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Delinquency in Adolescent Girls: Using a Confluence Approach to Understand the Influences of Parents and Peers

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Abstract

Determining the interdependence of family and peer influences on the development of delinquency is critical to defining and implementing effective interventions. This study explored the longitudinal relationship among harsh punishment, positive parenting, peer delinquency, and adolescent delinquency using data from a sub-sample of the Pittsburgh Girls Study. Participants were 622 adolescent girls (42% European American, 53% African American); families living in low-income neighborhoods were oversampled. After controlling for the effects of race, living in a single parent household, and receipt of public assistance, harsh punishment and peer delinquency in early adolescence were positively related to delinquency in mid-adolescence. No significant main effects of positive parenting or interaction effects between parenting and peer delinquency were observed. Thus, the effects of harsh parenting and peer delinquency are independent and perhaps additive, rather than interdependent. Results indicate the continued importance of targeting both parenting and peer relationships to prevent delinquency in adolescent girls.

Keywords

delinquency; adolescent girls; peer delinquency; parenting

The most recent national statistics indicate that girls accounted for 30% of the estimated 1.5 million juvenile cases handled by juvenile courts in 2009 (Puzzanchera, Adams, & Hockenberry, 2012). Over the past twenty five years, the number of delinquency cases involving boys increased 17%, whereas the number of delinquency cases involving girls increased 86% (Puzzanchera et al., 2012). It is possible that this increase reflects changes in the processing and documentation of juvenile justice involving girls, but it is also possible that the increase reflects a greater number of girls committing offenses. However, historically most of the research related to risk for delinquency has been conducted on samples of adolescent boys, due to the higher prevalence of boys coming into contact with the juvenile justice system. Although knowledge on risk factors associated with delinquency among boys has proven helpful in identifying key predictors of future functioning and providing appropriate prevention and intervention services (Lipsey & Wilson, 1998; Loeber & Farrington, 1998), it remains unknown whether similar risk factors exist across gender, and whether prevention and intervention programs designed for boys will generalize to girls. This study seeks to expand our understanding of risk factors associated with girls' delinquency by focusing on two specific spheres of influence: parents and peers, and the confluence between the two.

Parent and Peer Influences on Delinquency

Among the most implicated environmental risk factors for delinquency are peer and family relationships (Dishion, McCord, & Poulin, 1999; Dishion, Patterson, & Griesler, 1994). Peers' delinquency is related to individual delinquency in a number of studies (Elliott, Huizinga, & Ageton, 1985; Tremblay, Masse, Vitaro, & Dobkin, 1995). Additionally, parenting practice constructs, such as monitoring and disciplinary practices and qualities of family relationships (such as cohesion and support) have been linked to risk for delinquency (Patterson, Reid, & Dishion, 1998). Studies have focused on how family influences might set the stage for peer influences on delinquency (Henneberger, Durkee, Truong, Atkins, & Tolan, 2013; Henry, Tolan, & Gorman-Smith, 2001). This research stems from two major theoretical models. First, Patterson (1982) described a pattern in which coercive socialization, characterized by negative reinforcement of negative behaviors, begins within the family. Coercive socialization within the family is associated with later coercive socialization in relationships outside of the family (i.e., peer relationships). Second, the confluence model of peer influence suggests that conventional peers reject children engaging in coercive socialization, limiting coercive children to socialize with other rejected children, who may also be coercive and/or antisocial (Dishion, Patterson, et al., 1994). Over time, deviant behavior escalates through peer reinforcement of antisocial values, attitudes, and behavior (i.e., deviancy training; Dishion, Duncan, Eddy, Fagot, & Fetrow, 1994; Dishion, Patterson, et al., 1994). The two theoretical models taken together suggest that socialization within the family and later socialization within peer groups are interdependent.

