An Examination of Sibling Impact on Frequency and Type of Arrest Among Chronic Offenders

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ABSTRACT AND ARTICLE INFORMATION

Siblings begin interacting with each other in early childhood and often continue to interact on a consistent basis throughout the life-course. Little research has been done on how these sibling relationships impact the development of criminal behaviors separate from parents’ influence and direction. Using the California Youth Authority data, this study explores the impact of siblings on chronic offenders’ number of arrests and offense type. Overall, the main findings support that siblings do matter in offending behaviors. A few significant relationships were found regarding siblings and chronic offenders, including: 1) Greater numbers of sibling arrests are associated with significantly more arrests for the offender, and 2) the number of siblings an offender has results in a significantly lower rate of total arrests for the offender. The results of this study, their implications for future research on sibling relationships and criminality, and the impact on recidivism are discussed.

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According to many scholars, family matters when it comes to criminality (Huschek & Bijleveld, 2015; Junger, Greene, Schipper, Hesper, & Estourgie, 2013; Lewis, Balla, Shanok, & Snell, 1976; Rowe & Farrington, 1997). Although a large quantity of research is devoted to the impact that parents make on

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their children’s criminal behavior, the research on siblings’ impact is far less expansive. Siblings are sometimes included as a control variable when studying effects of parental criminality (Junger et al., 2013). Despite the varied research dedicated to the family, which focuses heavily on the parents and guardians, very few studies have sought to specifically focus on the impact siblings have on each other and their criminal behaviors. Additionally, past research has not examined how sibling behavior affects additional arrests specifically (Sutton-Smith & Rosenberg, 1970; Van de Rakt, Nieuwebeerta, & Apel, 2009). It is important to understand how siblings’ behavior each other to further the knowledge of how criminal behavior develops. Theoretically, it can be useful to include siblings in the learning of criminal behaviors as well as understanding how siblings interact across the life-course as they are generally a consistent peer from childhood through adulthood, unlike many other fluctuating peer relationships. The current study begins this investigation into siblings’ impact on chronic offenders and discusses the possible theoretical implications and future directions of sibling research.

**Literature Review**

**Families and Crime**

The criminality of the family unit, the upbringing of the family, and the environment in which the family lives can all influence the criminal behavior of an individual (Krohn, Hall, & Lizotte, 2009; Laub & Sampson, 1988; Masten & Coatsworth, 1998). Past research indicates that parental criminality (Bersani, Nieuwebeerta, & Laub, 2009; Cavanagh & Huston, 2006; Farrington, 1989; Gottfredson & Hirschi, 1990; Laub & Sampson, 1988; Yoshikawa, 1994), the context of single parenting (Amato, 2005; Cavanagh & Huston, 2006; Gorman-Smith, Tolan, Loeber, & Henry, 1998; Krohn et al., 2009), physical punishment (Darling, 2011; Farrington, 1989; Gershoff, 2002), and harshness (Amato, 2005; Darling, 2011; Farrington, 1989; Gershoff, 2002; Krohn et al., 2009; Laub & Sampson, 1988; Masten & Coatsworth, 1998; Zigler, Taussig, & Black, 1992) within the family are directly linked to increased risk of criminal behavior from adolescence into adulthood. These studies indicate that family processes are a significant indicator of criminality, though much of this research focuses on parents alone (Junger et al., 2013; Rowe & Farrington, 1997). However, the relationships of the home are not strictly one-dimensional between only parents and children or parents and parents; they also include relationships between the children independent of influence from the parents (Farrington & West, 1993; Lauritsen, 1993; Rowe & Gulley, 1992; Slomkowski, Rende, Conger, Simons, & Conger, 2001).

Kuja-Halkola, Pawitan, D’Onofrio, Längström, & Lichtenstein (2012) found evidence that sociological factors, such as birth order and parental age, influence deviant behavior of siblings and increase the likelihood of their high rate criminality. Offenders and their siblings were both more likely to be violent when they reported being physically punished by their father (Kuja-Halkola et al., 2012). Interestingly, the researchers found that exposure to siblings is a more significant predictor of violent offenses in life-course persistent offenders compared to adolescent limited offenders (Kuja-Halkola et al., 2012). Sutton-Smith and Rosenberg (1970) suggest that future research should focus on siblings’ impact on each other, controlling for parental influence. When this is not done, results can be biased due to interaction effects from parents on the siblings, an idea further supported by Rowe and Gulley (1992). Additionally, understanding of siblings can lead to the further development of learning and life-course theories. Learning theory engages in discussion of how deviant peers teach each other behaviors. By expanding the understanding to include siblings as their own form of deviant peers, it is possible to enhance the reach of learning theory but also to specify different groupings of deviant peers. Future research should focus on siblings’ impact on each other because siblings are one of the rare forms of social interaction that is semi-permanent, and the influence of siblings may have long-term impacts on criminal behavior. If a greater sense of understanding is obtained regarding siblings, the possibilities for intervention policy become more targeted, and it is conceivable that the ability to impact sibling criminal behavior early on may be achieved.

Anderson-Bond (2009) argues that siblings influence a chronic offender’s behavior through collective encouragement for each other. Sociological ties between siblings are a result of environmental and social interactions experienced jointly by the siblings (Duncan, Boisjoly, & Harris, 2001; McHale, Updegraff, & Whitman, 2012). Children often interact together outside of parental influence and, therefore, have many opportunities to learn and influence each other that are unrelated to lessons taught by or learned from the guardians (Rowe & Gulley, 1992). For example, Van de Rakt and colleagues (2009) found that the focal children in their study had a higher risk of conviction when they had siblings who were convicted as well. Males have a higher risk of delinquency and a higher rate of conviction compared to females (Van de Rakt et al., 2009). Kendler and colleagues (2016) found that
siblings who were raised in the same household were similar in their criminal behaviors compared to siblings who grew up in separate homes. This finding suggests that shared environment is a factor offending that siblings tend to share more than other peer dyads. Similarly, Garcia, Shaw, Winslow, & Yaggi (2000) found that sibling conflict and deviant behavior were related to parental rejection; however, their sample consisted of young, male children, and they did not observe the participants in early adolescence or adulthood. Duncan and colleagues (2001) also examined the effects of sibling delinquency in relation to neighborhood children. They found that there were significant correlations between sibling behaviors and delinquency that were independent of associations with behavior of neighborhood children (Duncan et al., 2001).

