Predictors of Gang Involvement: A Longitudinal Analysis of Data From the Mobile Youth Survey

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Using linear growth modeling and data from the Mobile Youth Survey—a 14-year multiple cohort study of adolescents living in low-income neighborhoods in Mobile, Alabama—we investigate the roles of peer influence, family cohesion, and self-worth on gang involvement. The study finds that peer influence, family cohesion, and self-worth have an effect on initial gang involvement, but only family cohesion and gender have any influence on gang involvement across time. Males are more likely to be gang involved than females. Greater family cohesion reduced gang activity across time. This research suggests that family-based interventions and efforts to promote positive peer relationships might decrease the likelihood of gang involvement.

Key words: gang involvement; adolescence; family cohesion; peer influence; self-worth

Despite decades of social research and prevention/intervention programs, youth gangs remain a significant social problem. Researchers have shown that individuals involved in gangs consistently engage in antisocial (Gordon et al., 2004; Lahey, Gordon, Loeber, Stouthamer-Loeber, & Farrington, 1999) and delinquent behaviors (DeLisi, Barnes, Beaver, & Gibson, 2009; Egley & Ritz, 2006; Thornberry, Krohn, Lizotte, Smith, & Tobin, 2003).

Deviant behavior during adolescence leads to an increased likelihood of adult criminal behavior (Haynie, 2001; Patterson, DeBaryshe, & Ramsey, 1989), and gang involvement has been shown to increase the severity of criminal behavior as well as the incidence of arrest (Cox, 1996; Tapia, 2011). Further, gang-involved youth are more likely to engage in extreme acts of violence than their delinquent peers who are not gang involved (Barnes, Beaver, & Miller, 2010; Esbensen, Peterson, Taylor, & Freng, 2010; Huizinga, Weiher, Espiritu, & Esbenson, 2003; Li et al., 2002; Peterson, Taylor, & Esbensen, 2004; Taylor, Peterson, Esbensen, & Freng, 2007; Thornberry et al., 2003). Moreover, in 2010, the National Gang Center (n.d.) estimated that just over 40% of all gang members in 2008 were younger than 18 years old. According to the National Gang Center and the National Gang Intelligence Center (2011), adolescent gang members numbered between 302,000 and 560,000.

Gender is an important cultural variable to consider when investigating gang participation (Brownfield, 2012). Although school success is an important predictor for gang involvement (Bjerregaard & Cochran, 2012; Catalano, Oesterle, Fleming, & Hawkins, 2004), this context appears particularly salient for females (Bjerregaard & Smith, 1993; Esbensen & Carson, 2012). The extant literature has shown that engaging in delinquent acts predicts gang involvement for both genders (Esbensen & Deschenes, 1998; Lachman, Roman, & Cahill, 2012). However, when peer and family relationships are considered, changes in delinquent activity for males and females are significant: Males engage in delinquent acts at a younger age and persist in these behaviors longer than females, even when peer influence increased for females (Church, Tomek et al., 2012).

Significant attention has been given to gang membership and the ways in which individuals become involved with gangs. Several scholars have described the antecedents and outcomes related to gang involvement and gang membership (cf. Wood & Alleyne, 2010). For example, poverty, fear, and social disorganization are frequently characteristics of communities with gang activity (Howell & Decker, 1999; Howell, Egley, & Gleason, 2002). Additional research has indicated that in areas with social disorganization, the rates of delinquency are higher and young people are more likely to engage in delinquent acts than they

are in areas with intact social institutions (Hill, Howell, Hawkins, Battin-Pearson, 1999; Hill, Lui, & Hawkins, 2001). Also, juveniles learn to engage in delinquent behavior as a result of their exposure to delinquent acts (Sutherland, 1937; Sutherland & Cressey, 1960). Gang members tend to become engaged in delinquent acts at much higher rates than nongang members (Eitle, Gunkel, & van Gundy, 2004; Gordon et al., 2004; Huff, 1998; Schneider, 2001). Further, interacting with and having proximity to delinquent peers has been identified as a risk factor for gang involvement (Amato & Cornell, 2003; Esbensen & Weerman, 2005; Kakar, 2005). Some researchers have contended that delinquent peer influence does not contribute to gang involvement, but rather have suggested that developmental issues are to blame for gang involvement (Thornberry, 1998; Thornberry, Huizinga, & Loeber, 2004).

Collectively, social disorganization (Sampson & Grove, 1989; Shaw & McKay, 1942; Sutherland, 1947) and differential association theories (Hoffmann, 2002; Sutherland, 1939) predict that an individual will engage in delinquent behavior when social institutions that teach and reward pro-social behaviors break down. Without these institutions, the individual learns delinquent behaviors from peer groups, which substitute for those failed social institutions. We have applied social disorganization and differential association theories to select variables to analyze gang involvement. Using longitudinal data from the Mobile Youth Survey (MYS; Bolland et al., 2013), we explored the effects of peer influence, family cohesion, and self-worth on gang involvement in a sample of primarily Black American adolescent males and females living in extreme poverty. The study fills a gap in the literature by expanding the focus from one that considers only the existence of associations to focus on the strengths of associations.

Literature Review

The risk factors for gang involvement among youth are generally agreed upon (Howell, 2003). These factors include involvement with delinquent peers (Battin, Hill, Abbott, Catalano, & Hawkins, 1998; Battin-Pearson, Thornberry, Hawkins, & Krohn, 1998; Decker & Curry, 2000; Dishion, Nelson, & Yasui, 2005; Hill et al., 1999; Monahan, Steinberg, & Cauffman, 2009), family relationships (Henry, Tolan, & Gorman-Smith, 2001; Poole & Regoli, 1973; Rizzo, 2003; Walker-Barnes & Mason, 2001a; Walker-Barnes & Mason, 2001b), and self-worth (Baumeister, Smart, & Boden, 1996; Wang, 1994). Much of what is known about these factors has been developed by synthesizing theories and evidence from cross-sectional studies. Very few studies have examined these factors

using a longitudinal research design to reveal the direction and strength of associations across time.

Peer Relationships

Delinquent peer relationships are among the strongest predictors of delinquent activity among young people (Gifford-Smith & Brownell, 2003; Haynie & Osgood, 2005). Youth are at greater risk of gang involvement when other youths in the community are already in a gang (Hill et al., 1999). Increased time spent with delinquent peers increases an individual's chances of engaging in delinquent acts (Jennings, Maldonado-Molina, & Komro, 2010; Keijsers et al., 2012), and delinquent children tend to seek others who also engage in delinquent acts (Knecht, Snijders, Baerveldt, Steglich, & Raub, 2010). A predisposition to delinquent activity also increases the likelihood of gang involvement and violent delinquency (Gordon et al., 2004). That is, delinquency is a socialization mechanism for gang involvement, and higher delinquency increases the likelihood of gang membership.

Family Cohesion

Family cohesiveness might reduce delinquent behavior among youth. Several studies have demonstrated a connection between deviant behavior and family stability, poverty, and available resources (Church, Tomek et al., 2012; Church, Wharton, & Taylor, 2009; Farrington, Jolliffe, Loeber, Stouthamer-Loeber, & Kalb, 2001; Loeber & Farrington, 2000). Some studies have suggested that when parents provide little monitoring it is more likely that delinquent activity will progress to gang involvement (Lahey et al., 1999; Thornberry, 1998). Recent studies of parenting styles and gang involvement have supported this suggestion. One study (Walker-Barnes & Mason, 2001a) found that even though overall gang involvement and delinquency rates remained constant, children whose parents provided close supervision and monitoring had decreased gang involvement and delinquency; this finding was especially true among Black American families. Similarly, strong parental supervision, control, and warmth have been shown to moderate the relationship between gang involvement and problem behaviors (Walker-Barnes & Mason, 2004).