Several empirical studies have established that parent and peer influences may have interdependent effects on delinquency within samples of adolescent boys (Dishion, Patterson, et al., 1994; Henneberger et al., 2013; Henry et al., 2001). Moreover, in a few studies the interactive effects of peers and parenting on delinquency as hypothesized by both of the above models have been tested (Henneberger et al., 2013; Henry et al., 2001; Poole & Regoli, 1979; Vitaro, Brendgen, & Tremblay, 2000). Findings from these studies, however, are inconsistent. Some studies indicate that friends have a larger impact on delinquency (Poole & Regoli, 1979) and drug use (Vitaro et al., 2000) when familial support/attachment are low. Henneberger et al. (2013) reported that peers have a greater impact on delinquency when family cohesion is high and when parental monitoring is low. For boys, there is some evidence that both support/attachment provided by the family and specific parenting practices (e.g., monitoring) may have moderating effects on the influence of friends' deviancy. However, evidence is inconsistent as some studies report no moderating effects (Vitaro et al., 2000).

Only a few studies examine the moderating role of parenting on the peer influence process among samples comprised of boys and girls. First, Mounts and Steinberg (1995) reported that the positive influence of having a high achieving friend was amplified among adolescents who reported parents as relatively more authoritative (e.g., demonstrating high levels of both warmth and control). The negative influence of having a drug-using friend was amplified among adolescents who reported parents as relatively less authoritative. Second, Mason, Cauce, Gonzales, and Hiraga (1994) found that the negative impact of deviant peers was attenuated for African American adolescents reporting a positive mother-

adolescent relationship. Third, Galambos, Barker, and Almeida (2003) concluded that parents' firm behavioral control attenuated the upward trajectory in externalizing problems among adolescents with deviant peers. Thus, there is some evidence that both family relationship characteristics (e.g., warmth, positive relationship) and parenting practices (e.g., behavioral control) may moderate the influence of peers for girls, although these effects have rarely been tested by gender.

One notable exception is Farrell, Henry, Mays, and Schoeny (2011), who examined the moderating effects of parental support for nonviolence, parental support for fighting, and parental involvement on the relationship between peer deviance and physical aggression among a sample of 5,581 (51% girls) middle school students. They reported that parental support for nonviolence moderates the positive relationship between delinquent peer association and physical aggression for boys, but not for girls. A second notable study, conducted by Crosnoe, Erickson, and Dornbusch (2002), also yielded differential effects across gender for the moderation of parenting on the relationship between peer delinquency and individual deviant behavior in a sample of adolescents ($N = 3,046$, 56% female). Parental monitoring exacerbated the influence of drug using friends for girls, but not for boys. A third notable study conducted by Trudeau, Mason, Randall, Spoth, and Ralston (2012) reported that the negative effect of peer deviance on conduct problems was buffered by effective parenting for children in middle school grades ($N = 226$; $n = 107$ girls; seventh and eighth grade), and this relationship was invariant across gender. Overall, findings across studies are inconsistent, and more research is needed to discern the interdependence of parenting and peer relationships among samples of adolescent girls.

Miller, Loeber, and Hipwell (2009) used data from the Pittsburgh Girls Study (PGS; Keenan et al., 2010) to test the relationship between parenting and peer influence and disruptive behavior within a sample of at-risk girls. They reported that peer delinquency, harsh punishment, and low parental warmth were all independently predictive of disruptive behaviors in girls (ages 7 and 8). The interrelation of peer influence and parenting on problem behavior, however, was not tested. In addition, the young age of the girls in those analyses meant that variability in delinquency was fairly limited.

The Current Study

This study expanded upon prior research to examine the relationship between parent and peer influences and their interdependence on delinquency within a sample of at-risk adolescent girls using data from the PGS (Keenan et al., 2010). In this study, data were used from assessment waves 5 (W5) through 8 (W8) for the oldest group of PGS girls between ages 12 and 15 years, the latter of which is a developmental time period when delinquency peaks for girls (Farrell, Sullivan, Esposito, Meyer, & Valois, 2005; Karriker-Jaffe, Foshee, Ennett, & Suchindran, 2008). Parenting and peer influences were measured at age 12 years, a developmental period during which peers become salient, but parents still influence youth (Brown & Larson, 2009). We used parenting and peer influence measured at age 12 years (early adolescence) to predict average level of delinquency across ages 13, 14, and 15 (mid-adolescence).