Morals and values are some of the psychological attributes siblings learn from each other (Rowe & Farrington, 1997). An additional component of sibling relationships and criminal behavior comes from these psychological influences on family relationships. Brothers and sisters learn behaviors and attitudes through interacting with one another and can react to these psychologically in both conscious and subconscious ways, including impulsivity and control of one’s own behaviors (McHale et al., 2012). Rowe and Farrington (1997) found that criminal behavior in same-sex sibling pairs is more strongly associated than in opposite sex sibling pairs. The study also revealed that poor parenting, harsh discipline, and family size affected morals and values of the siblings (Rowe & Farrington, 1997). Patterson (1984) found that sibling relationships were pivotal in developing antisocial behavior. In Slomkowski and colleagues (2001), the authors support ideas from Bank, Patterson, and Reid (1996) and Patterson (1984) that sibling relationships may act as ignition for “development, maintenance, and escalation of antisocial behavior, include delinquent acts” (p. 273).

Many researchers have stressed the important implications that accompany siblings and criminal behavior, but the existing research has failed to isolate sibling relationships and their direct effect on criminal behavior (Farrington & West, 1993; Lauritsen, 1993; Rowe & Gulley, 1992; Slomkowski et al., 2001; Van de Rakt et al., 2009). Siblings and criminality are linked theoretically; however, empirical research has tended to lump siblings in with parental relationships in variables that include “family” (Van de Rakt et al., 2009). For example, Criss and Shaw (2005) found that sibling behaviors predict criminality in each other, but this was studied using ‘mother-target child’ as a control factor, thus still including family as a primary factor. McHale and colleagues (2012) did not engage in empirical research to support or negate sibling influence on criminal behavior; however, they did outline relevant theoretical frameworks. They argued that sibling relationships are “multidimensional” and constantly evolving, and are, therefore, subject to influence from all kinds of socio-cultural influences (McHale et al., 2012, p. 13).

**Risk Factors for Offending**

Although research considers how siblings and parents can influence behavior in general, few studies exist that focus on how siblings impact offending and reoffending. Risk factors for offending include a variety of measurement methods to predict future offending; often these include some variation of family, peer, environmental, and individual factors (Fergusson & Horwood, 2002; Loeb & Farrington, 2000; Piquero, Farrington, Nagin & Moffitt, 2010; Webster, MacDonald & Simpson, 2006). It is important to study risk factors for offending for a multitude of reasons, including determining predictors of offending, why offenders reoffend, what can be done to limit new offenses, and the most effective way to rehabilitate offenders after punishment has already been received (Cullen, Agnew, & Wilcox, 2014). Given that the main dependent variable in the current study is a measure of frequency of offending, we summarize below the main factors identified as influential in predicting offending based on past research.

Research on risk factors for offending and recidivism includes a multitude of factors that can increase the likelihood for an offender to offend and reoffend chronically once he or she is released from jail or prison. The most common factors studied include family factors (Fergusson & Horwood, 2002; Loeb & Farrington, 2000), peer influences (Piquero et al., 2010; Webster et al., 2006), race (Benedict & Huff-Corzine, 1997, Benedict, Huff-Corzine, & Corzine, 1998; Durose, Cooper, & Snyder, 2014; Gendreau, Little, & Goggin, 1996; Kubrin, Squires, & Stewart, 2007; Langan & Levin, 2002), gender (Benedict and Huff-Corzine, 1997; Benedict et al., 1998; Durose et al., 2014; Gendreau et al., 1996; Langan & Levin, 2002; Ulmer, 2001), age (Durose et al., 2014; Gendreau et al., 1996; Langan & Levin, 2002; Uggen, 2000), offense type (Benedict et al., 1998; Durose et al., 2014; Gainey, Payne, & O’Toole, 2000; Gendreau et al., 1996; Langan & Levin, 2002; Listwan, Sundt, Holsinger, & Latessa, 2003; MacKenzie, Browning, Skroban, & Smith, 1999; Schwaner, 1998; Ulmer, 2001), and prior arrests (Benedict & Huff-Corzine, 1997; Durose et al., 2014; Gainey et al., 2000; Gendreau et al., 1996; Kurlychek, Brame, & Bushway, 2006; Langan & Levin, 2002; MacKenzie et al., 1999; Spohn & Holleran, 2002; Ulmer, 2001).
Research on recidivism is relevant to the current study given that, by definition, chronic offenders are those who continue to recidivate for a long period of their lifetime. Recidivism research focusing on race indicates that Blacks are most likely to recidivate (Benedict & Huff-Corzine, 1997; Gendreau et al., 1996; Kubrin et al., 2007; Langan & Levin, 2002; Listwan et al., 2003; Spohn & Holleran, 2002; Uggen, 2000) with recent findings of close to ¾ of prisoners released in 2005 reoffended within a three-year follow up period (Durose et al., 2014). The high rate of recidivism among Black individuals is often attributed to the lower socioeconomic status to which many released offenders must return, leading to lack of employment and the opportunity to reoffend (Kubrin et al., 2007). Minorities are largely underrepresented and suffer from discrimination, sentencing disparities, and unfair treatment based on age, gender, and race (Blackwell, Holleran, & Finn, 2008; Franklin & Fearn, 2008; Griffin & Wooldredge, 2006; Rodriguez, Curry, & Lee, 2006; Steffensmeier, Ulmer, & Kramer, 1998). Additionally, research in sentencing and court studies indicates that socioeconomic class matters and that the lower class is more severely sanctioned than the middle and upper classes (Steffensmeier et al., 1998).

