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Prisoners' Personal Networks in the Months Preceding Prison: A Descriptive Portrayal

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Abstract

This study examined personal networks of adult male prisoners ($N = 250$) during a high-risk period prior to their incarceration. We present a descriptive portrait of network size, density, and relational type, and we then document the nature of ties within that network, focusing specifically on alters' criminal involvement, criminal opportunity, and reinforcement of criminal behavior. We found that prisoners' networks were large and dense, and that they were composed primarily of family and romantic partners. Most prisoners are not embedded in a personal network saturated with criminal influence before coming to prison. Yet, a small proportion are exposed to exceptionally negative influence, which, it is argued, may increase the risk of negative outcomes upon release if not addressed by evidence-based programs.

Much of the discussion about prisoner reentry and the etiology of desistance centers on employment and marital transitions (Sampson & Laub, 1990). Clearly, (re) establishing and fostering strong bonds of attachment is a critical component of rehabilitative efforts, but that approach, in general, does not directly address what are known to be more fundamental and primary criminogenic needs of those embedded in the criminal justice system: (a) criminal thinking, and (b) personal networks

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that provide opportunities for crime, co-offending, drug use, and the reinforcement of criminal behavior (Gendreau, Little, & Goggin, 1996). From a criminogenic need perspective, understanding the composition of and, perhaps more critically, the criminal influences embedded within prisoners' personal networks, particularly during the period preceding prison, is critical. A more comprehensive and detailed portrait of personal network affiliations holds the potential to help shape, and perhaps even personalize, cognitive behavioral programs by using more realistic situations to set the context for course assignments, such as real patterns of past criminal association and influence.

McGloin and Kirk (2010, p. 209) note that social network analysis "has the primary purpose of determining if there are regular patterns in social relationships and how these patterns may be related to attributes or behavior. . . network analysis turns attention away from individual attributes and toward the relationships among units," making it an ideal strategy to examine theories emphasizing group process and influence on individual behavior (Carrington, 2011). A network approach corresponds with theories emphasizing learning processes, including differential association and social learning theories, that focus on exposure to anti-social role models, particularly within tight-knit social groups such as the family, for explaining offending patterns (Sutherland, 1939). From this perspective, personal networks increase the likelihood of criminal involvement by enhancing opportunity and providing exposure to role models that reinforce antisocial behavior through allocations of rewards and punishments (Akers, 1998; Warr, 2002). Taken together, these ideas intersect with the negative social capital literature, which anticipates that network ties can be positive *and* negative with varying consequences (Portes, 1998; Wacquant, 1998).

Utilization of social network methods in criminology was initially sporadic relative to other social science disciplines (Papachristos, 2011, 2014). More recently, however, network analysis has increased substantially and is now growing quite rapidly (for recent reviews, see Bouchard & Malm, 2016; Gallupe, 2016; Gravel & Tita, 2017). Guided in large measure by international research, much has been learned about the structure of prisoners' personal networks. Prior to entering prison, the structure of the core discussion network (i.e., their size, frequency of interaction) and the quality of relationships (i.e., the level of trust among members) are roughly indistinguishable from the general population, but with diminished socioeconomic resources embedded within them (de Cuyper, Dirkzwager, Völker, van der Laan, & Nieuwbeerta, 2013). Also, the composition of the preprison, core discussion network is likely to change after release, in some cases substantially, with preexisting friendship ties most likely to be replaced with family ties, particularly among those having served a longer prison sentence, changed residence, had weaker prior family ties, or committed a violent or sexual offense (Volker et al., 2016). Network affiliations and strong friendships that are more diverse than might be expected in the general population are also evident within prison, and are associated with increased prison misconduct (Reid, 2017a) and condition the impact of individual-level predictors of misconduct (Reid, 2017b). It is also known that older inmates, whom some researchers describe as "old heads," often hold increased status within the prison hierarchy (Kreager et al., 2017).

Although much progress has been made, research delineating the nature of prisoners' personal networks, particularly the extent of negative, criminal influence, remains underdeveloped. Laub (2010) argues that criminologists need to use "descriptive quantitative criminology" (p. 423) to compile more insightful portrayals of criminal justice populations. Addressing the limitations of the network literature and Laub's (2010) admonition in particular, we provide a descriptive portrait of the preprison personal networks of adult male prisoners during the 18-month period preceding their prison spell. The snapshot is derived from data collected as part of a longitudinal interview utilizing a life-event calendar (Sutton, 2010). Each participant (i.e., ego) identified the individuals that are "most important" to them (i.e., network alters), and then answered a series of questions addressing the criminal background and influence of each named individual.

More specifically, two goals motivate the analysis. The first is to examine the composition and structure of prisoners' personal networks prior to prison admission. Social isolation or otherwise sparse social connectivity may have particularly negative implications for active offender populations. We therefore begin with a descriptive portrait of network size, density, and relational types in the total network, distinguishing kin and nonkin components, and making comparisons where we can to preexisting research. As we noted above, prior research has addressed this question. However, that research did not examine the question separately for kin and nonkin networks. The larger project from which this analysis derives lacked resources to collect a population comparison group, as some studies have, and thus we make comparisons to the results of other studies to the extent that we can. The second, more novel goal is to explore the nature of criminal influence within prisoners' networks, with an expectation of variability in exposure to alters in terms of prior criminal involvement, criminal opportunity, and perceived criminal reinforcement. By interweaving insight concerning prisoners' preprison personal networks with social network and life course criminology, we seek to better describe exposure to criminal influence during the months leading up to incarceration. We regard this latter goal as more central and relevant for correctional practitioners concerned with rehabilitation and reducing the risk of future recidivism.

Prisoners: Social Networks and Social Capital

It is well documented that the U.S. prisoner population has grown exponentially in recent decades (Mauer, 2006). While there were fewer than 400,000 prison inmates in 1980, there are now over 1.5 million people in prison on any given day (Carson & Anderson, 2016). Approximately 95% of those inmates will eventually be released, with more than 700,000 prisoners released each year (Hughes & Wilson, 2003). Unfortunately, two thirds of those who are released are rearrested within 3 years, a pattern that has been stable since the 1980s (Durose, Cooper, & Snyder, 2014).

