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Ryan E. Spohn
University of Nebraska at Omaha, rspohn@unomaha.edu

Don L. Kurtz
Kansas State University

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Ryan E. Spohn

Center on Children, Families, and the Law, University of Nebraska–Lincoln, NE, USA

Don L. Kurtz

Department of Sociology, Anthropology, and Social Work, Kansas State University, KS, USA

Corresponding author — Ryan E. Spohn, Center on Children, Families, and the Law, University of Nebraska-Lincoln, 206 S. 13th St., Suite 1000, Lincoln, NE 68588, USA; email rspohn@ccfl.unl.edu

Abstract

Two major themes in the delinquency literature are the roles of family structure and childhood victimization. Combining these two lines of research, the current project examines the unique contribution of family structure and victimization on the serious delinquency of a nationally representative sample of adolescents. In addition, we examine whether the form of families serves to condition the relationship between victimization and delinquency. Past research indicates that abuse is more likely to occur in two-parent families of a "mixed" form, specifically in the presence of a live-in boyfriend or stepfather. However, little is known regarding the impact of victimization on delinquency across different types of family structure. Guided by a theoretical framework acknowledging that notions of justice influence the experience of victimization, our analyses indicate that, although victimization is more likely to occur in nonintact two-parent families, victimization is more likely to result in serious delinquency in intact families and single-parent families.

Keywords: delinquency, broken homes, child maltreatment, sexual abuse

Two major themes relating families and juvenile delinquency are the roles of *family structure* or "broken homes" and *family conflict*, often operationalized as maltreatment or victimization. Although these lines of research have generally developed in isolation from each other, numerous researchers have undertaken efforts to examine the role of family structure and maltreatment simultaneously, but have produced mixed results. The current study extends these areas of research by examining the interrelationship of family dynamics and family structure, as well as testing the hypothesis that family structure *moderates* the effect of maltreatment on serious delinquency. Rather than simply comparing the relative strength of relationship between family processes and delinquency, on the one hand, and

family structure and delinquency, on the other, our theoretical approach views the structure of a family as a *context* in which youth and adolescents interpret the experience of abusive punishment and maltreatment. Our goal is to develop a sociological understanding of families and delinquency based on Agnew's (2001, 2006) suggestion that perceptions of injustice influence the manner in which adolescents react to strain. We will approach this goal through the following steps.

First, we undertake a brief review of the literature on the relationships between family structure, victimization, and delinquency. Next, we outline a theoretical approach that views family structure as a social context in which adolescents interpret their experiences of maltreatment. In this theoretical section, we discuss how adolescents' notions of justice or fairness may represent a lens through which they interpret and act upon their experiences of victimization. From this theoretical framework, we then develop hypotheses that guide our empirical analysis. Finally, we describe the results of our empirical analysis and discuss the implications of our findings for research on families and delinquency.

Family Conflict and Delinquency

A long history of research has addressed the impact of child maltreatment on subsequent negative outcomes, including delinquency. Research on harsh or punitive discipline, such as the early studies of delinquent boys conducted by Glueck and Glueck (1950), indicated that abusive punishment predicts juvenile delinquency, and a comprehensive review of the literature confirms this relationship (Haapasalo & Pokela, 1999). Additional studies have linked delinquency to erratic or inconsistent parenting (West & Farrington, 1973) cold or rejecting parenting techniques (McCord, 1979), and various types of coercion (Unnever, Colvin, & Cullen, 2004). More recent studies adopting multivariate analysis techniques adjusting for control variables also suggest that abuse and punitive punishment are positively related to delinquency (see Brezina, 1998; Heck & Walsh, 2000; Ireland, Smith, & Thornberry, 2002; Kakar, 1996; McCord, 1983; Smith & Thornberry, 1995; Spohn, 2000). Child abuse also appears to be predictive of violent delinquent behaviors, evidenced by studies of self-reported violence (Thornberry, 1996), official records (Widom, 1989) and interviews, and record checks of individuals incarcerated for violence (Boswell, 1995; Curtis, 1999; Peacock, 1999). Overall, these studies indicate that maltreatment has a moderate effect on delinquency and violence.

Broken Homes and Delinquency

Another popular theme in juvenile delinquency research is a focus on family structure, commonly referred to as ''broken homes.'' The most frequent conceptualization of family structure is a simple dichotomy in which families are categorized as either ''broken'' or ''intact.'' A broken home is a family that is absent one of the biological parents and an intact home consists of both biological parents residing in the same household as their children (Heck & Walsh, 2000; Rebellon, 2002). Because not all single-parent homes go through a process of being ''broken'', we will use the term ''nonintact family'' for the purposes of our research.

Primarily a consequence of divorce rates and single-parenthood, the United States Census Bureau (2000) indicates that approximately 27% of children under the age of 18 live in a one-parent household and that 85% of single parents are mothers. Despite the attention focused on nonintact homes and criminal behavior, research on the subject has been inconclusive, contradictory, or incomplete (Heck & Walsh, 2000; Rebellon, 2002; Wells & Rankin, 1991).

In one of the most expansive analyses of the subject, Wells and Rankin (1991) conducted a meta-analysis of existing research on nonintact homes and delinquency. They found that children from nonintact homes were between 10 and 15% more likely to engage in delinquent behavior. The re-

lationship between nonintact homes and delinquency was stronger for minor acts and weaker for serious violence. Also, children from homes broken by divorce or separation were more likely to engage in delinquency as compared to children from other types of nonintact homes. In a more recent study, Price and Kunz (2003) conducted a meta-analysis of 72 prior studies and found a positive correlation between divorce and both minor and serious delinquency. However, the authors argue that several factors can also account for much of this relationship, including the level of hostility prior to divorce, child–parental relationship, general family stability, and the parents ability to monitor and discipline the child.

In a comprehensive multivariate analysis of the influence of nonintact homes, Rebellon (2002) examined the relationship between family structure and a variety of forms of delinquency. His research indicates that single parenthood does not directly impact involvement in delinquency. In contrast, parental divorce/separation has a relationship with all types of delinquency. Children were more likely to engage in status offenses when their parents recently remarried, and the long term presence of a stepparent tended to increase violent offending.

Still other research examines the lack of a parental figure, generally the father, as a potential source of juvenile offending. Like much of the family structure literature, the findings of research related to father's presence or absence show mixed results. For example, Mandara and Murray (2006) found a link between a father's absence and drug use among African American boys but not girls. In another recent study, Apel and Kaukinen (2008) found that delinquency of children in ''intact'' family differs depending on whether the two biological parents are married or unmarried but cohabitating. Moreover, when children are raised by a single biological parent, antisocial behavior increases if this parent cohabitates with a nonbiological partner, particularly if the custodial parent is the biological father.

Examining the relationship between crime and family structure at the macro level, Mackey and Coney (2000) found a strong relationship between a community-level violent crime and out-of-wedlock birth rate but no relationship between community divorce rate and criminal behavior. Anderson (2002) extends this research through the use of multilevel models examining both individual and macro-level effects of family structure on delinquency. She found both individual and aggregate effects of family structure on delinquency.

It is evident that substantial bodies of research have found a link between delinquency and both victimization and the disruptions of family structure. Rather than engaging in a debate over the relative contribution of these factors in the etiology of delinquency, we focus on the structure of the family as a sociological context in which victimization may or may not occur. By ''sociological,'' we suggest that family structure represents a context that holds meaning for youth and influences the ways in which youth interpret and react to the experience of victimization. This theory is developed in the subsequent section.