Self-worth

Self-esteem is an essential component of stable psychological functioning (Kernis, 2005), and low self-esteem is related to aggression, antisocial behavior, and delinquency (Donnellan, Trzesniewki, Robins, Moffitt, & Caspi, 2005). Further, among Blacks, cultural socialization, mediated by self-esteem, is associated with academic and behavioral outcomes. Specifically, positive cultural socialization and high

self-worth lead to positive academic and behavioral outcomes (Hughes, Witherspoon, Rivas-Drake, & West-Bey, 2009). Therefore, it is not surprising that studies have demonstrated links between low self-worth and violence among delinquent youth (Church, Wharton et al., 2009; Ostrowsky, 2010) and between gang membership and low self-esteem (Blakemore & Blakemore, 1998; Wang, 1994).

The Current Study

The current study is informed by previous work conducted on the influence of peers, family cohesion, and self-worth on delinquency (see Church, Tomek et al., 2012; Church, Wharton et al., 2009). These studies demonstrated the importance of peer relationships and family cohesion on the development of delinquent behavior. Prior research has demonstrated an association between engaging in delinquent acts and becoming involved with a gang (Esbensen & Deschenes, 1998; Lachman et al., 2012). Therefore, we assumed that gang involvement is a form of delinquent behavior and operates in a fashion similar to delinquency. Although the risk factors and outcomes of delinquency and gang involvement are often the same, the severity and impact of these risk factors can vary substantially. Delinquency and gang involvement have a profound and long-term effect on youth, families, and communities (see Thornberry, 1998; Thornberry, Krohn, Lizotte, Chard-Wierschem, 1993). Through the use of a longitudinal investigation, we hoped to develop some insight into how to alleviate these stressors through prevention or intervention rather than punitive measures of deterrence. We used the Church et al. (2009) model as the empirical grounding for the current study, which investigated this primary research question: How do peer influence, family cohesion, and self-worth affect gang involvement in adolescents living in extreme poverty? The study adds to the literature in two ways. First, we examined the strength of the relations among the selected variables, and, second, we examined the extent to which these factors are related across time.

Method

Sample

The current analysis used participants in the MYS, a 14-year longitudinal study of adolescents living in extreme poverty in Mobile, Alabama, as well as the neighboring town of Prichard (Bolland et al., 2013). Data were collected annually between 1998 and 2011. The entire longitudinal sample contains 10,694 youths between 9 and 19 years of age, with data collected in at least one year of the MYS. At the time of the current analysis, 2011 data were not yet available. Relatively few participants in the MYS were aged 9, 10, and 19 years when data were collected, so these ages were excluded from the analysis, limiting the age range to 11–18 years. In addition, adolescents were excluded if they had contributed data only one time. The final sample was 5,919 adolescents between the ages of 11 and 18 years with responses collected at two or more ages. The distribution of observations across all ages is shown in Table 1.

The final sample was evenly divided between the two genders (2,960 males; 2,959 females). In 2000, the median household income of the targeted neighborhoods was below $19,000 per year, with some neighborhood medians below $10,000 per year. At some point during their participation, almost 90% of the adolescents qualified for free or reduced-price school lunches. The sample was predominately Black American, with this racial group comprising 95% ($n = 5,640$) of the adolescents. A small percentage of the adolescents were Hispanic (4%; $n = 261$) or White (1%; $n = 18$). Although our sample was predominately Black American, we refrained from removing the Hispanic and White adolescents from the analysis, because the focus of the study was adolescents living in extreme poverty; racial/ethnic differences were not analyzed.

Table 1
Distribution of Observations

Age (years)	11	12	13	14	15	16	17	18
n	1,949	2,110	2,251	2,307	2,258	2,004	1,793	1,297

Procedure

The MYS study is a multiple-cohort design. Each year, new cohorts are added, and previous participants are surveyed when possible. We provide only a brief description of the MYS study procedures because full details are described elsewhere (see Bolland et al., 2013). The MYS researchers identified adolescents between 10 and 18 years old (youth within 3 months of their 10th or 18th birthdays were allowed to participate, thus yielding a sample of adolescents aged 9 to 19) from several extremely impoverished neighborhoods. Investigators then attempted to contact each of these adolescents, providing study information and an invitation to participate to the adolescent and to the caregiver (parental consent and adolescent assent were obtained, consistent with the university's institutional review board regulations). Both fliers and door-to-door visits were used to contact as many adolescents as possible. Questions were read aloud to groups of 20 to 30 adolescents who agreed to participate; each participant marked his or her responses in a survey booklet. Most adolescents completed the survey in the group setting; however, when adolescents required individual attention, the survey was administered individually. The survey took approximately one hour to complete. Participants received a $10 incentive for completion prior to 2005 and $15 in subsequent years (Bolland et al., 2013).

The sampling method used for the MYS was designed to generate a sample representative of adolescents living in extreme poverty. Analysis of school records obtained from target neighborhoods verified that individuals from the full MYS sample participating in the study did not differ significantly on demographic characteristics from those who did not participate in the study (Bolland, 2012).

Measures

Gang involvement. Gang involvement was measured using three items: (a) "Have you ever been involved in a gang?" (b) "Do you hang out with gang members?" and (c) "Are you currently involved in a gang?" The Cronbach's alpha reliability of the three individual items was .72. The assumption regarding gang involvement was that those with previous gang involvement should be rated higher for gang involvement than those simply hanging out with gang members. Therefore, instead of taking a simple sum of participant responses to the three dichotomous items, a 5-point ordinal scale was created with responses coded on a scale of 0 to 4. The response options included the following: *never involved in gang, do not hang out with gang members, not currently involved in gang* (= 0)*; never involved in gang, hang out with gang members, not currently involved in gang* (= 1)*; have been involved in a gang, do not hang out with gang members, not currently involved in a gang* (= 2)*; have been involved in a gang, hang out with gang members, not currently involved in a gang* (= 3)*; and have been involved in a gang, hang out with gang members, currently involved in a gang* (= 4)*.* The composite 5-point ordinal measure is a linear combination of the three responses. Higher scores indicated a greater extent of involvement in aspects of gang activities.

Peer influence. Peer influence on delinquency was measured by creating a summative scale of six items (see Church, Tomek et al., 2012). These questions assessed the amount of peer pressure friends applied to their friends to participate in delinquent activities. Sample items are (a) "How many of your friends think you are a punk if you don't carry a weapon," (b) "How many of your friends think you are punk if you don't use drugs?" and (c) "How many of your friends think you are punk if you don't want to fight when you are insulted or dissed or called out?" Survey participants were given three response options: *most of them, some of them,* or *almost none of them,* which were scored from 1 to 3 points. The summative scale thus ranged from 6 to 18 points, with higher values indicating higher levels of peer influence. A factor analysis was conducted on the items using a principal component extraction method to determine whether a single summative scale could be used. A single factor solution accounted for 61% of the variance in the items, with an eigenvalue of 3.7, indicating that a single summative scale was appropriate. In addition, the Cronbach's alpha on this measure was .86.

Family cohesion. The MYS lacked a single measure with which to measure family cohesion. However, MYS researchers employed two separate measures: one for maternal warmth and one for paternal warmth. Similar to previous research (see Church, Tomek et al., 2012), the current study used these two measures—which are also dimensions of family cohesion (Olson, Russell, & Sprenkle, 1983)—as a measure of family cohesion.