In light of these patterns, communities, families, and other social institutions characteristically struggle to provide sufficient resources to accommodate the influx of returning prisoners (Petersilia, 2003; Travis, 2005). Prisoner reentry and

recidivism have accordingly become priorities for policy makers and researchers, including those who focus on social networks. For instance, research examining prisoners' social ties using measures such as frequency of prison visitation and expectations of family support upon release reveal that family attachment and support is associated with lower recidivism (Hairston, 1991). Bales and Mears (2008) additionally report that "any visitation and more frequent visitation were both associated with a lower likelihood of recidivism" (p. 312). More nuanced analyses revealed that consistent monthly visitation, occurring within 1 year of the release date, from family, friends, and spouses, among men, non-Whites, and inmates with longer incarceration histories were most consequential. Subsequent studies in Canada (Derkzen, Gobeil, & Gileno, 2009) and Minnesota (Duwe & Clark, 2013) draw similar conclusions regarding the general benefits of prison visitation. Extending this theme, Visher and O'Connell (2012) find that visitation increases prisoners' optimism concerning quality of life post-release.

Recidivism research finds that family support is critical for reentering prisoners (Berg & Huebner, 2011; Naser & La Vigne, 2006; Nelson, Deess, & Allen, 1999) and that family conflict is a risk factor (Mowen & Visher, 2015). Moreover, a meta-analysis of "evidence-based" research identifies anti-social role models and attitudes favorable to criminal behavior as fundamental precursors of recidivism and a primary "criminogenic need" during re-entry (Gendreau et al., 1996). Aside from examining how social networks influence prisoners, researchers have also illuminated the detrimental effects of prisoners' incarceration on their children (Wildeman, 2009) and intimate partners (Comfort, 2008). Additional, albeit different, emphases for those who study prisoners' social networks include the relationships, connections, and status systems that exist among prisoners within the prison context (Bond, Thompson, & Malloy, 2005; Kreager et al., 2017; Schaefer, Bouchard, Young, & Kreager, 2017).

Taken together, these lines of research reveal two important points. First, social networks have crucial implications for both prisoners and alters. Second, social networks' research on prisoners has typically focused on conditions in prison and during reentry. Acknowledging that targeting those stages is crucial for understanding the challenges of reentry and recidivism, we argue here that documenting offenders' lives prior to incarceration may help inform rehabilitative efforts while they are in prison. In contrast to juvenile offenders, and as evidence of the need for greater examination of the life course, we find that there is limited attention in the literature to adult offenders' life circumstances during the period preceding prison. A notable exception is research by Horney, Osgood, and Marshall (1995) that employed the life-events calendar method to examine how month-to-month changes in offenders' substance abuse, living arrangements, employment, and other life circumstances correlated with offending in the months leading up to prison. Our emphasis on retrospective longitudinal calendar data is modeled on the life history collection methods developed by Horney and her colleagues (1996). However, they did not collect data on prisoners' social networks, a limitation we thought was important to address. Despite a growing literature documenting the structure and composition of prisoners' networks, the criminal influences embedded in prisoners' social networks during the months preceding the

prison spell have not received sufficient attention. Incorporating a network approach ultimately enables us to better understand prisoners' social capital, which consists of the resources, including negative, that are available to them from the people that comprise their personal network.

Social Capital

Social capital is often associated with having a tight-knit social circle (see Putnam, 2001), and it is conceived as both active and dynamic. As noted by Coleman (1988), "Social capital is defined by its function. . . Like other forms of capital, social capital is productive making possible the achievement of certain ends that would not be attainable in its absence" (p. 98). It is "a resource embedded in social relationships" (Häuberer, 2011, p. 148) that can help people achieve their goals. Networks with greater levels of social capital are typically large and dense. Indeed, network size and density are a common focus, as scholars debate whether smaller networks portend disadvantage and whether personal networks have changed over time (Fischer, 2011; Lin, 2000; McPherson, Smith-Lovin, & Brashears, 2006). Despite these debates, scholars agree that personal networks are critically important to one's economic, health, and social well-being. While the size and density of a network undoubtedly contributes to social support, the quality or type of support derived from a network may also play a role in patterning criminal outcomes. Not all support systems are created equal and indeed some may have negative consequences.

Negative Social Capital

Importantly, and in contrast to the decidedly affirmative view of social capital, a smaller literature studies the injurious consequences of social networks. Through this lens, personal networks hold the potential to distribute negative resources (Portes, 1998). For instance, prior research, including some utilizing an event calendar, draws parallels between social and criminal capital and documents the relationship between criminal capital (including criminal networks) and greater illegal earnings (Loughran, Nguyen, Piquero, & Fagan, 2013; McCarthy & Hagan, 2001; Morselli & Tremblay, 2004; Morselli, Tremblay, & McCarthy, 2006). Other theory and research, in addition to that cited above, and to which we now turn, examines those influences in relation to the likelihood of criminal involvement.

Within personal networks, the composition of alters, especially whether they comprise kinship ties, influences how resources flow from the network. For instance, dense family ties are more likely to reproduce homogeneous information (Granovetter, 1973). This could be beneficial in the case of a supportive and resourceful personal network, but it could also be detractive if the network provides opportunities for and reinforcement of criminal behavior. There is a clear recognition that some personal networks are particularly problematic for offenders and others who are at risk of offending. Social learning theory (Burgess & Akers, 1966), for example, imagines that criminal behavior patterns are initiated through the process of imitation (Bandura,

1986), or through the anticipation of future rewards (Rotter, 1954). Once initiated, that behavior will be repeated over time insofar as it is reinforced and/or goes unpunished (Akers, 1985, 1998).

The process of reinforcement differentiates social learning theory from other learning theories that place emphasis on the cognitive internalization of behavioral scripts derived, for instance, through differential association with deviant peers. A recent meta-analysis of the social learning literature concludes that there is substantial evidence supporting differential association theory concepts such as internalization of attitudes favoring offending, but research evaluating the reinforcement of criminal behavior lags (Pratt et al., 2010). Opportunity theories, which assume that the motivation to crime is formed during childhood and remains stable, also anticipate consequences of crime opportunities through alters. However, they do not anticipate that alter reinforcement plays a role.

