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Understanding the Link Between Childhood Maltreatment and Violent Delinquency: What Do Schools Have to Add?

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Child maltreatment constitutes significant risk for adolescent delinquency. Although an ecological model has been proposed to explain this relationship, most studies focus on individual risk factors. Prospective data from 1,788 students attending 23 schools were used to examine the additive influence of childhood maltreatment, individual-level risk factors, and school-level variables assessed at the beginning of Grade 9 on delinquency 4 to 6 months later. Individual-level results indicated that being male, experiencing childhood maltreatment, and poor parental nurturing were predictors of violent delinquency. School climate also played a significant role: Given the same individual risk profile, a student attending a school that was perceived by students as safe was less likely to engage in violent delinquency than was a student attending a school perceived to be unsafe. Moreover, the impact of childhood maltreatment on risk for engaging in violent delinquency was somewhat mitigated by schools' participation in a comprehensive violence prevention program.

Keywords: *child maltreatment; school-based prevention; delinquency; multilevel modeling; adolescence; violence*

The link between experiencing child maltreatment and exhibiting delinquent behavior in adolescence has been well documented (see Kaplan, Pelcovitz, & Labruna, 1999; Malinosky-Rummell & Hansen, 1993). Similar to the relationship between child maltreatment and a range of other negative outcomes (e.g., substance use, suicidality, depression), the link is an imperfect one. Many youth who experience child maltreatment do not exhibit delinquency during adolescence, and, conversely, many adolescents who become delinquent did not experience maltreatment. There are many factors known to either buffer or exacerbate the risk conferred by child maltreatment. Although theorists generally agree that an ecological model is necessary for conceptualizing the various risk and protective factors that influence the link between maltreatment and subsequent adaptation (Belsky, 1993; Bronfenbrenner, 1979; Zielinski

& Bradshaw, 2006). studies are generally limited to the examination of variables at the individual and family levels. The schools in which youth are enrolled also likely play an important role, with some schools exerting a greater pull for prosocial behaviors in their students than others by virtue of schools' structure (e.g., size and location) and climate (i.e., the general environment of the school). Using data from 1,788 students across 23 schools, the current study employs multilevel data-analysis techniques to examine the additive contribution of these school-level variables to the relationship between childhood maltreatment and individual risk factors to adolescents' engagement in violent delinquency.

Child Maltreatment as a Risk Factor for Violent Delinquency

Adolescent engagement in violent delinquency is a major social concern because of the substantial associated psychological, physical, and economic costs. Accordingly, this concern has inspired a large body of literature on why youth engage in delinquent behaviors and how we can prevent them. Childhood maltreatment has been identified as one of the key predictor variables for adolescent violent delinquency. Although systematic reviews and meta-analyses have found variable effect sizes (likely because of methodological shortcomings in much of the research), there is a clear link between experiencing child maltreatment (particularly physical abuse) and violent behavior in adolescence and adulthood (Herrenkohl, Huang, Tajima, & Whitney, 2003).

The manner in which multiple experiences of victimization may increase the likelihood of negative outcomes has received increasing attention. The Adverse Childhood Experiences Study (Fellitti et al., 1998) utilized a sample of more than 8,500 adults accessed through a large HMO and found a dosage-response relationship between experiences of childhood maltreatment and a wide range of physical and mental health outcomes including heart disease, cancer, and liver disease. Similarly, multiple forms of abuse had a cumulative effect in predicting anger and hostility among a sample of 554 youth (Teicher, Samson, Polcari, & McGreenery, 2006). At the extreme end of the dosage continuum, some researchers and policy makers have contended that severe, early, chronic experiences of abuse and neglect may lead to the profound damage in psychological development that, in turn, sets the context for the perpetration of severe and lethal violence against others (Garbarino, 1999; Karr-Morse & Wiley, 1997).

Understanding Violent Delinquency Within an Ecological Framework

Since the 1970s, the importance of understanding individual adaptation within an ecological framework has been underscored (Bronfenbrenner, 1979). Simply put, individuals should be studied within the various contexts in which they function. In understanding the sequelae of child maltreatment for adolescents, a child's family, peers, and school community are important influences to consider (Zielinski & Bradshaw, 2006). There are two complementary facets to this framework. First, there are individual-level relationships within the various contexts that contribute to the development of delinquency, for example, adolescents' connections with parents, schools, and communities. Variables at this level are often assessed via reports from youth or from others (e.g., parents or teachers) about the youth. Second, contexts themselves may be contributors to outcomes. For example, beyond a youth's relationship to his or her family, the structure (e.g., number of family members, family mobility) and functioning (e.g., overall cohesiveness, antisocial norms) of the family itself may be important. For adolescents, a case can be made that school is the most pertinent contextual factor because peer groups have a growing influence while that of family wanes, and the school context is also more proximal than is the larger community context. Thus, individual schools may constitute additional risk for individual delinquency or, conversely, offer protection against other risk factors. It is this second set of variables involving the school as a potential agent of change that has been overlooked in the prediction of violent delinquency. The individual-level and school-level factors examined in this study are further elaborated here.