Maternal warmth. The maternal warmth scale was created by Lamborn, Mounts, Steinberg, and Dornbusch (1991). Youths were asked to identify the person they thought of as a mother figure in their lives. The individual in question did not need to be the youth's biological mother. Youths who identified a mother figure answered the six item scale. The following are two sample items from the warmth toward mother figure scale: "I can usually count on her to help me out if I have some kind of problem" and "We do fun things together." Participants responded using a dichotomous scale of *agree* or *disagree*. The summa-

tive scale ranged from 0 to 6 points and had a Cronbach's alpha reliability of .80.

Paternal warmth. In the paternal warmth scale, also created by Lamborn et al. (1991), youths were asked to identify the person they thought of as a father figure in their lives, and again, this person did not need to be a biological father. The youths who identified a father figure completed the warmth towards father scale. The six items comprising the scale were identical to the maternal warmth scale, but framed for the father. For example, youths were asked whether they *agreed* or *disagreed* with the statement, "I can usually count on him to help me out if I have some kind of problem." Dichotomous responses were collected, and a summative scale ranged from 0 to 6 points. Reliability was .82.

Self-worth. Self-worth has been discussed as both a trait and a state, with some aspects of self-worth being relatively stable and other aspects varying across time or situation (Harter & Whitesell, 2003). For this study, we used a global conception of self-worth measured by a summative scale of nine items, adapted from the Perceived Competence Scale for Children (Harter, 1982). The following are two sample questions from the scale: "Select one of the following: I am usually unhappy with myself or I am usually happy with myself" and "Select one of the following: I like the kind of person I am or I don't like the kind of person I am." Although Harter's original scale included Likert-type response categories, the responses in the MYS study were dichotomized to reduce the response burden of the long survey instrument. The dichotomized scale items produced a low Cronbach's alpha reliability of .65, which was not unexpected given the dichotomized responses.

Age and gender. Age was measured in years as self-reported by the adolescent at the time of each survey administration. The ages ranged from 11 to 18 years, with the variable centered at age 11 for ease in interpretation, as the intercept would be centered at 11, the first age of data collection. No other variables were centered in the analyses. Gender was included as a dichotomous covariate in the analyses, with male scored as 0.

Data Analysis

Two linear growth models were estimated using gang involvement as the response variable. First, the unconditional growth model was fit. This model measures growth unconditionally on additional variables. Using the notation of Singer and Willett (2003), this model is

$$Level\ 1: Y_{ij} = \pi_{0i} + \pi_{1i} * age + \varepsilon_{ij}$$

$$Level\ 2: \pi_{0i} = \gamma_{00} + \zeta_{0i}$$

$$\pi_{1i} = \gamma_{10} + \zeta_{1i}$$

where i = subject; j = time; π = Level 1 intercept and slope; γ = Level 2 intercept and slope; ε = Level 1 or error variance; and ζ = Level 2 variance.

Next, the four predicting factors—peer influence on delinquency, maternal warmth, paternal warmth (family cohesion), and self-worth—were added to the Level 1 portion of the model as time-varying predictors, which means that we allowed the self-worth measures to change at each age of the adolescent. An unstructured covariance matrix was estimated (because it places no restrictions on the covariance structure and the large sample size allows for the estimation of all the free parameters in the model) with the intercept and age as random effects. Although other covariance structures may have been acceptable in this model (e.g., AR1 or Toeplitz), use of the unstructured covariance matrix resulted in the lowest deviance. Gender was added to each of the Level 2 models, to test for differential effects. Age was the unit of time used in the analysis, and no cohort effects were estimated. Nonlinear models were also estimated but were found to be nonsignificant in all analyses.

All analyses were conducted using Full Information Maximum Likelihood (FIML) estimation, as implemented in SAS Proc Mixed (ver. 9.3). When missing data are ignorable (i.e., missing at random or missing completely at random), FIML provides unbiased and efficient parameter estimates (see Allison, 2012, for a discussion of the relative advantages of FIML versus multiple imputation). Missing data in the MYS were not a result of unanswered questions that might result in missing variables; rather, missing data were a result of adolescents failing to participate in the MYS survey for a given year. Bolland (2012) provided evidence that the sample of adolescents who did not participate in the MYS did not differ demographically from those who participated in the MYS, indicating that missing data in the MYS are ignorable. The current sample averaged 3 data points per adolescent; on average, adolescents participated in the MYS during three waves of data collection.

The assumptions of longitudinal models were tested via visual inspection, as recommended by Singer and Willett (2003). Normality of the response variable (gang involvement) was tested by visual inspection of the normality plots of the three error terms (residual, Level 1, and Level 2). Some very slight hooking was present in the normality plots, which is typically normal for bounded variables and was not enough to cause concern for the normality assumption.

Standardized residual plots for all three error terms displayed clear independence among the residuals. In addition, the homoscedasticity assumption was tested via visual inspection of the residual errors by age, the Level 1 errors by the predictor variables, and the Level 2 errors by the predictor variables. All plots indicate homoscedasticity at all levels of the model.

Convergence criteria were met during estimation and all parameters were able to be estimated in the model. Significance for all parameter estimates was determined if the p value was less than $\alpha = .05$.

Results

Preliminary Analysis

Prior to additional analysis, the prevalence of gang involvement was explored. Overall, 14% ($n = 814$) of the sample reported gang involvement at least once during their involvement in the MYS (i.e., reported a score of 4 at least once on the gang-involvement scale). The overall prevalence was between 10% and 15% at each age, with the highest prevalence between the ages of 13 to 15 years. Age on the prevalence of current gang involvement showed no effect, $\chi^2(7) = 9.36$, $p = .23$. Significantly more males (20%; $n = 592$) than females (8%; $n = 222$) reported gang involvement, $\chi^2(1) = 194.9$, $p < .001$. Fewer data points might have been available for analysis if those involved in gangs dropped out of the MYS, but the 814 youths reporting gang involvement at least once had significantly more observations in the MYS data set ($M = 4.6$, $SD = 2.1$) than those who never reported gang involvement ($M = 3.96$, $SD = 1.9$), $F(1, 5917) = 78.42$, $p < .001$. Although this difference in the number of observations is significant, both groups had around 4 data points available for analysis, indicating no differences in drop out for those who reported gang involvement.

Table 2 includes descriptive statistics for all independent variables considered for inclusion in the full growth model, as well as correlations between all pairs. All pair-wise correlations were positive and significant; however, due to the large sample size, these correlations did not warrant concern for our analyses. All correlations were less than .2, with the exception of paternal and maternal warmth. Although the paternal and maternal warmth correlation was .34, it is relatively small compared with the size of the sample of observations included (almost 16,000 observations).

Predicted Gang Involvement

The unconditional means model had a significant intercept parameter, $\gamma = .62$, $t(5919) = 49.73$, $p < .001$, indicating the average gang involvement was significantly different from 0, which indicates a prevalence of gang activity in the sample. The unconditional growth model was estimated to determine whether a significant change in gang involvement occurred across time. Model estimates are shown in Table 3. Gang involvement grew significantly across time, $\gamma = .02$, $t(4369) = 4.87$, $p < .001$. In addition, the average gang involvement at age 11 years significantly differed from 0, $\gamma = .56$, $t(5917) = 30.67$, $p < .001$. This finding indicates a propensity among this sample of adolescents to become involved with gangs (previous involvement, hanging out with, or currently involved in) by 11 years old.