Prior social learning research most typically investigates theoretically derived hypotheses using adolescent samples, with relatively sparse attention paid to learning processes and influences among adult criminal justice populations (Alarid, Burton, & Cullen, 2000). Social learning theory contends that the types of social capital available—negative or positive—have severe consequences. As a first step toward assessing those hypotheses, our descriptive portrayal of prisoners' negative social capital in the months prior to prison adds to the network literature generally; elucidates the structure, composition, and nature of prisoner's pre-prison personal networks; and, it is hoped, informs treatment and rehabilitative efforts more specifically.

Data and Method

Our data are derived from life-event calendar interviews conducted with 250 prisoners during the 2005-2007 timeframe. Respondents were randomly selected from four minimum/medium security Ohio Department of Rehabilitation and Correction (ODRC) men's prisons. During the period in which the data were collected, minimum and medium security prisoners comprised approximately 70% of the ODRC prison population. Our results therefore generalize to a large portion of state prisoners. The interviews were spread across four institutions to increase representativeness, resulting in a sample that is well distributed geographically (see Figure 1). The sampling frame consisted of prisoners between 18 and 32 years old that were newly admitted to the ODRC. The upper limit of 32 was selected, consistent with the age–crime curve, to maximize the number of criminally active respondents. To achieve a random sample, "consecutive sampling" was employed beginning with the most recently admitted inmates. Prisons are dynamic institutions with new inmates arriving and departing weekly. Due to the random temporal flow of new inmates into prison, consecutive sampling is a common strategy in prison research (Fazel, Bains, & Doll, 2006).

Recruitment was a two-step process. Small groups of prisoners drawn from the sampling frame were issued passes to meet with project staff in a semi-private setting, such as a classroom, chapel, or visiting room. Members of the research team then described our interest in learning more about criminal behavior, drug use, and life
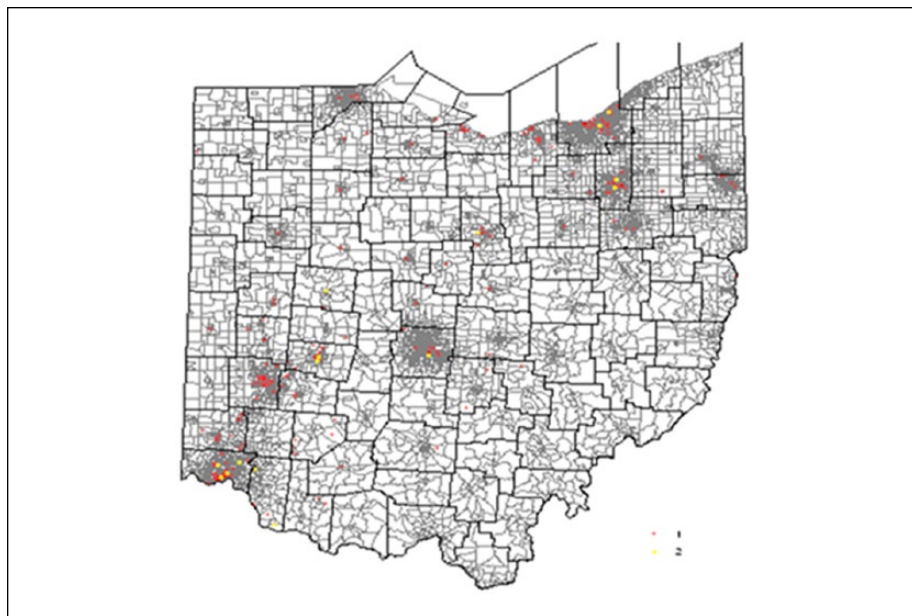
Figure 1. Geographical dispersion of sample across the state of Ohio.

circumstances across multiple domains over time. Prisoners were invited to participate and were informed that involvement in the study was entirely voluntary and that Ohio state law prohibits compensating prisoners for research participation. Ultimately, 250 prisoners out of 468 drawn from the sampling frame volunteered to be interviewed, yielding a 53% response rate with virtually no missing data.

Among the refusers, it is important to note that many prisoners departed the recruitment space without providing a reason when they were told participation was voluntary. Although we are unable to quantify it, prison staff informed us that some if not many of those prisoners had work assignments in the prison, had medical/dental appointments, had a visitor, had to confer with an officer of the court, or had some other reason for leaving having nothing to do with concealing past experiences from interviewers (although it would be naive to deny that some did).

Relatedly, there was also some confusion over our goal to document behavior that occurred beginning in the month prior to the offense that led to incarceration (i.e., the instant offense). Discussion of the instant offense is often a source of great concern and a touchy subject for prisoners due to pending appeals or attempts to win judicial release prior to serving the full term of their sentence, a point which was clarified for those that stayed and listened to the recruitment script. As the foregoing discussion implies, it is our contention that the response rate would likely be higher, perhaps much higher, if we had the opportunity to debrief the refusers and exclude those with legitimate reasons for nonparticipation from that category.

Those concerns aside, the sample is virtually identical to subjects that refused to participate (*n* = 218) and the sampling frame (*n* = 1,789) on race, age at admission, and prior incarceration. Researcher and ODRC informed consent forms were administered at the beginning of each interview, and during this time, respondents' rights and confidentiality procedures were outlined. Respondents were also informed that there was a Certificate of Confidentiality from the Department of Health and Human Services for the project, which protected their information from being subpoenaed or otherwise obtained by authorities. With some exceptions, two members of the research team were present during each interview.

After the consent forms were administered, respondents were asked to identify the month in which they were arrested for the offense that led to their incarceration. The month immediately prior was designated Month 18, with the life-events calendar then spanning backward to Month 1. Respondents identified any months during the calendar period that they were incarcerated or in residential treatment (or off the street for some other reason). Those months were blocked off on the calendar to avoid inadvertently entering other life events. Next, a series of questions was asked regarding life events that tend to be easier to recall, including birthdates, residential addresses, child birth, and school attendance, among others. When combined with markers for holidays and seasons, these items create a visual map to facilitate recall of other events that are more difficult to place in time.

For a subset of questionnaire items, respondents were asked whether there were changes in their circumstances during the preceding 17 months, and any changes that were identified were recorded. For other items, such as those pertaining to social networks, the frame of reference was the entire 18-month calendar period. Respondents were ultimately asked an extensive array of questions, with most interviews averaging somewhere between 1 and 1½ hr in duration. Previous research examined respondents' self-reported criminal behavior and drug use in the data set employed here and found that responses are reliable and valid by social scientific standards (Bellair and Sutton 2017; Sutton et al., 2011).

