

CHILDHOOD RISK FACTORS FOR ADOLESCENT GANG MEMBERSHIP: RESULTS FROM THE SEATTLE SOCIAL DEVELOPMENT PROJECT

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Adolescents who join gangs are more frequently involved in serious delinquency compared with those who do not, yet few studies have conducted a prospective examination of risk factors for gang membership. The present study uses longitudinal data to predict gang membership in adolescence from factors measured in childhood. Data were from the Seattle Social Development Project, an ethnically diverse, gender-balanced sample (n = 808) followed prospectively from age 10 to 18. Logistic regression was used to identify risk factors at ages 10 through 12 predictive of joining a gang between the ages of 13 and 18. Neighborhood, family, school, peer, and individual factors significantly predicted joining a gang in adolescence. Youth exposed to multiple factors were much more likely to join a gang. Implications for the development of gang prevention interventions are discussed.

Youth violence, property crime, and substance abuse result in enormous monetary, social, and personal costs. These and other criminal acts have been consistently linked to gang membership (Howell 1997). Thus, it is important

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to learn why youth join gangs and how to interrupt this process. The present study uses longitudinal data to predict gang membership in adolescence, from neighborhood, family, school, peer, and individual factors measured in childhood.

Gang members are more likely than nonmembers to commit violent offenses and property crime and to use drugs (Spergel 1995; Thornberry 1998). Bjerregaard and Lizotte (1995) found that, when compared with nongang members, gang members were more than twice as likely to carry a gun and to engage in serious delinquency and more than three times as likely to engage in drug sales. Similarly, Esbensen and Huizinga (1993) found measures of drug sales and use, as well as serious and minor delinquency, to be substantially higher for gang members than nongang members. Battin et al. (1998) found that gang membership contributed to criminal behavior over and above the contribution of having delinquent peers. The relationship between gang membership and crime is robust and has been reported in virtually all studies of gang behavior in the United States regardless of historical period, methodology and design, or sample (Howell 1997).

It is imperative to learn why youth join gangs to better understand how to prevent them from joining gangs, but this question has not been well studied. The first gang theorists viewed gang delinquency as a result of social disorganization, endemic to slum areas (Shaw and McKay 1931, 1942; Thrasher [1927] 1963). One outgrowth of this line of reasoning was control theory, suggesting that entry into deviant peer groups is a function of a lack of social control experienced by youth (Hirschi 1969). Deviant groups such as gangs also have been viewed as the context for differential association through which criminal behaviors are learned (Sutherland and Cressey 1978). Other theorists described delinquent subcultures within the lower- and working-class communities (Cohen 1955; Cohen and Short 1958) that the earlier Chicago theorists believed to be the origin of gang formation. Miller (1958) suggested that youth who engage in gang delinquency are behaving in a manner consistent with lower-class culture. Finally, strain theorists suggested that delinquency and gang involvement arise as an adaptation to structural pressures: blocked conventional opportunities lead to frustration, which leads to antisocial acts and the pursuit of gain through illegitimate opportunities (Cloward and Ohlin 1960). Recent contributors to gang theory have revived the social disorganization tradition (Bursik and Grasmick 1993; Spergel and Curry 1993), often embedding it in the underclass concept of social disadvantage and economic inequality (Fagan 1996; Short 1996; Wilson 1987, 1996).

RISK FACTORS FOR GANG MEMBERSHIP

Reviews of the last 30 years of longitudinal research have identified a number of predictors of delinquency and violence (Hawkins et al. 1998; Lipsey and Derzon 1998; Loeber et al. 1991) and substance abuse (Hawkins, Arthur, and Catalano 1995; Hawkins, Catalano, and Miller 1992; Simcha-Fagan, Gersten, and Langner 1986). Although delinquency, violence, and substance abuse are not synonymous with gang membership, predictors of these behaviors provide a starting point for examining the predictors of gang membership. These predictors of delinquency, violence, and substance abuse are summarized in Table 1.

Several of the factors in Table 1 have been found to distinguish gang from nongang members in cross-sectional studies (see Howell 1997). These include neighborhood factors such as availability of drugs (Curry and Spergel 1992, Hagedorn 1988, 1994a, 1994b), family factors such as poor family management and low bonding to family (Adler, Ovando, and Hocevar 1984; Bowker and Klein 1983; Friedman, Mann, and Friedman 1975; Maxson, Whitlock, and Klein 1998), school factors such as low commitment to school (Bowker and Klein 1983; Maxson et al. 1998), peer factors such as association with delinquent peers (Fagan 1990; Maxson et al. 1998; Vigil and Yun 1990), and individual factors such as fewer conventional beliefs (Fagan 1990) and positive attitudes about gang membership (Friedman et al. 1975).