Next, a linear growth model was estimated, with gang involvement as the dependent variable; peer influence on delinquency, self-worth, maternal warmth, and paternal warmth as time-varying covariates; and gender as a time-invariant covariate. A full factorial model was initially estimated, with nonsignificant parameter estimates removed in a backward selection procedure. Parameters excluded from the final model were paternal warmth; gender; age*self-worth; age*maternal warmth; age*gender; gender*peer influence; gender*maternal warmth; age*gender*peer influence; age*gender*self-worth; and age*gender*maternal warmth. Table 3 shows all significant parameter estimates retained in the final model. The final model provides a significantly improved fit of the data across the unconditional growth model, $\chi^2(8) = 750.5$, $p < .001$. In addition, the inclusion of the covariates accounted for an additional 30% of the variance in the growth (or slope) of gang membership across time

Table 2

Correlation Matrix

Variable	Mean (*SD*)	Peer influence	Self-worth	Maternal warmth
Peer influence	15.94 (2.97)	—	—	—
Self-worth	6.61 (1.98)	0.19*	—	—
Maternal warmth	5.34 (1.12)	0.06*	0.15*	—
Paternal warmth	5.00 (1.64)	0.04*	0.12*	0.34*

*$p < .001$

Table 3
Linear Growth Model of Gang Involvement of the Adolescent

Parameter	Unconditional growth model		Full model	
	Estimate	SE	Estimate	SE
Intercept	0.556***	0.018	1.648***	0.071
Peer influence			-0.020***	0.003
Self-worth			-0.083***	0.006
Maternal			-0.041***	0.008
Gender*self-worth			0.023**	0.008
Gender*paternal			-0.050***	0.010
Age	0.022***	0.004	0.102***	0.012
Age*gender			-0.169***	0.018
Age*paternal			-0.005*	0.002
Age*paternal*gender			0.016***	0.003
Variance (intercept)	0.445***	0.033	0.397***	0.031
Variance (age)	0.010***	0.002	0.007***	0.002
Error variance	0.917***	0.015	0.913***	0.014
Deviance	49468.4		48717.9	

*$p < .05$; **$p < .01$; ***$p < .001$

Three variables contributed to differences in the initial amount of gang involvement. Higher levels of peer influence correlated with lower levels of gang involvement, $\gamma = -.02$, $t(5672) = -6.36$, $p < .001$. Maternal warmth was also found to influence gang involvement, $\gamma = -.04$, $t(5672) = -4.92$, $p < .001$. High levels of maternal warmth led to lower levels of gang involvement.

Self-worth had a significant effect on gang involvement, $\gamma = -.08$, $t(5672) = -13.2$, $p < .001$, and gender moderated this effect, $\gamma = .02$, $t(5672) = 2.96$, $p = .003$. In both genders, we found that increased self-worth decreased the amount of gang involvement in the adolescent. However, the impact of self-worth was greater in male adolescents. Last, we found that gender also moderated the relationship between paternal warmth and initial gang involvement, $\gamma = -.05$, $(5672) = -4.93$, $p < .001$. Males received no benefit from an increased strength in paternal warmth, yet females had a decrease in gang involvement when paternal warmth increased.

When looking at the trajectories of gang involvement across adolescence, we found that both gender and paternal warmth moderated the change. Gang involvement across time showed significant change, $\gamma = .10$, $t(4369) = 8.55$, $p < .001$, with gender moderating this effect, $\gamma = -.17$, $t(5672) = -9.36$, $p < .001$. Males displayed an overall increase in gang involvement across time, while females exhibited a signifi-

cant decrease in gang involvement. We found that paternal warmth influenced trajectories of gang involvement, $\gamma = -.01$, $t(5672) = -2.35$, $p = .02$, and gender again moderated this relationship, $\gamma = .02$, $t(5672) = 4.62$, $p < .001$. Males with lower levels of paternal warmth increased their gang involvement across time, compared with males with higher levels of paternal warmth. However, females developed stability when their gang involvement was paired with high levels of paternal warmth. Female adolescents with lower levels of paternal warmth exhibited an overall decrease in gang involvement across time.

To better describe the moderating effect of gender on the effect of paternal warmth on gang involvement across time, we plotted four groups with different trajectories (Figure 1): males with high paternal warmth; males with low paternal warmth; females with high paternal warmth; and females with low paternal warmth. Here, we assumed that each adolescent in the four groups had an average level of peer influence, self-worth, and maternal warmth, because these variables affected only the initial rate of gang involvement, not the trajectories. Based on the interaction plot, we found that initially males had similar levels of gang involvement, yet the trajectories increased at a greater rate for those with low paternal warmth. Although gang involvement was relatively stable in females with high paternal warmth, this stability was an artifact of the low prevalence of gang involvement in this group, exhibited by their low predicted means. Fe-

males with low paternal warmth initially started out with higher gang involvement than females with high paternal warmth. However, this group of females decreased their gang involvement and caught up with their high paternal-warmth counterparts by 18 years of age. In sum, males were more affected by the absence of paternal warmth at older ages, whereas females were more affected by the absence of paternal warmth at younger ages.
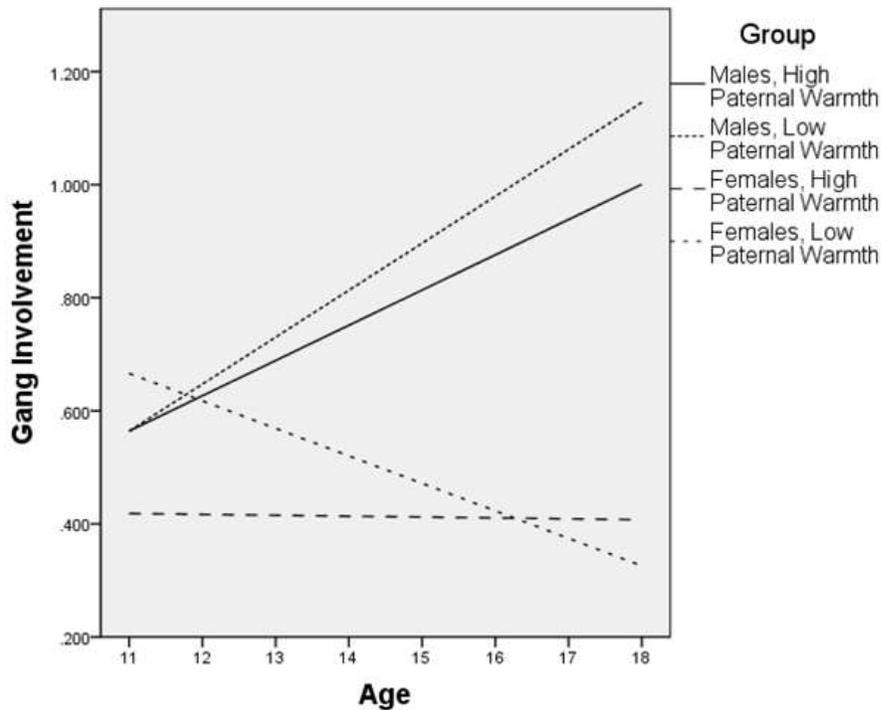

Figure 1. Trajectories of adolescent gang membership

Discussion

In this study, we investigated several factors associated with gang involvement. Using a sample of more than 5,000 participants between ages 11 and 18 years obtained from the longitudinal MYS, we estimated a growth model with gang involvement as the response variable. Time-varying covariates included peer influence on delinquency, maternal warmth, paternal warmth, and self-worth; gender was used as a time-invariant covariate. The sample was largely homogenous, consisting primarily of Black American adolescents from extremely impoverished neighborhoods.

