“Tell Me Who You Hang with and I’ll Tell You What You Are:” Gang Identity, Organization, and Desistance

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Abstract

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Criminologists disagree on the level of organization present in street gangs. On one end of the spectrum, gangs are thought to be highly organized groups with formal rules and regulations. Conversely, some scholars argue that gangs are groups of loosely affiliated individuals. The present research will revisit this debate by looking at how gang organization, as perceived by individual gang members, affects the length of time an individual spends in a gang. This research also investigates how one's identity as a gang member affects desistance from the gang. As a competing explanation, we examine the role of self-control theory in relation to desistance from gang membership. We use discrete-time event history models to evaluate whether perceived gang organization and an individual's identity as a gang member impact desistance from street gangs. Results indicate that increased perceived gang organization is independently associated with longer length of time in the gang. Furthermore, the effect of one's social identity on the length of time in the gang is mediated by whether the individual has peers outside the gang and how much time they spend with their gang peers.

“TELL ME WHO YOU HANG WITH AND I’LL TELL YOU WHO YOU ARE:’

GANG IDENTITY, ORGANIZATION, AND DESISTANCE

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INTRODUCTION

Scholars have been investigating the level of organization in street gangs dating back to Thrasher's (1927) groundbreaking study of gangs in Chicago. Some claim that street gangs are highly organized groups with formal rules and regulations while a competing point of view suggests that they lack organization (see Decker, Katz, and Webb 2007a; Decker and Van Winkle 1994; Pyrooz, Fox, et al. 2012 for reviews of the debate). Understanding the "black box" of organization is important because gang organization has been linked to numerous outcomes such as drug sales and violence (Decker et al. 2007a; Venkatesh and Levitt 2000). In this research, we revisit the debate by investigating the role of gang organization on a less-studied outcome in gang research, desistance from gangs. Specifically, we examine whether increased levels of organization increases the length of time individuals spend in gangs. While becoming more prevalent, studies on desistance from gangs have historically received less attention than studies on why individuals join gangs. However this new body of research is equally important; current gang members are involved in more violence than former gang members (Melde and Esbensen 2013; Sweeten, Pyrooz, and Piquero 2013). Therefore, it follows that shortening the amount of time individuals spend in gangs may lessen the amount of violence in society. Thus far qualitative research on desistance from gangs has found that exploitation, level of membership, maturing out of the gang lifestyle, family, a significant other, and tiring of violence all influence whether an individual remains in a gang (Horowitz 1983; Padilla 1992; Thrasher 1947; Vigil 2010). Quantitative work shows that gang ties, embeddedness, growing tired of gang life, marriage, work, and family effect desistance (Pyrooz and Decker 2011; Pyrooz, Decker, and Webb 2010; Pyrooz, Sweeten,

and Piquero 2012). Missing from this discourse on desistance is a more in-depth investigation of the effect that gang organization has on desistance from gang membership. This research will address this gap.

We will also explore how one's identity as a gang member affects desistance and length of time in a gang using *social identity theory.* Recent theories in criminology have discussed the importance of identity on desistance from crime (e.g., Giordano, Cernkovich, and Rudolph 2002; Maruna 2001; Matsueda and Heimer 1997; Paternoster and Bushway 2009) however we have not applied identity to desistance from gangs. Historically used to study stereotyping and prejudices, social identity theory argues that identity comes from the groups of which an individual is a part, as these groups are sources of pride and self-esteem (Tajfel 1978; Tajfel and Turner 1979). This pride and self-esteem is based on in-group vs. out-group comparisons. When the in-group is perceived as different and favorable to the out-group, social identity is positive; however, when these comparisons are unfavorable, and social identity becomes negative, individuals will either leave the group or make the group better (Tajfel and Turner 1979). Thus, according to social identity theory, when an individual derives the in-group (the gang) as unfavorable s/he will leave the gang. While scholars have recently debated the merits of using social identity theory in relation to study street gangs (Hennigan and Spanovic 2012), this theory has not been tested extensively and is also missing from the general discourse on desistance from gangs. We suggest that the benefits individuals receive from a group—such as positive social identity— coupled with perceived constraints—such as group organization—determine, in part, how long an individual is a member of a gang and how hard it is to desist from it.

Not all criminologists agree that gang organization and identity are controls to gang processes, such as desistance. The most prominent competing explanation is Gottfredson and Hirschi's (1990) general theory on crime. Gottfredson and Hirschi argue that crime and deviance are individual level phenomena where the only conditions needed for crime are low self-control and opportunity. The theory argues against any type of organized criminal activity. In relation to street gangs, the general theory on crime posits that gangs have no organization, and individuals are neither attached to the gang nor committed to it. They do not trust each other and they only come together because, in some instances, the group provides the opportunity for youth to fulfill hedonistic pleasures. Thus, this competing hypothesis posits that individuals will remain in gangs not because of organization, identity, or peers, but rather because the gang gives them the opportunity to carry out their criminal behaviors.

This paper tests an integrated theory of desistance from gangs including organization and social identity theory versus an alternative hypothesis derived from self-control theories where gang organization and identity are unimportant or non-existent. We ask the following research questions: (1) Is perceived gang organization associated with persistence in gangs? (2) Does a strong social identity increase persistence in a gang? (3) Are organization and identity spuriously related to desistance from gangs because gang activity is entirely driven by self-control and age?

LITERATURE REVIEW

Gang Organization

Prior to the 1980s research indicated that gangs lacked formal organization and instrumental goals (Klein 1971; Moore et al. 1978; Short, Strodtbeck, 1965). In the 1980s that viewpoint changed when crack cocaine hit the streets and the media and law enforcement began portraying street gangs as well-organized enterprises centered on drug sales. A renewed interest in studying street gangs and their characteristics followed and one of the central themes in this research was the organizational level of street gangs. Decker and Van Winkle (1994) contrasted two schools of thought regarding gangs. The first is that gangs are highly organized, have a hierarchical leadership structure, and clearly defined goals for drug selling and profits. This view is supported by a number of ethnographies (Jankowski 1991; Padilla 1992; Skolnick et al. 1990; Taylor 1990; Venkatesh and Levitt 2000). The opposing view of gangs argues they are comparable to loose-knit groups with low (if any) levels of organization. The latter view-point has received more support over recent years (Decker 1996; Decker, Katz, and Webb 2007; Decker and Van Winkle 1994; Hagedorn and Macon 1988; Klein 1997; Klein and Maxson 2010). Unpacking gang organization has important theoretical implications; research has found that even low levels of gang organization affect gang activity. Decker et al., (2007) found that although most gangs are not well organized, low levels of gang organization are associated with increased involvement in offending and victimization.

Only recently have scholars begun investigating the link between gang organization and desistance from gang activity (Pyrooz and Decker 2011; Pyrooz, Sweeten, and Piquero 2012). Pyrooz, Sweeten, and Piquero (2012) were the first to study the effects of gang organization on desistance using longitudinal data. They found no effect of a static measure of the baseline level of gang organization on the length of time

in the gang. But because gang organization is likely to change over time, this study leaves unanswered whether gang organization as a time-varying covariate is associated with desistance. Research is needed that addresses the dynamics of gang organization and desistance. In this paper we build on previous research by conceptualizing gang organization as a dynamic process that affects desistance. Moreover, we also assess the relationship between gang organization and an individual's identity within the gang.