Family Structure as a Context for Family Conflict and Delinquency

A focus on both victimization and family structure serves as fertile ground for improving theory and research on juvenile delinquency. Existing empirical research on the ''relative importance'' of family structure and victimization is inconclusive. For example, although not a central focus of their research, the analysis by Zingraff, Leiter, Myers, and Johnsen (1993) indicates that family structure mediates the effect of maltreatment. However, Heck and Walsh (2000) detect a robust effect of maltreatment on delinquency when controlling for family type and Rebellon and Van Gundy (2005) found that the impact of maltreatment on delinquency remained when family structure and control variables were included in multivariate models. Moreover, a study by Van Voorhis, Cullen, Mathers, and Garner (1988) suggests that the relative effect of family conflict on delinquency is much more ro-

bust than effect of family structure on delinquency. Finally, Rosen's (1985) research indicates that the interrelationships between family structure, family context, and delinquency are contingent on race.

In addition to empirical studies comparing the ''relative importance'' of family structure and victimization, a number of studies examine these relationships in a more complex fashion. For example, Cernkovich and Giordano (1987) suggest that structure and conflict variables should not be considered as mediating their corresponding effects on delinquency but rather serve as moderating variables. However, no moderating effects are detected, as they find that family interaction variables have similar effects across all family types. Finally, a multifaceted analysis of the National Youth Survey conducted by Rebellon (2002) produces mixed results regarding the relationships between family structure, abuse, and delinquency. Rebellon's analysis makes one point clear however: single parenthood, per se, is not associated with delinquency. This is consistent with research by Rankin and Kern (1994) examining the role of parental attachments in single- and two-parent homes. They found that if a child is strongly attached to one parent, an attachment to a second parent is inconsequential in further reducing delinquent involvement. Moreover, single-parent homes are not conducive to delinquency as long as the child is strongly tied to the custodial parent.

These disparate findings indicate that research on maltreatment cannot ignore the possible confounding effects of family structure, and vice versa. Moreover, the likelihood that a child is exposed to maltreatment might also be determined by family structure. For instance, in his longitudinal research on family structure and battered children in England, Whelan (1994) found that children residing with their biological mother and another man were significantly more likely to be abused than those living with a single parent. Moreover, although Rebellon did not find an *effect* of family structure on delinquency in a multivariate context, there is evidence that *levels* of delinquent involvement vary across family types (for instance, see Table 2 in Rebellon, 2002). This suggests that family structure is an important component of an understanding of the relationship between families and delinquency. We propose that different family types are best thought of as *contexts* in which youth experience and interpret discipline, punishment, and abuse.

Strain and Feelings of Injustice

Research on the impact of expectations of equity is not new. For example, de Tocqueville (1856) suggested that people in their most desperate condition will be unlikely to revolt against an unjust state. Only when their condition provides a glimmer of hope will people burst into rebellion against their oppressors. In the analysis of uprisings, revolts, and revolutions, these early ideas of de Tocqueville's were manifested in the work of relative deprivation/frustration aggression theorists most often associated with Ted Robert Gurr (for example, see Gurr, 1970).

When ''laboratory-type'' experiments became acceptable in the social sciences, the idea of equity and expectations were one of the first topics of investigation. For example, Austin and Walster (1974) hypothesized that college students, when warned to expect injustice, would be less outraged when inequitable treatment actually did occur. These authors argued that when injustice is expected, individuals rehearse for the stressful event, and if it occurs, they are able to react calmly to it. In Austin and Walster's experiment, students forewarned of unjust treatment were more content with that treatment than were those for which the injustice came as a surprise.

Why is evidence research and theory from such disparate sources relevant for the study of families and delinquency? We believe that notions of justice and contextually produced expectations influence the experience of maltreatment, as well as the outcomes of this maltreatment, in a sociologically meaningful fashion. In other words, past experiences may provide a lens through which youth view their experiences as normal or deviant, common or rare, just or unjust, ''good'' or ''bad,'' and so on. If

this is the case, these views will, at least in part, influence the ways in which youth react to the stimuli that they face within their family environment.

We argue that a youth's perceptions of concepts such as ''justice'' will depend upon his or her past and current experiences.[1] This argument is consistent with aspects of Agnew's (2001, 2006) strain theory as he describes the types of strain that are most likely to cause crime. He suggests that strains that are seen as unjust are more likely to result in delinquency and crime than strain perceived as just. Agnew describes characteristics of strains that influence the victim's perceptions of justice, and one of these characteristics is particularly salient for the current research. Agnew states that strain will be seen as unjust when ''the strain that victims experience is *very different from their past treatment in similar circumstances and/or from the treatment of similar others*'' (2006, p. 64, emphasis in the original). Youth experiencing strains that violate their sense of justice are more likely to react to that strain in a delinquent fashion.

Building on Agnew's idea, we argue that a youth's sense of justice in relation to experiencing a particular strain will be influenced by their history of experiencing similar strains. In other words, have they or have they not experienced this type of strain in the past, and how often has this happened? We suggest that youth who are exposed to higher rates of victimization in the form of physical or sexual abuse may come to see these experiences as a ''normal'' aspect of their family relations. Based on these assumptions, such victimization experiences would elicit little or no reactive behavior on the part of the youth. On the other hand, if victimization is rare, unusual, and viewed as an unjust event, a strong reaction can be expected. Placing this in the context of the current research project, if youth in stepparent families are exposed to more victimization than youth living with two biological parents, then the impact of victimization in stepparent families may be less likely to instigate problem behaviors by the youth.[2]

However, we also believe that a youth's evaluation of whether a strain is just or unjust is influenced by experiencing, or failing to experience, any of a wide variety of strains. In addition to instances of victimization, other negative events can occur in the family life of youth. For example, a youth growing up in a family struggling with poverty might view instances of victimization as fairly minor events in the overall struggles of daily life. In contrast, youth from more affluent families might view the same victimization as a severe hardship. The corresponding reactions of poor and rich youth, then, will reflect the relative level of perceived grievance. As the stress literature suggests, context is important because it helps us to identify differences in the meaning of stressors for different individuals (Wheaton, 1996). In other words, relations that are stressful to one person may not be of any particular consequence to another.

Again placing this theorizing within the context of the current study, research indicates that divorce creates a number of hardships for the resulting child(ren), including loss of income and increased financial strain (Brody & Flor, 1998; Cherlin et al., 1991; Shaw, Emory, & Tuer, 1993; Simons, Johnson, & Lorenz, 1996; Smock, 1994), reduction in wealth (Zagorsky, 2005), loss of time spent with the nonresident parent (Furstenberg & Nord, 1985), possible loss of time spent with the resident parent due to new work obligations and the corresponding difficulties of single-parenting (Duncan & Hoffman, 1985; Newcomer & Udry, 1987; Weiss, 1984), increases in exposure to stressful life events (Simons et al., 1996), and the stress of family relations, including the possible addition of stepparents (Beer, 1992; Derdeyn, 1994; Pagani, Tremblay, Vitaro, Kerr, & McDuff, 1998; also see Amato, 2000 for an extensive review of the consequences of divorce for both adults and children). Moreover, many of these hardships can be generalized to a variety of family types in which both biological parents are not present. As a result, on the one hand, the overall negative experience of a single-parent household or being a child of a divorce might substantially reduce the relative negative impact of victimization as a result of harsh physical punishment or abuse. On the other hand, children from families with two biological parents may be less resilient to stressors such as abuse. Consequently, in these children's lives, abuse would have a more detrimental impact.[3]

One- and Two-Parent Families: The Role of Stepparents

Theoretically, we believe it is most important to focus on the role of stepparents or other nonbiological parents or guardians within broken families. Broadly spoken, models of *family structure* that focus on socialization by adult role-models as a key variable in child development (control models, such as Hirschi, 1969, for instance) tend to advocate stepparents as a mediator of delinquency. According to this perspective, two biological parents would be most effective at socializing and supervising youth. Children from single-parent families would be most likely to become involved in delinquency and two-parent ''broken families'' should fall somewhere in the middle.