Similar to race, gender is often a factor in recidivism research with males significantly more at risk to recidivate than females (Durose et al., 2014; Langan & Levin, 2002). Females are arrested at a lower rate than males upon release from prison and are less likely over time to reoffend (Durose et al., 2014). Females have more social ties and attachments when they leave prison, often returning to children and parents on whom they can lean for support (Uggen, 2000). Younger offenders have higher risks of recidivating within the three years post release; offenders under 24 are the most at risk (Durose et al., 2014; Langan & Levin, 2002). Young Black males have the highest risk for recidivating (Steffensmeier et al., 1998).

Recidivism risk can also be influenced by prior arrests that did not result in conviction or incarceration (Durose et al., 2014; Greenberg, 1978; Harris & Moitra, 1978; Kurlychek et al., 2006; Langan & Levin, 2002; Maltz, 1984; Spohn & Holleran, 2002; Steurer & Smith, 2003; Uggen, 2000; Ulmer, 2001). An increased the length of time since the past arrest or offending can decrease the likelihood of recidivating (Kurlychek et al., 2006). For example, offenders who have not offended in seven years but have a prior record tend to have a lower likelihood of recidivism than offenders with shorter periods between arrests (Greenberg, 1978; Harris & Moitra, 1978; Kurlychek et al., 2006; Maltz, 1984).

Finally, employment is a significant predictor of the likelihood of reoffending for a released prisoner (Holzer, Raphael, & Stoll, 2002, 2006; Horney, Osgood, & Marshall, 1995; Kurlychek et al., 2006; Steurer & Smith, 2003; Uggen, 2000). According to Holzer and colleagues (2006), employers often look at criminal history records and discriminate against those individuals who have some type of prior history. This discrimination also threatens Black males at a higher rate, leaving the already disadvantaged group at an even higher risk of recidivating (Holzer et al., 2006). Steurer and Smith (2003) found that offenders who complete employment based classes in prison are more likely to gain employment and less likely to recidivate than their untrained counterparts. Unemployment is linked to poverty and can include being placed in neighborhoods where the ability to coexist relies on criminal behavior, which ultimately leads to increased risk for recidivism (Kubrin et al., 2007; Uggen, 2000).

Chronic Offenders

The current study focuses on chronic offenders. Chronic offenders and recidivism are closely connected because both require reoffending and both happen over time, not at a singular moment. However, there are some differences between offenders who recidivate occasionally and those who are classified as chronic offenders. All chronic offenders recidivate, but not all who have recidivated are high rate offenders. Wolfgang (1983) provided some guidelines for different definitions for recidivism versus chronic offenders. Wolfgang (1983) defined the differences between being a one-time offender, a recidivist, and a chronic offender based on the number of offenses, with recidivists having two to four prior offenses and chronic offenders having more than five prior offenses. For the purposes of this study, Wolfgang’s (1983) definition of chronic offenders is used to define the offenders in our sample. Chronic offenders are defined as habitual offenders who commit a multitude of offenses in their lifetime and offend for a longer time than other petty offenders (DeLisi, 2001). DeLisi (2001) argued that chronic offenders are more determined than the average petty offender and are more persistent in repeating negative learned behavior from childhood, which can create a pattern of criminal, deviant, or problematic behaviors. Habitual offenders commit offenses over their lifetime, often starting out with small misbehavior and minor deviance and progressing throughout time, but most chronic offenders steer away from traditionally violent crimes, such as murder and rape (DeLisi, 2001; Uggen, 2000).

Chronic offenders all have a commonality; they have all recidivated and committed multiple offenses over their life time. Chronic offenders are those who continue to offend for a long length of time that extends beyond the generally accepted three to five-year span thought of to predict recidivism. Due to the
The fact that chronic offenders have committed more than one offense, they all have reoffending records and are more likely to continue to reoffend (Piquero, Brance, & Lynam, 2004). According to Uggen (2000), chronic offenders have the highest risk for recidivating because they rely on crime to survive outside of incarceration. DeLisi (2001) highlighted that chronic offenders who had at least one drug offense prior to turning 16 were more likely to be considered high risk offenders. High rate offenders are found to be disproportionately involved in committing violent offenses compared to other types of offenders (DeLisi & Vaughn, 2008).

Theoretical Framework

The current study investigates whether sibling behavior can predict chronic offending and the mechanisms behind this potential linkage. The current investigation does not constitute a full theory test but rather uses learning and life-course theories as a guide to understand how siblings affect each other’s behavior. We hope to provide a springboard to increase the study of sibling relationships and their effect on criminal behavior and, eventually, pathways. Two theoretical frameworks, learning and life-course, help to inform the research questions in the current study.

Learning theory focuses on the process by which one learns criminal behavior and criminality. Theorists argue that individuals acquire all behaviors (both criminal and conforming) through collaboration with peers, mentors, and family members (Cullen et al., 2014). Learning theorists posit that intimate friends and family have the greatest influence on the individual to expose him or her to criminal behavior and cause him or her to engage in crime. Relations with deviant others motivate an offender to become deviant and provide incentives towards violation of the law (Cullen et al., 2014). Based on who one is influenced by (i.e. family, friends, peers, or mentors) one can develop learned behavior that can create negative criminal behavior through adolescence (Agnew, 2003).