Network Structure

Interviewers introduced personal network items to respondents by stating "In this section, I will be asking about important people in your life. During the calendar period, who were the people most important to you? Just tell me their first name or their initials." A focus on network alters considered "most important" overlaps theoretically with the concept of "intensity" in learning theories such as Sutherland's (1939) differential association theory. More specifically, differential associations with alters that are considered "most important" command greater influence over behavior and are therefore accorded greater weight in the overall balance of influence predicted to shape cognitive learning processes. In some cases, respondents nominated young children under the age of 16 in their network. We excluded them from the analysis because we presume young children do not provide crime opportunity or crime encouragement.

Network Size

Following prior research, we restricted the potential size of personal networks to five names (Merluzzi & Burt, 2013). Network size is operationalized as the number of network alters reported by respondents and is a baseline characteristic that is presumed to index greater access to a range of social capital (Marsden, 1990; Wasserman & Faust, 1994). Some respondents, however, have weak or no ties to family, which may result in potentially damaging (but in some cases, we presume, beneficial) implications for their well-being. Ties to nonkin alters are considered most important for some respondents; thus, we distinguish nonkin from kin networks in our analyses. Most typically, respondents' personal networks featured a mix of kin and nonkin, with each potentially posing a positive or negative influence.

Network Density, Efficiency, and Effective Size

A common measure within social network analysis is network density (Fischer, 1982; Marsden, 1987), which can be defined as the number of actual ties among network members divided by the total number of possible ties. Actual and potential ties are derived from follow-up questions that inquire whether network alters interact with one another. We estimate density for total, kin, and nonkin networks. Density does not perfectly capture how information flows through ego networks as it generally offers little insight into how ties are distributed between network alters. Scholars have used measures developed by Burt (2003, 1995/2009) and their extensions (e.g., Borgatti, 1997) to provide more detail for those interested in the variety of information that may or may not be available to the ego within the context of offender networks (e.g., Morselli & Tremblay, 2004). Efficiency, as defined by Burt (2007, p. 146) is "the ratio of nonredundant contacts to total contacts" in an ego network. Nonredundant contacts are those without any in-network ties with the potential to introduce new information. The implication is that alters without any ties to others within an ego's network are connected to an unseen network with people who have access to resources or ideas that are not present within the ego's network. Efficiency ranges from 0, in networks where all alters are redundant, to 1, where all alters are nonredundant. The distribution of edges (see Figure 2) provides more information about the number of ties in the ego networks and is broken down into its total, kin, and nonkin components. Undirected graphs have a maximal tie count of $n(n - 1) / 2$, where n is network size. Our networks can be no larger than five nodes; thus, the maximum number of edges is 10. Effective size captures another dimension of redundancy: whether alters in a network know or talk to one another. Following Morselli and Tremblay (2004), we use Borgatti's (1997) simplification of Burt's original measure of effective size. Effective size equals the number of alters (n) minus twice the number of ties (t) divided by the number of alters (n) or $n - 2t / n$.

For each network alter nominated, *Relationship Type* tabulates how the respondent came to know them. Possible responses include family, through common
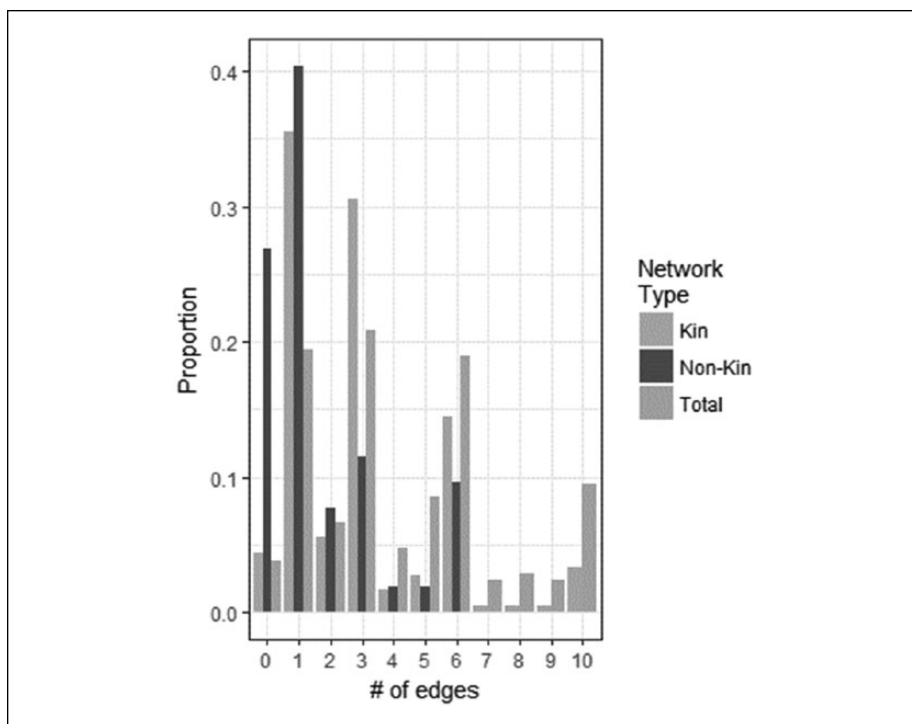
Figure 2. Edge distribution by network type.

friends, in school, romantic, as a result of gang membership, in jail or prison, in drug treatment, in a juvenile facility, at work, or having lived in the same neighborhood. We also report the total number of alters nominated by respondents and their break-down across kin and nonkin networks (see Table 1), as well as the gender composi-tion of the networks.

Assessing Negative Social Capital

From a social capital and learning perspective, it is particularly important to know whether criminal activity is encouraged within one's social network. Network com-position, size, and density reveal relatively little about the direction of influence flowing from network alters. Digging deeper into these relations, we asked a series of questions about each alter designed to gauge negative capital embedded within the network. For presentation, we differentiate total, kin, and nonkin influences across the three broad categories described below, and present results for respon-dents that nominated at least one alter.