We posit that the organization of the gang is related to an individual's identity within the gang. Activities required by organized gangs (abiding by rules, going to meetings, paying dues, identification with certain signs, and colors) could serve to increase group cohesion. In other words, they can be conceptualized as "team building activities" – a concept commonly discussed in organizational literature – which in turn facilitate a stronger identity within the gang. Moreover, more organization could increase commitment to the gang which in turn could affect an individual's identity within the gang.

Social Identity Theory

At their most basic level, gangs are groups and, as with all groups, individuals generally become members because they perceive some benefit from joining. Common reasons individuals join gangs include protection, family/friends and monetary gains (Decker 1996; Thornberry 2003). Similarly, individuals join gangs for what Vigil (1988), termed "familiar supportive behavior." Respondents reported that being in a gang provided them with help when needed and a sense of belonging. Furthermore, Vigil argues that the gang is a surrogate family that protects members from victimization. He

implies a psychological connection: “The gang is needed and it gives something in return” (1988, p 90). The notion that an individual gains something emotionally important from the group to which they belong is a central tenement of social identity theory. *Social identity* is defined as “the part of an individual’s self-concept which derives from his knowledge of his membership of a social group (or groups) together with the value and emotional significance attached to that membership” (Tajfel 1978, pg 63). Social identity theory, therefore, posits that individuals identify with a particular social group and the strength of this identity predicts behavior regarding the group membership. Individuals want to have a stable or increasingly positive social identity. Positive social identity is based on in-group vs. out-group comparisons, and when social identity becomes negative individuals will either leave the group or seek to make the group better (Tajfel and Turner 1979). A simple application of this theory to gang desistance follows: where the in-group (the gang) becomes unfavorable the individual will leave the gang.

Given that social identity is based on in-group vs. out-group comparisons, being in a gang could positively increase an individual’s social identity as a gang member. Gangs fight with other gangs, which promotes unity and cohesion among members (Klein 1971) and this, in turn, could foster favorable in-group comparisons. Thrasher (1929:332) even speculated on these comparisons saying, “the gang boy’s conception of his role is more vivid with reference to the gang than other social group.” While comparisons with individuals in other gangs are probably most common, it is not this out-group comparison that will pull people out of gangs. If the comparisons can reflect different groups in society that are not gang related, the comparison to staying in the gang may seem less

beneficial. This could be influenced by who an individual is spending time with, and for how long, as this influences which social identity is most salient.

The social identity approach posits that people have multiple identities. Different identities are activated (or salient) in different social contexts. For example, an individual's gang identity would most likely be activated in the presence of other gang members and not in a more mundane context (i.e. if their interpersonal network only includes gang members vs. being heterogeneous). When social identities are activated, it results in depersonalization; an individual sees him or herself as the prototypical group member (Turner et al. 1987) and, therefore, acts the part. In this case, an individual would act like a prototypical member of his/her gang when this identity is triggered by contextual cues—such as being in close proximity to gang friends. This also suggests that the amount of time a gang member spends with fellow gang members increases the salience of the gang identity, which in turn influences gang outcomes, including persistence in the gang. In-group favoritism leads to out-group prejudice. Thus the more time one spends with gang members the more favorable the gang will be and the more prejudice they will see in other groups, particularly among those groups that conflict with gang values and ideology. As one gang member said there is no "in-between, for you're either with the group or against the group" (Vigil 1988, p434).

The social identity complexity, an extension of social identity theory, is a theory on how individuals reconcile multiple identities. While the social identity complexity theory was intended to explain group memberships in large social organizations there could be benefit in applying it to the relationship between individuals' gang identities, their peers, and gang outcomes. Social identity complexity is a theory of how individuals'

multiple identities interact: It is the degree of overlap that exists between the groups to which a person is a concurrent member (Roccas and Brewer 2002). Identity is on a continuum from more to less complex. The more similar or less numerous an individual's identities, the less complex his/her identity is. The less complex an individual's identity is, the less likely they are to see benefit in abandoning their favored in-group for an out-group. For example, if a gang member spends all his/her time with other gang members and has no non-gang friends, then the gang identity will most likely be dominant and not complex. Conversely, if an individual spends less time with gang peers and has friends that are not gang members, then gang identity should be less dominant and their collective identities should be more complex. Importantly, complex identities are contingent on awareness of multiple group memberships and recognition that groups may not converge. Having a complex identity is associated with more tolerance toward out-group members (Brewer and Pierce 2005). We posit that more tolerance should equate to a more favorable comparison of the out-group which could increase the chances of an individual leaving the gang or minimally the complexity allows choice when one sub-identity begins to be less satisfying or presents a problem. At the very least, it follows individuals with only gang friends and who spend all of their time with gang members should have a dominant gang identity and, conversely, those who divide their socialization among many groups should have a weaker gang identity. Thus, gang peers and how often an individual spends time with them should mediate the relationship between gang identity and gang outcomes. Positive peers can an act as a "hook for change" (Giordano et al. 2002) or possible a "pull factor" (Decker and Lauritsen 2002)

and help pull individuals out of gangs and possible alter the identities of individuals in gangs.

Thus far, only one paper that we are aware of has looked at gang member outcomes through the lens of social identity theory. Using social identity theory as a theoretical framework, Hennigan and Spanovic (2012) found social identity to be related to criminal and violent behavior of gang members. This research will investigate the relationship between social identity and desistance from a gang while taking into account the perceived organization of the gang. Group organization constrains the behaviors of individuals in the group, thus it follows that the organization of the group and the identity of individuals in the group additively effect whether an individual desists from the group.

Self-Control

In addition to investigating the role of gang organization and identity on the length of time an individual spends in the gang, I investigate the general theory of crime (self-control theory). Self-control theory, as described by Gottfredson and Hirschi (1990), posits that crime is an individual-level phenomenon. Bad parenting practices at a young age foster a lack of self-control which leads to criminal behavior. Gottfredson and Hirschi argue that individuals with low self-control tend to be impulsive, risk takers, prefer easy to hard tasks, are shortsighted, nonverbal, and prefer immediate gratification. Because individuals with low self-control have difficulty controlling impulses and delaying gratification, they are at risk of activities that provide immediate pleasures such as smoking, drinking, drugs, and gambling.

According to Gottfredson and Hirschi, in addition to low self-control, the only other condition necessary for a crime to take place is an opportunity. Because criminal opportunities are ubiquitous among gang members, gangs are ideal to investigate self-control theory. Gangs provide its members with the opportunity to commit crimes as it is well known that street gang members take part in a disproportion amount of crime (Thornberry, Huizinga, and Loeber 2004). Studies have also shown that low self-control is not only a risk factor for gang membership, but it is also a predictor of core gang members (Klein 1971). Moreover, self-control theory claims that gangs have no organization and individuals are neither attached nor committed to the gang. Members do not trust each other and they only come together because of opportunities to fulfill hedonistic pleasures. Specifically, "groups then act as a mask and shield, as a cover for activities that would otherwise not be performed"(Gottfredson and Hirschi 1990, pg 209). Thus, the only factor that should predict persistence in gang membership is low-self-control because the gang gives them space to carry out their criminal behaviors.