Moore (1978, 1991) retrospectively examined family histories of gang members, although without the benefit of a comparison group. Gang members reported frequent conflict and abuse among their parents, child abuse, family member alcoholism and drug addiction, and family trouble with the police.

To date, only two longitudinal studies have reported prospective data on gang participation: the Rochester Youth Development Study (Bjerregaard and Smith 1993; Lizotte et al. 1994; Thornberry et al. 1993) and the Denver Youth Survey (Esbensen and Huizinga 1993; Esbensen, Huizinga, and Weiher 1993). In the Rochester Study, Bjerregaard and Smith (1993) examined factors associated with gang membership using waves two and three of their study (covering ages 13 to 15) and found substantial similarity among males and females in the risk factors associated with gang participation. They found that, in Rochester, neither social disorganization nor poverty was significantly related to gang membership. However, they acknowledged that because the study oversampled high-risk youth, the range of the social disorganization variables was limited. Having low expectations for completing school significantly predicted gang membership among females but not among males. Having delinquent peers was significant for both groups.

TABLE 1: Summary of Risk Factors for Delinquency, Violence, and/or Substance Abuse from Prior Cross-Sectional and Longitudinal Studies

Community risk factors
Extreme poverty ^{SDVC}
Disorganized neighborhoods ^{SDVC}
Low levels of attachment to the neighborhood ^{SDV}
High rates of mobility ^{SD}
Availability of firearms ^{VL}
Availability of drugs ^{SVC}
Community norms favorable toward antisocial behavior ^{SDVC}
School risk factors
Academic failure ^{SDVC}
Low degree of commitment to school ^{SDVLC}
Family risk factors
Family history of problem behavior ^{SDVLC}
Poor family management practices ^{SDV}
High levels of family conflict ^{SDVC}
Favorable parental and sibling attitudes toward antisocial behavior ^{SDVL}
Family poverty ^{SDVLC}
Individual and peer risk factors
Constitutionally based risk factors (low autonomic arousal, sensation-seeking) ^{SDV}
Early and persistent antisocial behavior ^{SDVLC}
Favorable attitudes toward antisocial behavior ^{SDC}
Association with peers who engage in problem behavior ^{SDVLC}

NOTE: S = Predictive of substance abuse in prior longitudinal studies, D = Predictive of delinquency in prior longitudinal studies, V = Predictive of violence in prior longitudinal studies, L = Predictive of gang membership in prior longitudinal studies, C = Distinguish gang members from nongang members in prior cross-sectional studies.

Neither attachment to parents nor family supervision was a significant predictor of later gang membership. Low self-esteem also was unrelated to gang membership. Early sexual activity was significantly related to gang membership for both sexes, and the association was significantly stronger for females than for males. These analyses may be somewhat confounded, however, by the fact that the predictors were drawn from wave two of their study, whereas gang membership was a measure that combined waves two and three. Thus, clear statements as to whether these factors were predictors or consequences of gang membership are difficult to make from these analyses.

In the Denver sample, Esbensen et al. (1993) examined differences at wave three of their study (males and females, ages 11 to 17) for those youth who were either gang members, nongang street offenders (committed rape, robbery, or aggravated assault), or neither at wave four (ages 12 to 18). Compared with nonoffenders, both gang members and nongang street offenders

reported (1) higher levels of commitment to delinquent peers; (2) lower commitment to positive peers; (3) higher levels of normlessness in the family, peer group, and school context; (4) more negative labeling by teachers; and (5) higher tolerance for criminal activity on the part of their peers. However, no differences were observed among the three groups with respect to social isolation, perceived limited opportunities, and self-concept measures. The only factor that distinguished gang members from street offenders was that gang members reported significantly more negative labeling by their teachers. Esbensen and his colleagues found no differences among the three groups in their involvement in a range of activities (including school-year job, summer job, attending school, school athletics, school activities, community athletics, community activities, and religious activities). They suggested that this finding calls into question the assumption that getting youth involved in such activities will prevent or reduce gang involvement.

These studies provide an important base for examining the predictors of gang membership. However, a limited number of possible predictors of gang membership have been studied, and these have been limited to factors either just prior to or during the typical period for initiation of gang membership. The extent to which childhood experiences during the elementary grades predict adolescent gang membership has not been examined longitudinally. The present study examines prospectively a range of childhood predictors of adolescent gang membership.