Alter's prior criminal involvement is comprised of responses to three binary items and reflects the proportion of alters that had ever been a gang member (*ever*

Table 1. Network Descriptive Statistics by Total, Kin, and Nonkin Networks.

Panel A: Network size	Total network	Kin network	Nonkin network
0	5.6% (14)	16.7% (42)	41.0% (103)
1	10.4% (26)	11.6% (29)	38.2% (96)
2	15.1% (38)	26.7% (67)	12.0% (30)
3	21.9% (55)	26.3% (66)	4.0% (10)
4	22.7% (57)	13.9% (35)	2.8% (7)
5	24.3% (61)	4.8% (12)	2.0% (5)
M	3.2	2.2	1.0
SD	1.5	1.4	1.1
Median	3.0	2.0	1.0
Mode	5	2	0
Panel B: Density	Total network	Kin network	Nonkin network
<.25	5.2%	4.4%	28.8%
.25-.49	12.3	6.1	13.5
.50-.74	16.6	6.7	9.6
>.74	65.8	82.8	48.1
M	0.8	0.9	0.6
SD	0.3	0.3	0.4
Panel C: Efficiency	Total network	Kin network	Nonkin network
M	0.07	0.04	0.12
SD	0.21	0.17	0.29
Panel D: Relationship type	Total network	Kin network	Nonkin network
Family	70.1%	100%	0.0%
Friend	6.5		21.8
Classmate	5.8		19.2
Romantic	10.0		33.5
Gang	0.4		1.3
Juvenile facility	0.1		0.4
Workplace	1.8		5.9
Neighborhood	3.5		11.7
Other	1.9		6.3
Panel E: Gender (% male)	40%	38%	45%
N (Total number of alters)	800	561	239

gang), ever been to prison (*ever prison*), and ever been arrested (*ever arrest*). Alter crime opportunity is composed of three items that reflect the proportion of the network for whom *opportunity for crime* presents itself either all or some of the time when with the alter, the proportion of alters that respondents committed *crime with*, and the proportion that respondents used *drugs with*. Perceived alter reinforcement

comprises three items including the proportion of the network that would view the respondent more favorably (*favor crime*) if a crime were committed, the proportion that would trust the respondent more (*trust more*) if a crime were committed, and the proportion that encouraged the respondent to do something illegal (*encourage crime*). In sum, these variables provide a profile of negative capital embedded in prisoners' personal networks during the months preceding their prison spell.

Results

Social capital embedded in personal networks potentially ripens into social support (Lin, Cook, & Burt, 2001), with long-term implications. However, criminal influences within prisoners' networks prior to prison remain underresearched. We begin with a description of the structure and composition of respondents' personal networks, which reflects the potential for social capital and support. We then explore negative social capital among network alters.

Personal Network Structure and Relationship Type

Table 1 presents descriptive statistics pertaining to network size, density, and relationship type, with results presented for the total network and then disaggregated into kin and nonkin components. We first discuss patterns in the total network, and below we address the disaggregated results. Network size provides an indication of the extent of social support available to the prisoners in our study during the calendar period. As is thought to be true among the general population, inmates with fewer network alters might be more vulnerable and subject to the negative consequences of social isolation. With respect to total network size, the measures of central tendency indicate that prisoners' personal networks are reasonably robust. That is, when prisoners are asked to name individuals that are most important to them, they, on average, provide about three names. This average comports reasonably well with estimates of network size generated over the past 25 or more years from the General Social Survey (McPherson et al., 2006), and suggests that prisoners are not, as a group, any more socially isolated than the general population during the months leading up to incarceration. This point is reinforced by examining the mode of the distribution, which indicates that the most common outcome is a personal network of five. Moreover, the distribution is skewed toward five network members, with a slow decline in the proportion at each network size with movement toward zero. Only a relatively small percentage of prisoners report that they did not have anyone who is important to them during the months of interest. Figure 3 provides a visualization of the tie distribution for the total network and is broken down further by kin and non-kin.

Panel B, Table 1, portrays the range of network density. Recall that density is a proportion calculated as the total number of actual ties in a network divided by the total number of potential ties. Conceptually, density indicates the extent to which people in a network know one another, potentially reflecting greater cohesion and trust, and less fragility. Nevertheless, it may also reflect redundancy—if alters are
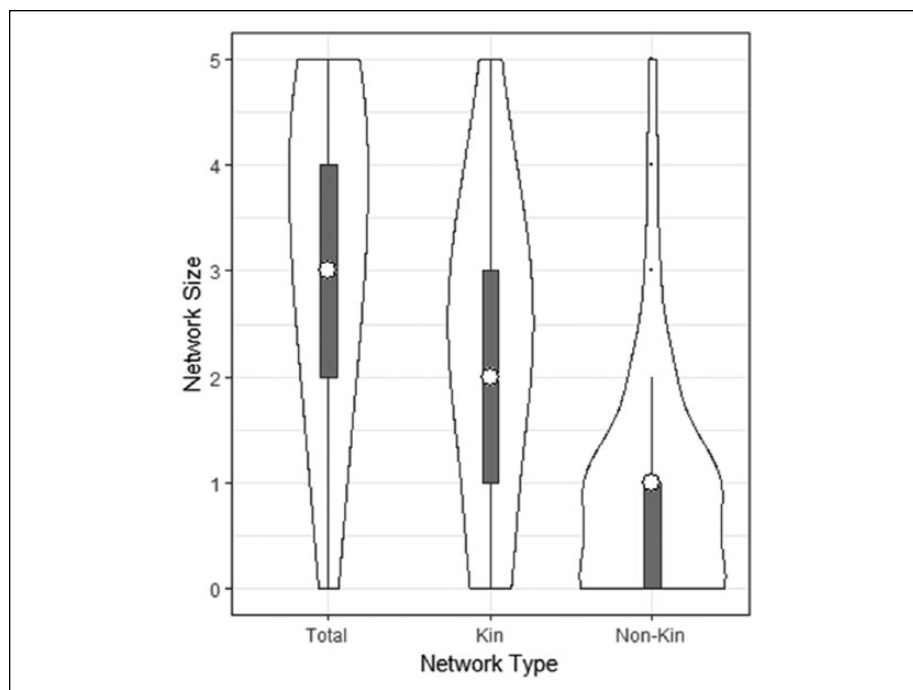
Figure 3. Network size distribution by type.