PRESENT STUDY

The present research investigates the role of social identity and gang organization in predicting persistence and desistance from gangs. Social identity theory holds that if an individual's social identity becomes negative then that individual will leave the group. Given, however, that individuals have many identities and identities are situationally salient it follows that that how often and who an individual spends time with will activate a given identity. Thus, we hypothesize that an individual's peers and how often they hang

around with their gang friends should mediate the relationship between gang identity and desistance. Gang organization, as previously discussed, is hypothesized to be independently related to the length of time in a gang. The rules of the gang operate independently of an individual's gang identity or peers. We therefore offer two hypotheses:

1. Being in a more organized gang is negatively related to desistance and positively related to the length of time in the gang.
2. Increased gang identity is negatively related to desistance from gang membership, but this relationship is mediated by the peer group contact.

Two additional hypotheses derive from the general theory of crime. Low self-control is negatively related to desistance and the relationship between identity, organization and desistance from the gang is spurious due to the confounding variable, low self-control.

METHODS

Event History Analysis

Using event history methods to analyze desistance is advantageous. First, because event history models can be used when some respondents only have a single data point, they have the ability to include in the analysis individuals that were only in a gang for one survey period. Second, censoring (discussed later) provides a natural way to deal with incomplete data, which is common when investigating hard to reach populations. Third, event history analysis explicitly models time using the hazard rate. The hazard rate

is the instantaneous rate of leaving (desistance) per unit of time given. This is equivalent to the probability of exiting the gang given the individual has yet to. Thus, if we wish to investigate factors that increase or decrease the duration of time spent in the gang it could be advantageous to model time in the gang as the dependent variable, as is done in event history models.

Event history does, however, have its limitations. Research has shown that leaving a gang is more of a process than an event (Decker and Lauritsen 2002). Leaving a gang is not an instantaneous decision; it occurs over a period of time as individuals contemplate their life choices (Decker, Pyrooz, and Moule 2014). Therefore, modeling desistance as an event could create bias. However, recent research has found modeling leaving the gang as an event to be a valid and reliable proxy of modeling the process of leaving the gang. Decker, Pyrooz, Sweeten, et al. (2014), in a sample of current and former gang members, contrasted gang status (de-identification) with present levels of gang embeddedness (disengagement) to ascertain the validity of the event of leaving the gang compared to the gradual process of leaving the gang. After controlling for demographics and gang characteristics, the authors found a strong relationship between the self-report of leaving the gang (de-identification) and embeddedness (disengagement) in the gang. They conclude that self-reports are robust measures of de-identification from a gang. Moreover, investigating three different operationalizations of de-identification Carson, Peterson, and Esbensen (2013) found that different definitions of desistance from gangs produced similar results. Thus, if modeling the event of desistance from gangs has been found to proxy disengagement from gangs, and different definitions of de-identification produce similar results, it follows that the process of leaving the gang can

be modeled as the instantaneous probability of the event per unit of time (or hazard) of leaving the gang. Therefore, to model desistance from gang membership, we use a discrete-time event history model with the event of interest being when an individual self-reports no longer being a member of a gang.

DATA

To estimate a model of desistance from gangs, we use data from the Denver Youth Survey (DYS) a longitudinal study of delinquency and drug use in high-risk neighborhoods in Denver, CO. The sample is representative of neighborhoods at high risk of delinquency, where high risk is defined as residing in socially disorganized, high-crime neighborhoods. Using vacancy and completion rates, the investigators selected 20,300 of 48,000 enumerated households and drew a stratified probability sample of households proportional to population size, then used a screening questionnaire to identify appropriately aged respondents (i.e., 7-8, 9-10, 11-12, 13-14 or 15-16 years old) (See Matsueda, Kreager, and Huizinga 2006). These age groups make up the five age-graded cohorts sampled. This sampling technique yielded a total of 1,528 completed interviews in the first wave, constituting a completion rate of 85% of eligible youths. The youngest two cohorts were administered a child survey until they were aged 11[1]. After age 11 all respondents were administered a youth survey until they were aged approximately 18. At and after Wave 6, all 18+ respondents were given the adult survey.

[1] Depending on the date of birth and the interview schedule, some 10 year-olds were given the youth survey.

The DYS consists of 10 waves of data, each wave was administered annually[2]. The study began in 1987 and wave 10 was completed in 1998. We use data from the youth and adult survey because questions about gang membership are not asked in the child survey. We restrict the study to respondents self-reporting being members of a gang at the same time point that they are involved in illegal activity or fights with other gangs, resulting in an analysis sample of 233 respondents.

Measures: Control

A detailed description of our measures can be found in Appendix A. We measure *Race/ethnicity* with a series of dummy variables based on individual self-report (Latino [Referent], African American, and White/Other Race). *Gender* is coded 0 = Female, 1 = Male. *Parental education* at Wave 1 Parent Survey was used to assess socioeconomic status (SES). A set of dummy variables divided the sample into three groups based on the average combined education of respondents' parents: less than high school, high school education [referent], and greater than high school. *Age at joining* is used to measure the age of the respondent when they first reported gang membership. *Duration* is a continuous variable used to assess how long an individual was in a gang at a given Wave. The mean duration time is 1.48. *Episode* is used to assess whether it is a respondent's first or second spell in the gang. *Waves in Gang* are a series of dummy variables included to record the waves respondents were in gangs. For example, if a respondent reported gang membership in Wave 4 they would be given W4=1.

[2] Because of issues with funding no interviewing was done in 1992 or 1993. Thus after Wave 5 interviews were completed in 1991 Wave 6 interviews were not completed until 1994.

Previous research has shown changes in victimization and offending are associated with changes in gang membership (Decker and Lauritsen 2002; Krohn and Thornberry 2008; Sweeten, Pyrooz, and Piquero 2013). Thus, we include variety scales (see Appendix A) for both victimization and offending. The victimization scale included three measures of self-reported violent victimization and the offending scale contained 18 measures of self-reported offending.

We use six variables to control for gang-related processes. First, we include dummy variables for whether individuals reported being the leader of a gang or expecting to be the leader of a gang. A third variable asked whether the gang provides protection. Most studies report individuals join gangs for reasons relating to protection (Decker 1996; Esbensen, Deschenes, and Winfree 1999; Thornberry 2003), consequently individuals may persist in gangs for protection. Another variable asked how far from the center of gang activities the respondent is. Lower scores equals closer to the center of gang activities (1-5). Individuals central to gang activities are expected to remain in the gang longer.

Two variables are used to capture different dimensions of the peer group of the respondent. The first is a dummy variable asking whether the respondent has any friends that are not in the gang. This variable captures the homogeneity of the respondent's peer group. The second variable second asks how often the respondent spends time with his/her gang friends. This variable captures the intensity of contact of the respondent's peer group.

Measures: Independent Variables

Gang Identity - Scholars have identified 3 dimensions of social identity: a cognitive component (awareness of group membership) an evaluation dimension which relates to self-esteem, and an affective dimension which is related to commitment to the group. These dimensions are common in the social psychological literature (Brown et al. 1986; Ellemers, Kortekaas, and Ouwerkerk 1999). Given that respondents reported being members of a gang it can be concluded they are aware of membership which satisfies the cognitive dimension. Therefore, the gang identity scale will require two dimensions—an evaluation dimension and an affective dimension. For the evaluation component, items were included that most resemble the collective self-esteem Scale (see Luhtanen and Crocker 1992). The collective self-esteem scale is widely used to measure an individuals social identity withing a group and was used by Hennigan and Spanovic (2012) to measure social identity of gang members. The items in our gang identity scale that most closely capture the collective self-esteem scale are "being in a gang makes me feel important," "being in a gang makes me feel respected," "being a member of the gang makes me feel like I'm a useful person to have around," and "being a member of the gang makes me feel like I really belong somewhere, I really enjoy being a member of the gang." "To measure the commitment component, the third dimension of social identity, I include the question "how important to you is the gang and their activities" Similarly worded questions have been used to measure commitment to conventional action (Hirschi 2002). These six items make the latent construct of gang identity. Exploratory factor analysis was conducted indicating a one-factor solution. A confirmatory factor analysis also suggested a one-factor solution (see Figure 1).