The results of our study indicate that a number of factors relate to gang involvement, both initially and across time. Some youths became involved with gangs at early ages, as evidenced by the significant gang activity present within the sample at age 11 years. The highest levels of gang involvement occurred among youth who were between 13 and 15 years old, which is consistent with earlier findings that showed 11-year-olds who were affiliated with gang members were actively involved with gangs as 13-years-olds (Dishion et al., 2005). Further, of the adolescents in our sample who were involved with gangs, almost three fourths were male and about one quarter was female. These figures contrast with the National Gang Center (n.d.) report that fewer than 10% of gang members in 2009 were female.

Initial Gang Involvement

Peer influence on gang involvement was measured by creating a summative scale of six items, which assessed the amount of pressure applied by peers to become involved with gangs. We found that higher levels of peer influence were associated with lower levels of initial gang involvement, a finding contrary

to previous research that has found that increased time spent with delinquent peers not only increased the likelihood of engaging in delinquent acts (Keijsers et al., 2012) but also increased the likelihood of gang involvement (Howell & Egley, 2005). Further, delinquent children tend to seek out others who engage in delinquent acts (Knecht et al., 2010). We suspect that youths who are less involved in gangs perceive greater pressure from their peers to become involved. Previous research has found that youth exert pressure on their peers and other youth to join street gangs (Maxson, Whitlock, & Klein, 1998). Still, this is an area deserving of further inquiry.

Higher self-worth was also found to be predictive of lower levels of initial gang involvement, especially among males. Females who affiliated with gangs tended to report greater isolation and lower self-esteem than their male counterparts (Carlson, Uppal, & Prosser, 2000; Esbensen, Deschenes, & Winfree, 1999). Further, exposure to violence and risky behaviors common in gangs are associated with higher distress and lower self-esteem in female gang members, which might mean gang involvement itself is associated with poorer psychological well-being (Li et al., 2002).

Family cohesion was assessed using two subscales measuring maternal warmth and paternal warmth. Higher levels of maternal warmth were associated with lower levels of initial gang involvement. This finding is consistent with those of earlier studies that also found an association between greater levels of maternal warmth and lower levels of delinquent behavior (Church, Tomek et al., 2012). Other evidence has suggested family serves as a protective factor against adolescents engaging in risky behaviors, including violence (Kingon & O'Sullivan, 2001). Paternal warmth seemed to have little effect on initial gang involvement among males, yet high paternal warmth significantly decreased the amount of initial gang involvement among females. Some researchers have suggested that females seek gang membership because they are fleeing deficient family relationships (Walker-Barnes & Mason, 2001b). Further, low paternal involvement and low father–child attachment have been shown to predict behavioral problems in adolescents, especially among females (Williams & Kelly, 2005). This finding suggests that gang involvement might be influenced by family, a major social institution responsible for adolescent socialization.

Our findings suggest that a "tug of war" exists between the effects of the family and the effects of peer groups on initial gang involvement. On one side, cohesive families can reduce the likelihood of gang involvement among adolescents. Girls were swayed by both their mothers and fathers, and boys were influenced by their mothers. On the other side, peer influence can pressure adolescents to become involved in gangs. The family is a crucial social institution for the socialization and edification of adolescents. However, insufficient maternal and paternal warmth leaves an opening for peer influence, which can result in initial gang involvement.

Gang Involvement Across Time

Unlike initial gang involvement, gang involvement across time was influenced only by gender and paternal warmth. Throughout adolescence, both gender and paternal warmth moderate significant change in gang involvement. Males with high levels of paternal warmth indicated lower levels of gang involvement as compared with males with low paternal warmth. Females demonstrated stable levels of gang involvement when paternal warmth was high as compared with females with low paternal warmth. In contrast, those females with low paternal warmth decreased their gang involvement across time. We explored this relationship further by plotting the different trajectories of males with high paternal warmth, males with low paternal warmth, females with high paternal warmth, and females with low paternal warmth (Figure 2). These results indicate that paternal warmth is more essential for females at an earlier age, whereas paternal warmth is more important to males at later ages.

This study indicates that high paternal warmth early in a female's life can reduce gang involvement across time. Higher paternal warmth present later in the male's life has a similar effect. As compared with youths who reported low paternal warmth, reports of high paternal warmth were also indicative of the presence of a father or father figure, suggesting that these families, at least in part, provided social controls that reduced the likelihood of their child's involvement with gangs across time.

Implications for Social Work

Data from this study suggest several potential points of intervention and prevention. Although both genders are certainly at risk for gang involvement, males and females differed in their gang-involvement trajectories. Given that females are more likely to decrease their involvement over time whereas males are more likely to escalate over time from committing delinquent acts to becoming gang involved, these differences indicate that gender-specific interventions are appropriate. For example, one type of intervention for males at risk for gang involvement focuses on involving parents and communities to facilitate good role modeling and decision-making behaviors. Positive

role models are vital in the development of adolescents, and having a positive male role model has been shown to be a key indicator of success for at-risk male youth (Keating, Tomishima, Foster, & Alessandri, 2002).

Further positive effects on the life trajectories of at-risk youth could be generated by building positive self-images in both young males and females; building positive relationships, especially within the family; and teaching youth skills enabling them to determine how to make positive choices. Although not fully explored in the current study, poverty might be a precipitating factor with these at-risk youth. Poverty has been identified as a risk factor for gang-involvement (Hill et al., 1999), and poverty has a profound and lasting effect on society; thus, addressing poverty early might lessen the impact on youth. Last, we need a greater understanding of the inner workings and dynamics of the families of at-risk youth. Appropriate and thorough assessments of the family system can only improve services and outcomes for at-risk youth and their families.

Strengths and Limitations

The current study has several strengths. First, this investigation is one of the first studies to explore these relations using a longitudinal methodology with a large sample and several waves of data. The design allowed us to examine change across time, which improved our understanding of at-risk youth. Second, the data from this study come from 13 years of data. These youths have been tracked for most of their adolescent years, thus producing a plethora of meaningful information on this population. Third, the population from which the sample is derived is unique: They were predominantly Black American adolescents living in low-income housing areas. This sample gives greater insight into the behaviors and outcomes of youth living under certain conditions and affords researchers and clinicians alike an opportunity to develop culturally and regionally tailored interventions that are uniquely relevant. Fourth and finally, by studying such a well-defined, homogeneous population, we were able to control for factors that potentially confound studies of youth outcomes, such as household income and levels of neighborhood poverty and risk (Kellam, Rebok, Ialongo, & Mayer, 1994; Vaden-Kiernan, Ialongo, Pearson, & Kellam, 1997).

Some limitations of this study must be noted. Because this study used a demographically homogenous sample, the findings might not be generalizable beyond its bounds. Although other ethnic groups were present in the sample, which was primarily Black American youth (95%), differences in representation did not allow for estimation of racial/ethnic differences. Another limitation is that the study included missing observations. The panels were not fully complete for most of the adolescents (i.e., data collected at every age from 11 to 18 years). However, we limited our analysis to those youth who participated in two or more data collection years (50% of the original data). Within our sample, 69% of participants had three or more data points. From these data, we know our model estimation was valid. Attrition was the cause of missing data in our data set, and most of the attrition was not related to any of the risk behaviors measured (Bolland, 2012). In addition, the number of data points is very similar for youth involved in gangs and youth not involved in gangs (i.e., a difference of less than one observation). Therefore, we believe this sample had limited response bias due to the presence of gang involvement among participants.