In contrast, theories focusing on *family conflict* as the origin for criminal behavior (i.e., Agnew's general strain theory) argue that stepparents might be indicative of family discord and lead to a greater risk of delinquency (Rebellon, 2002). With its roots in the stress literature, Agnew's (1992) strain theory generally predicts that strain is more likely to result in delinquency when multiple types of strain cluster together. Most research to date is compatible with this perspective. For example, examining data from England, Whelan (1994) finds that reports of abuse are lowest for families with two biological parents, highest for nonintact families with a natural mother and a parental substitute, with one parent families falling in the middle. In relation to delinquency, Rebellon (2002) finds that it is not single-parenthood but rather changes in family structure that appear related to delinquency.

Three theoretical perspectives addressing the effect of stepfamily structures on child outcomes are relevant for our research. First, *the cumulative effects hypothesis* predicts that the number of parental relationship transitions will have a detrimental impact on child outcomes (Ganong & Coleman, 2004). As youth go through marriage-divorce-remarriage transitions or marriage-death-remarriage transitions, each additional transition accumulates stress. A second model suggests that *parental competencies are compromised* when a stepfamily is created (Ganong & Coleman, 2004). The main point here is that the stress and responsibilities of creating a new family diminishes the parenting skills of the new partners. Finally, a *conflict* perspective argues that stepfamily arrangements are fodder for conflicts between divorced coparents and between the new stepfamily members (including stepsiblings). This conflict produces a stressful situation for the stepchildren (Ganong & Coleman, 2004). These three perspectives predict that children's exposure to stress and conflict will be highest in families in which at least one *nonbiological* parent is present. However, our theoretical perspective focusing on youths' views of just versus unjust adverse experiences suggests that this heightened exposure to stressors will actually *reduce the negative impact of abusive experiences.* Specifically, the effect of abuse on serious juvenile delinquency should be weakest in these two-parent, nonintact families.

Research Hypotheses

Examining a nationally representative study of adolescents, we examine four hypotheses derived from our theoretical discussions. First, based on previous theory and research, we argue that *levels* of maltreatment will vary systematically across family type, and that nonintact families with two parental figures will be the most abusive. Our first hypothesis states that levels of abuse will be higher for youth from nonintact families (i.e., at least one biological parent is not present) and, amongst these nonintact families, hypothesis two states that abuse will be highest for youth from nonintact families where at least one nonbiological parent is present.

H1: Adolescents from nonintact families will be exposed to more sexual abuse and physically abusive punishment than adolescents from intact families.

H2: Adolescents from nonintact families with two parent will be exposed to more sexual abuse and physically abusive punishment than adolescents from nonintact families with one parent.

A possibility that has received little attention by in the literature is that family structure *conditions* or *moderates* the effect of abuse on delinquency. This possibility is a central focus of the current research project. Our focus on the perceived justness of experienced strains suggests that youth who are exposed to higher rates of victimization may come to see experiences as a ''normal'' aspect of their family relations. In addition to a youth's history of abuse and the prevalence of that abuse, taking a more general approach and taking into account other forms of strain or hardship is also important. We argue that the general hardships that are more common for youth growing up in a nonintact home might actually cause youth to view abuse as a relatively minor event when compared to these other hardships. Consequently, we suggest that, although *levels* of abuse will be highest in nonintact families, the actual *impact* of abuse on delinquent activities will be higher for adolescents who are accustomed to a more stable family structure. In other words, where the predicted impact of family structure is highest, the predicted impact of abuse is lowest.

H3: Sexual abuse and physically abusive punishment will have a stronger impact on serious delinquency for adolescents from intact families as compared to adolescents from single-parent nonintact families.

H4: Sexual abuse and physically abusive punishment will have a stronger impact on serious delinquency for adolescents from nonintact families with one parent/guardian than for adolescents from nonintact families with two parental figures.

Data, Measures, and Methods

We analyze the National Survey of Adolescents in the United States, 1995, a household probability sample of 4,023 male and female adolescents aged 12–17. Highly structured interviews were used to collect the sample data using Computer-Assisted Telephone Interviewing technology. Two steps were taken to assure that respondents answered the questions openly, honestly, and with a degree of privacy. First, the interviewer asked if the adolescent was in a situation that provided privacy and an opportunity to answer freely. If not, the interviewer offered to call aback at another time when privacy was assured. Second, the interview was composed primarily of closed-ended questions that could be answered with a ''yes'' or ''no'' or other one-word response. Consequently, over 99% of the adolescents agreed to answer the most-sensitive questions (Crouch, Hanson, Saunders, Kilpatrick, & Resnick, 2000).

This study may have potentially excluded adolescents residing in institutional settings, adolescents without a parent or guardian, or adolescents whose parents do not speak English or Spanish. According to the 1990 census, 5% of households do not have telephones. In addition, methodologists estimate that 2% of parents of adolescents from households with telephones do not speak English or Spanish (Kilpatrick & Saunders, 1995). Consequently, the sampling frame covers an estimated 93% of US adolescents living in households. Of 5,367 eligible households, 4,023 adolescents agreed to participate and complete interviews, for a participation rate of 75%.

Measures

The dependent variable for this study is self-reported, serious delinquent behavior. *Delinquency* is represented by a modified version of the index offenses scale from the National Youth Survey (Elliott

& Huizinga, 1983). The scale captures only serious offenses, such as motor vehicle theft, breaking and entering, gang-fighting, strong-arm tactics, and assault. The scale is a summation of six items reflecting counts or frequencies in which the adolescents have committed the offense. The sum represents a total count of offenses across the six categories.[4]

Family structure is divided into three categories. *Intact families* refer to a family structure in which the adolescent is living with both biological parents. The variable for nonintact *single-parent family* represents conditions in which the adolescent lives with only one parent. The third category, *two parents, nonintact* refers to a family structure in which the adolescent lives with two parents, but one or both of these parents is not a biological parent.

Victimization is captured through the inclusion of variables representing sexual assault and physically abusive punishment. *Sexual assault* is a categorical variable reflecting having ever experienced unwanted sexual touching and/or sexual acts at the hands of a man, woman, boy, or girl. The measure of *physically abusive punishment* is a categorical variable representing physical actions taken against the adolescent by a parent or guardian as a form of punishment. This victimization includes spankings that were so bad that the youth had to see a doctor, spankings that left marks, bruises, cuts, or welts, as well as punishments such as burning, cutting, or being tied-up.