[Figure 1 about here]

The scale score is the mean of all six items divided by six so the scale remains between 1 and 5. Higher scores indicate a greater identity within the gang. Cronbach's alpha for the scale is .87. Appendix B compares gang identity to the similar concept of gang embeddedness.

Gang Organization is the average of a series of time-varying dichotomous variables. For each year a respondent answered "yes" to being a member of a street gang they were also asked to respond to a series of questions about the organization of the gang. Respondents were given six dimensions of gang organization: The questions asked "Tell me if the following describes your gang. (1) "there are initiation rites," (2) "the gang has established leaders," (3) "the gang has regular meetings," (4) "the gang has specific rules or codes," (5) "gang members have a specific role," and (6) "there are specific roles for girls." The scale score is the sum of all six items divided by six, so the scale remains between 0 and 1. Scores closer to one indicate more organization in the gang. For gang organization, Cronbach's alpha is .65. Similar questions and scales have been used by previous studies to operationalize gang organization (Decker et al. 2007b; Pyrooz, Sweeten, et al. 2012; Sweeten et al. 2013)

Self-Control Theory

Historically, low self-control has been measured using attitudinal scales (Grasmick et al. 1993) or using a behavioral scales (Keane, Maxim, and Teevan 1993). In a commentary Hirschi and Gottfredson, (1993) add to the measurement debate stating they supported the use of behavioral measures over attitudinal self-reports. Because the

authors of the theory prefer behavior measures over attitudinal measures, we include two measures of behavior and one attitudinal scale to measure self-control. In addition, because the theory posits that self-control becomes stable by the end of the first decade in life, we include measures both in childhood and at the time a respondent was in a gang thereby also investigating the time invariant claim of the studies.

The first behavioral measure was current amount of alcohol consumption. The general theory on crime posits that individuals with low self-control will drink alcohol because it provides immediate gratification. Therefore, we include measures of how often, within the last year, the respondent drank beer or hard liquor. Second, because the theory claims that one of the best predictors of self-control is minor delinquency, we include an eight-item scale of minor delinquency self-reported when the respondent was approximately 11 years old.

The attitudinal scale is a six-item scale comprised of the following: "act without thinking," "like to do daring things," "are impatient—want to have things right away," " get bored easily," and "get upset when you have to wait for something." These variables are coded as 1 = "Disagree," 2 = "Somewhat agree," and 3 = "Strongly agree." We again take these measures from when the individual was approximately 11 years of age. The Cronbach alpha is .61.

Gang membership

The main outcome variable is desistance from gang membership. Gang membership is operationalized using a self-report measure: Youth were asked "Thinking about last school year between Christmas a year ago and the Christmas just past were you

a member of a youth or street gang?", adults were asked "Thinking about the past year between Christmas a year ago and the Christmas just past were you a member of a street gang?" The self-nomination method has been shown to be valid and robust in both detention and community settings (Esbensen et al. 2001; Katz, Webb, and Decker 2005; Webb, Katz, and Decker 2006). To be counted as a gang member in the study, a respondent must respond affirmatively to being a member of a street gang, and then later in the interview, the respondent must respond affirmatively to having been involved in fights with other gangs or to have participated in illegal activities. These extra steps are taken to ensure that the respondent in question is referring to a street gang and not a peer group that is not associated with street crime (see Esbensen and Huizinga, 1993).

Data Structure and Statistical Analysis

The Denver Youth Survey contains 233 respondents who meet the criteria for gang membership. My statistical model is of desistance from gang membership of this group. Our event history models use duration in the gang as the timing mechanism governing the hazard for desistance from gang membership. The data have been pooled to represent each person-year a respondent reported being in a gang, this is termed the risk set. For every year a person reports they have been a member of a gang within the last year, they are scored "0" which indicates they are still a member of a gang. In subsequent waves when the person responds "no" to the same question, they are scored "1" indicating that they are no longer a member of a gang. This is the event of desistance and when it occurs the respondent exits the risk set. Time-varying covariates are lagged to ensure that the timing of measurement of variables is consistent with the causal ordering assumed in the models. Most importantly, the organization of the gang and

gang identity precede desisting from the gang. In this data structure, the prior year's covariates predict the current year's gang membership. While necessary to ensure timing of measurement, this will exclude Wave 1 for the outcome variable because we would need covariates from Wave 0 to predict gang membership from Wave 1) and Wave 10 covariates from being predictor variables, (we would need a Wave 11 indicator of gang membership). Additionally, a few key variables were not asked until Wave 3; therefore this study only uses Waves 4-10 in the analysis.

The specific method we use is a discrete-time event history model (Allison 1982, 2013). While duration of time is continuous, it becomes discrete when they are measured at each wave. This assumes that a continuous time-proportional hazard model generated the data that are arranged into discrete time units. Specifically, the discrete-time hazard function models the probability of an event (reporting no longer being a gang member) occurring during year t, conditional on the fact that the event did not occur before time t. This relationship is shown by:

$$P_{it}(t) = Pr(T > t|t, X_{it})$$

The hazard rate can be depicted by the following equation:

$$P_{it} = 1 - \exp[-\exp(\alpha_t + \beta' X_{it})]$$

α_t (t =1,2,3,4,5,6) is a set of constants for duration in the gang, β is a vector of regression coefficients, and X_{it} is a vector of independent variables (time-varying or time-invariant). We estimate this model using a generalized linear model with a complementary log-log link function.

$$\log[-\log(1 - P_{it})] = \alpha_1 + \beta' X_{it}$$

We use the complementary log-log link function for ease of interpretation. This model yields coefficients similar to the Cox proportional hazard model in discrete time. Specifically, if you exponentiate the coefficients you get hazard ratios. Here the hazard rate is the probability of an event (desistance from the gang) occurring in that one-year time period given the respondent survived previous time periods.

Treatment of Repeated Events

A few respondents leave the risk set (self-report that they are no longer in the gang) and then in later waves return to the gang. After an individual experiences desistance, the event their clock will be reset to 0 and their second event will be treated as separate from the first. In addition, a dummy variable will be added to the data indicating whether it is a respondent's second event (Allison 1982). Given this issue of non-independence of observations, I also use robust standard errors (Allison 2013).

Assumptions of hazard models

Hazard models assume $\alpha_t = \alpha$, meaning the hazard does not change over time. In this study it is necessary to relax this assumption for two reasons. First, because of issues with funding, between Wave 5 and Wave 6 there is a three year gap in the interview schedule. Thus, it stands to reason that the hazard will be different in these waves than in previous or subsequent waves. Relaxing the constant hazard assumption will help control for this data limitation. Second, external environmental events could influence the hazard of desistance. For example, a big raid by police or a change in leadership could influence

the hazard from year to year. To relax the constant hazard assumption a dummy variable for each wave is included in the analysis (Allison 1982).