An additional limitation in the study is the use of the ordinal gang-involvement measure as our response variable. However, a preliminary analysis of this variable showed it to have a mound shape. One of the assumptions of longitudinal models is that of a normal or mound-shaped distribution of the response variable. This is important as the random variances present in the models are normally distributed as well. The distribution of gang activity was mound-shaped, though not entirely normal. However, models under the umbrella of the general linear model are robust to minor deviations from normality. In addition, the scale follows a logical continuum of the adolescents' gang involvement, warranting its use as a dependent measure. Although the three gang-related questions were self-reports, they were self-reports of the adolescent's extent of involvement in activities that did not address illegal behavior. Therefore, it is likely that under reporting or over reporting of gang involvement was minimal and did not bias the result.

Conclusion

The current study found that several factors, including peer influence, self-worth, and family cohesion, had an effect on initial gang involvement among at-risk youth. However, only paternal warmth and gender had any significant effect on youths' gang involvement across time. Social disorganization and differential association theories provided a context for these results. The breakdown of essential social institutions, such as the family, provides ample opportunity for delinquent peers to pressure adolescents into gang activity, especially when social controls are lacking. Family cohesion (especially reports of low paternal warmth) is an important factor for clinicians and researchers to consider. Fathers provide social control and serve as a critical figure in the family system. As evidenced in the current study, paternal warmth might

be a key indicator of gang involvement for both males and females in other demographic groups and communities. Interventions that involve father figures for at-risk adolescents should be supported. Such interventions might be especially important for younger female adolescents and older male adolescents. Programs such as Big Brothers Big Sisters as both a community-based (Dodge, 2009; Grossman & Tierney, 1998) and a school-based mentoring initiative (Herrera, Grossman, Kauh, Feldman, & McMaken, 2007) have been shown to reduce delinquent behavior.

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References

Allison, P. D. (2012). *Handling missing data by maximum likelihood*. Paper (No. 312-2012) presented at the SAS Global Forum, Orlando, FL.

Amato, J. M., & Cornell, D. G. (2003). How do youth claiming gang membership differ from youth who claim membership in another group, such as crew, clique, posse or mob? *Journal of Gang Research*, *10*, 13–23.

Barnes, J. C., Beaver, K. M., & Miller, J. M. (2010). Estimating the effect of gang membership on nonviolent and violent delinquency: A counterfactual analysis. *Aggressive Behavior, 36,* 437–451. doi:/10.1002/ab.20359

Battin, S. R., Hill, K. G., Abbott, R. D., Catalano, R. F., & Hawkins, J. D. (1998). The contribution of gang members to delinquency beyond delinquent friends. *Criminology, 36*(1), 93–115. doi:10.1111/j.1745-9125.1998.tb01241.x

Battin-Pearson, S. R., Thornberry, T. P., Hawkins, J. D., & Krohn, M. D. (1998). Gang membership, delinquent peers, and delinquent behavior (NCJ Publication No. 17119). *Juvenile Justice Bulletin*. Retrieved from https://www.ncjrs.gov/pdffiles/171119.pdf

Baumeister, R. F., Smart, L., & Boden, J. M. (1996). Relation of threatened egotism to violence and aggression: The dark side of high self-esteem. *Psychological Review, 103*, 5–33.

Bjerregaard, B., & Cochran, J. A. (2012). The role of school-related bonding factors and gender: Correlates of gang membership among adolescents. *Women & Criminal Justice, 22*(1), 30–53.

Bjerregaard, B., & Smith, C. (1993). Gender differences in gang participation, delinquency, and substance use. *Journal of Quantitative Criminology, 9*(4), 329–355.

Blakemore, J. L., & Blakemore, G. M. (1998). African American street gangs: A quest for identity. *Journal of Human Behavior in the Social Environment, 1*(2–3), 203–223.

Bolland, A. C. (2012). *Representativeness two ways: An assessment of representativeness and missing data mechanisms in a study of an at-risk population* (Unpublished doctoral dissertation). University of Alabama, Tuscaloosa.

Bolland, K. A., Bolland, J. M., Tomek, S., Devereaux, R., Mrug, S., & Wimberly, J. C. (2013). Trajectories of adolescent alcohol use by gender and early initiation status. *Youth & Society.* Advance online publication. doi:10.1177/0044118X13475639

Brownfield, D. (2012). Gender and gang membership: Testing theories to account for different rates of participation. *Journal of Gang Research, 19*(2), 25–32.

Carlson, C., Uppal, S., & Prosser, E. C. (2000). Ethnic differences in processes contributing to the self-esteem of early adolescent girls. *Journal of Early Adolescence, 20*(1), 44–67.

Catalano, R. F., Oesterle, S., Fleming, C. B., & Hawkins, D. (2004). The importance of bonding to school for health development: Findings from the Social Development Research Group. *Journal of School Health, 74*(7), 252–261.

Church, W. T., Tomek, S., Bolland, K. A., Hooper, L. M., Jaggers, J., & Bolland, J. (2012). A longitudinal examination of predictors of delinquency: An analysis of data from the Mobile Youth Survey. *Children and Youth Services Review, 34*(12), 2400–2408.

Church, W. T., Wharton, T., & Taylor, J. K. (2009). An examination of differential association and social control theory: Family systems and delinquency. *Youth Violence and Juvenile Justice*, *7*(1), 3–15.

Cox, R. P. (1996). An exploration of the demographic and social correlates of criminal behavior among adolescent males. *Journal of Adolescent Health, 19*(1), 17–24.

Decker, S. H., & Curry, G. D. (2000). Addressing key features of gang membership: Measuring the involvement of young members. *Journal of Criminal Justice, 28*, 473–482.

DeLisi, M., Barnes, J. C., Beaver, K. M., & Gibson, C. L. (2009). Delinquent gangs and adolescent victimization revisited: A propensity score matching approach. *Criminal Justice and Behavior, 36,* 808–823.

Demuth, S., & Brown, S. L. (2004). Family structure, family processes, and adolescent delinquency: The significance of parental absence versus parental gender. *Journal of Research in Crime and Delinquency, 41*, 58–81.

Dishion, T. J., Nelson, S. E., & Yasui, M. (2005). Predicting early adolescent gang involvement from middle school adaptation. *Journal of Clinical Child & Adolescent Psychology, 34*(1), 62–73.

Dodge, K. A. (2009). Community intervention and public policy in the prevention of antisocial behavior. *Journal of Child Psychology and Psychiatry, 50*(1–2), 194–200.

Donnellan, M. B., Trzesniewski, K. H, Robins, R. W., Moffitt, T. E., & Caspi, A. (2005). Low self-esteem is related to aggression, antisocial behavior, and delinquency. *Psychological Science, 16*(4), 328–335.

Egley, A., & Ritz, C. E. (2006). *Highlights from the 2004 National Youth Gang Survey*. Washington, DC: Office of Juvenile Justice & Delinquency Prevention.

Eitle, D., Gunkel, S., & van Gundy, K. (2004). Cumulative exposure to stressful life events and male gang membership. *Journal of Criminal Justice*, *32*, 95–111.

Esbensen, F.-A. & Carson, D. A. (2012). Who are the gangsters? An examination of the age, race/ethnicity, sex, and immigration status of self-reported gang members in a seven-city study of American youth. *Journal of Contemporary Criminal Justice, 28*(4), 465–481. doi:10.1177/1043986212458192

Esbensen, F.-A., & Deschenes, E. P. (1998). A multisite examination of youth gang membership: Does gender matter? *Criminology, 36*(4), 799–828. doi:10.1111/j.1745-9125.1998.tb01266.x

Esbensen, F.-A., Deschenes, E. P., & Winfree, L. T., Jr. (1999). Differences between gang girls and gang boys: Results from a multisite survey. *Youth & Society, 31*(1), 27–53. doi:10.1177/0044118X99031001002

Esbensen, F.-A., Peterson, D., Taylor, T. J., & Freng, A. (2010). *Youth violence: Sex and race differences in offending, victimization, and gang membership.* Philadelphia, PA: Temple University Press.