The set of control variables represents measures of early deviance, social support, having witnessed violence, variables commonly linked to differential association theory and demographic variables. The measure of ''early deviance'' indicates whether the adolescent began smoking or drinking regularly more than 1 year prior to the interview and is included as a proxy for individual differences in the propensity for deviant behavior. Early onset of delinquency is generally considered a strong predictor of continued and chronic offending (Gottfredson & Hirschi, 1990; Moffitt, 1993; Simons, Wu, Conger, & Lorenz, 1994). A measure of social support represents whether or not the adolescent had someone (parent or otherwise) who they could count on or depend on throughout their childhood. Other researchers have identified social support as a significant mediating factor for delinquent behavior (Colvin, Cullen, & Vander Ven, 2002; Cullen, 1994). Witnessing violence is a five-item scale reflecting whether or not the adolescent has ever seen someone shot, stabbed, robbed, threatened with a knife, gun or other weapon, or seen someone beat up such that they were badly hurt. Much prior research has linked exposure to violence with juvenile offending (Schwartz & Proctor, 2000; Song, Singer, & Anglin, 1998). Variables are included that measure the amount of delinquency committed by the adolescent's friends and the proportion of friends who have ever suggested that the youth do something that was against the law. These two variables of delinquent peers in the current study correspond to aspect differential association theory and general research on the influence of delinquent peers on criminal offending (Agnew, 1991; Jensen, 1972; Warr, 1991).

The remaining measures are commonly utilized control variables related social–economic status or demographic characteristics. Family social–economic status is captured via two control variables: household income and parental education. Prior research dating several decades has shown a link between income and other aspects of socioeconomic status and delinquent behavior (Criss & Shaw, 2005; Fleisher, 1966; Weicher, 1970). The number of children in the household is also measured as context for family situation and because some research finds sibling relationships as subtext for delinquent behavior (Criss & Shaw, 2005). In the current research, race is measured by creating a number of dummy variables which are included in statistical models as a control variable. Prior research demonstrates the importance of race in regards to delinquent behavior (Matsueda & Heimer, 1987). Whites serve as the reference category in all regression models in this research. Most research on delinquency causation also finds that sex/gender remains an important predictor variable (for example, see Heimer & De Coster, 1999; Mears, Ploeger, & Warr, 1998).Consequently, boys are expected to report more deviant behavior than girls in the current study. A dummy variable for male is included in our models. Finally, age is also included

Table 1. Descriptive statistics

Variable	Mean/Percentage	SD	Min	Max
Dependent variable				
Serious delinquency	.63	4.99	0	100
Family structure variables				
Intact family	66%		0	1
Single-parent family	22%		0	1
Two-parents, nonintact	11%		0	1
Strain variables				
Sexual assault	8%		0	1
Physically abusive punishment	9%		0	1
Control variables				
Early deviance	12%		0	1
Social support	91%		0	1
Witnessed violence	2.29	1.14	0	5
Friends' delinquency	2.41	2.45	0	9
Friends' peer pressure	1.11	.41	1	4
Household income	5.42	1.96	1	9
Parental education	5.99	1.47	1	9
Children in household	2.11	1.11	1	9
White	72%		0	1
Black 1	5%		0	1
Hispanic	8%		0	1
Other race	5%		0	1
Male	51%		0	1
Age	14.48	1.70	12	17

Mean and standard deviation are provided for continuous variables. Percentage is provided for dichotomous variables.

as a control variable. A consistent finding in criminology literature is that criminal activity rises through childhood, peaking in late adolescence (Gottfredson & Hirschi, 1987, 1990). Descriptive statistics for all variables are found in Table 1 and Appendix A contains additional information on the variables and scales included in the models addressing our hypotheses.

Method

We use chi-square tests, ANOVA, and Scheffe post hoc[5] tests to examine differences in levels of the independent and dependent variables across types of family structure. As described above, the dependent variable is composed of six items capturing the number of times each adolescent was involved in acts of serious delinquency over the last 12 months. When summed, the scale represents a self-reported count of the number of index offenses committed by the adolescent in the last year. Although count variables are often treated as though they are continuous and are analyzed through the use of linear regression models, the use of ordinary least squares regression for count outcomes can result in inefficient, inconsistent, and biased parameter estimates (Long, 1997). The simplest model for analyzing count outcomes is the Poisson regression model (Long, 1997). However, as is the case with many count variables, our dependent variable has a variance larger than its mean, a property know as *overdispersion*. In the presence of overdispersion, the estimates from Poisson regression models are consistent, but inefficient. Moreover, the standard errors from a Poisson model will be biased downward, producing spuriously large *z*-values and overestimated the significance of the independent variables (Cameron & Trivedi, 1998; Long, 1997). Related to the issue of overdispersion is the assumption of the Poisson process that events are independent and the rate in which counts increase is homogenous (Long, 1997). In the context

Table 2. Chi-square tests for prevalence of sexual and physical abuse by family type

Variable	Intact Family (%)	Single-Parent Family (%)	Two Parents, Nonintact (%)	Chi-Square	Level of Significance
Sexual assault	6.3	11.1	13.5	38.539	0.000
Physically abusive punishment	7.1	12.4	16.5	51.569	0.000

of our data, we would need to assume that each instance of participation in serious delinquency is independent from any previous instances and that the youth in our sample commit acts of delinquency at the same rate. We doubt that either assumption fits the reality of juvenile delinquency.

We adopt negative binomial regression, an alternative to Poisson regression, for our multivariate analysis. Negative binomial techniques do not require the property of equidispersion. Moreover, negative binomial models allow for heterogeneity in the rate of increase in the dependent variable across cases (Long, 1997). These considerations make negative binomial models most applicable for addressing acts of serious delinquency measured as a count variable. To further guard against violations of regression assumptions such as outliers, cases with high leverage, and heteroscedasticity, we adopt Stata's robust estimator of variance that produces robust standard errors based on the Huber and White calculation (Stata Corporation, 2003). Finally, to test for interaction effects, we run separate negative binomial models for intact families, one-parent broken families, and two-parent broken families, calculating z-values to determine if the regression coefficients differ significantly across family types.

Results

Descriptive Statistics

As the first stage of analysis, we compare rates of abuse across family structure. These results are found in Tables 2 and 3. Regarding sexual abuse, 6.3% of adolescents from intact families reported victimization, compared to 11.1% for one-parent families and 13.5% for two-parent nonintact families (χ^2 = 38.539, p < .001). The findings for physically abusive punishment are quite similar. Adolescents from intact families report the lowest rates of abusive punishment (7.1%), followed by one-parent families (12.4%) and adolescents from two-parent nonintact homes (16.5%, χ^2 = 51.569, p < .001). Concerning our application of Agnew's characteristics of just and unjust strain, youth who are exposed to a single-parent lifestyle or a greater number of marital transitions are exposed to a greater amount of victimization, which could influence their perception of strain events. These findings provide support for the first two hypotheses. In subsequent analyses, we examine whether this increased exposure to victimization produces resilience amongst these youth in regards to delinquent outcomes.

We also examine rates of delinquency across family type. This dependent variable is a count variable measuring the number of times the adolescent was involved in an act of serious delinquency in the previous 12 months. Adolescents from intact families average 0.290 acts of delinquency in the previous year. Adolescents from single-parent homes averaged 1.201 acts of delinquency and those from two-parent nonintact homes committed 1.484 acts. The overall F-test for the ANOVA was significant (F = 18.280, p < .001) and a comparison of the corresponding Sheffe post hoc tests indicates that adolescents from nonintact homes are more delinquent than those from intact families. However, two-parent nonintact homes do not produce more delinquency than single-parent homes (p = .623). Finally, adolescents exposed to abusive punishment committed more delinquent acts ($\bar{x}$ = 2.113) than those who were not ($\bar{x}$ = 0.474, t = 3.274, p = .001) and adolescents exposed to sexual abuse committed more delinquent acts ($\bar{x}$ = 1.666) than those who were not ($\bar{x}$ = 0.533, t = 2.420, p = .016).