Siblings learn behavior and deviance from one another through imitation and mutual bonding (Akers, 1994). Through learning behavior and characteristics, siblings may imitate each other’s criminal and deviant behavior and attitude. Considered one of the oldest social learning mechanisms, imitation allows for initial criminal behavior through search for acceptance and praise, followed closely by becoming routine and habit (Sutherland, 1947). Imitation can be the start of learned behavior, and then based on feedback (both positive and negative), the imitation can become routine. Applying learning theory to the concept of siblings and criminality is an important distinction because it removes the influence of parenting and only considers learned behaviors between siblings. Rather than looking at the family unit as a whole, like prior research has done, investigating the direct influence of siblings on each other’s learning and behavior can help understand when and why some siblings are more criminally inclined than others are.

Life-course theory was developed to explore the idea that criminality stems from early childhood (Laub & Sampson, 1991). Peaks in criminality often occur around the age of 17 or 18 and then begin to taper off; this early peak of criminality leads researchers to believe that there is a reason for a change in behavior from the early juvenile years to the later years (Agnew & Brezina, 2012). Life-course theory posits that criminality can be changed based on life events that occur. Individuals can decrease their criminality due to changes in their life-course and life events that derail their criminal desires. Sampson and Laub (1992) explained that changes in criminality stem from life events that cause the offender to feel a stronger connection to societal norms and, thus, make the conscious effort to remain crime free. These life events are characterized as “turning points,” and those that hold value and/or encourage conformity to social norms are more likely to help the offender remain free from criminal behavior. Sampson and Laub (1992) argued that life events can create a social bond that changes the course of one’s life and causes him or her to disregard his or her past criminality, things such as pro-social marriage, employment, or the military.

Life-course theory provides an explanation whereby offenders change their trajectory from one of deviance to one characterized by conformity. Siblings are likely to have trajectories of criminality that follow similar patterns due to the consistent interaction between siblings and the accepted family norms to which they are both exposed throughout their lives (Hagan, MacMillan, & Wheaton, 1996). The life-courses of siblings are interconnected and linked through childhood and adolescence and can carry into adulthood (Pezzin, 2004). However, the turning points are usually unique for the individual. Pezzin (2004) suggests that the life-course of siblings can take a drastic turn when one of the siblings encounters a turning point in life, which can then encourage a turning point in their siblings’ lives, causing a shift in their own trajectories as well.

In line with Patterson (1984), who studied how siblings are “key pathogens” for learning antisocial behaviors, using theories to guide new exploratory studies into how siblings influence each other is important for the growth in new directions. By investigating the research questions through the framework of learning and life-course theory, we

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begin a framework to use in the future that illuminates how sibling relationships affect chronic offenders.

**Current Study**

The purpose of the current study is to investigate the influence of sibling criminality on the behavior of chronic offenders. Using data from the Longitudinal Study of Criminal Career Patterns of Former California Youth Authority Wards, 1965-1984, we analyzed how siblings influence the behavior of chronic offenders. This study also examined how the theoretical frameworks of life-course theory and learning theory can explain the influence and impact of siblings on the chronic offender (Akers, 1994; Laub & Sampson, 1993). Based on prior literature (Durose et al., 2014; Greenberg, 1978; Harris & Moitra, 1978; Kurlychek et al., 2006; Langan & Levin, 2002; Maltz, 1984; Spohn & Holleran, 2002; Steurer & Smith, 2003; Uggen, 2000; Ulmer, 2001), we hypothesized that siblings will impact the total arrests and type of frequent offending among chronic offenders. Furthermore, we predicted that siblings’ arrests will be positively associated with chronic offenders’ arrests. Given that chronic offenders have a higher likelihood of committing violent offenses over their crime careers, we believe that chronic offenders who have siblings with a criminal history will have a higher proportion of violent arrests (DeLisi, 2001; Piquero, Jennings & Barnes, 2012). Finally, we predicted that the more siblings a chronic offender has, the more total arrests they will also have as they will have had ample opportunity for learning deviant behaviors (Agnew, 2003; Cullen et al., 2014). Our hypotheses are outlined below:

**H1.** Chronic offenders with siblings who have a criminal history will have more total arrests than those with siblings who have no prior criminal history.

**H2.** Chronic offenders with siblings who have a criminal history will be more likely to have a higher frequency of violent arrests.

**H3.** Chronic offenders with greater numbers of siblings will have more total arrests.

**Method**

**Participants**

Data from the current study come from the Longitudinal Study of Criminal Career Patterns of Former California Youth Authority Wards, 1965-1984 study (Haapanen, 1999). This study focused on the criminal patterns of men over a 10–15 year period whose early criminal behavior resulted in institutionalization to the California Youth Authority. The study was used to identify and expand on the earlier study of Early Identification of the Chronic Offender, 1978-1980, and utilized half of the sample from the previous study as well as new data from adult chronic offenders with no prior history as juvenile offenders. Given the nature of the current study and the variables included from the larger sample (n=1,308), we reduced the sample size to include the adult prison files of offenders from the California Department of Corrections (CDC). This selection limited the current study to a sample size of 672 participants. The focus of the current study involves sibling variables, which were only recorded by offenders interviewed as they entered the CDC, therefore limiting the sample size to these offenders as well as protecting the temporal ordering of the data. The data were obtained from the Inter-University Consortium for Political and Social Research (ICPSR) website and is available for public use. Due to the secondary and non-identifying nature of the data, IRB approval was not required under the human subject’s protocol. There were 18 cases from the study that were deleted using list wise deletion based on missing data for one or more variables (Graham, 2009; Roth, 1994). The remaining cases make up the sample size of 643 cases from the CDC collection. Analyses were completed using Stata 13 (Statacorp, 2013).

**Measures**

**Dependent Variable**

The first dependent variable in this study is a measure of the proportion of arrests for violent crimes that each respondent had. This variable was constructed by dividing the total number of violent arrests by the total arrests each offender had. The original data file contained variables indicating both of these values (Haapanen, 1999). The operationalization of violent arrests was taken using the violent crime index scale from the Uniform Crime Report (UCR) and interactions with police that resulted in an arrest. Examples of violent crimes from the UCR index are robbery, rape, and homicide. A full description of this variable can be found in Haapanen (1999). The second dependent variable is a measure of total arrests. Total arrests are used in the current study as the primary measure of recidivism. All the offenders in the current sample have a prior history of juvenile offending and repeat offending, making this a homogenous sample of chronic offenders (Wolfgang, 1983).