METHOD

Sample

Seattle has been characterized as an "emerging gang city" (Spergel and Curry, 1993); however, little empirical research has documented the nature or extent of gang membership in Seattle. Self-reported studies conducted in the 1970s and 1980s found that the proportion of gang members in Seattle youth populations studied ranged from 10 percent (Hindelang, Hirschi, and Weis 1981) to 13 percent (Sampson 1986).

The present study examines predictors from ages 10 to 12 of joining a gang between ages 13 and 18, using longitudinal data from the Seattle Social Development Project (SSDP). Data are from a multiethnic sample of males and females followed prospectively from 1985, when participants were in the first semester of the fifth grade (age 10), to 1993, when participants were 18 years of age. Data on gang membership were collected annually starting with

the age 13 survey. The sample consists of 808 fifth-grade students attending 18 elementary schools serving high crime neighborhoods of Seattle in the fall of 1985. To select the schools, we met with members of the Seattle Police Department to review neighborhood crime statistics and then approached the feeder-elementary schools for those neighborhoods with higher crime rates. The 18 elementary schools represented approximately 25 percent of the total number of elementary schools in Seattle at that time. The 808 who consented to participate in the longitudinal study represent 77 percent of the population of fifth graders in these schools serving high-crime neighborhoods. Of the 808 students, 396 (49 percent) were female, 372 (46 percent) were European American, 195 (24 percent) were African American, 170 (21 percent) were Asian American, 45 (2 percent) were Native American, and the remaining 26 students were of other ethnic backgrounds (primarily Hispanic). A substantial portion of subjects were from low-income households. Median annual family income in 1985 was approximately \$25,000. Forty-six percent of parents reported a maximum family income of less than \$20,000 per year, and more than half of the student sample (52 percent) had participated in the National School Lunch/School Breakfast Program at some point in the fifth, sixth, or seventh grade, indicating that they came from families living in poverty.

Assessments

Data were obtained from multiple sources, including the youth, their parents or adult caretakers, teachers, school records, and King County court records. Data were collected in 1985 when most participants were 10 years old ($M = 10.3$, $SD = .52$) and then in the spring of each year through 1991. Data for the present study were collected again in the spring of 1993 when most subjects were 18 years old and those progressing normally in school were graduating from high school. In Grades 5 and 6, surveys in project schools were group-administered questionnaires completed in class. Youth who left project schools were individually interviewed. Starting in 1988, all students were individually interviewed in person. The interviews asked for the youth's confidential responses to a wide range of questions regarding family, community, school, and peers, as well as their attitudes and experiences with gangs, alcohol, drugs, drug selling, violence, weapon use, delinquency, and victimization. The interviews took about one hour. Early in the study youth received a small incentive (e.g., an audiocassette tape) for their participation; later they received monetary compensation. Participation rates were high; 94 percent of the sample (757 participants) completed the age 18

assessment in 1993. School, police, and court records were obtained from 1985 through 1993. In addition, adult caretakers (83 percent of whom were the subject's mother) were interviewed at recruitment in the fall of fifth grade (age 10) and annually each spring from 1986 through 1991.

Constructs

Gang membership was the primary outcome variable for these analyses. It was measured from age 13 to 18 by the question, "Do you belong to a gang?" followed by "What is the name of the gang?" to distinguish gangs from informal peer groups. Gang questions were not asked of the youth prior to age 13. Youth who reported that they were a member of a gang and could provide a name were coded as belonging to a gang during that wave. The most commonly named gangs were the Bloods, the Crips, and the Black Gangster Disciples. The use of self-report to determine gang membership has been used and advocated in similar gang studies and by gang researchers (Bjerregaard and Smith 1993; Esbensen and Huizinga 1993; Hindelang et al. 1981; Klein 1995; Sampson 1986; Savitz, Rosen, and Lalli 1980; Thornberry et al. 1993).

Risk factors for gang membership. Predictors were measured at ages 10 through 12. For continuous measures, the mean of the age 10 through age 12 values was used. For the categorical predictors of family structure and learning disabled, the fall 1985 values were used. Family structure was obtained from in-depth living calendars completed by the parents. Five categories were constructed: two parents (biological or adoptive) in home, one biological parent and one stepparent, one parent alone, one parent living with other adults, and no parents in the home. To investigate the possibility that possible strains associated with blended families might lead to higher probability of child problems, families with a stepparent were tested separately from other two-parent families. Furthermore, to represent the concept of risk exposure, all predictor variables were dichotomized, where one represented being in the highest quartile of risk on that predictor and zero represented the remainder, following Farrington (1989, 1998). A list of these predictors and the indicators that operationalized them is provided in the appendix.