Left Censoring and Treatment of Missingness

Left censored observations are observations where the start of the event time is unknown. In our case, if it is not known exactly when an individual joins a gang, then it is not possible to model time until exit. It is often recommended that left-censored cases be removed from analysis to reduce bias (Singer and Willett 2003). Nevertheless, when the number of left-censored cases is substantial and are correlated with duration, bias will remain. Therefore prior to analysis it must be ascertained whether it is possible that individuals were either members of a gang and left before the study began or if the time an individual joined the gang is unknown. To investigate this, we look to previous literature.

Several studies have investigated at what age youth join gangs. Howell and Griffiths (2015), report that the typical age ranges youth members join a gang is between 11 and 15 years old. Two recent studies using the National Longitudinal Survey of Youth found similar results (Pyrooz 2014; Pyrooz and Sweeten 2015). Taken together, previous research indicates that most youth join gangs in their early teenage years, with a few outliers joining at a younger age. The retrospective nature of the DYS can be argued to capture not only those at prime gang-joining age, but the majority of early-onset outliers. Respondents were given their first youth survey at age 11 and were asked: “in the past year were you a member of a street gang?” This encompasses gang membership beginning at age 10, the low end of the age spectrum for joining a gang. Thus, while it is

possible that a youth could have joined and left a gang by age 10, it is extremely unlikely. Therefore, it is reasonable to assume that this study captures the majority and possibly all, gang-involved youth in the DYS and left censoring is negligible. Nevertheless, because it is unknown when youth who report being gang members in Wave 1 became members, they will be eliminated from the analysis.

The final issue to be investigated prior to analysis is missing data. Due to the problems associated with surveying hard-to-reach populations, there is a non-trivial amount of missingness associated with this study. Missing data stems from (1) the time-lagging of the covariates, (2) key predictor variables not being asked until Wave 3, (3) respondents not being interviewed in the person-year before the spell (left censoring) or in the person year after the spell (right censoring), and (4) respondents not interviewed in the middle of the spell.

Because of the first two issues mentioned above, person-years from Waves 1-2 must be dropped from the analysis. Respondents with person-years in Waves 1 or Wave 2 (years without key predictor variables) and any subsequent wave (years with key predictor variables) will be considered left truncated. Left truncation is when the start of event time is known, but there is a missing observation period in the spell . In this case, the start of the event is known but the respondent does not have covariates for it. In left-truncated cases, person-years in which the respondent has complete data are used. There are a total of 5 left-truncated respondents.

Individuals with data missing in the person-year before the spell begins will be left-censored and eliminated from the study[3] (Singer and Willett 2003) . Right censoring (when the event occurrence is unknown) is dealt with by including all complete data a respondent has prior to being censured (Allison 2013). The final sample of the study in the study is N =260. Because 35% of the sample are dropped for data issues, analysis were performed to see if there are substantive differences between the respondents included in the analysis and those excluded from the analysis due to censoring. Sensitivity tests were conducted (See Appendix C) and results indicate that there do not seem to be any differences between those included and those excluded from the analysis.

Person-Years lost by reason

Sample in Person Years before drop	404
Person Years lost for being in Wave 1, 2, and 10	36
Left censoring issues	14
Right censoring issues	52
Both Left and Right censoring issues	42
Sample person-years after drops	260

[3] For example, if an individual was interviewed in Wave 3 and reported not being a gang member, then was not interviewed in Wave 4 i.e., they were missing, but was interviewed in Wave 5 and now reported they were a gang member. The start of risk time cannot be ascertained, thus, this person is left censored and excluded from analysis. Individuals with missing data in the middle of a spell will be right censored at the missing person-year. For example, if an individual is in a gang Waves 5 and 6 missing in Wave 7, and in the gang Wave 8, the respondent will be right censored after Wave 6.

RESULTS

Descriptive statistics are presented in Appendix A. We present three event history models that describe desistance from gangs. Model 1 begins with the variables related to self-control. If the competing hypothesis is correct, these are the only variables that will predict desistance from gangs. Model 2 adds the gang process variables, gang identity, and gang organization to test whether gang organization and gang identity predict desistance or whether they are spuriously-related to desistance given self-control. Model 3 adds the peer group variables to determine whether they mediate the relationship between identity and desistance. It is hypothesized that, because peers make salient identity, peers should mediate the relationship between identity and desistance. All results are reported using the formula $(e^{\beta}$ -1)* 100 so results indicate percent change in the probability of exiting the gang given the respondent did not leave yet.

In all 3 models episode, gender, and white/otherrace significantly predicted desistance with similar effect sizes. Being in your second episode of gang membership vs. your first episode is associated with increased hazards of desistance between 171% and 345%. This could be an important finding. Research has not yet investigated the role of intermittency in gang-related processes. Next, compared to females, being male decreased the hazard for desistance by approximately 50%. Finally compared to Latinos, reporting being White or other- race increased the hazard for desistance by approximately 100%.

[Table 1 about here]

In Model 1, after controlling for demographic variables, only one variable from the self-control block predicted desistance from gang membership. This was the beer drinking variable, which is related to immediate gratification. A one unit increase in the beer drinking scale is associated with a 10% increase in the hazard for desistance ($p < .10$). Both the attitudinal scale and behavioral scale of minor delinquency scale did not significantly predict desistance from gang membership.

Model 2 analyzes the control variables, the self-control variables the gang process variables, gang identity, and gang organization. As in model 1, the only self-control variable to predict desistance from gang membership was the beer drinking scale. A one unit increase in the beer drinking scale is associated with an 11% increase in the hazard for desistance ($p < .10$). In addition, none of the gang process variables significantly predicted desistance. However, both gang identity and gang organization predicted desistance from gang membership. A one unit increase in the gang identity scale is associated with a 20% lower hazard for desistance, $p < .10$. Moreover, being in an organized gang is associated with a 64% decrease in the hazard for desistance ($p < .05$).

The final model, (model 3) tested if gang peers mediate the relationship between gang identity and desistance. If this is true, we expect that when the peer variables are added to the model, the relationship between identity and desistance will disappear. I also test whether gang organization operates indirectly through peers. Compared to respondents who report they have no friends outside of the gang, those who do report having friends outside the gang is associated with a 60% increase in the hazard for desistance ($p < .05$). However, the amount of time an individual spends with gang friends did not significantly predict desistance net of all other variables. Gang identity is no longer significant,

supporting the hypothesis that peers mediate, specifically the homogeneity of gang peer network, the relationship between gang identity and desistance. However, gang organization still predicts desistance in the expected direction, reporting the presence of gang organization is associated with a 64% decrease in the hazard for desistance ($p < .05$). In the final model none of the self-control variables significantly predicted desistance from gang membership. Taken together, in the final model, only two focal variables, net of all others variables were significant. Gang organization and whether an individual has peers not in the gang were significant and their effect sizes were particularly strong. Gang identity was not significant, however, it is significant in all models (multiple models not shown were ran) where the peers variables are not included suggesting gang identity is mediated by gang peers. The implications of this will be discussed next.

DISCUSSION

The purpose of this study was to test different competing theories of desistance from gangs. Specifically, applying discrete-time event history modeling to the study of desistance from gangs, we investigated whether gang organization and gang identity impact desistance. The results suggest that they do. Gang organization was shown to strongly effect the hazard of desistance. Gang organization was significant and robust in every model. This study shows that reports of organization decrease the hazard for desistance which adds to the discussion of gang organization. Moreover, we extend the knowledge of gang literature by operationalizing gang organization as time varying.

