Altering Pathways to Youth Gang Involvement and Violence: Building a Foundation for Evidence-Based Policy

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CITY OF SURREY

Preamble

This report introduces theoretical, empirical, and policy issues surrounding gangs and gang members. The aim of the current study was to address gaps in this literature through an examination of two different pathways to gang involvement. First, the correctional pathway reflects the need for effective enforcement-oriented intervention and suppression strategies that deal with individuals who are already deeply embedded in gangs and gang activity. Second, the community pathway reflects the need for community-based treatment and intervention strategies that rely on empirical evidence to appropriately respond to (a) youth at risk of joining a gang and (b) youth that have more recently entered gangs or are involved in criminal activity perpetrated on behalf of gangs. This report is therefore divided into two major sections to allow for more precise focus on each of these major pathways to gang involvement.

The first section focuses on the correctional pathway and involved examining the criminogenic social networks of 99 individuals from the Incarcerated Serious and Violent Young Offender Study (ISVYOS) that were involved in criminal behavior in Surrey, British Columbia. Network information included the number of different individuals that participants co-offended with and the number of conflicts that they had with other individuals in the community and in prison. These network data were compared across gang members and non-gang offenders to examine whether, and in what way, the networks of gang members differed from non-gang offenders. Case studies were used to illustrate how the networks of individual gang members included many high-risk offenders. The community pathway involved taking stock of existing data infrastructure within community agencies responsible for intervention and supervision of at-risk youth. Findings are discussed with attention to policy implications, including how network data can be used in real time to coordinate resources between police and corrections to help disrupt gang activity.

The second section reviews findings from the community pathway component of the project, which involved taking stock of existing data infrastructure within community agencies responsible for intervention and supervision of at-risk youth. Interviews with key stakeholders and relevant documentation showed that many key risk and protective factors relevant to gang involvement are available in case files of the Surrey Anti-gang and Family Empowerment (SAFE) partners and the Ministry of Child and Family Development. However, some SAFE agencies inconsistently collect CI variables associated with neuropsychological functioning (i.e., prenatal/perinatal risk/needs factors, parental antisocial behaviour/attitudes, personality disorders, and childhood aggression). The authors of the community pathway fact of the project suggest improved access to official and self-report data from and related to multi-systems (e.g., social, education, health, and justice) can be instrumental to further understanding and refining the intervention strategies that can be developed to prevent and reduce youth gang involvement and offending.

Contents

Section I: The Correctional Pathway

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Glossary

Alter: A person that is directly connected to an ego in a person's ego network.

Betweenness Centrality: A measure of network centrality defined as the number of instances in which an individual is a bridge between two otherwise unconnected persons in the network. Can be standardized to represent the percentage of all possible bridge ties formed in a network of *n*-1 size.

Degree Centrality: A measure of network centrality defined as the number of total ties an individual has to all other individuals in the network. Can be standardized to represent the percentage of all possible ties formed in a network of *n*-1 size.

Edge: Line indicating a relationship (or tie) between two nodes.

Effective Size: Effective size is calculated based on the total number of alters in a network minus the average number of connections each alter has to the other alters. Thus, a high effective size indicates low redundancy between alters relative to network size.

Ego: Network term describing an individual whose connections to all other individuals (referred to as "alters") are coded.

Main Component: The largest fully connected component in a network.

Network Component: A fully connected set of nodes.

Node: Shape (e.g. a circle or square) in a network graph representing an individual or group.

Seed: When measuring a network of individuals, seeds represent the specific individuals whose ego networks are coded.

Sociogram: Graphical representation of a network of nodes and their edges.

Introduction

Various levels of government have identified that there is a growing need to address ongoing, serious, and gang-related violence within Surrey. For example, Assistant Commissioner Dwayne McDonald of the Surrey RCMP recently wrote an open letter to residents of Surrey regarding the recent impact of homicide and gun violence on the community. A specialized division of the RCMP, the Combined Forces Special Enforcement Unit – British Columbia was established to improve responses to organized crime and improve public safety. Former Surrey Mayor Linda Hepner established a Gang Task Force to better understand and respond to gang violence. The issue of gangs and violence has been identified as a major issue throughout Canada more generally. In response, Public Safety Canada held a summit on Gun and Gang Violence to discuss the challenges associated with reducing gun crime and gang violence in Canada. Although well-intentioned efforts have been developed to create programs to help promote young persons' exit from gang involvement, these programs are too often based on anecdotes, personal beliefs, and are not rooted in empirical evidence (Gravel et al., 2013). Moreover, such programs are rarely suitable for deeply embedded gang members due to their high-risk status. In the absence of an evidence-based policy strategy that targets deeply-embedded gang members, serious and violent crimes within the city of Surrey and elsewhere will persist. This is especially true because little is known about the individuals that become involved in gangs and perpetrate serious, sometimes lethal violence. As such, intervention, prevention, and enforcement efforts have been reactive rather than proactive.