For the present analyses, we sought to operationalize the constructs summarized in Table 1 using data available on the sample at ages 10 through 12. Some predictors of interest were not measured at these ages (e.g., community norms favorable to antisocial behavior, low autonomic arousal, sibling involvement in gangs), although they were measured in later waves of the study. Because the present study examines the childhood predictors of

adolescent gang membership, predictors added in the adolescent interviews were not included in this analysis.

Several potential predictors were included in the analysis that have not been confirmed as risk factors for substance use, delinquency, or violence. Their addition was guided by the social development model, the theory that guides the Seattle Social Development Project (Catalano and Hawkins 1996). The number of youth in trouble in the neighborhood was added to examine the impact of neighborhood opportunities for antisocial involvement. Bonding to family was added to examine its impact, family structure was included to examine its contribution, and religious service attendance was included to examine the contribution of this form of involvement in pro-social activities.

Analysis

Logistic r and odds ratios. All regressions were prospective in design, predicting joining a gang between the ages of 13 and 18 from constructs assessed at ages 10 through 12. Given the dichotomous nature of the dependent variable, gang membership during adolescence, logistic regression was used.

Farrington (Loeber, Farrington, Stouthamer-Locker, and Van Kammen 1998) has shown that correlational measures such as the product-moment correlation, or the logistic r , give a misleading impression of predictive efficiency because they are greatly affected by the base rates of the predictors and outcomes such that the maximum correlation is often much less than 1.0. After reviewing a variety of alternatives, Farrington concluded that the odds ratio is a preferred way of presenting predictive efficiency because it is not affected by sample size, changes in base rates, or other factors. Thus, two strategies were used in the bivariate logistic regressions: First, each regression was run using the continuous measure of the predictor and the logistic r and significance were recorded. Next, each regression was run using a dichotomized high-risk quartile measure of the same predictor and the logistic r , significance, and odds ratio for gang initiation in the high-risk group were recorded. To identify childhood predictors of adolescent gang membership, separate bivariate logistic regressions were run for each potential predictor.

Effect of exposure to multiple risk factors. To obtain an assessment of the effects of exposure to multiple risk factors in childhood on later gang membership, an index was created that counted the number of significant risk factors to which each youth was exposed. Respondents were then divided into four approximate quartiles on their level of risk exposure and a logistic

regression was run on this categorical measure of number of risk factors and adolescent gang membership, with each successive level of risk compared to the quartile of lowest risk.

RESULTS

Gang prevalence. Cumulatively, 15.3 percent of the sample self-reported ever belonging to a gang between the ages of 13 and 18. Membership peaked at age 15 (6 percent), with about equal percentages (almost 5 percent) reporting gang membership at ages 14, 16, and 18. The prevalence of gang membership was much higher among males (21.8 percent) than among females (8.6 percent). Twenty-six percent of African American adolescents in the sample, 12 percent of Asian American youth, 10 percent of European American youth, and nearly 20 percent of other groups, primarily Native Americans, reported having belonged to a gang. These data are summarized in Table 2. Although African American youth were more likely than other ethnic groups to join gangs, they constituted a minority of the sample who became gang members.

Gang membership by risk. The last column of Table 3 presents the odds ratio for gang membership at ages 13 to 18 associated with being in the worst quartile on each of the predictors at ages 10 to 12. In addition, columns 3 and 4 in Table 3 show the prevalence of gang membership for those in the worst quartile on each predictor and for the remainder of the sample, respectively. For example, 29.7 percent of those reporting the greatest availability of marijuana at ages 10 to 12 became gang members compared with 10.6 percent of those who reported that marijuana was less available in their environments at ages 10 to 12.

Table 3 also presents the logistic r for the dichotomized predictors. Logistic regressions also were conducted using the full continuous predictors where available. These analyses provided similar logistic r s and significances to their dichotomized counterparts, although occasionally the continuous predictor logistic r was stronger. These results are not tabled. Twenty-one of the 25 constructs measured at ages 10 to 12 predicted joining a gang at ages 13 to 18. Predictors of gang membership were found in all domains measured.¹

Neighborhood-level predictors. Youth from neighborhoods in the top quartile of availability of marijuana had more than three times greater odds of joining a gang than those from other neighborhoods (odds ratio [OR] = 3.6).