Table 3. ANOVA and Scheffe post hoc tests for delinquency by family type

	ANOVA: Mean (*SD*)			Scheffe Tests: *p*-value		
	Intact Family	Single-Parent Family	Two-Parents, Nonintact	Intact vs. Single	Intact vs. Two-Parents, Nonintact	Single vs. Two-Parents, Nonintact
Serious delinquency[a]	0.290 (2.391)	1.201 (6.819)	1.484 (9.708)	.000	.000	.623

a. *F*-test for ANOVA is significant at p < .05.

Multivariate Analyses

The negative binomial models contain controls for demographic variables as well as measures of friends' delinquency, peer pressure by friends to commit delinquency, witnessing violence, and a control for involvement in deviance at least 1 year prior to the survey. The model for the full sample is found in Table 4. Multicollinearity was assessed through an examination of bivariate correlations (presented in Appendix B) and variance inflation factors. The highest bivariate correlation between variables included simultaneously in multivariate models is between friends' delinquency and friends' peer pressure (0.548), suggesting that multicollinearity is not a problem for our models. In addition, we tested for multicollinearity amongst the independent variables by calculating the variance inflation factors (VIF). These values ranged from 1.033 to 1.873, indicating that multicollinearity is not a problem in our models.

Examining nonintact homes and maltreatment in the model in Table 4, nonintact homes with one parent or two parents both have a positive, significant effect on serious delinquency. Sexual abuse has no effect on delinquency and physically abusive punishment has a positive regression coefficient that reaches only a moderate level of significance ($p = .074$). The finding that the relationship between types of maltreatment and delinquency is mediated when measures of family structure are included in the model is consistent with the findings of Zingraff et al. (1993).

To achieve a greater understanding of the effect of the predictor variables on delinquency, we adopt two intuitive methods for interpreting the negative binomial regression coefficients. First, we calculate the *marginal effect*, which gives an expected increase or decrease in the number of counts. The marginal effect is comparable to an unstandardized regression coefficient from an ordinary least squares regression model. With all else equal, the marginal effect indicates how much a one-unit change in an independent variable will increase or decrease the expected number of event counts. The computation of this variable involves multiplying the regression coefficient by the mean of the dependent variable (in this case, .63 acts of serious delinquency; Liao, 1994). Second, we compute the *multiplicative effect*, which provides the expected increase or decrease in the dependent variable by the number of ''times,'' otherwise known as an ''odds ratio'' (OR). The multiplicative effect describes the factor by which a one-unit change in an independent variable increases or decreases the likelihood of an event, all else equal. This OR is calculated in the same fashion as those derived from logistic regression models, where OR is equal to $\exp(\beta)$ (Liao, 1994). These values are calculated for all significant predictor variables in Table 4.

Examining the marginal effects and multiplicative effects, the family structure variables have only a moderate influence on serious delinquency. As compared to youth from families with both biological parents present, coming from a single-parent family is predicted to increase the count of self-reported serious delinquency by 0.386. Two-parent, nonintact families have a similar effect (0.426). Being from a single-parent family, as compared to having both biological parents present, increases the

Table 4. Negative binomial regression coefficients representing the effect of abuse and family structure on serious delinquency

	Coefficient	*P* Value	*S.E.*	Marginal effect	Multiplicative Effect/exp(β)
Single-parent family	0.613*	.001	.189	0.386	1.846
Two-parents, nonintact	0.676*	.001	.210	0.426	1.966
Sexual assault	0.233	.282	.217		
Physically abusive punishment	0.374	.074	.209		
Early deviance	0.820*	.000	.199	0.517	2.270
Social support	−0.280	.268	.253		
Witnessed violence	0.484*	.000	.072	0.305	1.623
Friends' delinquency[a]	1.881*	.000	.198	1.185	6.560
Friends peer pressure[a]	0.923*	.000	.171	0.581	2.517
Household income	0.042	.434	.054		
Parental education	−0.173*	.005	.062	−0.109	0.841
Children in household[a]	0.236	.325	.240		
Black	0.588*	.012	.233	0.370	1.800
Hispanic	0.511*	.020	.220	0.321	1.667
Other race	0.749*	.039	.362	0.472	2.115
Male	1.123*	.000	.164	0.644	2.782
Age	−0.177*	.002	.058	0.112	0.844
Constant	−3.475*	.001	1.002		
Log-likelihood −1545.21, *p* < .000					

* p < .05 (two-tailed test).
a. Variable logged to reduce skewness.

delinquency count by 1.846 and two-parent, nonintact families have only a slightly larger impact (OR = 1.966). In short, our findings regarding family structure are consistent with much of the literature, suggesting that, to the extent that family structure has a direct effect on participation in delinquency, the impact is minor. Our primary theoretical interest, however, is in examining family structure not as a ''cause'' of delinquency but as a ''context'' in which youth consider and carry out delinquent acts. Our aim is to analyze the fashion in which different family types modify the relationship between victimization and delinquency, which requires the calculation of interactions.

Subgroup analysis. Table 5 presents separate models for each family structure and allows for an examination of interaction effects. In comparing the impact of sexual abuse across the four multivariate models, we find that the lack of significance for the full sample β = .233, Table 4) is due to the lack of a significant impact of sexual abuse for youth from single-parent families (β = –.149, Table 5) or from two-parent, nonintact families (β = .288, Table 5). In contrast, sexual abuse has a strong, significant impact on serious delinquency for youth from intact families. The regression coefficient of 1.002 corresponds to an OR of 2.724, indicating that experiencing sexual abuse for youth in this subsample increases the number of reported acts of serious delinquency by nearly three times. Comparing regression coefficients for sexual abuse across family types, one significant interaction was found. Specifically, sexual abuse has a significantly larger impact on serious delinquency in intact families, as compared to single-parent families (z = 2.747).[6] This finding provides partial support for our third hypothesis.

Table 5. Negative binomial regression coefficients representing the direct effect of abuse on serious delinquency, estimated separately by family structure

	Intact Coefficient (*S.E.*)	Single-Parent Family Coefficient (*S.E.*)	Two Parents, Nonintact Coefficient (*S.E.*)
Sexual abuse	1.002* (.303)	−0.149 (.290)	0.288 (.412)
Physically abusive punishment	0.113 (.271)	0.651* (.322)	−0.006 (.390)
Early deviance	0.670* (.269)	0.950* (.283)	0.762* (.355)
Social support	−0.706* (.329)	−0.181 (.301)	0.975* (.389)
Witnessed violence	0.444* (.099)	0.593* (.107)	0.600* (.174)
Friends' delinquency[a]	2.019* (.284)	1.749* (.315)	2.489* (.429)
Friends' peer pressure[a]	0.828* (.238)	0.613* (.261)	1.047* (.427)
Household income	−0.006 (.077)	0.045 (.076)	0.098 (.090)
Parental education	−0.247* (.076)	−0.017 (.094)	−0.205 (.121)
Children in household[a]	−0.546 (.331)	0.635 (.383)	0.583 (.414)
Black	−0.142 (.397)	0.641 (.339)	1.255* (.448)
Hispanic	0.092 (.309)	0.770* (.384)	1.196* (.471)
Other race	−0.320 (.418)	−0.019 (.398)	1.719* (.616)
Male	1.398* (.238)	1.317* (.255)	0.624* (.327)
Age	−0.264* (.076)	−0.129 (.104)	−0.125 (.111)
Constant	−0.361 (1.260)	−5.094* (1.589)	−6.613* (2.006)
Log-likelihood	−717.64	−520.10	−270.36

* $p < .05$ (two-tailed test).
a. Variable logged to reduce skewness.