The purpose of the correctional pathway was to address Public Safety Canada's (PSC) interest in reducing gun and gang violence via prevention, intervention, and enforcement strategies. There are many possible routes to reducing gun and gang violence. The current study

focused on examining one specific route, which is to examine how gang members are embedded within criminogenic social environments in the community and in prison. This does not mean that other strategies are unimportant, nor does it imply that focuses on these environments is the best strategy. However, there is an established body of literature that illustrates that a person's criminal network is informative of a wide range of negative outcomes, including involvement in a homicide offense (Bouchard and Malm, 2016; Carrington, 2011; McCuish, Bouchard, & Corrado, 2015). Based on the need to ensure that strategies are evidence-based, we took a deeper look into whether gang members are more deeply embedded in criminogenic environments compared to other serious and violent offenders. It should come as no surprise that gang members are more criminally active that non-gang members (Bouchard & Spindler, 2010). The differences may be subtler, however, when one compares gang members to serious and violent offenders that are otherwise not involved in gangs. Those differences, if any, may also be reflected in the social networks in which gang members are embedded. Gang membership may provide consistent and reliable access to co-offenders, which may itself be associated to the frequency and nature of their criminal activity. Thus, our question was whether gang members pose a unique risk to public safety compared to individuals that are not known gang members, but nevertheless are actively involved in serious crime as well. We also examine whether those two groups are embedded in different social networks.

Criminal networks can be captured using social network analysis (SNA), which is a powerful tool for identifying which individuals deeply embedded in gangs and at risk for serious violence (Papachristos & Sierra-Arevalo, 2018). SNA is a strategy that can be efficiently adopted by practitioners working with at-risk youth and law enforcement agencies working with serious offenders. In other words, SNA is not just a research tool, but a model that the criminal justice

system can use in real-time to prevent serious violence and other gang-related activity by identifying and monitoring high-priority targets (i.e., the individuals with the greatest number of criminal associates, connections to gang leaders, etc.). SNA can be used to examine a person's embeddedness in a criminogenic environment via their co-offending ties (Bouchard & Malm, 2016; McGloin & Nguyen, 2013; Morselli, 2009). Only a few studies have examined SNA and co-offending in the context of gang networks (see Bouchard & Konarski, 2014; Ouellet, Bouchard, & Charette, 2019; Papachristos, 2009). The current study addresses the paucity of research on the co-offending networks of street gangs by examining individual involvement in gang co-offending and whether network properties differ when comparing such individuals to non-gang offenders. Gang membership status in co-offender literature is important because of the principle of homophily, which assumes that individuals who share similar traits are more likely to trust one another (McPherson, Smith-Lovin, & Cook, 2001; Weerman, 2003). This principle has been used in co-offending studies to explain why offenders are more likely to co-offend with individuals who share certain characteristics, such as ethnicity and other demographic characteristics (e.g., Malm et al., 2011; van Mastrigt & Carrington, 2011; Warr, 1993). Membership in the same gang is another measure of homophily (Weerman, 2003) that may be seen by offenders as an indicator of co-offender suitability, especially for homicides and other retaliation-related crimes (Tremblay, 2011). Characteristics of homophily, such as gang membership, may be one indicator of trust (McCuish et al., 2015; Weerman, 2003).