**Independent Variables**
Parent criminality is a dichotomous variable, with 0 indicating no criminality and 1 indicating at least one form of criminality in either their mother’s or father’s history. Criminality was operationalized as arrest, jail, prison, or state hospital confinement. State hospital confinement is included in this measure as the codebook identifies that the state hospital confinement is only following conviction as an alternative sanction from jail or prison; furthermore, all non-conviction offenses were coded separately and noted as such (Haapanen, 1999). Sibling arrests were coded as a continuous variable indicating the number of arrests the respondent reported that his sibling had experienced. Number of siblings was measured as a continuous variable based on the number reported by the respondent. Intact family provided information on whether the offender had an intact family (meaning no divorce or separation of parents) during childhood; responses were 0 indicated no, and 1 indicated yes. Family welfare was also used as an independent variable, providing information on whether the participant’s family had ever received welfare during childhood; responses were 0 indicated no, and 1 indicated yes. Employment was also measured using years the offender was unemployed. Marriage was also measured using years the offender was married, originally reported in months over the course of the whole study but recoded into years for ease of understanding. Months not in confinement was reverse coded into years in confinement for the ease of understanding and to simplify the interpretation of the results. Recoding months not in confinement into time spent confined has been done in other studies to make the understanding of the results much more translatable (Visher & Travis, 2003). All three of these variables (unemployed, married, confined) were recoded into a “years” variable for ease of interpretation. Race/ethnicity was recoded to a series of dummy variables. These variables were Black, White, and Other, and White is used as the reference category. Age in years is included as a control variable also; this was measured by the last age the respondent reported. No gender has been included in the demographic variables as the entire sample is male.

Results

Descriptive Statistics

Descriptive statistics for the sample are in Table 1. The mean number of arrests for the sample was almost 24 arrests. The mean value for percent violent arrests was about 20%. About 21% of the participants reported that their parents had some history of criminal behavior. Just over half (54.8%) the sample had families that were not intact during their childhood. As seen in the table, 80% of the sample had no known welfare reported from their childhood. Over 55% of the participants in the study reported coming from families with between zero and four siblings. Almost all the participants reported having at least one sibling, with only 3.5% of the sample having no siblings to report. The range of number of siblings was from zero to 12 siblings. The participants in this study were primarily unmarried; almost 50% reported no history of marriage. Participants who reported being married for over three years accounted for 24.9% of the sample. Just over 25% reported being married between one month and just over three years. The sample consisted of 45% White respondents, 37% Black, and 18% Other ethnicity/race. Respondents in the sample ranged from 24 to 39 years of age, with an average of 33 years old. We also analyzed all study variables at the bivariate level, and there were a number of significant correlations between the independent and dependent variables. This table is available upon request from the authors but not included due to space limitations.

Table 1: Descriptive statistics for variables (N=643)

<table>
<thead>
<tr>
<th>Family Characteristics</th>
<th>Mean/% (SD)</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intact Family</td>
<td>45% (.498)</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Number of Siblings</td>
<td>4.5 (2.767)</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Father’s Criminality</td>
<td>18% (.387)</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Mother’s Criminality</td>
<td>5% (.233)</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Sibling Arrests</td>
<td>.485 (.890)</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Welfare</td>
<td>20% (.405)</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Years Unemployed</td>
<td>9.70 (3.362)</td>
<td>0</td>
<td>17.5</td>
</tr>
<tr>
<td>Years Married</td>
<td>2.07 (3.090)</td>
<td>0</td>
<td>14.58</td>
</tr>
</tbody>
</table>
Years Confined & 9.3 (3.550) & 1.5 & 19.25

Demographics

<table>
<thead>
<tr>
<th>Age</th>
<th>32.60 (3.94)</th>
<th>24</th>
<th>39</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>45% (.498)</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Black</td>
<td>37% (.483)</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Hispanic</td>
<td>17% (.374)</td>
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<td>1</td>
</tr>
<tr>
<td>Other Race</td>
<td>18% (.38)</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Dependent Variables

| Total Arrests | 23.71 (15.020) | 1  | 119 |
| Percent Violent Crime | 20.7% (.16) | 0  | 1  |

Multivariate Regression Results

We estimated an OLS regression model to predict the percentage of violent arrests among our sample of chronic offenders. The dependent variable of percent violent arrests was significantly skewed, and as a result, we created a logged dependent variable. The following analysis utilizes this logged measure as the dependent variable. Results from this analysis are contained in Table 2. This regression model has an $R^2$ squared indicating that the model explains about 15% of the variance in the dependent variable. Though the sibling variables failed to reach the $p<.05$ level of significance in this model, a number of other interesting relationships with control variables were significant in this model. Those respondents who were on welfare had higher percentages of violent arrests ($b=.16, p<.05$). Those who spent less time married had higher percentages of violent arrests while those who spent more time confined had a greater proportion of violent arrests ($b=-.007, p<.05; b=.054, p<.000$, respectively). Lastly, chronic offenders who were Black had substantially higher percentages of violent arrests compared to whites ($b=.40, p<.000$)