Based on extant research we formed three hypotheses. First, it was hypothesized that positive parenting practices during early adolescence would be negatively related and negative parenting practices would be positively related to delinquency in mid-adolescence. Second, peer delinquency would be positively related to delinquency in mid-adolescence. Third, we hypothesized that parenting would moderate the relationship between peer delinquency and girls' delinquency, such that the relationship between peer delinquency and subsequent delinquency would be stronger for girls with parents reporting lower positive parenting practices and higher negative parenting practices.

Method

Participants

Participants included 622 girls from the PGS, a longitudinal community-based study of the development of conduct problems among girls (Hipwell et al., 2002; Keenan et al., 2010). Data collection for the PGS began in 1999, after 2,451 girls between the ages of 5 and 8 years were recruited. The girls were selected based upon an enumeration of 103,238 households in the city of Pittsburgh. Using 1990 Census data, neighborhoods were divided into 23 low-income (>25% of households living in poverty) and 66 other-income neighborhoods. All households in the low-income neighborhoods were enumerated, and a random selection of households in other income neighborhoods was enumerated. Through this process, 3,241 girls ages 5-8 were identified. Of those girls, 2,876 were eligible (e.g., planning to reside in Allegheny County, no severe developmental delay) and 2,451 of those eligible (85.3%) agreed to participate (see Hipwell et al., 2002). For this study, we use data from the oldest cohort of girls ($N = 622$) in order to examine effects during the developmental period during which delinquency peaks for girls (Farrell et al., 2005; Karriker-Jaffe et al., 2008).

Table 1 presents descriptive statistics for the study participants. Eighty-three percent of girls ($n = 517$) had complete data for all variables included in this study. Seventeen percent were missing values on at least one of the measures included in this study. Attrition analyses revealed that missingness was not related to race, receipt of public assistance, single parent status, parenting variables, or peer delinquency (all probabilities were greater than .05).

Procedures

Study procedures were approved by the University of Pittsburgh Institutional Review Board. Prior to data collection, written informed consent from the caretaker and written consent from the child were obtained. Each girl and her primary caretaker were interviewed separately in the participant's home. Trained interviewers read questions aloud and participant verbal responses were entered into a laptop computer by the interviewer. The caregiver and the youth were each reimbursed for their time on an accelerated scale with nominal increases each year. Reimbursement was in the form of check or point of sale debit card.

Measures

Delinquency—Girls' delinquent behavior was measured at ages 13, 14, and 15 using the *Self-Report Delinquency Scale* (SRD; Elliott & Huizinga, 1989). This 30-item scale measured the frequency and seriousness of involvement in antisocial, delinquent, and violent behaviors over the past year. Previous studies have found acceptable levels of reliability and validity for use of the SRD (see Henry et al., 2001; Jolliffe et al., 2003; Thornberry & Krohn, 2000). Total scores were used to indicate the number of offenses at ages 13, 14, and 15. The total scores were averaged across ages 13, 14, and 15 for the dependent measure. Delinquency across ages 13, 14, and 15 was highly stable, with correlations ranging from .44 to .58 ($p < .01$). The delinquency score in mid-adolescence ranged from 0-11 and was positively skewed (skew = 2.18, kurtosis = 6.86).

Parenting practices—Parents' report of responding in positive ways to girls' behavior was measured at age 12 using parent-report on the *Positive Parenting Scale* (Loeber, Farrington, Stouthamer-Loeber, & Van Kammen, 1998). The measure is comprised of 7 items (e.g., "If your daughter does something good, do you say something nice about it, give praise, or give approval?") measured on a 3-point scale ranging from 1 (*almost never*) to 3 (*a lot*). This scale has been extensively used with similar samples (Loeber et al., 1998; Miller et al., 2009; van der Molen, Hipwell, Vermeiren, & Loeber, 2012). This scale shows good internal consistency (Cronbach, 1951) with this sample at age 12 years ($\alpha = .79$).