Being in a gang is a very volatile state, as evidenced by the positive effect of episode count. Given all the cycling in and out of the gang, and as a consequence the numerous personal changes in the gang, the organization of the gang could change as well. Other studies found that being in a gang increases the risk of death (Decker and Pyrooz 2010) and incarceration (Vigil 2010) which both take individuals out of gangs. In addition to negative outcomes, research has shown it is common for an individual to simply leave the gang after a short period of time (Pyrooz and Decker 2011). Taken together, the results of this study coupled with previous research on gangs indicate future research should attempt to model the time-varying organization of gangs and reciprocal effects on individual desistance.

This research also applied a new theory to the study of gangs, social identity theory. Social identity theory posits individuals get psychological benefits from the group they are a part of and when they no longer get what they need from the group they either leave the group (if they can) or make it better. Because it is well established in the literature that leaving a gang does not involve, as was once thought, killing your mother or shooting someone (Decker and Lauritsen 2002; Pyrooz and Decker 2011). Most individuals just leave the gang, thus it can be concluded that individuals *can* walk away from gangs. Accordingly, if consequences are not dire and individuals can just walk away it stands to reason that what an individual gets from a group (self-esteem or self-concept) will be important in deciding whether that person leaves the gang. Given this, social identity theory could be an important theoretical perspective in studying desistance from gangs.

We also find that this relationship between social identity and desistance is mediated by who individuals spend time with (and how often) because that triggers, or makes salient, an identity. The results seem to support this hypothesis. Without the peer variables in the models, social identity predicted desistance; when the peer variables were added that relationship went away, suggesting that social identity works though peers. However, an alternative possibility is that peers work through social identity. To address this issue, supplemental statistical analyses were done to better understand the relationship. Lagged peer variables were regressed on social identity with controls and lagged identity was regressed on peers. This was done to try and determine the direction of the relationship. Social identity predicted how often an individual spends with gang friends at a later time but spending time with gang friends did not predict identity. This is in the hypothesized direction. It should be noted here that while this variable was not significant in model 3 in additional analysis (not shown) it was found to mediate the effect of gang identity and desistance. However, there was no significant relationship between friends in the gang and social identity in either direction. Future research should continue to investigate this relationship.

Turning to the competing hypotheses, I find that the relationship between desistance from gangs and self-control theory was weak at best. Only the self-control measure of instant gratification (drinking beer) predicted desistance. Given that the level of gang organization strongly predicted desistance it could be that self-control works in conjunction with other processes to affect outcomes and may not be the sole driving force. Pyrooz et al. (2012) found self-control and how embedded an individual is at baseline predicted desistance. Future research should address this as well.

This study is not without limitations, missingness and data issues required the total sample of person-years to be reduced by 35%. While sensitivity analysis showed those not included were similar to those included, a full sample would have given the analysis more statistical power. Also, there was a three-year lag between Waves 5 and Wave 6. Wave 6 asked retrospectively about the last year however there is still two years of unobserved time. I have included wave variables to see if desistance in any one year was different from any other and results shown that they were not. Also adding the wave variables relaxed the proportionality assumption that the hazard is proportional across the whole duration of the study. We have controlled for this as best we can, however, it is still a limitation.

Despite these limitations, this study contributes greatly to the study of desistance from gangs. Applying event history analysis has been shown to be a valid method to the study of desistance from gangs. Perceived gang organization has shown to strongly impact the length of time one spends in a gang adding to the debate about the importance of gang organization. Finally, we suggested a new theoretical underpinning to the study of gangs. Social identity theory, while needing further investigation, could help explain desistance from gangs.

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APPENDIX A: VARIABLE DESCRIPTIONS

Appendix A. Variable Descriptions and Descriptive Statistics Comparing Characteristics of Respondents Included in Anaylsis vs. Excluded from anaylsis in the First Year of Gang Membership

Variable Name	Description	Included (N =172)		Dropped (N = 61)		
		N	%	N	%	χ2
Control Variables						
Wave 4	1=yes respondent reported gang involvement in wave 4	26	15	1	2	
	0=No respondent did not report gang involvement in wave 4	146	85	60	98	7.98 **
Wave 5	1=yes respondent reported gang involvement in wave 5	36	21	3	5	
	0=No respondent did not report gang involvement in wave 5	136	79	58	95	8.28 **
Wave 6	1=yes respondent reported gang involvement in wave 6	34	20	8	13	
	0=No respondent did not report gang involvement in wave 6	138	80	53	86	1.35
Wave 7	1=yes respondent reported gang involvement in wave 7	45	26	9	15	
	0=No respondent did not report gang involvement in wave 7	127	74	52	85	3.29
Wave 8	1=yes respondent reported gang involvement in wave 8	11	6	6	10	
	0=No respondent did not report gang involvement in wave 8	161	94	55	90	0.79
Wave 9	1=yes respondent reported gang involvement in wave 9	15	9	6	10	
	0=No respondent did not report gang involvement in wave 9	157	91	55	90	0.06
Wave 10	1=yes respondent reported gang involvement in wave 10	5	3	4	7	
	0=No respondent did not report gang involvement in wave 10	167	97	57	93	1.62
Race/ethnicity						
Hispanic	0=Non-Hispanic, 1=Hispanic	91	53	28	45	0.88
Non-Hispanic black	0=Non-Black, 1=Black	57	33	25	41	1.21
White_Other	0=Non-White or other race, 1=White or other race	24	14	8	13	0.27
Male	1=Male	124	73	47	77	
Female	0=Female	48	27	14	23	0.57
Parental Education Level						
High School	1=Parent completed high school	48	28	13	23	0.45
More than High school Education	1=Parent completed more than high school	19	11	9	16	0.34
Less than High school Education	1=Parent did not complete high school	105	61	35	61	0.00
Gang Process Variables						
Protection	The gang provides protection, 1=yes	166	97	49	89	
	The gang provides protection, 2=no	5	3	6	11	5.73 *
Leader	1=respondent reported being a gang leader	14	8	6	11	
	0=respondent reported not being a gang leader	157	92	49	89	0.38
Expect to be a leader	1=respondent reported expecting to be a gang leader	27	16	11	20	
	0=respondent reported not expecting to be a gang leader	142	84	43	80	0.56
Homogeneity of network	Are any of your close friends not members of this gang, 1=Yes	112	65	24	72	
	Are any of your close friends not members of this gang, 0=No	59	35	9	28	0.65
Focal Gang Variables		Mean	SD / N	Mean	SD / N	t
Gang Identity	Six item scale including "being in a gang makes me feel important," "being in a gang makes me feel respected," "being a member of the gang makes me feel like I'm a useful person to have around," and "being a member of the gang makes me feel like I really belong somewhere, I really enjoy being a member of the gang." I include the question "how important to you is the gang and their activities" Scale is sumed and divided by 5 to keep original metric (1-5)	2.90	0.88/ 168	2.93	0.84 / 55	-0.21