TABLE 2: Gang Involvement by Gender and Ethnicity (total $N = 808$)

		Number (and column percentage of category) Who Have Ever Belonged to a Gang by Age 18					
Gender		Ethnicity					
Female	Male	European American	African American	Asian American	Other	Total	
Yes	34 (8.6)	90 (21.8)	38 (10.2)	51 (26.2)	21 (12.4)	14 (19.7)	124 (15.3)
No	362 (91.4)	322 (78.2)	334 (89.8)	144 (73.8)	149 (87.6)	57 (80.3)	684 (84.7)
							808 (100)

NOTE: Other consists primarily of Native Americans.

Similarly, youth from neighborhoods in which many young people were in trouble had three times greater odds of joining a gang than youth from other neighborhoods (OR = 3.0). Level of attachment to the neighborhood was less strongly related to gang membership (OR = 1.5).

Family-level predictors. Family structure predicted gang membership. When compared with youth living with two parents (either biological or adoptive), youth living with one parent (OR = 2.4), youth from homes with one parent and other adults (OR = 3.0), and youth with no parents in the home (OR = 2.9) had greater odds of joining a gang. Youth from families with one biological and one stepparent were not significantly more likely than youth living with two parents (biological or adoptive) to become gang members.

Parental attitudes favorable to violence when youth were between the ages of 10 and 12 also predicted later gang membership (OR = 2.3), as did sibling antisocial behavior (OR = 1.9) and poor family management practices (OR = 1.7). Gang membership in adolescence was not significantly predicted by parental drinking or attachment to parents at ages 10 to 12. Logistic regressions were run separately for attachment to mother and attachment to father, and results were not significant (not shown in Table 3).

School-level predictors. School-related variables at ages 10 to 12 also predicted later gang membership. These included being identified as learning disabled (OR = 3.5), poor academic achievement as assessed by standardized test scores (OR = 3.1), low attachment to school (OR = 2.0), low commitment to school (OR = 1.8), and low educational aspirations (OR = 1.6).

Peer-level predictors. Friends engaged in problem behaviors, as assessed by how many of the youth's three best friends at ages 10 to 12 did things that got them in trouble with the teacher or had tried alcohol without their parents'

TABLE 3: Risk Factors at Ages 10 to 12 for Adolescent Gang Membership and Observed Gang Prevalence and Odds Ratios for Those at Risk in Childhood

Potential Childhood Risk Factor	1	2	3	4	5
		Logistic r^a	Observed Adolescent Gang Prevalence for Those at Low Risk on Each Factor (percentage) ^b	Observed Adolescent Gang Prevalence for Those at High Risk on Each Factor (percentage) ^b	Odds Ratio for Those at High Risk
Neighborhood					
Availability of marijuana		.23***	10.6	29.7	3.6
Neighborhood youth in trouble		.21***	10.4	26.4	3.0
Low neighborhood attachment		.05*	13.8	19.5	1.5
Family					
Poverty: low household income		.12***	12.7	23.3	2.1
Family structure					
Two parents (biological or adoptive) at home ($n = 279$) ^c					
One biological parent; one stepparent ($n = 71$)		.00(ns)	10.0	12.7	1.3
One parent only ($n = 143$)		.12**	10.0	21.0	2.4
One parent and other adults ($n = 44$)		.11**	10.0	25.0	3.0
No parents in home ($n = 33$)		.08*	10.0	24.2	2.9
Parent drinking		.00(ns)	15.3	15.2	1.0
Sibling antisocial behavior		.10**	12.8	21.7	1.9
Poor family management		.07*	13.5	20.6	1.7
Parent provolent attitudes		.13***	13.2	25.7	2.3
Low attachment to parent(s)		.04(ns)	13.3	20.1	1.5

School						
Low academic aspirations	.06*	13.8	19.9	1.6		
Low school commitment	.09**	13.3	21.4	1.8		
Low school attachment	.12**	12.8	23.0	2.0		
Low academic achievement in elementary school	.20***	11.1	27.6	3.1		
Identified as learning disabled (<i>n</i> = 62)	.16***	13.6	35.9	3.6		
Peer.						
Association with friends who engage in problem behaviors	.09**	13.2	25.8	2.0		
Individual						
Religious service attendance	.00(<i>ns</i>)	15.3	15.3	1.0		
Antisocial beliefs	.11***	13.1	22.7	2.0		
Respondent drinking	.05*	13.8	20.1	1.6		
Respondent marijuana initiation (<i>n</i> = 60)	.16***	13.6	36.7	3.7		
Violence	.20**	11.4	28.4	3.1		
Personality/individual difference						
Externalizing	.17***	12.0	26.4	2.6		
Internalizing	.03(<i>ns</i>)	14.1	18.8	1.4		
Hyperactive	.09**	13.4	21.3	1.7		
Poor refusal skills	.08*	14.2	22.7	1.8		