Parents' report of harsh punishment was measured at age 12 using the *Conflict Tactics Scale—Parent/Child Version* (CTSPC; Straus, 1979; Straus, Hamby, Finkelhor, Moore, & Runyan, 1998). The measure is comprised of 6 items measuring psychological aggression (e.g., "In the past year, if your child did something that she is not allowed to do or something that you did not like, how often did you shout, yell, or scream at your daughter?") and one item measuring corporal punishment (e.g., "...how often do you spank or hit your daughter?"). Items are rated on a 3-point scale ranging from 1 (*never*) to 3 (*often*). This scale shows good internal consistency (Cronbach, 1951) with this sample at age 12 years ($\alpha = .78$), and the measure has shown good construct and discriminant validity (Straus et al., 1998; Straus & Hamby, 1997).

Peer delinquency—Peer delinquency at age 12 years was measured using self-report on the *Peer Delinquency Scale* (PDS; Loeber et al., 1998). This scale summarizes the proportion of friends who engaged in delinquency in the past 6 months. The types of delinquency correspond to the items on the SRD (e.g., "How many of [your friends] have gone into or tried to go into a building to steal something?"). This scale has been extensively used with similar samples (Hipwell, Keenan, Loeber, & Battista, 2010; Loeber et al., 1998; Miller et al., 2009). The PDS showed good internal consistency (Cronbach, 1951) with this sample at age 12 years ($\alpha = .88$).

Covariates—All covariates were measured using parent-report and were reduced to binary variables: European American (0) versus African American and other race (1); living in a dual parent household (0) versus single parent household (1); no household poverty (0) versus household receives public assistance, defined as WIC, food stamps, or welfare (1).

Note that we combined the African American category with the other race category because the number of girls identified as other race was too small for analyses.

Analyses

Poisson regression analyses in SAS were used to investigate the moderating effects of parenting practices on the relationship between peer delinquency and subsequent individual delinquency. All continuous predictor variables were centered prior to creating interaction effects. Proc MI was used to handle missing data on predictor variables and the dependent measure (20 imputations; Schafer, 1997; Schafer & Graham, 2002). Participant race, single parent status, and receipt of public assistance were entered in the first model (control model). Main effects of positive parenting, harsh punishment, and peer delinquency were added in the second model (main effects model). Interactions between parenting and peer delinquency were added in the third model (interaction model).

Results

Means, standard deviations, and correlations for all variables used in this study are presented in Table 1. Results for the Poisson regression analyses are presented in Table 2. The first model included control effects for race, single parent status, and receipt of public assistance. Single parent status was positively related to delinquency such that girls with a single parent had higher rates of delinquency ($B = .19, p < .05$). In the second model, we added main effects for parenting and peer delinquency. After controlling for race, single parent status, and receipt of public assistance, harsh punishment ($B = .08, p < .001$) and peer delinquency ($B = .10, p < .001$) were both positively related to girls' delinquency in mid-adolescence. Positive parenting was not significantly related to girls' delinquency in mid-adolescence. The third model added interaction terms for parenting variables and peer delinquency. Neither the interaction between positive parenting and peer delinquency nor the interaction between harsh punishment and peer delinquency significantly predicted girls' delinquency in mid-adolescence.

Discussion

Prior research indicates the importance of both parent and peer influences on delinquency risk for girls (Miller et al., 2009). However, little research has examined the interdependence of parent and peer influence within samples of at-risk girls. This study extends examination of the confluence model (Dishion, Patterson, et al., 1994) to an urban community sample of adolescent girls in order to determine if relationships previously found with samples of adolescent boys hold. Consistent with our first and second hypotheses, harsh punishment and peer delinquency were both positively related to delinquency in mid-adolescence. Positive parenting was not significantly related to delinquency. Contrary to our third hypothesis, interactions between parenting and peer delinquency were not significantly related to delinquency in mid-adolescence.

Consistent with previous research, our findings indicate that parenting practices are associated with the development of delinquency (Patterson, 1982). Notably, it was harsh punishment that was positively related to delinquency, whereas positive parenting did not

significantly predict later delinquency, consistent with the findings of Miller et al. (2009). Harsh punishment contributes to the coercive pattern of family interaction (Patterson, 1982), whereby parents and youth respond negatively to one another's negative behavior (e.g., yelling, slapping/hitting). Furthermore, youth may internalize the harsh standards that parents set within the family (Reid, Patterson, & Snyder, 2002). It may be that harsh punishment serves as a model for aggressive behavior, whereby parents' yelling and slapping/hitting leads youth to respond with anger and defiance (Dodge & Pettit, 2003; Grolnick & Farkas, 2002; Reid et al., 2002).