Esbensen, F.-A., & Weerman, F. M. (2005). Youth gangs and troublesome youth groups in the United States and the Netherlands: A cross-national comparison. *European Journal of Criminology, 2*, 5–37. doi:10.1177/1477370805048626

Farrington, D. P., Jolliffe, D., Loeber, R., Stouthamer-Loeber, M., & Kalb, L. M. (2001). The concentration of offenders in families, and family criminality in the prediction of boys' delinquency. *Journal of Adolescence*, *24*, 579–596. doi:10.1006/jado.2001.0424

Gifford-Smith, M. E., & Brownell, C. A. (2003). Childhood peer relationships: Social acceptance, friendships, and peer networks. *Journal of School Psychology, 41*, 235–284. doi:10.1016/S0022-4405(03)00048-7

Gordon, R. A., Lahey, B. B., Kawai, E., Loeber, R., Stouthamer-Louber, M., & Farrington, D. P. (2004). Antisocial behavior and youth gang membership: Selection and socialization. *Criminology, 42*(1), 55–87. doi:10.1111/j.1745-9125.2004.tb00513.x

Grossman, J. B., & Tierney, J. P. (1998). Does mentoring work? An impact study of the Big Brothers Big Sisters Program. *Evaluation Review, 22*(3), 403–426. doi:10.1177/0193841X9802200304

Harter, S. (1982). The perceived competence scale for children. *Child Development, 53*, 87-97.

Harter, S. & Whitesell, N. R. (2003). Beyond the debate: Why some adolescents report stable self-worth over time and situation, whereas other report changes in self-worth. *Journal of Personality, 71*, 1027-1058.

Haynie, D. L. (2001). Delinquent peers revisited: Does network structure matter? *American Journal*

of Sociology, *106*(4), 1013–1057. doi:10.1086/320298

Haynie, D. L., & Osgood, W. (2005). Reconsidering peers and delinquency: How do peers matter? *Social Forces, 84*(2), 1109–1130. doi:10.1353/sof.2006.0018

Henry, D. B., Tolan, P. H., & Gorman-Smith, D. (2001). Longitudinal family and peer group effects on violence and nonviolent delinquency. *Journal of Child & Adolescent Psychology, 30*(2), 172–186. doi:10.1207/S15374424JCCP3002_5

Herrera, C., Grossman, J. B., Kauh, T. J., Feldman, A. F., & McMaken, J. (2007*). Making a difference in schools: The Big Brothers Big Sisters school-based mentoring impact study*. Retrieved from http://www.bigsister.org/bigsister/file/Making%20a%20Difference%20in%20Schools.pdf

Hill, K. G., Howell, J. C., Hawkins, J. D., & Battin-Pearson, S. R. (1999). Childhood risk factors for adolescent gang membership: Results from the Seattle Social Development Project. *Journal of Research in Crime and Delinquency*, *36*, 300–322. doi:10.1177/0022427899036003003

Hill, G. H., Lui, C., & Hawkins, J. D. (2001). Early precursors of gang membership: A study of Seattle youth (NCJ Publication No. 190106). *Juvenile Justice Bulletin*. Retrieved from https://www.ncjrs.gov/pdffiles1/ojjdp/190106.pdf

Hoffmann, J. P. (2002). A contextual analysis of differential association, social control, and strain theories of delinquency. *Social Forces*, *81*(3), 753–785. doi:10.1353/sof.2003.0034

Howell, J. C. (2003). *Preventing and reducing juvenile delinquency: A comprehensive framework.* Thousand Oaks, CA: Sage.

Howell, J. C., & Decker, S. H. (1999). The youth gangs, drugs, and violence connection (NCJ Publication No. 171152). *Juvenile Justice Bulletin*. Retrieved from https://www.ncjrs.gov/html/ojjdp/171152/contents.html

Howell, J. C., & Egley, A., Jr. (2005). Moving risk factors into developmental theories of gang membership. *Youth Violence and Juvenile Justice, 3*(4), 334–354.

Howell, J. C., Egley, A., Jr., & Gleason, D. K. (2002). Modern day youth gangs (NCJ Publication No. 191524). *Juvenile Justice Bulletin*. Retrieved from https://www.ncjrs.gov/html/ojjdp/jjbul2002_06_1/contents.html

Huff, C. R. (1998). Comparing the criminal behavior of youth gangs and at-risk youth. *National Institute of Justice: Research in Brief*. Retrieved from National Criminal Justice Reference Service website: https://www.ncjrs.gov/pdffiles/172852.pdf

Hughes, D., Witherspoon, D., Rivas-Drake, D., & West-Bey, N. (2009). Received ethnic–racial socialization messages and youths' academic and behavioral outcomes: Examining the mediating role of ethnic identity and self-esteem. *Cultural Diversity and Ethnic Minority Psychology*, *15*(2), 112–124. doi:10.1037/a0015509

Huizinga, D., Weiher, A. W., Espiritu, R., & Esbensen, F-A. (2003). Delinquency and crime: Some highlights from the Denver Youth Survey. In T. P. Thornberry & M. D. Krohn (Eds.), *Taking stock of delinquency: An overview of findings from contemporary longitudinal studies* (pp.47-92). New York, NY: Kluwer Academic/Plenum.

Jennings, W. G., Maldonado-Molina, M., & Komro, K. A. (2010). Sex similarities/differences in trajectories of delinquency among urban Chicago youth: The role of delinquent peers. *American Journal of Criminal Justice, 35*, 56–75. doi:10.1007/s12103-009-9066-2

Kakar, S. (2005). Gang membership, delinquent friends and criminal family members: Determining the connections. *Journal of Gang Research*, *13*, 41–52.

Keating, L. M., Tomishima, M. A., Foster, S., & Alessandri, M. (2002). The effects of a mentoring program on at-risk youth. *Adolescence, 37*(148), 717–734.

Keijsers, L., Branje, S., Hawk, S. T., Schwartz, S. J., Frijns, T., Koot, H. M., . . . Meeus, W. (2012). Forbidden friends as forbidden fruit: Parental supervision of friendships, contact with deviant peers, and adolescent delinquency. *Child Development*, *83*, 651–666.

Kellam, S. G., Rebok, G. W., Ialongo, N., & Mayer, L. S. (1994). The course and malleability of aggressive behavior from early first grade into middle school: Results of a developmental epidemiologically-based preventive trial. *Journal of Child Psychology and Psychiatry*, *35*, 259–281. doi:10.1111/j.1469-7610.1994.tb01161.x

Kernis, M. H. (2005). Measuring self-esteem in context: The importance of stability of self-esteem in psychological functioning. *Journal of Personality, 73*(6), 1569–1605. doi:10.1111/j.1467-6494.2005.00359.x

Kingon, Y. S., & O'Sullivan, A. L. (2001). The family as a protective asset in adolescent development. *Journal of Holistic Nursing, 19*(2), 102–121. doi:10.1177/089801010101900202

Knecht, A., Snijders, T. A. B., Baerveldt, C., Steglich, C. E. G., & Raub, W. (2010). Friendship and delinquency: Selection and influence in early adolescence. *Social Development*, *19*, 494–514.