NOTE: *ns* = nonsignificant.

a. Median *n* for bivariate logistic regressions = 786.

b. At risk is defined as being in the worst quartile on the risk factor. For the categorical predictors of family structure, learning disabled, and marijuana initiation, the *n* for the category is provided.

c. Logistic regressions for family structure compare each subsequent family structure category against the first category (two parents, biological or adoptive, in household).

p* < .05. *p* < .01. ****p* < .001.

knowledge, was significantly associated with later gang membership (OR = 2.0).

Individual-level predictors. At ages 10 to 12, having tried marijuana (OR = 3.7) and self-reported violence as assessed by fighting, throwing objects, and hitting a teacher (OR = 3.1) were predictive of gang membership at ages 13 to 18. Youth high in externalizing behavior as rated by fifth- and sixth-grade teachers had more than two times greater odds of joining a gang as compared with other youth (OR = 2.6). Other significant individual-level predictors included rejection of conventional beliefs (OR = 2.0), poor refusal skills (OR = 1.8), hyperactivity as rated by fifth- and sixth-grade teachers (OR = 1.7), and early initiation of drinking (OR = 1.6). Religious service attendance at ages 10 to 12 did not significantly predict gang membership in adolescence.

Interactions of risk factors with gender. The differential impact of each risk factor on males and females was examined by conducting logistic regressions on the full sample entering each risk factor along with gender and the Factor \times Gender interaction term (results not tabled). Results indicated substantial similarity among males and females in the risk factors associated with gang participation: Only the Family Structure \times Gender interaction term was significant, such that the effect of single-parent households on subsequent gang membership was stronger for girls than it was for boys.

The impact of multiple risk factors. To assess the impact of exposure to multiple risk factors in childhood on later adolescent gang membership, an index was created that counted the number of significant risk factors to which each youth was exposed. Because 21 significant predictors of gang membership were found, scores could range from 0 to 21. Actual scores ranged from 0 to 19, divisible into approximate quartiles of youth exposed to 0 to 1 risk, 2 to 3 risks, 4 to 6 risks, and 7+ risks. A logistic regression was run on this categorical measure of risk factor exposure and adolescent gang membership, with each level of risk compared to the base 0 to 1 risk. These results are presented in Table 4. Note that for each successive quartile of risk the odds of joining a gang approximately doubled, such that those youth with exposure to 7 or more risks in elementary school had more than 13 times greater odds of joining a gang than those exposed to 0 to 1 risk. The fact that exposure to more risks increased the odds of gang membership suggests that, in spite of possible covariation among these factors, each of these significant factors contributed to overall risk for gang membership.

TABLE 4: Odds Ratios for Adolescent Gang Membership for Numbers of Risk Factors Experienced at Ages 10 to 12

Level of Risk at Ages 10 to 12		n	Observed Adolescent Gang Prevalence (percentage)	Odds Ratio ^a
No risk	0 to 1 risk factors	148	3.4	
Low risk	2 to 3 risk factors	219	9.6	3.0***
Medium risk	4 to 6 risk factors	235	14.0	4.7***
High risk	7+ risk factors	206	31.6	13.2***
Total		808		

NOTE: Odds ratios for each category are in comparison to the first category (no risk); $N = 808$.

a. Odds ratio for joining a gang compared to no-risk category (0 to 1 risk).

*** $p < .001$.

DISCUSSION

Logistic regression was used to identify risk factors at ages 10 through 12 predictive of joining a gang between the ages of 13 and 18. Factors from every domain of children's experience—the neighborhood, family, school, peer, and individual—significantly predicted joining a gang in adolescence. The strongest predictors at ages 10 to 12 were the availability of marijuana in the neighborhood, many neighborhood youth in trouble, living with one parent and another nonparent adult in the home, having initiated marijuana use, having engaged in violence, low academic achievement, and being identified as learning disabled in school; all of the predictors had odds ratios between 3 and 4 for those youth with these characteristics. Note that the present analyses assess the independent childhood predictors of later gang membership. Multivariate models testing specific theoretical hypotheses using time-varying predictors would be a reasonable next step.