### Table 2: OLS regression of independent variables on percent violent arrests (N=643)

<table>
<thead>
<tr>
<th>Percent Violent Arrests (% of total arrests)</th>
<th>Coef. (Std. Error)</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Family Characteristics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intact Family</td>
<td>.101 (.061)+</td>
<td>.91 – 1.10</td>
</tr>
<tr>
<td>Number of Siblings</td>
<td>.018 (.011)</td>
<td>.96 – 1.00</td>
</tr>
<tr>
<td>Parent Criminality</td>
<td>.089 (.060)</td>
<td>.85 – 1.03</td>
</tr>
<tr>
<td>Sibling Arrests</td>
<td>-.041 (.034)</td>
<td>1.01 – 1.12</td>
</tr>
<tr>
<td>Welfare</td>
<td>.160(.076)*</td>
<td>.89 – 1.11</td>
</tr>
<tr>
<td>Years Unemployed</td>
<td>-.007 (.009)</td>
<td>-.02 – .01</td>
</tr>
<tr>
<td>Years Married</td>
<td>-.022 (.010)*</td>
<td>-.04 – -.003</td>
</tr>
<tr>
<td>Years Confined</td>
<td>.055 (.010)**</td>
<td>.04 – .07</td>
</tr>
<tr>
<td><strong>Demographics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>.017 (.010)+</td>
<td>-.000 – .03</td>
</tr>
<tr>
<td>Black</td>
<td>.398 (.069)***</td>
<td>.26 – .53</td>
</tr>
<tr>
<td>Other Race</td>
<td>.086 (.086)</td>
<td>-.08 – .26</td>
</tr>
</tbody>
</table>

$R^2$-square: .15

+ $p < .10; * p < .05; ** p < .01, *** p <.001$
Negative Binomial Regression

Table 3 presents results from the Negative binomial regression model investigating the impact of the independent variables on total arrests. Given the significant negative skew and the count nature of the “total arrest” variable, we chose to estimate a negative binomial model rather than a traditional OLS regression (Gardner, Mulvey, & Shaw, 1995). This model also included an offset variable based on the age of the respondent to account for differences in exposure time. Incident rate ratios (IRR) are presented for ease of interpretation. Several independent variables predicted total number of arrests. For each additional sibling an offender has, the rate of total arrests decreased by about 2% (IRR=.98, p<.05). Each additional sibling arrest increased the rate of total arrests by about 6% (IRR=1.06, p<.05). These results are supportive of hypothesis 1: “chronic offenders with siblings who have arrests will have more total arrests” but not supportive of hypothesis 3: “chronic offenders with higher numbers of siblings will have more total arrests.” Results indicated that other races have a rate of arrests about 21% higher than Whites (IRR=1.21, p<.01). For each additional year an offender is unemployed, his IRR of total arrests increases by 3% (IRR=1.03, p<.01). For each additional year of marriage, his rate of arrest increases by about 3% (IRR=1.03, p<.001).

<table>
<thead>
<tr>
<th>Total Arrests</th>
<th>IRR (Std. Error)</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Family Characteristics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intact Family</td>
<td>1.00 (.049)</td>
<td>.91 – 1.10</td>
</tr>
<tr>
<td>Number of Siblings</td>
<td>0.98 (.009)**</td>
<td>.96 – 1.00</td>
</tr>
<tr>
<td>Parent Criminality</td>
<td>0.96 (.061)</td>
<td>.85 – 1.03</td>
</tr>
<tr>
<td>Sibling Arrests</td>
<td>1.06 (.028)*</td>
<td>1.01 – 1.12</td>
</tr>
<tr>
<td>Welfare</td>
<td>1.00 (.060)</td>
<td>.89 – 1.11</td>
</tr>
<tr>
<td>Years Unemployed</td>
<td>1.03 (.007)**</td>
<td>1.01 – 1.04</td>
</tr>
<tr>
<td>Years Married</td>
<td>1.03 (.008)**</td>
<td>1.01 – 1.04</td>
</tr>
<tr>
<td>Years Confined</td>
<td>0.99 (.007)</td>
<td>.98 – 1.01</td>
</tr>
<tr>
<td><strong>Demographics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>1.02 (.007)</td>
<td>.99 – 1.01</td>
</tr>
<tr>
<td>Black</td>
<td>1.09 (.060)</td>
<td>.98 – 1.21</td>
</tr>
<tr>
<td>Other Race</td>
<td>1.69 (.408)**</td>
<td>1.06 – 1.39</td>
</tr>
<tr>
<td>LR chi2: 46.49***</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .10; *p < .05; ** p < .01, *** p <.001

Model also includes an offset variable based on age

Discussion

In this study, we extend prior knowledge of chronic offenders by directly looking at sibling effects on criminality. Research on chronic offenders indicates that both family structure and age of onset are important factors (DeLisi, 2001; Hanson & Morton-Bourgon, 2005; Hirschi & Gottfredson, 1983). However, few studies have explored the idea of how siblings may influence each other unique from other family factors. The results from the negative binomial regression model suggest that siblings do have an influence on the recidivism of long-term offenders. The main findings regarding siblings that emerged from the analyses were that 1) the number of arrests a sibling has results in significantly higher rate of total arrests for the offender, and 2) the number of siblings an offender has results in significantly lower rate of total arrests for the offender. Consistent with other studies, personal influences such as employment and marriage were also significant indicators of the respondents’ criminality (DeLisi, Beaver, Vaughn, 2009; Farrington, Jolliffe, Loeber, Stouthamer-
Loeber, & Kalb, 2001; Van de Rakt, Nieuwbeerta, & De Graaf, 2008). In line with prior literature, marriage was a predictor of less criminal behavior, with longer marriages decreasing the frequency of violent arrests; however, each year of marriage increased the rate of total arrests.