In comparing the impact of physically abusive punishment across the four multivariate models, we find that the lack of significance for the full sample ($\beta = .374$, Table 4) is due to the lack of a significant impact of physically abusive punishment for youth from intact families ($\beta = .113$, Table 5) or from two-parent, nonintact families ($\beta = −.006$, Table 5). In contrast, physically abusive punishment has a significant impact on serious delinquency for youth from single-parent families. The regression coefficient of .651 corresponds to an OR of 1.917, indicating that experiencing physically abusive punishment for youth in this subsample nearly doubles the number of reported acts of serious delinquency. Comparing regression coefficients for physically abusive punishment across family types did not result in any significant interactions. Consequently, our fourth hypothesis was not supported.

Control variables. In addition to the theoretical variables included in our hypotheses, a number of our control variables exhibit interesting effects that merit a brief discussion in relation to the delinquency literature. First, our measure of early onset of delinquency exhibits a consistent, positive effect on serious delinquency that consists with a number of theoretical perspectives (i.e. Gottfredson & Hirschi, 1990; Moffitt, 1993; Simons *et al.*, 1994) for explaining involvement in delinquency.

Although our measure of social support is not significant in the full model, an interaction effect is apparent across the models presented in Table 5. For example, social support actually increases delinquency by over 2.5 times ($\beta = .975$, $\exp(\beta) = 2.651$) for youth from two-parent, nonintact families. In contrast, social support decreases delinquency in intact families ($\beta = −.706$, $\exp(\beta) = .512$). The corresponding *z*-value of −3.303 indicates that this interaction is statistically significant. Social support also has a significantly larger impact on youth from two-parent, nonintact families than youth from single-parent families ($z = −2.350$). These findings have interesting implications for the delinquency-preventing impact of social support theorized by Cullen and colleagues (Colvin et al., 2002; Cullen, 1994), in

that social support reduces serious delinquency in the most stable families but actually increases these behaviors in families with the highest levels of disruption. However, as the variable representing social support is a single-item measure (see Appendix A), additional research adopting more complex measures of social support are needed to elaborate on this interesting finding.

Witnessing violence has a positive impact on serious delinquency across all of our multivariate models, consistent with previous research linking exposure to violence with juvenile offending (Schwartz & Proctor, 2000; Song et al., 1998). Control variables reflecting participation in delinquency of friends and peer pressure from friends are also significant across all models. These variables are generally linked with differential association and/or social learning theories and are consistent with empirical research indicating the importance of peers for delinquent outcomes (i.e., Matsueda, 1982; Matsueda & Heimer, 1987).

Our measures of socioeconomic status are generally of minor importance, although higher levels of parental education reduced delinquency for some youth. Although the number of children in the youths' household is never significant, two interactions are significant. First, this measure has a larger impact in two-parent, nonintact households as compared to intact families (z = –2.130). Second, this measure has a larger impact in single-parent households as compared to intact families (z = –2.329). Theoretically, this might indicate that an increasing ratio of children to parents reduces parental monitoring and supervision to a greater extent in households in which both biological parents are not present.

Results from Table 5 regarding our race and ethnicity categories also merit discussion. Similar to Matsueda and Heimer (1987), we find that race and family structure interact in their impact on delinquency. Whereas their research examines Black and White youth in separate subgroups and indicates that broken homes have a much larger total effect on delinquency for Blacks as compared to Whites, our research divides youth from different family structures into separate subgroups and indicates that being non-White is most conducive to serious delinquency for youth from two-parent, nonintact families. Specifically, the measure for Black is significantly larger in two-parent, nonintact families than in intact families (z = –2.332) and the measure for Hispanic is significantly larger in two-parent, nonintact families than in intact families (z = –1.961). The measure for ''other'' has a stronger impact for youth from two-parent, nonintact families as compared to youth from intact families (z = –2.752) and also has a stronger impact for youth from two-parent, nonintact families as compared to youth from one-parent families (z = –2.371). As both our data and the Richmond Data analyzed by Matsueda and Heimer are nationally representative samples of youth, the consistency of this interaction as detected by their methods of structural equation modeling and our methods of negative binomial regression suggests that this race/family structure interaction is robust. Moreover, our results indicate that this interaction impacts not just Blacks, but other categories of non-White youth. We argue that this interaction warrants additional research, particularly on more nuanced categories of family structure.

Our final two control variables are sex and age. As expected, males are more delinquent than females across all family types. Of interest is the relationship between age and serious delinquency. The bivariate correlation between these variables is positive. However, the multivariate models indicate a negative relationship, which is unexpected for the age range of this sample (12–17 years) and generally contradicts theory and research on delinquency (for example, see Gottfredson & Hirschi, 1987, 1990). We have no theoretical explanation for this apparent suppressor effect in the multivariate models and suggest that this finding might be a peculiarity of our data.

Discussion and Conclusion

This examination of a nationally representative sample of adolescents indicates that family structures lacking both biological parents put adolescents at greater risk of not only being a victim of abuse

but also being involved in serious delinquency. The multivariate models suggest that adolescents from families where one or both biological parent is missing are more likely to be involved in delinquency but the effect of family structure on delinquency is moderate in size. Moreover, when examining family types separately, we find that the relationship between abuse and delinquency is *conditional* upon family structure. Specifically, sexual abuse increases delinquency for adolescents from intact families, physically abusive punishment increases delinquency for single-parent families, and sexual abuse has a significantly larger effect on intact families as compared to single-parent families.

Our research has implications for the longstanding debate on the relative importance of family structure versus victimization in predicting delinquency. When the direct effects of these variables were examined in Table 4, the variables representing structure seem to be most strongly tied to involvement in serious delinquency. However, the strength of this relationship is quite modest. Viewing family structure as a ''context'' in which adolescents are contemplating and participating in delinquency, however, provides a more nuanced portrayal of these processes. Victimization is related to delinquency for these youth but not in a fashion that is consistent across family types. Sexual abuse is particularly salient for youth from intact families, whereas physically abusive punishment is most salient in single-parent families. Instead of viewing family structure and family conflict as competing explanations for delinquency, we argue that it is more fruitful to examine the situational context in which victimization results in delinquency.

As an orienting framework for this research, we focus on the distinction between strain that is perceived as ''just'' versus strain that is perceived as ''unjust.'' For the purpose of our research, two influences on youths' perceptions of injustice are important. First, a history of experiencing strain such as physical abuse will influence youths' perceptions of the just or unjust nature of that form of strain. Youth who are exposed to higher rates of victimization may come to see these experiences as normative. Consequently, such victimization experiences would be unlikely to elicit a delinquent response from the adolescent. In contrast, if victimization is rare and viewed as an unjust event, a strong reaction can be expected. Because youth from nonintact homes in our sample are more likely to report victimization experiences, our theoretical framework predicts that the effects of victimization on delinquency will be less in these families. We suggest that our research findings point to a need for subsequent research within the framework of Agnew's general strain theory that addresses the subjective meaning of strain for individuals, the context in which this strain is experienced, and the manner in which this context determines whether these strains are viewed as ''just'' or ''unjust'' in nature.

Second, research on single-parent homes, the effects of divorce, and the situation of stepfamilies suggests that these families, on average, experience higher levels of strain and adversity. We argue that experiencing, or failing to experience, a wide variety of strain and adversity will also condition the way in which adolescents react to victimization. Youth who have grown accustomed to dealing with adversity might see experiences of abuse as less traumatic than youth from homes where both biological parents are present.