Also consistent with previous research, findings indicate that peer delinquency is positively related to girls' subsequent delinquency (Dishion et al., 1999). A majority of the prior research examining peer delinquency as a predictor of individual delinquency has focused on samples of adolescent boys. Delinquent youth are more likely to interact with other delinquent youth, and thus have delinquent peer groups (Dishion, Patterson, et al., 1994). When high-risk youth spend time together, deviancy training is likely, whereby youth reinforce deviant talk and behaviors, making them more likely to occur again in the future (Dishion et al., 1999).

Contrary to our hypothesis based on the confluence model (Dishion, Patterson, et al., 1994), the interactions between parenting and peer delinquency were not significantly related to girls' subsequent delinquency in mid-adolescence. Parenting and peer delinquency contribute independently to girls' delinquency, indicating that the two risk processes are perhaps additive rather than synergistic. Farrell et al. (2011) also reported that some aspects of parenting and peer delinquency made independent contributions to middle school age girls' aggressive behavior. Furthermore, Vitaro et al. (2000) reported no moderating effects in a sample of adolescent boys. However, our findings are counter to the larger body of literature examining the confluence process in samples of adolescent boys (Henneberger et al., 2013; Henry et al., 2001; Poole & Regoli, 1979) and mixed-gendered samples (Crosnoe et al., 2002; Galambos et al., 2003; Mason et al., 1994; Mounts & Steinberg, 1995; Trudeau et al., 2012). It is unclear the extent to which discrepancies in study design account for the findings. For example, across studies the age and sample demographic characteristics of participants differ. Additionally, the operationalization of the parenting constructs differs (e.g., in our study, we used measures of parent-reported parenting practices, while other studies use composite measures and/or child-reported parenting practices). Perceptions of parenting may differ across parent and child-report (Paulson & Spota, 1996; Schwarz, Barton-Henry, & Pruzinsky, 1985; Smetana, 1988), potentially contributing to differences in study results. Furthermore, research has indicated the importance of the parent-child relationship above and beyond parenting practices (Kerr, Stattin, & Engels, 2008). It may be that aspects of family relationships, such as family cohesion (Henneberger et al., 2013) and parental support/attachment (Poole & Regoli, 1979), rather than parenting practices, contribute to the confluence of parent and peer risk factors for girls' delinquency.

These findings have implications for prevention and intervention programs aimed at preventing girls' risk for delinquency. Most delinquency prevention programs have been developed based on information garnered from studies using samples of adolescent boys. Those studies indicate the potential to prevent boys' delinquent peer associations by

targeting parenting practices (i.e., parenting and peer influence are interdependent). Our findings indicate that for girls, intervention should focus separately on parenting (Dishion & McMahon, 1998) and girls' interactions with delinquent peer groups. Contrary to the larger literature focused on risk for boys' delinquency, focusing on parenting alone may not necessarily contribute to the prevention of girls' negative association and influence from delinquent peers.

A number of limitations should be considered when interpreting our results. First, delinquency and peer delinquency are both measured via self-report. Thus, the contribution of shared method variance is unknown (e.g., more delinquent girls may perceive their friends as more delinquent, regardless of friends' actual levels of delinquency). Second, we did not examine other aspects of parenting that may be important in the development of delinquency (e.g., parental monitoring; Dishion & McMahon, 1998; Stattin & Kerr, 2000). Third, characteristics of the peer group such as peer popularity (Underwood, 2003) and gender of peers may be particularly important in relationships for girls (Giordano, 1978), but were not measured in this study.

Conclusion

This study extends examination of the confluence model of parent and peer relationships (Dishion, Patterson, et al., 1994) to a sample of adolescent girls and indicates that both parent and peer relationships contribute independently to girls' risk for delinquency. We found that both harsh punishment and peer delinquency are positively related to girls' delinquency in mid-adolescence. The interaction between parenting and peer delinquency did not significantly add to the variance of girls' delinquency in mid-adolescence. Findings indicate that programs should include a focus on both parenting and peer delinquency in order to prevent girls' delinquency in mid-adolescence.