insular, new information from outside the network is less likely to propagate—and result in an absence of "weak ties" (Granovetter, 1973). The results indicate that the majority of personal networks are very dense, although there is a notable proportion (20.8%) in which alters interact with one another minimally. Given the large number of familial ties (see Panel D), this overall level of density is no surprise and is the source of some optimism about the social capital available to these respondents, as the networks can be characterized as strong and less vulnerable. On the contrary, Panel C of Table 1 indicates that these preprison networks are very inefficient (i.e., they are redundant) with a mean of 0.07 for the total network. Most of the inmates report networks where the vast majority of network alters know one another. In networks that are either extremely dense or are not dense at all, density and efficiency are likely to be highly correlated, which is the case with these networks ($r = -.77$). For the total networks, the mean effective size is 1.57 (see Figure 4), again reinforcing the notion that there is substantial redundancy in the networks. Given redundancy, and years of social reproduction generated by the criminal justice system, these ties have the potential to draw subjects into criminogenic behaviors.

Social capital is multidimensional and does not depend entirely on network size. Rather, the types of available relationships play an important role in social support.
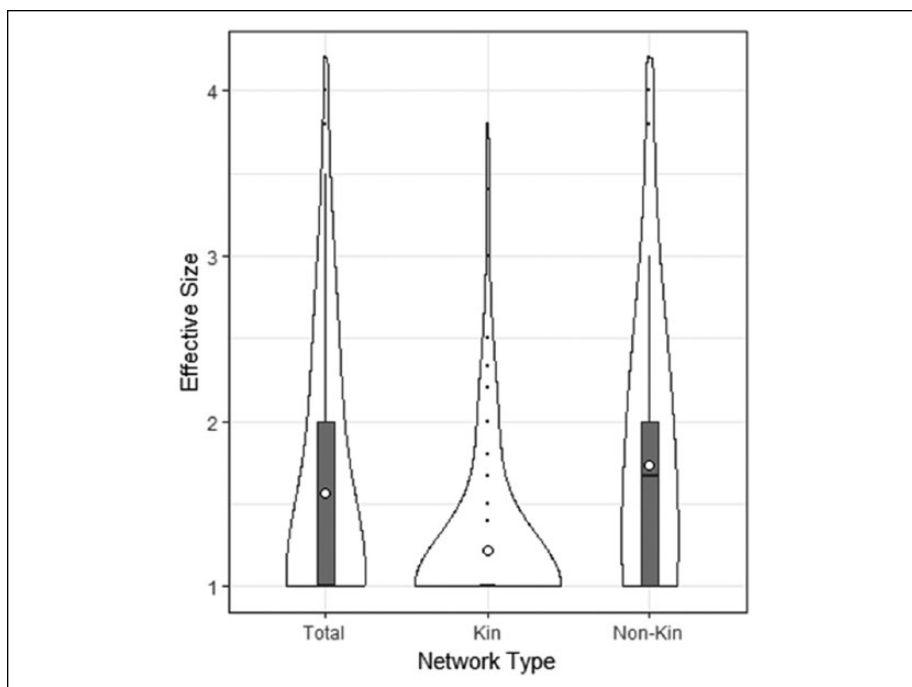
Figure 4. Effective size by network type.

Panel D, Table 1, presents the composition of personal networks by relationship type to provide further scrutiny of the role of kinship in the lives of respondents. In general, prisoners' personal networks during the calendar period are comprised primarily of family members (70.1%), while 10% of alters nominated are romantically involved with the respondent. Panel E indicates that 60% of the personal network is comprised of females.

Interpretation of the personal network shifts somewhat when personal networks are disaggregated into kin and nonkin components. With respect to the kin network, about 16.7% do not have family members that are important to them, which is potentially troublesome. Still, the vast majority have a connection to at least one family member and most have two or more. As might be expected, the kin network component of the total network is larger and of greater density than the nonkin component, although less efficient and thus more redundant. For most prisoners, large networks consisting of nonkin are extremely rare in the months leading up to prison, as are dense, nonkin networks. The nonkin component of the network is dominated by romantic interests (i.e., girlfriends, mothers of children), as well as run of the mill friendships, such as those generated in school, the neighborhood of residence, or at work. Thus, not surprisingly, roughly 55% of the nonkin network is comprised of females (62% of the kin network are female). The nonkin networks

Table 2. Negative Social Capital of Alters Within Total, Kin, and Nonkin Personal Network.

Panel A: Total
network (n = 236)

	Alter's prior criminal involvement			Alter crime opportunity			Perceived alter reinforcement		
Proportion	Ever gang	Ever prison	Ever arrest	Opportunity for crime	Crime with	Drugs with	Favor crime	Trust more	Encourage crime
0	210/88.6%	153/64.6%	61/25.7%	124/52.3%	170/71.7%	92/38.8%	221/93.2%	198/83.5%	180/75.9%
.01-.2	7/3.0%	22/9.3%	9/3.8%	14/5.9%	13/5.5%	10/4.2%	5/2.1%	10/4.2%	12/5.1%
.21-.4	15/6.3%	41/17.3%	64/26.2%	40/16.9%	32/13.5%	48/20.3%	8/3.4%	16/6.7%	28/11.8%
.41-.6	4/1.7%	16/6.8%	42/18.6%	26/11.0%	15/6.3%	38/16.0%	3/1.3%	7/3.0%	11/4.6%
.61-.8	1/0.4%	5/2.1%	37/15.6%	16/6.8%	5/2.1%	27/11.4%	0	1/0.4%	5/2.1%
.81-1.0	0	0	24/10.1%	17/7.2%	2/0.8%	22/9.3%	0	5/2.1%	1/0.4%

Panel B: Kin
network (n = 208)