Gang Organization	*Gang Organization* is the average of a series of time-varying dichotomous variables. Each year a respondent answered "yes" to being a member of a street gang they were asked to respond to a series of questions about the organization of the gang. "Tell me if the following describes your gang: “there are initiation rites,” “the gang has established leaders,” “the gang has regular meetings,” “the gang has specific rules or codes,” “gang members have a specific role,” and “there are specific roles for girls.” The scale score is the sum of all six items divided by six, so the scale remains between 0 and 1.	0.57	0.28 / 169	0.54	0.31 / 32	0.57
Intensity of gang network	How often do you and some of the gang members get together? 1 = Strongly disagree, 2 = Disagree, 3 = Agree nor disagree, 4 = Agree, 5 = Strongly agree	3.37	1.45 / 167	3.44	1.40 / 55	-0.29
Centrality	If the Target Scale represents the activities that go on in your gang, how far out from the center of things are you, 1=the center, 5=the outer edge	2.63	1.23 / 169	2.78	1.18 / 32	-0.65
Offending Variety scale	Self-reported offending variety scale including involvement in 19 possible acts of deliquency such as throwing objects at people, gang fights, using and selling drugs, assualt, robbery, and theft in the last year	4.40	3.93 / 168	7.00	6.01 / 12	-2.13 *
Victimization variety scale	Self-reported victimization variety scale indicating if the respondent was strongarmed by someone with a weapon, hit by someone trying to hurt them, or attacked by someone with a weapon trying to seriously hurt or kill them in the past year.	0.55	0.80 / 163	0.69	0.92 / 36	0.98
General Theory on Crime						
Childhood delinquency	Self-reported variety scale of minor offending taken when the respondent was approximately 11 year old. Items include skipping school, cheating, making obscene phone calls, public drunkenness, and stealing less than 5 or 50 dollars	2.36	2.12 / 171	3.11	1.71 / 61	-2.49 **
Attitudinal Scale	The attitudinal scale is a six-item scale comprised of: "act without thinking," “risk taking,” "like to do daring things,” “are impatient—want to have things right away,” “ get bored easily,” and “get upset when you have to wait for something.” These variables are coded as 1 = “Disagree,” 2 = “Somewhat agree,” and 3 = “Strongly agree.” I again take these measures from when the individual was approximately 11 years of age	1.94	0.45 / 172	1.99	0.40 / 61	-0.76
Frequency of beer drinking	In the last year, how often did you drink beer. These variables are coded as 0 = "Never," 1 = "Less than once a month," 2 = "At least once a month," 3 = "Once a week," 4 = "More than once a week, " 5 = "Every day"	2.19	1.65/168	2.33	1.57	-0.48
Frequency of hard liquor drinking	In the last year how often did you use hard liquor. These variables are coded as 0 = "Never," 1 = "Less than once a month," 2 = "At least once a month," 3 = "Once a week," 4 = "More than once a week, " 5 = "Every day"	0.98	1.31/171	1.11	1.19/42	-0.64
Age at joining	Age respondant joined gang	17.4	2.33/172	17.13	2.765/61	0.94

APPENDIX B: GANG IDENTITY AND GANG EMBEDDEDNESS

Because the construct of the gang identity overlaps with the construct of gang embeddedness, (Pyrooz, Sweeten, et al. 2012) analysis were conducted to determine whether these constructs capture the same latent construct. Gang embeddedness, individual immersion in a gang, is operationalized with five items, "how often did you have contact with the gang/posse," "what is your position in the gang/posse," "how important is the gang/posse to you," "how many of your friends are not members of the gang/posse," and "how often have you beaten up, threatened or physically attacked someone as a part of the gang in the past year". Exploratory factor analysis was applied to the 10 items of both scales to determine if they both measure the same latent construct. Only one factor had an eigan value greater than one indicating a 1-factor solution however, three of the items in embeddedness loaded very low. Gang assault loaded at .1, friends not in the gang loaded at .18, and position in the gang loaded at .22. These weak factor loadings suggest that that these 3 measures are not strongly related to the latent construct being measured. However the high factor loading of two of the five items of gang embeddedness (how important the gang and there activities are to you (.65) and how often you get together with gang friends (.57) indicate they are strongly related to the same latent construct. This needs to be investigated further.

How important is the gang and its activities to you implies commitment to the gang , which is both a component of gang identity and embeddedness. As demonstrated by (Pyrooz, Sweeten, et al. 2012) being committed is an indicator of how embedded an individual is in a gang and we demonstrate here commitment to the gang strengthens an individual's identity in the gang. Would it be likely that an individual be embedded in a

gang if the individual was not committed to the gang? Or would it be likely for an individual to have a strong gang identity but not be committed to the gang? We posit the concept of commitment a part of the theoretical conceptions of both gang identity and gang embeddedness. Furthermore, while it stands to reason that how much time individuals spend with gang friends is a key component gang embeddedness it is not an integral part of gang identity. Instead, an individual's identity influences how much time they spend with gang friends. We conclude that the concepts of gang identity and gang embeddedness are correlated and related to one another yet distinct separate concepts. However we recognize the predictive power of gang embeddedness. Thus we include all of the individual components of it in our model. We prefer to capture in the relationship between gang identity and peers while controlling for other embedded constructs.

APPENDIX C: SENSITIVITY ANALYSIS

Because 35% of the sample had to be excluded for data issues, sensitivity tests were conducted to ascertain whether there are substantive differences between the respondents included in the analysis and those excluded from the analysis due to censoring. Appendix A compares characteristics of respondents included in the analysis to those of respondents who were excluded for missingness and censoring. Using ttests and chi-squares only four significant differences between those included and those excluded from the analysis were found. Individuals who were excluded from the sample were less likely to report gang membership in Waves 4 or 5. Individuals excluded were more likely to report that their gang does not provide protection. In addition, individuals excluded from analysis reported, on average, one more offense of minor delinquency offense. Differences between individual included vs. excluded were largest in self-reported offending, but this is most likely due to the small number of individuals excluded, $N = 12$. The standard deviation for this group was 6.01 indicating very large amounts of variation within the 12 respondents. Given that most of the variables do not differ significantly it seems unlikely that individuals included the sample are different than individuals excluded. Next, Table C1 reports results of models that included only variables asked in all 10 surveys. Thereby including respondents from Wave's one and two who were previously excluded because key focal gang variables were not asked until Wave three. Results are similar to previous models indicating individuals included vs excluded are not substantively different.

Table C1. Sensitivity Analysis Including All Variables Present Waves 1-10:
Complementary Log-Log Hazard Models of Desistance from Gang Membership