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Biography

Angela K. Henneberger is currently a postdoctoral fellow at The Methodology Center and The Prevention Research Center at The Pennsylvania State University. She received her Ph.D. from the University of Virginia, where she was an Institute of Education Sciences predoctoral fellow. Broadly, her research focuses on preventing negative behaviors and promoting positive behaviors among youth. Her specific interest focuses on three interrelated themes: (1) integrating the study of positive and negative aspects of peer selection and influence during adolescence; (2) developing new methods to strengthen causal inferences in studies of these peer processes; and (3) applying these findings and

methods to strengthen the development and evaluation of intervention programs designed to promote positive adjustment and prevent behavior problems in adolescence.

Patrick H. Tolan is a Professor in the Human Services Department at the University of Virginia and is Director of Youth-Nex, The University of Virginia Center to Promote Effective Youth Development. He conducts programmatic research on child mental health and other developmental issues particularly related to the promotion of health development and the prevention of risk.

Alison E. Hipwell is Associate Professor of Psychiatry and Psychology at the University of Pittsburgh. Her research interests include precursors and developmental trajectories of psychopathology, conduct problems, depression, female development, sexual-risk taking, peripartum psychopathology, parent-infant interaction, and infant development.

Kate Keenan is Professor of Psychiatry and Behavioral Neuroscience at the University of Chicago. Her research in developmental psychopathology spans several developmental periods and phenotypes. The integrative thread running through each study is the aim of identifying the earliest appearing individual differences that connote risk for psychopathology, and the factors that are associated with the transition from risk to the expression of a disorder. The work is designed to be relevant to the understanding of causal mechanisms and to the development of prevention interventions.

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Table 1

Descriptive Statistics and Correlations for Demographics, Parenting, Peer Delinquency, and Delinquency

Demographics	N (%)	M (SD)	2.	3.	4.
European American	261 (42)				
African American	330 (53)				
Single Parent	274 (44)				
Public Assistance	205 (33)				
Parent >= 12 years Education	299 (48)				
Caretaker is Biological Mother	516 (83)				
Dependent Variable					
1. Delinquency (Age 13-15)		1.30 (1.56)	.11	.26***	.43***
Age 12 Predictors					
2. Positive Parenting		18.20 (2.43)			
3. Harsh Punishment		9.09 (2.20)	-.11**		
4. Peer Delinquency		5.04 (4.22)	.01	.26***	

Note. Race, single parent, receipt of public assistance, and parents' highest education are measured at W1 (girl is age 8 years) using parent report. Delinquency and peer delinquency are measured using girls' self-report. Positive parenting and harsh punishment are measured using parent-report.

**
 $p < .01$;

 $p < .001$

Table 2

Poisson Regression Predicting Individual Delinquency in Mid-adolescence by Family and Peer Variables

	Control Model	Main Effects Model	Interaction Model
	B (SE)	B (SE)	B (SE)
Race Minority	0.02 (.08)	−0.35 (.09)***	−0.34 (.09)***
Single Parent	0.19 (.08)*	0.13 (.08) ^a	0.12 (.08)
Public Assistance	−0.01 (.08)	−0.04 (.08)	−0.04 (.08)
Positive Parenting		−0.02 (.02)	−0.03 (.02)
Harsh Punishment		0.08 (.02)***	0.09 (.02)***
Peer Delinquency		0.10 (.01)***	0.10 (.01)***
Positive Parenting × Peer Delinquency			0.00 (.00)
Harsh Punishment × Peer Delinquency			−0.00 (.00)

Note. Coefficients are combined across 20 imputations. Delinquency in mid-adolescence is measured using girls' self-report averaged across ages 13, 14, and 15 years. Peer delinquency is measured using girls' self-report at age 12. Harsh punishment and positive parenting are measured using parent-report at age 12.

^a
 $p < .10$;

*
 $p < .05$;

**
 $p < .01$;

 $p < .001$.