	Alter's prior criminal involvement			Alter crime opportunity			Perceived alter reinforcement		
Proportion	Ever gang	Ever prison	Ever arrest	Opportunity for crime	Crime with	Drugs with	Favor crime	Trust more	Encourage crime
0	193/92.3%	143/68.4%	64/30.6%	131/62.7%	175/83.7%	110/52.6%	200/96.0%	186/89.0%	179/85.6%
.01-.2	2/1.0%	6/2.9%	2/1.0%	2/1.0%	3/1.4%	3/1.4%	1/0.5%	3/1.4%	3/1.4%
.21-.4	11/5.3%	31/14.8%	49/23.4%	29/13.9%	13/6.2%	30/14.4%	5/2.4%	10/4.8%	17/8.1%
.41-.6	2/1.0%	22/10.5%	40/19.1%	24/11.5%	15/7.2%	38/18.2%	3/1.4%	3/1.4%	6/2.9%
.61-.8	0	3/1.4%	24/11.5%	8/3.8%	2/1.0%	15/7.2%	0	3/1.4%	2/1.0%
.81-1.0	1/.05%	4/1.9%	30/14.4%	15/7.2%	1/0.5%	13/6.2%	0	4/1.9%	2/1.0%

Panel C: Nonkin
network (n = 147)

	Alter's prior criminal involvement			Alter crime opportunity			Perceived alter reinforcement		
Proportion	Ever gang	Ever prison	Ever arrest	Opportunity for crime	Crime with	Drugs with	Favor crime	Trust more	Encourage crime
0	131/88.5%	117/79.1%	69/46.6%	78/52.7%	102/68.9%	54/36.5%	141/95.3%	130/87.8%	110/74.3%
.01-.2	0	1/0.7%	1/0.7%	1/0.7%	3/2.0%	0	0	0	1/0.7%
.21-.4	3/2.0%	6/4.1%	6/4.1%	4/2.7%	4/2.7%	1/0.7%	2/1.4%	3/2.0%	4/2.7%
.41-.6	9/6.1%	11/7.4%	13/8.8%	16/10.8%	13/8.8%	17/11.5%	4/2.7%	6/4.1%	13/8.8%
.61-.8	1/0.7%	0	5/3.4%	6/4.1%	3/2.0%	7/4.7%	0	1/0.7%	5/3.4%
.81-1.0	4/2.7%	13/8.8%	54/36.5%	43/29.1%	23/15.5%	69/46.6%	1/0.7%	8/5.4%	15/10.0%

tend to be less redundant than kin, although the differences are quite small. Interestingly, and perhaps contrary to stereotypes, very few respondents in our sample nominate people who they identify as having met through gang membership or the criminal justice system.

Negative Social Capital

Negative social capital embedded in prisoners' personal networks in the period preceding prison is presented in Table 2, with Panel A reflecting the total network and Panels B and C reflecting disaggregation into kin and nonkin components, respectively. Results indicate variable exposure to alters with prior criminal involvement, depending on the criterion examined. A relatively small proportion of prisoners report that there are (former or current) gang members in their network (ever in a gang), and it is extremely rare for gang members to comprise more than 50% of the network, but it does happen. A considerably larger proportion of respondents report that some alters have served time in prison (ever prison), although the majority have no such exposure. It is rare for respondents to have a personal network during the calendar period wherein greater than 50% of alters have served time in prison, but, like gang members in the

network, it does happen. Having network alters who have previously been arrested is much more common than alters with gang or prison backgrounds. The majority of networks contain at least one alter with an arrest history, and at least 25% of subjects have networks comprised of 50% or more alters with an arrest history.

Alter's prior criminal involvement is a static characteristic. That is, once a network alter acquires a criminal record, it generally cannot be changed unless it is expunged. However, alter crime opportunity and perceived alter reinforcement are dynamic in nature and thus potentially modifiable if alter, in conjunction with the respondent, shift their behavior, or if the respondent dissociates from alter. About half of the respondents perceived an opportunity to commit crime while in the company of alters in the months leading to prison, and roughly 20% are enmeshed in networks where half or more alters supply criminal opportunity. A smaller proportion of respondents, about 30%, actually committed a crime with alters, but relatively few committed crime with the majority of alters within the network. Drug use with network alters during the calendar period was pervasive. Over 60% of respondents used drugs with one or more of their network alters, including approximately 20% who used with half or more of their network.

From a negative social capital and social learning perspective (see Warr, 2002), perceived alter reinforcement of crime is among the most central mechanisms most likely to increase the likelihood of offending. About 7% of the sample perceived that at least one network alter would view them more favorably if they committed a crime, and there are no networks in which half or more alters favor crime. It is more common to find respondents embedded in networks in which at least one alter would trust the subject more if they commit crime or where network alters encourage respondents to commit crime. However, both types of network reinforcement are less common than actually co-offending with alters.

Negative social capital is disaggregated into its kin and nonkin components in Table 2, Panels B and C. Disaggregation does not identify many differences, but there are a few worth noting. First, alters comprising the nonkin component of the total network are less likely to have been to prison or to have been arrested, although the other dimensions of negative capital show little difference relative to the kin component. Second, there is a tendency for the non-kin component to approximate a bimodal distribution. For instance, it is more likely, and in some cases much more likely, that all or nearly all nonkin alters have prior criminal involvement, commit crime with the respondent, and are perceived to reinforce criminal behavior. As well, 15.5% and 46% of respondents have committed crime with or used drugs with all or nearly all members of their nonkin network, relative to 0.5% and 6.2% engaging in these behaviors with their kin network. This pattern is evident across all negative capital indicators. However, it should be recognized that the nonkin component of the total network is smaller in size than the kin component. Accordingly, the consequence of criminal involvement, committing crime with alters, or reinforcing criminal behavior in the non-kin network could be less severe—it could approach one due to having just one alter in the non-kin network if that alter embraces criminal

behavior. However, the high level of negative social capital inhering in some participants' nonkin networks is clearly problematic.

Discussion

Social networks, comprising whom one knows in a given context, and social capital, a consequence of network affiliations including potential resources and obligations, intersect in numerous ways. Network structure and composition among the general population receive consistent attention, yet scrutiny of social networks among criminal justice populations, while historically "modest and selective" (Papachristos, 2006, p. 99) and "relatively sporadic" (McGloin & Kirk, 2010, p. 211), is beginning to catch up. Social network data are costly and difficult to collect, and hence, social networks remain underresearched (Moody & Paxton, 2009), particularly among reentry populations that are difficult to connect within a fluid society. Moreover, when scholars write explicitly about networks and social capital, they often focus on positional qualities of dyadic relationships and investigate, for instance, the effect of marriage, family structure, or gang membership. Those relationships are embedded within larger relational contexts that imbue dyads with greater meaning and consequence, but dyadic measures do not reflect the wider network.