Some of these results replicate predictors identified in previous longitudinal studies of gang membership (family structure and poverty, low academic aspirations, delinquent peers, prior delinquency, and alcohol and drug use). The present results indicate that these factors predict later gang membership from as early as ages 10 to 12. In addition, this study identified factors previously unstudied in longitudinal analyses that predicted gang membership, including living in a neighborhood in which many youth are in trouble and drugs are available, sibling antisocial behavior, poor family management practices, parent proviolent attitudes, low attachment and commitment to

school, being identified as learning disabled, being rated by teachers as high on externalizing behavior and hyperactivity, and having poor refusal skills.

Analyses of the effect of exposure to multiple risk factors indicated that exposure to a greater number of risk factors in childhood greatly increased the risk of joining a gang in adolescence. These findings support intervention strategies that target youth in neighborhoods, families, or schools exposed to multiple risk factors.

At the community level, the strongest measured predictors of gang membership were the availability of marijuana and the number of neighborhood youth in trouble, supporting cross-sectional results reported by Spengel and Curry (1993). These findings suggest that prevention efforts that reduce opportunities for antisocial involvement in the neighborhood may help in reducing later gang membership.

Family composition (one parent in the home versus two) and poor family management significantly predicted gang membership, whereas attachment to mother or father did not. These results support findings from Decker and VanWinkle's (1996) ethnographic interviews of gang members who, although they were more likely to come from single parent homes, would choose their family over the gang if forced to choose. It does not appear from these data that gangs provide new families for children who have failed to bond to their own families. Helping parents to develop skills to better manage their children may reduce risks for gang membership, particularly for girls.

Sibling antisocial behavior and parents' proviolent attitudes also predicted later gang membership. Intervention efforts may be directed productively at these family influences toward gang membership. If preventing gang membership is a goal, preventive intervention efforts to reach the younger siblings of delinquent adolescents are clearly supported by the present data, as are parent-focused interventions that encourage parents to adopt and express nonviolent solutions to problems and conflict situations.

These data show the importance of elementary school experiences in predicting later gang membership. Poor school achievement, attachment, commitment, and aspirations at ages 10 to 12 all predicted later gang membership, as did being identified as learning disabled in elementary school. These results suggest that elementary schools that increase academic success for all students can reduce the risk that their students will later join gangs.

Note that involvement in the form of religious service attendance at ages 10 to 12 was not a significant predictor of later gang membership. This finding is interesting given the mixed findings on participation in religious activities in preventing delinquency in adolescence (Bainbridge 1989; Benda

1995; Cochran, Wood, and Arneklev 1994; Evans et al. 1996; Fernquist 1995; Free 1994; Hirschi and Stark 1969; Maxson et al. 1998).

Research by Moffitt (1993) and Bartusch et al. (1997) highlights the importance of childhood delinquency in initiating a pattern of life course persistent antisocial behavior. Furthermore, recent analyses by Hawkins et al. (1997) found that an early age of initiation of alcohol mediated almost all other early risk factors for alcohol abuse at age 18. These studies, coupled with the present finding that early initiation of problem behaviors such as violence and marijuana use predicted later gang membership, highlight the importance of preventing or delaying initiation of such behaviors well before most youth join gangs.

Overall, gang membership appears to result from antisocial influences in neighborhoods, families, and peer groups; failure to become successfully engaged in school; and early initiation of problem behaviors. These findings provide guidance for gang prevention. We should not wait until adolescence to begin gang prevention efforts: The present results suggest that preventive interventions in the elementary grades could have a significant impact on adolescent gang membership. Moreover, these findings highlight the importance of multiple-component prevention strategies addressing risks across several domains.

APPENDIX

Item List for Measures of Predictors of Gang Membership

DEMOGRAPHICS

Gender (youth interview)

- Female, Male

Ethnicity (youth interview)

- Asian American, African American, European American, Other (primarily Native American)

NEIGHBORHOOD

Availability of marijuana (youth interview)

- Do you know anyone who has tried marijuana?
- Have you ever had a chance to try marijuana?

- If you had the money, and wanted to get marijuana, do you think you could get some?

Neighborhood youth in trouble (youth interview)

- Lots of kids in my neighborhood are in trouble.

Low neighborhood attachment (youth interview)

- I know many people in my neighborhood.
- I like my neighborhood.
- I feel safe in my neighborhood.

FAMILY

Poverty (parent interview)

- Approximately what is your family's total yearly income before taxes?

Family structure (parent interview)

The variety of family structures in the sample were combined into the following five categories:

- both parents (biological or adoptive) at home,
- one biological parent and one stepparent,
- one parent alone,
- one parent with other adults living in home, and
- other adults only (no parents).