Together, this perspective predicts that victimization of children from nonintact families will be less likely to result in serious delinquency, as compared to youth from intact homes. These predictions are partially supported for both sexual abuse and physically abusive punishment, although the general pattern does not hold across all three family types. We view our findings as tentative support for our theoretical perspective, emphasizing feelings of injustice as having a moderating impact on the relationship between strain and delinquency. Further research should apply these ideas to additional subgroups. For example, the experience of sexual abuse versus physical abuse differs between boys and girls. In addition, cultural norms toward parenting and discipline vary across racial and ethnic groups, which will influence youths' views of fairness and justice in parenting practices. Finally, ''subjective'' measures of the extent of victimization would provide for a

more direct test of relativity theses, allowing a determination of the true nature in which perceptions of victimization differ across family types.

Our research indicates that social policy addressing both physical and sexual abuse should take into account both the prevalence of abuse as well as the impact of this abuse on other social problems. Abuse is most likely when a nonbiological parent or guardian is present in the home and is most rare when both biological parents are present. However, the impact of this abuse on delinquency tends to show the opposite pattern. As such, although abuse is not as common in intact families, the relationship between abuse and serious delinquency amongst children from intact families should not be ignored.

The study has limitations that influence interpretation of the data. As with all cross-sectional data, the casual order cannot be clearly established linking abuse and family structure to delinquency. Some data is available regarding the age of the juvenile when various forms of abuse occurred but specific information is not available for all youths. Additionally, information regarding changes in family structure and delinquency do not clearly establish a causal order. Although the control variable for ''early deviance'' helps to mediate concerns over causal ordering, conclusions about the link between abuse and family structure cannot be strictly affirmed. Also, future research could include subjective measures of the child's interpretation of family conflict and abuse within the home. Such measures would allow a more direct test of our hypotheses. This data also contains only sparse information on the amount and/or severity of abuse that has occurred. Finally, numerous researchers (Apel & Kaukinen, 2008; Hoffmann, 2002; Hoffmann & Johnson, 1998) argue that research should examine more nuanced measures of family structure when sample size allows. Building on the current research, such studies should examine the impact of victimization in these more specific categories of family structure. In spite of these limitations, the current study expands the delinquency literature on the influences of both family structure and prior victimization, allowing us to recommend that future research examine the family as a context in which youth experience and interpret abuse.

Appendix A: Description of Variables and Scales

Serious Delinquency (6-Item Scale, Alpha = 0.646)

How many times in the past 12 months have you:
- Stolen or tried to steal something worth more than $100?
- Stolen or tried to steal a motor vehicle such as a car or motorcycle?
- Broken or tried to break into a building or vehicle to steal something or just look around?
- Been involved in gang fights?
- Used force or strongarm methods to get money or things from people?
- Attacked someone with the idea of seriously hurting or killing that person?

Intact Family

The adolescent lives with both biological parents.

Single-Parent Family

The adolescent lives with only one parent.

Two Parents, Non-Intact

The adolescent lives with two parents, but one or both of these parents is not a biological parent.

Sexual Assault

The adolescent answered yes to one or more of the following questions:

Sometimes a person may do sexual things to a young person that the young person doesn't want. These unwanted sexual things can happen to boys as well as girls and to young men as well as young women. People who try to do unwanted sexual things to young people are not always strangers but can be someone you know well like a neighbor, teacher, coach, counselor, boss, baby-sitter, minister or priest. They can even be a family member. People who try to make young people do unwanted sexual things aren't always men or boys – they can also be women or girls. I am talking about any experiences you've had where someone tried to make you do something sexual you didn't want to do, no matter who did it, how long ago it happened, or whether it was reported to police.

- Has a man or boy ever put a sexual part of his body inside your private sexual parts, inside your rear end or inside your mouth when you didn't want them to?
- Not counting any incidents you already told me about, has anyone, male or female, ever put fingers or objects inside your private sexual parts or inside your rear end when you didn't want them to?
- Not counting any incidents you already told me about, has anyone, male or female, ever put their mouth on your private sexual parts when you didn't want them to?
- Not counting any incidents you already told me about, has anyone, male or female, ever touched your private sexual parts when you didn't want them to?
- Not counting any incidents you already told me about, has anyone ever made you touch their private sexual parts when you didn't want them to?
- (Ask boys only): Not counting any incidents you already told me about, has a women or girl ever put your private sexual part in her mouth or inside her body when you didn't want her to?

Physically Abusive Pun.

The adolescent answered yes to one or more of the following questions:

Families have different ways of punishing young people if they think they have done something wrong. Some families spank young people as a form of punishment.

- Has a parent or some adult in charge of you ever spanked you so hard that you had to see a doctor because you were hurt so bad?
- Not counting any spanking incidents you have already told me about, has a parent or someone in charge of you ever spanked you so hard that you got bad marks, bruises, cuts or welts?
- Not counting any spanking incidents you already told me about, has a parent or someone in charge of you ever punished you by burning you, cutting you, or tying you up?

Household Income

Before taxes and other payroll deductions, would you say that the total 1994 income of all members of your household was: (from parent questionnaire)

- Less than $5,000 = 1
- $5,000 to $10,000 = 2
- $10,000 to $20,000 = 3
- $20,000 to $30,000 = 4
- $30,000 to $40,000 = 5
- $40,000 to $50,000 = 6
- $50,000 to $75,000 = 7
- $75,000 to $100,000 = 8
- More than $100,000 = 9

Parental Education

What is the highest grade or year of school that (you/head of household) completed?

- No formal schooling = 1
- First through 7th grade = 2
- 8th grade = 3
- Some high school = 4
- High school graduate = 5
- Some college = 6
- Four year college grad. = 7
- Some graduate school = 8
- Graduate degree = 9

Witnessed Violence (5-Item Scale, Alpha = 0.607)

Some young people tell us they have seen one person violently attack another person. By seeing a violent attack, we mean when you have actually seen someone beat up, rob, sexually assault, cut or stab with a knife, shoot at, actually shoot, or even kill another person. The people involved in the attack may have been strangers, friends, neighbors, or even family members. We would like to find out about any violent attacks you have actually seen, whether it happened at school, in your neighborhood, somewhere else, or even in your home. We mean seeing violent attacks in real life, not on TV or in movies.

0 = no; 1 = yes
- Have you ever seen someone actually shoot someone else with a gun?
- (Not counting any incidents you already told me about,) have you ever seen someone actually cut or stab someone else with a knife?
- (Not counting any incidents you already told me about,) have you ever seen someone being mugged or robbed?
- (Not counting any incidents you already told me about,) have you ever seen someone threaten someone else with a knife, a gun, or some other weapon?
- (Not counting any incidents you already told me about,) have you ever seen someone beaten up, hit, punched, or kicked such that they were hurt pretty badly?

Friends' Delinquency (10-Item Scale, Alpha = 0.819)

Have your friends ever: (0 = no; 1 = yes)
- Purposely damaged or destroyed property that did not belong to them?
- Used marijuana or hashish?
- Stolen something worth less than $5?
- Hit or threatened to hit someone without any reason?
- Broken into a vehicle or a building to steal something?
- Sold hard drugs such as heroin, cocaine, and LSD?
- Stolen something worth more than $50?
- Gotten drunk once in awhile?
- Sold or given alcohol to kids under 18?

Friends' Peer Pressure

Have your friends ever suggested you do something that was against the law?

- 1 = None of them or very few of them
- 2 = Some of them
- 3 = Most of them
- 4 = All of them

Children in Household

Number of children in the household under the age of 18.