Individual-level relationships with family, school, and community have the potential to either exacerbate or mitigate early negative experiences (e.g., connection to school provides youth with opportunities to excel in and be recognized for prosocial behavior and academic achievement, whereas low school connectedness leaves youth vulnerable to bonding with other alienated youth). Similarly, the modeling that occurs in each of these spheres may reinforce early negative lessons about the efficacy of the use of violence and poor conflict resolution or, conversely, may offer new opportunities for youth to be rewarded for nonviolent conflict resolution.

Family process, as characterized by parenting practices, has a significant effect on adolescent outcomes. The coercive cycle that is typical of many maltreating families involves harsh and punitive parenting,

which leads to increasing hostility and aggression by their children, thus triggering more coercive responses by the parents (Patterson, Reid, & Dishion, 1992). For children who have been abused, a warm and positive relationship with an adult, such as the nonoffending parent, relative, or teacher, may serve as an important protective factor in overall adjustment and decrease the likelihood of delinquency (Finkelhor & Kendall-Tackett, 1997; Trickett, 1997; Wind & Silvern, 1994). Parental communication and monitoring have been identified as protective factors for delinquency for youth in general, not merely those who have been abused (Lavoie et al., 2002; Patterson & Yoerger, 1997).

School and community connectedness has recently emerged as a highly robust protective factor across a wide range of negative outcomes, such as delinquency, substance use, and suicidality (Blum & Ellen, 2002; Blum & Rinehart, 1998). Because school is the major extrafamilial environment in which children are exposed to unfamiliar peers and adults, school experience poses both a challenge to functioning and an opportunity to counter patterns that have been established within a maltreating family home environment. For example, low bonding and attachment to school is a predictor of violence in later adolescence (Herrenkohl et al., 2000); conversely, school connectedness is a protective factor against delinquency and similar problem behaviors (Jessor, van den Bos, Vanderryn, Costa, & Turbin, 1995). The beneficial impact of school for maltreated children is that it provides a structured environment and exposes children to a wider range of prosocial role models, who may serve an important supportive role for these children. Furthermore, the relationship is transactional in nature; youth who are more connected to prosocial institutions in turn are exposed to a multitude of opportunities to develop in prosocial ways, whereas those who are not connected become further and further marginalized, with ever-decreasing opportunities (Catalano & Hawkins, 1995).

The argument for studying school-level influences stems from the recognition that there is considerable variation in rates of problem behaviors across schools. In the same way that there are high-risk students, there are also high-risk schools in which students are pulled more toward antisocial behaviors. Much of the existing literature on school factors relates to problem behaviors associated (but not synonymous) with delinquency, such as drop-out rates and academic success or failure. In this literature, school location (urban vs. rural) and size have emerged as factors associated with rates of individual student success. For example, Rumberger and Thomas (2000) found that even

accounting for individual risk and demographic composition of the school, dropout rates are higher in urban than in rural schools and in large compared to small schools. Similarly, students have been shown to learn more in medium-sized schools (600 to 900 students) than in small or large schools, and the impact of school size may vary as a function of socioeconomic status (Lee & Smith, 1997). Although not predicting delinquency per se, these studies indicate the importance of school structure variables such as size and location.

Beyond the emphasis on school structure, school climate has been posited as a critical factor in the emergence of delinquency. In broad terms, the extent to which the general student body in a school feels safe and connected and values academic success may influence the development of problem behavior over and above individual risk factors. For example, school climate variables related to conflict and academic focus influenced student psychopathology (including internalizing and externalizing difficulties, substance use) among adolescents during a 2-year period (Kasen, Johnson, & Cohen, 1990). Furthermore, a student body that experiences low connection to school on average promotes the occurrence of delinquency, academic failure, and dropout (Sprague, Walker, Stieber, Nishioka, & Wagner, 2001; Tobin & Sprague, 2000). Some of this risk encompassed by school climate may relate to norms among peer groups. Indeed, research has shown that independent of a history of child maltreatment, youths' risk for violence is higher in the presence of other youth who reinforce and engage in violent acts (Battin, Abbott, Hill, Catalano, & Hawkins, 2000).