This study examined some of the main factors in family influences with particular interest in sibling impacts on chronic offenders. The more siblings offenders had, the lower rate of total arrests they experienced. Prior research by Lauritsen (1993) found that increase in number of siblings was significantly associated with more arrests by the offender. To further understand why our results are opposite of Lauritsen’s (1993) finding, we turn to findings regarding the frequency of violent arrests. We posit that although those with more siblings had fewer arrests, those with more siblings may have a higher percentage of violent arrests. While this finding was not statistically significant in our study, it is possible that this could be due to data limitations such as the lack of nuanced measures regarding sibling behavior and relationship. This is in line with many prior studies that link offense seriousness to decreased arrests (Blumstein & Cohen, 1979; Uggen, 2000). Furthermore, having multiple siblings provides exposure to negative consequences of their criminal sibling. Perhaps potential offenders with more siblings witness negative consequences and, therefore, avoid criminal behaviors. Wagner, Borduin, Sawyer, & Dopp (2014) found that children who had a deviant sibling learned from witnessing their criminal sibling offend and experience negative consequences and, in turn, committed less serious offenses. It is also possible that seeing this exposure to treatment, siblings were able to view some turning points in their siblings’ lives and make decisions based on those experiences (DeFoe et al., 2013; Sampson & Laub, 2003). In line with life-course theory, seeing a sibling arrested, incarcerated, or otherwise involved in the criminal justice system can provide groundwork for the experience of turning points for the offenders (Hagan et al., 1996; Sampson & Laub, 2003). Additionally, in line with prior deviant peer literature, chronic offenders with siblings who had more arrests also experienced more arrests themselves. Since siblings are another form of peer (Ardelt & Day, 2002), we propose that siblings can be viewed through the lens of deviant peer literature and, therefore, chronic offenders with siblings who had more arrests are acting as deviant peers. Deviant peer research indicates that more deviant peer arrests increases the likelihood that an individual is to be arrested, and our finding is consistent with this literature (Liberman, Kirk, & Kim, 2014; Patterson, 1995). When offenders in the current study saw their sibling arrested due to a particular behavior, it is possible that they, in turn, learned and replicated these behaviors, resulting in additional arrests (Akers, 1994; Sutherland, 1947).

Sutherland (1947) argued that imitation is the beginning of learned behavior and that imitations of deviant behavior can occur because of desired acknowledgement or praise from whomever is being imitated. Contu and Willmott (2003) discuss how learning theories and power control theories are interlinked in order to supply the cognitive content of the learners’ mind. Considering how siblings interact closely and are often struggling for power and acceptance between each other, it is possible to see how the imitation of arrests, or criminal behavior, can be learned and copied to gain acceptance with each other (Blackwell & Reed, 2003).

Our finding that more sibling arrests is associated with more total arrests further raises the discussion of imitation and whether siblings operate similarly to deviant peers. Learning theory can explain how siblings impact criminal behavior, in that siblings often learn from each other without the knowledge or influence of their guardians. In this sample, parental criminality was associated with fewer total arrests; this finding indicates that sibling relationships can have influence independent of parent relationships. Learning theory offers the framework for understanding how siblings can teach each other to be deviant or not through the underlying need for approval and acceptance from one’s relatives (Akers, 1994). Through the influence of relationships and experiences, siblings are able to influence each other into behavior of deviance and criminality, not unlike deviant peer relationships (Ardelt & Day, 2002). Through socialization close proximity, siblings impact the personality and actions of one another on a deeper level than almost any other outside mentor, friend, or influence (Cullen et al., 2014). Like deviant peers who intermix together and learn behaviors from each other, siblings are also in a unique position to socialize each other (Schulze & Bryan, 2014). Schulze and Bryan (2014) found that sibling criminality significantly predicted the total offenses of juveniles because of the need to impress and imitate each other. This finding, while applying to juveniles, supports the idea that siblings influence each other through learned behaviors, using imitation to gain favor with each other (Schulze & Bryan, 2014).

This study investigated how siblings are predictors of chronic offending using life-course theory and learning theory as a framework. We examined how life-course and learning theories were underlying guides for understanding the influence of siblings on chronic offenders, but we were also able to discover links to deviant peer research and the relationship to siblings. Given the sparse literature that

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includes sibling effects even as a control variable, we highlight several important findings from our other independent variables that illustrate how controlling for this important influence may affect the relationships even between established predictors and criminal behavior. Consistent with prior literature Black offenders were more likely to have violent arrests compared to Whites. This finding is not surprising given the extensive research on race and violent crime indicating similar results (Feldmeyer, Steffensmeier, & Ulmer, 2013; Felson & Kreager, 2015; Steffensmeier et al., 1998; Steffensmeier, Feldmeyer, Harris, & Ulmer, 2011). Unemployment is also a significant indicator for criminality, which is directly in line with prior literature (Holzer et al., 2002, 2006; Horney et al., 1995; Kurlchek et al., 2006; Steurer & Smith, 2003; Uggen, 2000). The more time the offender was unemployed, the more overall arrests the offender had. Unsurprisingly, the more time for which the offender was confined, the fewer total arrests, which is supportive of past literature that while an offender is confined, it is less likely they can be arrested for an additional crime (Blumstein & Cohen, 1979). These results were not surprising and further support past research on chronic offenders (Uggen, 2000).

Finally, it was uncovered that marriage is a significant predictor of total arrests, and it decreased the frequency of total violent arrests. This finding was particularly surprising given the extensive research that points to marriage being a turning point for an offender, resulting in the offender desisting from criminal behavior (Bersani & DiPietro, 2015; King, Massoglia, & MacMillan, 2007; Sampson & Laub, 2003; Siennick et al., 2014; Warr, 1998). Marriage is one of the primary factors identified as a turning point in life-course theory research as an example of a positive social attachment that creates a desire to be pro-social (Sampson & Laub, 2003). Marriage to a pro-social partner often weakens the criminal attachment to deviant and criminal associations because the offender wants to spend more quality time with his or her pro-social partner (Sutherland, 1947; Warr, 1998). However, in our findings the longer an offender was married, the greater rate of total arrests he had. Therefore, offenders in this sample are not deterred by marriage to decrease overall offending, but are less frequent in their violent arrests. Existing research supports pro-social marriages as a turning point for desistance from crime, which is in line with our sample (Sampson & Laub, 2003). Little research exists on this breakdown of offense types and marriage, but this discrepancy in the marriage effect may be explained by lack of information on whether the marriage was to a pro-social partner. Unfortunately, the data utilized for this study do not contain this information.