Racial Categories

Consistent with procedures used in the collection of U.S. Census data (1990), adolescents' racial/ ethnic identification was assessed through the use of two questions. First, adolescents were asked if they were of Spanish/ Hispanic origin. Next, adolescents were asked if they fell in the category of White/Caucasian, African American (Black), Asian (Oriental), American Indian or Alaskan Native, or Pacific Islander. These two questions were used to classify individuals in the following manner:

- *White*: White/Caucasian, not of Hispanic origin
- *Black*: African-American (Black), not of Hispanic origin
- *Hispanic*: Any racial category, of Hispanic origin
- *Other*: Asian, American Indian or Alaskan Native, or Pacific Islander, not of Hispanic origin

Age

12–17 years

Male

0 = female; 1 = male

Social Support

Was there anyone throughout your whole childhood that you knew you could count on or depend on to be there when you needed them?

0 = no; 1 = yes

Early Deviance

Indicates adolescents who either began smoking regularly (at least one cigarette per day for 30 or more days) and/or began drinking regularly (five or more drinks per day) more than one year prior to their interview. This dummy variable was computed by subtracting the age at which they began regularly smoking and/or drinking from their age at the time of the interview.

0 = no; 1 = yes

Appendix B: Bivariate Correlations

Table A1. Bivariate Correlations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
(1) Serious delinquency	1.00																			
(2) Intact family	−.079*	1.00																		
(3) Single-parent family	.057*	−.741*	1.00																	
(4) Two par., nonintact	.042*	−.498*	−.212*	1.00																
(5) Sexual assault	.058*	−.107*	.065*	.069*	1.00															
(6) Physically abus. pun.	.105*	−.117*	.051*	.105*	.207*	1.00														
(7) Early deviance	.208*	−.101*	.090*	.031	.138*	.129*	1.00													
(8) Social support	−.053*	.067*	−.044*	−.040*	−.055*	−.118*	−.030	1.00												
(9) Witnessed violence	.228*	−.166*	.114*	.095*	.189*	.209*	−.242*	−.047*	1.00											
(10) Friends' delin.[a]	.201*	−.122*	.078*	.078*	.193*	.197*	.334*	−.046*	.459*	1.00										
(11) Friends' peer pr.[a]	.256*	−.105*	.070*	.063*	.115*	.160*	.263*	−.037*	.360*	.548*	1.00									
(12) Household income	−.024	.256*	−.211*	−.098*	−.079*	−.081*	−.026	.055*	−.117*	.036*	.004	1.00								
(13) Parental education	−.046*	.123*	−.057	−.105*	−.055*	−.055*	−.032*	.048*	.090*	−.002	.002	.442*	1.00							
(14) Child. in househld[a]	.012	.054*	−.051*	−.016	−.003	.019	−.039*	−.015	−.039*	−.106*	−.041	−.068*	−.040*	1.00						
(15) White	−.061*	.128*	−.110*	−.046	−.067*	−.086*	.056*	.048*	−.196*	−.039*	−.025	.260*	.148*	−.057*	1.00					
(16) Black	.016	−.134*	.128*	.028	.053*	.085*	−.086*	.005	.195*	.022	.025	−.211*	−.106*	.032*	−.621*	1.00				
(17) Hispanic	.051*	.001	.005	−.005	.028	.021	.011	−.050*	.071*	.037*	−.002	−.113*	−.104*	.044*	−.500*	−.136*	1.00			
(18) Other race	.030	−.052*	.018	.053*	.016	.014	.005	−.038*	.001	−.003	.014	−.050*	.001	.008	−.386*	−.105*	−.085*	1.00		
(19) Male	.062*	.036*	−.013	−.031*	−.182*	−.031	.014	−.052*	.117*	.053*	.127*	.025	.006	−.015	.027	−.014	−.021	−.005	1.00	
(20) Age	.076*	−.009	.027	−.021	.111*	.058*	.291*	.045*	.205*	.384*	.197*	.043*	.016	−.161*	.043*	−.027	−.010	−.029	.021	1.00

*p < .05 (two-tailed test).
a. Variable logged to reduce skewness.

Notes

1. Our argument is similar to that made by Sherman (1993) in reference to defiance in relation to the criminal justice system. In his work, Sherman argues that ''personal experiences with unfairness . . . may be the greatest spark of defiance'' (1993, p. 465). Of course, individuals can commit delinquency and crime as a reaction to unfairness or in defiance of people and situations other than the formal criminal justice system. This is the subject of our research.

2. Our measures of victimization are ''objective'' in nature, reflecting self-reports of acts of victimization. The data do not include ''subjective'' measures of victimization. In other words, we do not have information on the adolescents' perceptions of the severity of victimization or the extent of harm. As such, we cannot empirically determine if the conditions of an adverse family structure and family transitions reduce the relative perceived amount of harm from the instances of abuse. Consequently, we view our theoretical predictions not as an empirically testable theory, but as an ''orienting framework'' through which we can begin to develop a more thorough understanding of the interrelationships of family structure, family dynamics, and juvenile delinquency.

3. Obviously, our theoretical ideas do not represent the only perspective predicting differential vulnerability to strain, stress, and victimization. For example, most investigators in the stress literature argue that individuals facing the largest number of social and economic disadvantages will be most vulnerable to stressors such as negative life events (for a review see Thoits, 1995). However, evidence suggests that different groups of people appear to be vulnerable to different subgroups of stressors (Thoits, 1995). More research in this area is needed that examines a variety of types of stressors, outcomes, and moderating variables, and the current research project moves this agenda into the criminological field.

4. The highest possible value was truncated at 100 to avoid potential skewness by a few cases with large values for gang-fighting.

5. An ANOVA detects statistically significant differences in means across groups, but finding a significant overall *F* does not mean that each of the group means is significantly different from all others. The Sheffe method is a conservative post hoc test that allows the researcher to test any of the comparisons between particular groups to test for significant differences in means (Hays, 1994). For the current data, a significant *F* from the ANOVA indicates that the means are significantly different between at least two of the family structures. The Sheffe post hoc tests allow us to determine which of the types of family structure actually have means that differ from each other.

6. In testing interaction effects through subgroup analysis, an interaction is indicated if we are able to reject the null hypothesis of the equality of regression coefficients across two categories using *z*-tests. A *z*-score with an absolute value larger than 1.96 indicates a significant interaction at a *p*-value equal to or less than .05. The proper formula for this test, as described by Clogg, Petkova, and Haritou (1995) in the sociological literature and Paternoster, Brame, Mazerolle, and Piquero (1998) in the criminological literature is as follows: $z = (\beta_1 - \beta_2)/[s^2(\beta_1) + s^2(\beta_2)]^{1/2}$.

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The Authors

Ryan E. Spohn, PhD, is an assistant research professor for the Center on Children, Families, and the Law at the University of Nebraska–Lincoln and project evaluator for the Midwest Child Welfare Implementation Center. He received his PhD in sociology from the University of Iowa. Prior to moving to Nebraska, he was assistant professor of sociology and criminology at Kansas State University. His research interests include the areas of crime, juvenile delinquency, child maltreatment, social control, and quantitative research methods. Recent publications have appeared in *Sociological Spectrum, Victims and Offenders,* and *The Southwest Journal of Criminal Justice.*

Don L. Kurtz, PhD, LMSW, is an assistant professor of Social Work at Kansas State University. His research interests include juvenile delinquency, family aggression, police stress, and juvenile offender treatment practices. He is published in the *Journal of Research in Crime and Delinquency, Feminist Criminology,* and *Western Criminology Review* among others. Prior to earning his doctorate in Sociology, he was employed as a Social Worker in the juvenile probation.