 226$) are shown below the diagonal and correlations for boys ($N = 204$) above. 1 = F substance use; 2 = F reckless; 3 = F conflict; 4 = F lies; 5 = T substance use; 6 = T trouble; 7 = T conflict; 8 = T bad kid; 9 = T perception F substance use; 10 = T perception F reckless; 11 = T perception F conflict; 12 = T perception F lies; 13 = T perception F good example; 14 = F where; 15 = F busy; 16 = F explain; 17 = F get out; 18 = F yell; 19 = F criticize; 20 = F argue; 21 = T substance use; 22 = T trouble; 23 = T conflict; 24 = T bad kid; F = father; T = target adolescent.

Bold correlations significant at $p < .05$, two-tailed test.