There is also the possibility of school-level influences on individual risk factors. That is, individual-level risk factors may differently operate as a function of each particular school's characteristics. Although typically absent from the maltreatment literature, these interaction effects between the two contextual levels have been examined in reference to general social and behavioral functioning. For example, Lambert, Abbott-Shim, and McCarty (2002) reported that the impact of maternal depression on children's social functioning was contingent on the tendencies of children's teachers to provide individual attention. There is a need to explore similar relationships in examining the link between child maltreatment and violent delinquency to truly capture the transactional nature of an ecological model.

Although there is a limit to the number of influences that can be investigated in any one study, advances in statistical methodology such as hierarchical linear modeling (HLM) facilitate the ability to

look at individual-level and school-level variables in one analysis. Furthermore, interaction effects between these two levels can be discerned. The current study addresses the prediction of violent delinquency with particular attention to the role of childhood maltreatment. First, childhood maltreatment was examined along with other individual-level risk factors as a predictor of delinquency. Next we explored the influence of school-level climate variables on delinquency over and above individual risk factors. Finally, the current study offered the rare opportunity to explore the interaction between individual- and school-level risk. Specifically, we were interested in whether the impact of childhood maltreatment on violent delinquency varied with characteristics of youths' schools.

METHOD

Participants

Students from 23 schools from one school district in southwestern Ontario participated in this study, with 1,897 (51.5% female) Grade 9 students generating usable surveys. The data reported in this study are part of a larger randomized control trial evaluation of a comprehensive school-based violence prevention program called *The Fourth R* (Wolfe, Crooks, Hughes, & Jaffe, 2005), in which schools were randomly assigned to either the intervention or the control condition. The intervention is conducted for 3 years (Grades 9, 10, 11), with an intensive curriculum component occurring in the 1st year and schoolwide components occurring all 3 years. The curriculum involves 21 classes (75 min each) addressing healthy relationships, violence (peer, dating, and bullying), sexual health, and substance use. There is an extensive skill-development component throughout the program that emphasizes the use of role play and other interactive methods to develop relationship skills (e.g., assertive communication, problem solving, peer-pressure resistance, negotiation). Schoolwide components include teacher training, parent information via newsletters and parent orientation events, and student-led safe school committees that develop events (e.g., media campaigns, guest speakers, school fairs, and drama presentations).

The data reported in this study were collected during the fall months of Grade 9 and again approximately 4 to 6 months later.¹ All Grade 9 students in each school were approached to participate in the study by a member of the research team. A research assistant explained the research component to each class and distributed information sheets and consent

and assent forms. Informed consent letters for their adolescent to participate in the research components were sent home to parents with students. Youth returned signed consent and assent forms to their teachers. A decision not to participate in the research or to withdraw from the research did not change the fact that the youth still received the intervention program (which has been adopted at the school level). The parent consent-youth assent rates for individuals across schools was 75%, with a combined return rate (yes-no) of 82%. There were no significant differences in consent rates of male and female students. Retention rate at posttest was 97% of the original sample ($n = 1,849$). Analyses in this article are based on 1,788 youth who had usable surveys and had complete information on delinquency.

Information about sample ethnicity was collected from the parents of participating students with a take-home questionnaire (return rate = 65%, $n = 1,225$). The majority of parents of students were born in Canada (81.0%, $n = 993$) and described themselves as White (88.0%, $n = 1,073$). The remaining parents were Asian Canadian (4.0%, $n = 50$), Arab Canadian (2.0%, $n = 22$), First Nation or Metis (0.9%, $n = 11$), African Canadian (0.7%, $n = 8$), Hispanic/Latino (0.6%, $n = 7$), or Other (3.0%, $n = 43$).

Measures and Procedures

Measures at the student level are described first, followed by school-level characteristics. Data reported for all predictor variables (except childhood maltreatment) were collected at the beginning of the school year. Violent delinquency and childhood history of maltreatment data were collected 4 to 6 months later. The Childhood Trauma Questionnaire (CTQ) was not collected at Time 1 largely because of space constraints in the survey. In light of the retrospective nature of the CTQ and the high test-retest reliability of the measure over a relatively short period, the collection of these data at Time 2 was not problematic. Student-level data were obtained via student surveys that were completed online during a 75-min class period in Grade 9 physical and health education. Trained research assistants administered the survey and answered any questions or concerns youth had while completing the questions. School-level variables were obtained from the Ontario Ministry of Education (i.e., academic literacy scores) or from the school board, as described.