Some literature clearly points toward the expectation of weak networks among offenders. While focusing on broader changes in discussion networks among the general population, McPherson et al.'s (2006) analysis indicates an average (mean and mode) discussion network of roughly three alters. By 2004, the mean discussion network had declined to about two and the modal category to zero, signaling a substantial shift toward social isolation (also see Putnam, 2001). If social isolation is a salient issue among the U.S. population, then it seems reasonable to presume that the trend toward social isolation would be observed among offenders as well. With this said, Fischer (2009) cautions that these changes may be an artifact of data collection methods, and he therefore recommends against drawing conclusions about shifts in discussion networks based on the 2004 General Social Survey until a variety of "anomalies" in the administration of the survey are resolved.

Research that addresses the relationship between social networks and social capital most often centers upon the beneficial aspects of ties or laments the decline in sociality resulting from shrinking social support networks (McPherson et al., 2006) because they are assumed to be valuable. One strand of prior research on prisoners' social ties focuses on prison visitation and family support in relation to postrelease recidivism, indicating that they are consequential. Studies of social networks among drug users and delinquents, however, are more typically consistent with subculture approaches, revealing that they may be as, or more, vibrant than those of nonusers or nondelinquents (Giordano, Cernkovich, & Pugh, 1986; Kandel & Davies, 1991). The international research on preprison core discussion networks in the Netherlands to which we alluded earlier also indicates that they are robust in comparison with the general population, although bereft of socioeconomic resources (de Cuyper et al., 2013). Our analysis of adult prisoners' personal networks in the months before prison is consistent with

that literature, indicating that prisoners are not, as a group, socially isolated in their final months of freedom. To the contrary, their networks appear to be relatively large, dense, and are dominated by kinship ties. Realistically, this is positive news from the vantage of the social isolation hypothesis and its implication for social capital. Analyses do reveal, however, some inmates with very small or nonexistent networks and presumably limited access to social capital (positive or negative) before they came to prison, which is possibly a harbinger of difficulty postrelease.

Most prior research on prisoners' social ties is focused on the sources of pro-social support. Building from prior research addressing criminal networks and negative capital, we focus on describing negative capital in prisoners' personal networks. A growing literature on intergenerational criminal behavior reveals a greater likelihood of offending among subjects whose parents have had contact with the criminal justice system. For instance, Farrington, Coid, and Murray (2009) report that subjects enrolled in the Cambridge Study of Delinquent Development (CSDD) are over twice as likely to have a conviction if their father has a conviction. Thornberry (2008) draws similar conclusions and further suggests that it is important to consider the criminality of parents when formulating family policy to address adolescent delinquency. The literature clearly anticipates that prisoners' networks before prison provide exposure to antisocial influences, although the precise balance is less clear. Accordingly, our findings expand the growing literature on criminal capital to other stages of the life course, and they are distinct in that we focus on adults rather than juveniles.

Several aspects of network composition during the months leading up to prison are examined, including alters' prior criminal involvement, crime opportunities with alters, and perceived reinforcement from alters. A majority of respondents were exposed to alters with a prior criminal history and had committed crime or used drugs with members of their network. However, few prisoners were engulfed by a network in which a preponderance of alters reinforce or encourage criminal behavior. This is positive news from the standpoint of the community model of corrections, which is constructed around the premise that crime results from social disorganization and the breakdown of offenders' social ties in the community. Embeddedness in a network characterized by an extensive criminal history is a static characteristic (i.e., once a criminal history is acquired, it cannot be changed), but whether subjects are exposed to network alters that reinforce criminal behavior is dynamic and amenable to change. While more research is needed to understand this process, we believe our findings can be incorporated into correctional practice by developing interventions that steer prisoners away from network members that reinforce crime, perhaps within the content of cognitive behavioral programs, with encouragement to build relationships that foster positive social capital.

Our data collection effort only scratches the surface of what can be learned about prisoners' networks prior to coming to prison. We capped the size of respondents' personal networks to five and focused on alters that are "most important." This strategy does not shed light on the more expansive range of social ties that surely characterize social networks and downplays measurement of weaker ties that, while not a major source of affection or emotion, may be critical in finding social support,

employment opportunity, or play a role in providing crime opportunity and encouragement. The measurement strategy employed here also does not contribute to understanding participation in wider criminal networks, a key development in criminology (Morselli & Tremblay, 2004). The literature remains far away from a full accounting of available social capital, either positive or negative, and sources of support and resources that offenders can access. Future research should differentiate among and account for the composition, nature, and amount of potential support inherent in a range of relational networks, such as family, friendship, neighborhood, employment, romantic, and criminal, to provide a broader accounting and deeper understanding of prisoners' preprison social ties.

Overall, our findings reflect mixed blessings. Prisoners' support networks are large and dense prior to coming to prison, made up primarily of family and romantic partners. Yet, they are tempered, for some, by their potentially anti-social qualities. Some solace, however, can be taken in the finding that only a relatively small proportion of prisoners are exposed to exceptionally criminogenic networks during the months before prison. These findings speak to the need for researching personal networks over the life course, as well as to the importance of intervening with policies designed to enhance positive, and knife off negative, social capital.

Concluding Thoughts

Following Laub's (2010) call for more descriptive work on offenders, we have provided a descriptive portrayal of prisoners' personal networks during the months before they came to prison. As social networks research continues to build within criminology, there is a need to apply this perspective to groups that networks researchers have been less likely to study (Papachristos, 2014). Prisoners are one such group, and the literature reviewed above provides several good examples of how to execute prison research. Moreover, to the extent that the social networks of prisoners have been examined, researchers have mainly focused on themes such as visitation, family support, and in-prison characteristics of personal networks. By way of contrast, we add to an emerging literature that examines prisoners' lives before they come to prison. Incarceration, reentry, and recidivism rates in recent years have been unprecedented, and there is now growing bipartisan recognition that the social and economic costs of these trends may be untenable (Travis, Western, & Redburn, 2014). Accordingly, while previous network research examines the dynamics that impact reentry and recidivism, we believe that our findings on offenders' social capital during the months preceding prison can potentially reduce the flow of ex-prisoners back into prison and, in some ways, may uniquely inform rehabilitative programming.

Declaration of Conflicting Interests

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