**Limitations and Future Directions**

The current study was not without limitations. The study was done with secondary data from 1965-1984, making these data close to 30 years old. We chose these data because they contained the type of criminal offender our research question focused on as well as variables that were directly related to sibling arrest records. Additionally, Piquero and colleagues (2004), Ezell (2007), Armstrong (2008), and Sullivan, McGloin, Ray, & Caudy (2009) have all used this data set in recent years, indicating that criminological scholars believe this sample is still relevant to research. Furthermore, despite the age of the data, there is no reason to believe that the nature of sibling relationships has changed substantially over this time period. Relationships between family members have long been studied in criminological research, with the same variables consistently used to predict how these family members may affect each other’s behaviors. While we acknowledge this as a limitation of the data, we believe our findings can provide a base for future research using newer samples.

Another limitation of this study was that the data were only collected in California. This limits the generalizability of the study and does not provide strong external validity. The sample also only included males, so all findings are only in regards to males and not females and sibling impacts. Parental criminality was reported from official records gathered at intake that included official prison files from the CDC as well as information from any presentencing investigation reports (Haapanen, 1999). The data also did not include a measure of the sibling’s gender. It is possible (and highly likely) that the mechanisms whereby siblings influence criminality differ by gender. This sample did not provide information on the gender or age of the siblings, which is a limitation, as it is likely that sibling relationships interact in different ways not only by the number of siblings in a family, but also by the gender dyads. Kim, McHale, Osgood, & Crouter (2006) examined how gender dyads and birth order of siblings influenced stability, conflict, and intimacy from childhood to adolescence, suggesting that same-sex and mixed-sex sibling pairings have unique outcomes for behavior and connections. Mixed-sex dyads were more unstable and lacking intimate connections as compared to same-sex dyads, which provides some support for the idea that sibling influence by gender does matter (Fagan & Najman, 2003; Kim et al., 2006). A deeper look into gender dyads should be done to examine the relationship differences between male-male, male-female, and...
female-female siblings on trajectories of criminal behavior. Finally, the quality of relationships, including between the siblings, the family unit as a whole, and marriage were not variables that exist in this dataset, and, therefore, it is unknown how these factors could influence these effects.

In the future, sibling influences on chronic offenders should be studied using both quantitative and qualitative data that center on the influences of sibling behaviors and lifestyles on the offender. Siblings are often an afterthought in family structure literature and not often used as a central measure for predicting criminal behaviors. Siblings can be a deterrent or encouragement for chronic offenders. For example, siblings can positively influence a criminal to deter from criminal activity through showing turning points in their own life-course, showing that punishment for criminal behavior is not worth the reward. Alternatively, siblings can provide multiple exposures to criminal and non-criminal behaviors and can lead by example for what is successful and rewarding behavior. Additionally, marriage as a positive turning point for chronic offenders should be further explored to see if this is only consistent for those who have already desisted from criminal activities. Finally, future research should focus on sibling influence on criminality of chronic offenders to provide additional information about the social relationships between siblings.

Conclusion

The current study provides an initial exploration into how siblings influence each other’s long-term criminal offending. This study highlights the importance of research on siblings and criminality as a separate component of family and crime research. Further, this study provided an opportunity to expand on past literature by utilizing existing data and exploring associations between offense types and sibling factors in order to expand knowledge on how siblings influence each other. Prior literature on juveniles has examined how siblings influence each other and the seriousness of the offense (Capaldi & Patterson, 1996; Felson, 2009; Frisell, Lichtenstein, & Långström, 2011). However, there has been little research that looks at siblings, offense type, and the chronic offender. A large amount of past research shows that family structure has an impact on the criminal behaviors of offenders, but the lack of sibling research has resulted in a vast hole in understanding for all the components of the family unit. Chronic offender research often lumps siblings into familial variables and neglects to break down how siblings may be impactful upon not only the criminality of the offender but also on the offense type (Piquero, 2004; Sutton-Smith & Rosenberg, 1970; Van de Rakt et al., 2009). Chronic offender literature often suggests looking at siblings as an isolated variable in order to investigate nuances of this relationship, but studies have yet to predict offense types and how siblings are important to understanding chronic offenders’ behavior (Kuja-Halkola et al., 2012; Sutton-Smith & Rosenberg, 1970).

Recently, Sullivan and Piquero (2016) discussed the need for more research on chronic offenders and diversity beyond what currently exists. In particular, they supported Visher’s (2016) prior discussion of needing to focus “more broadly about their environment and other sources of possible informal social control,” and Sampson and Laub’s (2005) “need for both breadth and depth in understanding linked lives among individuals, families, communities, and the justice system” and look beyond the singular chronic offender (Sullivan & Piquero, 2016, p. 431). Our study adds to this need by examining the “linked lives” and opening the discussion for exploration of sibling relationships as a crucial factor in the life path of a chronic offender’s offending. We explore this void in the research in the current study, and results indicate that this area should be further examined to better define how siblings’ relationships influence frequency of violent arrests among chronic offenders. Criminologists have an opportunity to develop research that focuses primarily on sibling relationships in order to gain a better understanding for why criminal behavior occurs in patterned ways within family units, in particular among siblings (Sampson & Laub, 1997). Additional research should be conducted to determine the extent and starting point of the sibling influence on criminal behavior to better understand the chronic offender.

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Endnotes

1 For a complete description of the CDC data, sampling, and methodology, see Haapanen (1999).

2 In addition to the results presented here, we estimated models including an interaction term of “parent criminal history X sibling arrest” to investigate potential parent and sibling interaction effects. This term was not statistically significant in any models, and, therefore, we did not include it in our final analyses.