The last four family structures were each compared with the case in which the child had both parents (biological or adoptive) at home.

Parent drinking (parent interview)

- How often do you drink beer, wine, or liquor?
- If you are living with a spouse or partner, how often does your spouse or partner drink beer, wine, or liquor?

Sibling antisocial behavior (youth interview)

- If you have brothers and sisters, do any of them smoke cigarettes?
- Do any of your brothers or sisters smoke marijuana?
- Have any of your brothers and sisters ever been suspended from school?
- Have any of your brothers or sisters ever been picked up or arrested by the police?

Poor family management (youth interview)

- When you are away from home, do your parents know where you are and who you are with?
- The rules in my family are clear.

Parent proviolent attitudes (youth interview)

- How do you think your parents feel (or would feel) about you hitting or threatening to hit someone?

Low attachment to parents (youth interview)

- Would you like to be the kind of person your mother is?
- Do you share your thoughts and feelings with your mother?
- Would you like to be the kind of person your father is?
- Do you share your thoughts and feelings with your father?

SCHOOL

Low educational aspirations (youth interview)

- If you could go as far as you wanted in school, how far would you like to go?

Low school commitment (youth interview)

- I do extra work on my own in class. (reversed)
- When I have an assignment to do, I keep on working on it until it is finished. (reversed)

Low school attachment (youth interview)

- I like school. (reversed)
- Most mornings I look forward to going to school. (reversed)
- I like my teacher this year. (reversed)
- I like my class this year. (reversed)

Low academic achievement in elementary school (school records)

- Score for the California Achievement Test (from school records). This is a combined score of three subtests (reading, math, and language).

Identified as learning disabled (school records)

- Special Education designation as learning disabled (from school records).

PEER

Association with friends who engage in problem behavior (youth interview)

This scale reflects the mean amount of time a student spends with each of three best friends, providing the friend gets in trouble with the teacher, or drinks.

- Does your best friend do things that get her or him in trouble with the teacher?
- Has your best friend tried beer, wine, or liquor when his or her parents did not know about it?
- How often do you see your best friend?

- Does your second best friend do things that get her or him in trouble with the teacher?
- Has your second best friend tried beer, wine, or liquor when his or her parents did not know about it?
- How often do you see your second best friend?
- Does your third best friend do things that get her or him in trouble with the teacher?
- Has your third best friend tried beer, wine, or liquor when his or her parents did not know about it?
- How often do you see your third best friend?

INDIVIDUAL

Religious service attendance (youth interview)

- How often do you attend religious services?

Antisocial beliefs (youth interview)

- Is it okay to take something without asking if you can get away with it?
- To get ahead you have to do some things that are not right.
- You have to be willing to break some rules if you want to be popular with your friends.
- If a friend asked to copy your exam, would you let your friend copy it?
- At school, sometimes it is okay to cheat.
- It is fun to do things you are not supposed to.

Respondent drinking (youth interview)

- Have you ever drunk beer, wine, whiskey, gin, or other liquor?
- How many times in the past month have you drunk beer, wine, whiskey, gin, or other liquor?

Respondent marijuana initiation (youth interview)

- Have you ever smoked marijuana?

Violence (youth interview)

- How many times in the past year have you picked a fight with someone?
- How many times in the past year have you thrown objects such as rocks or bottles at cars or people?
- How many times have you hit a teacher in the past year?

Externalizing (teacher interviews)

- Achenbach's (1991) broad-band externalizing scale consisting of 66 teacher-rated items reflecting the subdimensions "inattentive," "nervous-overreactive," and "aggressive."

Internalizing (teacher interviews)

- Achenbach's (1991) broad-band internalizing scale consisting of 25 teacher-rated items reflecting the subdimensions "anxious" and "social withdrawal."

Hyperactive (teacher interviews)

- Achenbach's (1991) scale consisting of teacher-rated hyperactive behavior (e.g., items such as "fidgety," "restless," and "distracted").

Poor refusal skills (youth interview)

Items included in this scale assessed the appropriateness of responses to the following scenarios involving peer pressure for antisocial behavior:

- If you were at a party and one of your friends offered you a beer, what would you do?
- If one of your friends asked you to skip school, what would you do?

NOTE

1. To examine the effect of risk factors due to early gang experience, individuals who indicated gang membership at the earliest age this question was available (age 13) were deleted in an exploratory analysis. Results from this analysis were consistent with those presented in the article and are available from the first author.

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