Violent delinquency. Youth completed a delinquent behavior inventory developed by the National Longitudinal Survey of Children and Youth (Human Resources Development Canada, 2000-2001). Eight items were chosen to reflect engagement in violent

delinquency: (a) "fought with someone to the point where they needed care for their injuries," (b) "been in a fight where you hit someone with something other than your hands," (c) "carried a knife for the purpose of defending yourself or using it in a fight," (d) "carried a gun other than for hunting or target shooting," (e) "carried any other weapon such as a stick or club," (f) "threatened someone in order to get their money or things," (g) "tried to force someone to have sex with you," and (h) "set fire on purpose to a building, car, or something else not belonging to you." Youth who reported engaging in two or more of these behaviors were classified as violent delinquents ($n = 233$, 13.0% of the sample). By stipulating two forms of violent delinquency, we have omitted those youth who may have considered or dabbled in violent delinquency (i.e., carried a weapon in self-defense or carried a weapon but not used it). Youth classified in the violent delinquent group reported engaging in an average of 4.17 ($SD = 2.15$) of the possible 8 violent acts included on this list, compared to youth classified as nondelinquent, who on average had engaged in 0.14 ($SD = 0.35$) acts. Thus, the youth classified as delinquent in this study clearly represent a subset of adolescents engaging in alarming levels of violent behavior and are not those youth who have only participated in one anomalous incident of violent behavior.

Child maltreatment. Adolescents' experiences of maltreatment were assessed with the CTQ (Bernstein, Ahluvalia, Pogge, & Handelsman, 1997). The CTQ (short form) contains 35 items concerning the frequency (1 = *never true*, 5 = *very often true*) with which the respondent experienced emotional, physical, and sexual abuse and emotional neglect "while you were growing up." Youth were classified as having no or low versus moderate or severe experiences with each form of maltreatment on the basis of clinical cutoff groupings reported by Bernstein and colleagues (1997). The CTQ is a widely used measure of child maltreatment that has been shown to have strong psychometric properties. Additional items were added to the CTQ to assess youth witnessing of domestic violence. Youth were classified as having moderate or severe witnessing experiences if they reported repeated experiences of at least one of the following: "seeing one parent hit another so hard that it left bruises," "seeing one parent hit the other with a belt, board, cord, or some other hard object," or "having one parent hurt the other parent so badly that it was noticed by someone like a neighbor or friend." Based on these cutoffs, 20% of youth reported experiencing one form of childhood maltreatment; 10% reported experiencing two forms; and 4%, 3%, and 2% reported experiencing three,

four, and all five forms of childhood maltreatment, respectively. Students were coded for having experienced zero, one, two, or three or more types of maltreatment to form a continuous variable representing multiple forms of abuse.

Community connectedness. Community connectedness was measured using four questions that assessed youths' assets and involvement in positive community-based activities (e.g., volunteering) and their perceptions of mattering in their community (Murphey, Lamonda, Carney, & Duncan, 2004). Following the developers' use of the measure, youths' responses to each item were dichotomized and summed. Thus, the score reflects the number of youth assets rather than a scale per se. These assets have been shown to be independently and cumulatively related to a number of health and risk behaviors in adolescents (Murphey et al., 2004).

School connectedness. Youth connectedness to their schools was measured using the Psychological Sense of School Membership Scale (PSSM; Goodenow, 1993). The scale has 18 items that measure a youth's perceived feelings (*not at all true to completely true*) of acceptance, inclusion, respect, and encouragement for participation at school. Each item asks youth to rate an item related to school connectedness, such as "I feel a part of this school" and "Most teachers at this school are interested in me" on a 5-point Likert-type scale. Item scores are summed to yield a total score of school connectedness. The PSSM has good reported psychometric properties (Hagborg, 1994). Internal reliability was high ($\alpha = .88$) in the current sample.

Parenting. The 20-item parenting questionnaire measured youths' perceptions about their parents' nurturance ("praise me," "seem proud of the things I do"), rejection ("get angry and yell at me"), and monitoring ("tell me what time to be home when I go out") during the past 3 months (Human Resources Development Canada, 2000-2001). Items range from a score of 1 (*never*) to 5 (*always*), and items within each subscale are summed to form a total score. Internal consistency was high for the nurturing ($\alpha = .89$) and rejection ($\alpha = .70$) subscales but moderate for the monitoring subscale ($\alpha = .63$).

School size and location. Schools were classified as small if they had fewer than 600 students ($n = 6$), medium if they had between 601 and 1,000 students ($n = 9$), and large if they had more than 1,000 students ($n = 8$). Schools were coded as to whether they were located in an urban ($n = 9$) or small town or rural ($n = 14$) area.