Lachman, P., Roman, C. G., & Cahill, M. (2012). Assessing youth motivations for joining a peer group as risk factors for delinquent and gang behavior. *Youth Violence and Juvenile Justice.* Advance online publication. doi:10.1177/1541204012461510

Lahey, B. B., Gordon, R. A., Loeber, R., Stouthamer-Loeber, M., & Farrington, D. P. (1999). Boys who join gangs: A prospective study of predictors of first gang entry. *Journal of Abnormal Child Psychology, 27*(4), 261–276. doi:10.1023/B:JACP.0000039775.83318.57

Lamborn, S.D., Mounts, N.S., Steinberg, L., & Dornbusch, S. (1991). Patterns of competence and adjustment among adolescents from authoritative, authoritarian, indulgent, and neglectful families. *Child Development, 62*, 1049-1065.

Li, X., Stanton, B., Pack, R., Harris, C., Cottrell, L., & Burns, J. (2002). Risk and protective factors associated with gang involvement among urban African American adolescents. *Youth & Society, 34*(2), 172–194. doi:10.1177/004411802237862

Loeber, R., & Farrington, D. P. (2000). Young children who commit crime: Epidemiology, developmental origins, risk factors, early interventions, and policy implications. *Development and Psychopathology*, *12*, 737–762.

Maxson, C. L., Whitlock, M. L., & Klein, M. W. (1998). Vulnerability to street gang membership: Implications for practice. *Social Service Review, 72*(1), 70–91. doi:10.1086/515746

Monahan, K. C., Steinberg, L., & Cauffman, E. (2009). Affiliation with antisocial peers, susceptibility to peer influence, and antisocial behavior during the transition to adulthood. *Developmental Psychology,45*(6), 1520–1530. doi:10.1037/a0017417

National Gang Center. (n.d.) *National Youth Gang Survey Analysis.* Retrieved from http://www.nationalgangcenter.gov/Survey-Analysis

National Gang Intelligence Center (2011). National gang threat assessment: Emerging trends. Retrieved from http://www.fbi.gov/stats-services/publications/2011-national-gang-threat-assessment/2011-national-gang-threat-assessment-emerging-trends

Olson, D. H., Russell, C. S., & Sprenkle, D. H. (1983). Circumplex model of marital and family systems: VI: Theoretical update. *Family Process, 22*(1), 69–83. doi:10.1111/j.1545-5300.1983.00069.x

Ostrowsky, M. K. (2010). Are violent people more likely to have low self-esteem or high self-esteem? *Aggression and Violent Behavior*, *15*(1), 69–75. doi:10.1016/j.avb.2009.08.004

Patterson, G. R., DeBaryshe, B. D., & Ramsey, E. (1989). A developmental perspective on antisocial behavior. *American Psychologist*, *44*(2), 329–335. doi:10.1037/0003-066X.44.2.329

Peterson, D., Taylor, T. J., & Esbensen, F.-A. (2004). Gang membership and violent victimization. *Justice Quarterly, 21*(4), 793–815. doi:10.1080/07418820400095991

Poole, E. D., & Regoli, R. M. (1973). Parental support, delinquent friends, and delinquency: A test of interaction effects. *Journal of Criminal Law and Criminology, 70*(2), 188–193. doi:10.2307/1142922

Rizzo, M. (2003). Why do children join gangs? *Journal of Gang Research, 11* , 65–74.

Sampson, R. J., & Grove, W. B. (1989). Community structure and crime: Testing social disorganization theory. *American Journal of Sociology*, *94*, 774–802. doi:10.1086/229068

Schneider, J. L. (2001). Niche crime: The Columbus gangs study. *American Journal of Criminal Justice*, *26*, 94–103.

Shaw, C. R., & McKay, H. D. (1942). *Juvenile delinquency in urban areas*. Chicago, IL: University of Chicago Press.

Shoemaker, D. J. (2010). *Theories of delinquency: An examination of explanations of delinquent behavior* (6th ed.). New York, NY: Oxford Press.

Singer, J. D., & Willett, J. B. (2003). *Applied longitudinal data analysis.* New York, NY: Oxford University Press. doi:10.1093/acprof:oso/9780195152968.001.0001

Sutherland, E. H. (1937). *The professional thief*. Chicago, IL: University of Chicago Press.

Sutherland, E. H. (1939). *Principles of criminology* (3rd ed.). Philadelphia, PA: Lippincott.

Sutherland, E. H. (1947). *Principles of criminology* (4th ed.). Philadelphia, PA: Lippincott.

Sutherland, E. H., & Cressey, D. R. (1960). *A theory of differential association. Principles of criminology* (6th ed.). Chicago, IL: Lippincott.

Tapia, M. (2011). Gang membership and race as risk factors for juvenile arrest. *Journal of Research in Crime and Delinquency, 48*(3) 364–395. doi:10.1177/0022427810393013

Taylor, T. J., Peterson, D., Esbensen, F.-A., & Freng, A. (2007). Gang membership as a risk factor for adolescent violent victimization. *Journal of Research in Crime and Delinquency, 44*(4), 351–380. doi:10.1177/0022427807305845

Thornberry, T. P. (1998). Membership in youth gangs and involvement in serious and violent offending. In R. Loeber & D. P. Farrington (Eds.), *Serious and violent offenders: Risk factors and successful interventions* (pp. 147–166). Thousand Oaks, CA: Sage.

Thornberry, T. P., Huizinga, D., & Loeber, R. (2004). The causes and correlates studies: Findings and policy implications. *Juvenile Justice*, *9*(1), 3–19.

Thornberry, T. P., Krohn, M. D., Lizotte, A. J., & Chard-Wierschem, D. (1993). The role of juvenile gangs in facilitating delinquent behavior. *Journal of Research in Crime & Delinquency*, *30*(1), 55–87. doi:10.1177/0022427893030001005

Thornberry, T., Krohn, M., Lizotte, A., Smith, C., & Tobin, K. (2003). *Gangs and delinquency in developmental perspective.* New York, NY: Cambridge University Press.

Vaden-Kiernan, N., Ialongo, N. S., Pearson, J., & Kellam, S. (1997). Household family structure and children's aggressive behavior: A longitudinal study of urban elementary school children. *Journal of Abnormal Child Psychology*, *23*, 553–568. doi:10.1007/BF01447661

Walker-Barnes, C. J., & Mason, C. A. (2001a). Ethnic differences in the effect of parenting on gang involvement and gang delinquency: A longitudinal, hierarchical linear modeling perspective. *Child Development, 72*(6), 1814–1831. doi:10.1111/1467-8624.00380

Walker-Barnes, C. J., & Mason, C. A. (2001b). Perceptions of risk factors for female gang involvement among African American and Hispanic women. *Youth & Society*, *32*(3), 303–336. doi:10.1177/0044118X01032003002

Walker-Barnes, C. J., & Mason, C. A. (2004). Delinquency and substance use among gang-involved youth: The moderating role of parenting practices. *American Journal of Community Psychology, 34*(3/4), 235–250. doi:10.1007/s10464-004-7417-1

Wang, A. Y. (1994). Pride and prejudice in high school gang members. *Adolescence, 29*, 279–291.

Williams, S. K., & Kelly, F. D. (2005). Relationships among involvement, attachment, and behavioral problems in adolescence: Examining father's influence. *Journal of Early Adolescence, 25*(2), 168–196. doi:10.1177/0272431604274178

Wood, J. & Alleyne, E. (2010). Street gang theory and research: Where are we now and where do we go from here? *Aggression and Violent Behavior, 15*(2010), 100–111. doi:10.1016/j.avb.2009.08.005