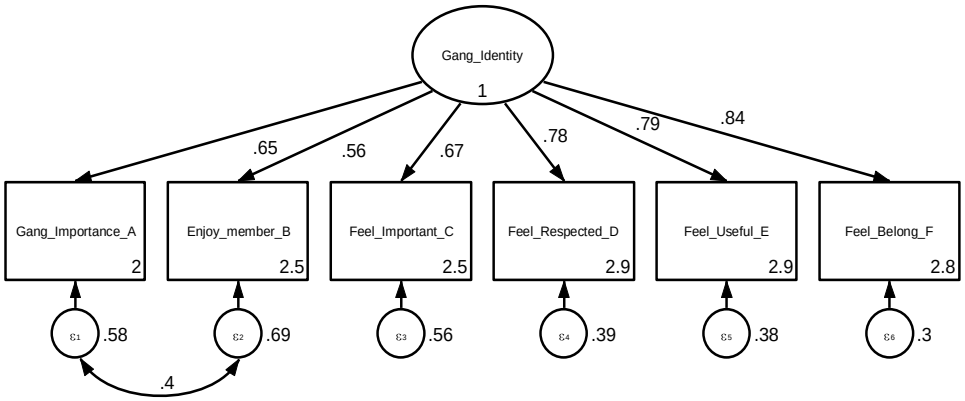
	MODEL C1			MODEL C2			MODEL C3		
	Coef.	Robust S.E.	Hazard Ratio	Coef.	Robust S.E.	Hazard Ratio	Coef.	Robust S.E.	Hazard Ratio
Control Variables									
Intercept	0.64	1.08		-0.34	1.22		0.49	1.28	
Duration	0.03	0.11	1.03	0.09	0.13	1.09	0.32	0.14	1.03
Episode	0.52	0.31	1.68	0.52	0.37	1.69	0.42	0.37	1.52
Wave (Wave 4)									
Wave 5	-0.64	0.31	0.53	-0.27	0.40	0.76	-0.24	0.40	0.79
Wave 6	-0.20	0.28	0.82	0.16	0.35	1.18	0.31	0.38	1.37
Wave 7	-0.05	0.29	0.95	0.37	0.36	1.45	0.49	0.39	1.63
Wave 8	-0.12	0.36	0.88	0.32	0.41	1.38	0.48	0.46	1.61
Wave 9	-0.92	0.46	0.40	-0.61	0.55	0.54	-0.42	0.57	0.65
Wave 10	-0.29	0.47	0.75	0.09	0.54	1.09	0.33	0.58	1.39
Race/ethnicity (Hispanic)									
Non-Hispanic black	-0.12	0.20	0.89	-0.12	0.22	0.89	-0.15	0.23	0.86
White_Other	0.80 **	0.28	2.22	0.81 *	0.32	2.25	0.79 *	0.31	2.21
Male	-0.55 **	0.21	0.58	-0.67 **	0.24	0.51	-0.71 **	0.24	0.49
Age at joining	-0.01	0.44	0.99	-0.02	0.05	0.98	-0.26	0.05	0.97
Parental Education Level (Highschool)									
More than High school Education	-0.23	0.36	0.98	-0.05	0.39	0.95	-0.06	0.39	0.94
Less than High school Education	0.35 †	0.21	0.29	0.34	0.34	1.40	0.30	0.22	1.35
Gang Process Variables									
Does the gang protect its members	-0.05	0.40	0.95	0.20	0.52	1.17	0.13	0.52	1.14
Are you a leader	-0.34	0.32	0.97	-0.58	0.35	0.94	-0.63	0.35	0.94
Do you expect to be a leader	-0.62	0.24	0.94	0.02	0.26	1.02	0.01	0.27	1.01
Focal Gang variables									
Gang Identity	-0.25 **	0.10	0.78	-0.10	0.12	0.90	-0.11	0.73	0.89
Peers;how often hang with gang friends				-0.14 †	0.73	0.87	-0.13 †	0.07	0.88
Peers; have friends not in gang				0.35	0.21	1.42	0.36 †	0.21	1.43
General Theory on Crime									
Childhood delinquency							0.53	0.54	1.05
Attitudinal Scale							-0.15	0.20	0.86
Log pseudolikelihood	-175.05			-155.46			-153.95		
Wald Chi-square (d.f)	34.96 (96)		N=285	38.55 (256)		N=256	43.66 (22)		N =255

Denver Youth Survey

Note: Referent in parentheses

† $p \leq .10$. * $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$

Figure 1.



8.08 Prob > X^2 = 0.4259

Root mean squared error of approximation (RMSEA) = 0.01

Comparative fit index (CFI) = 1.00

A: How important to you is the gang and their activities (1-5)?

B: I really enjoy being a member of the gang (1-5).

C: Being in a gang makes me feel important (1-5).

D: Being in a gang makes me feel respected (1-5).

E: Being a member of the gang makes me feel like I'm a useful person to have around (1-5).

F: Being a member of the gang makes me feel like I really belong somewhere (1-5).

Table 1. Complementary Log-Log Hazard Models of Desistance from Gang Membership

	MODEL 1				MODEL 2				MODEL 3			
	Coef.		Robust S.E.	Hazard Ratio	Coef.		Robust S.E.	Hazard Ratio	Coef.		Robust S.E.	Hazard Ratio
Control Variables												
Intercept	-1.31				-1.19		1.49		-0.31		1.61	
Duration	0.09		0.18	1.09	0.07		0.19	1.07	0.12		0.20	1.13
Episode	1.00	**	0.42	2.71	1.41	**	0.44	4.09	1.49	**	0.43	4.45
Wave (Wave 4)												
Wave 5	-0.07		0.41	0.93	-0.21		0.46	0.81	-0.44		0.48	0.65
Wave 6	0.32		0.39	1.38	0.29		0.44	1.33	0.15		0.46	1.16
Wave 7	0.34		0.41	1.42	0.41		0.45	1.50	0.40		0.45	1.50
Wave 8	0.12		0.51	1.13	0.25		0.54	1.28	0.26		0.53	1.30
Wave 9	-0.56		0.56	0.57	-0.57		0.60	0.57	-0.72		0.62	0.49
Wave 10	0.26		0.62	1.29	0.45		0.65	1.56	0.42		0.66	1.51
Race/ethnicity (Hispanic)												
Non-Hispanic black	-0.16		0.25	0.85	-0.18		0.25	0.84	-0.17		0.27	0.84
White_Other	0.75	*	0.30	2.11	0.73	*	0.32	2.08	0.75	*	0.34	2.12
Male	-0.76	**	0.24	0.47	-0.81	**	0.27	0.44	-0.74	**	0.28	0.48
Age at joining	0.04		0.05	1.04	0.03		0.05	1.03	-0.01		0.06	0.99
Parental Education Level (Highschool)												
More than High school Education	-0.19		0.38	0.83	-0.26		0.40	0.77	-0.22		0.40	0.80
Less than High school Education	0.21		0.21	1.23	0.19		0.22	1.20	0.21		0.24	1.24
Offending Variety scale	-0.01		0.03	0.99	0.02		0.03	1.02	0.03		0.04	1.03
General Theory on Crime												
Childhood delinquency	0.04		0.06	1.04	0.03		0.06	1.03	0.03		0.06	1.03
Attitudinal Scale	-0.15		0.20	0.86	-0.11		0.21	0.90	-0.12		0.22	0.89
Current frequency of beer drinking	-0.11	†	0.06	0.90	-0.11	†	0.06	0.89	-0.10		0.07	0.91
Current frequency of hard liquor drinking	0.06		0.08	1.06	0.03		0.08	1.03	-0.01			0.99
Victimization variety scale	-0.05		0.15	0.95	0.01		0.16	1.01	-0.01		0.17	0.99
Gang Process Variables												
Does the gang protect its members					0.32		0.59	1.37	0.26		0.62	1.30
Are you a leader					-0.43		0.42	0.65	-0.47		0.42	0.62
Do you expect to be a leader					0.21		0.30	1.24	0.30		0.30	1.36
How far from the center of the gang are you (1-5)					0.12		0.09	1.12	0.04		0.09	1.04
Focal Gang variables												
Gang Identity					-0.22	†	0.12	0.80	-0.11		0.14	0.89
Gang Organization					-0.78	*	0.40	0.46	-1.09	*	0.42	0.34
Peers;how often hang with gang friends									-0.14		0.09	10.89
Peers; have friends not in gang									0.47	*	0.24	1.60
Log pseudolikelihood	-142.52				-132.63				-124.57			
Wald Chi-square (d.f)	41.59 (20)			N =237	41.28 (26)			N = 227	57.17 (28)			N=219

Denver Youth Survey

Note: Referent in parentheses

† $p \leq .10$. * $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$