Additionally, recognizing the substantial overlap between offense perpetration and offense victimization (Berg, Stewart, Schreck, & Simons, 2012; Turanovic & Young, 2016), especially among gang members (Pyrooz, Moule, & Decker, 2014), the current study also focused on ties that formed due to conflicts between offenders. This allowed for an examination

of the other side of the coin; that is, the extent to which gang members were embroiled in conflicts that threatened their own safety. Does being in a gang help insulate against the risk for conflict or does gang membership pull individuals into a lifestyle characterized not only by perpetrating crimes with co-offenders, but by being involved in conflicts that jeopardize health and safety? The current study is also unique in that it focuses on ties formed in the community but also while participants were in prison. Does being in a gang equally impact opportunities for co-offending in prison and in the community? Does being in a gang protect an individual against conflicts in prison, or is gang membership status something that pulls individuals into a greater level of conflict? Does this function the same way in the community as in prison? This consideration has potentially key policy implications. If gang members are more embroiled in conflict it indicates to police that more suppression strategies and associated resources may be required. As well, such findings may be helpful for encouraging gang members to exit the gang. What was once thought as an opportunity for camaraderie, protection, and friendship in prison is now actually something that places gang involved persons at a higher risk of negative connections with others. In other words, the current study has the potential for providing practitioners with evidence-based justifications for why individuals should (a) avoid joining gangs and (b) seek to leave the gang.

Method

The Incarcerated Serious and Violent Young Offender Study

The Altering Pathways Study built off of the Incarcerated Serious and Violent Young Offender Study (ISVYOS), which is a longitudinal study of males and females interviewed in youth custody facilities throughout British Columbia (BC), Canada. The purpose of the study is to identify risk factors in adolescence that predict which youth are likely to continue offending in

adulthood. The main concepts under examination include: the needs profiles of incarcerated youth, risk factors for gang involvement and the network structure of gangs, differences in risk factors for males and females, the role of foster care, explanations for early mortality, and explanations for serious and violent crimes such as homicide, sexual assault, and gun carrying. At least one interview was performed with approximately 1,400 incarcerated adolescent offenders between 1998 and 2011. The first interview provides information about the risk factors that youth come into custody with and their perceptions of fairness and safety in custody. Other interviews focus on personality traits, different experiences in custody, foster care and family environment, and gang involvement. The current focus of the ISVYOS is to understand what happens to participants during the adulthood years. The Corrections Network (CORNET) software program is used to collect data on adult criminal offending. As of June 2018, individuals from Cohort I are approximately 35 years old and individuals from Cohort II are approximately 26 years old.

The ISVYOS received ethics approval from the Simon Fraser University Research Ethics Board. The BC Ministry of Child and Family Development is the caregiver to all incarcerated youth and consented to the ISVYOS' recruitment of participants from custody centers throughout the province. Research assistants (RAs) approached youth while on their custody center unit and invited them to participate in the study. Youth were eligible to participate in the study if they were English-speaking, demonstrated an understanding of the interview questions, and were willing to provide accurate information. Approximately five percent of youth declined to participate. If youth wished to participate, RAs brought them to a private interview room to ensure confidentiality. Interviews were standardized to promote quality and consistency of data. To obtain assent, participants were read and given a copy of an information sheet explaining the

purpose of the study, how information would be collected (e.g. interview and file information), and that all information would be kept confidential unless the participant made a direct threat against themselves or someone else. Participants signed a form signifying that they understood the details of the study. Participants were recruited between 1998 and 2011 with a data collection hiatus between 2003-2005. Participants are thus divided into Cohort 1 (1998-2003) and Cohort 2 (2005-2011). To capture a more contemporary sample, the Altering Pathways Study focused on a subsample of youth (n = 99) from Cohort 2 only.

Sample

The main criterion for inclusion in the Altering Pathways Study was that the Cohort 2 ISVYOS participant lived in Surrey, British Columbia or were adjudicated for criminal activity at the Surrey Provincial Court of British Columbia. Individuals in the Altering Pathways study (n = 99) represent a subsample of all such individuals from Cohort 2 of the ISVYOS. Importantly, this was not a random subsample of participants that had a connection to Surrey. Instead, in line with the purposes of the study, we over-sampled individuals that were gang members (n = 55) or were deceased (n = 15). The 99 individuals included 91 males (91.9% of the sample), seven females (7.1%), and one ISVYOS participant (1.0%) that did not self-report their gender. Using January 1, 2019 as the study's start date, on average, participants were approximately 26.65 years old (SD = 1.97; R = 23-30) at the time of network coding. Just over half of participants were White, just under a quarter were of Indigenous descent, and the remaining 25 percent of participants were of a non-Indigenous minority status or did not have data on their ethnicity. The non-Indigenous category was used because the sample size was too small to disaggregate across all remaining ethnic groups (e.g., Chinese, South East Asian, Black, Hispanic). Whereas Surrey includes a disproportionate number of people from a South Asian heritage relative to other places

in Canada, only four participants self-identified as East Indian. This was in line with case study observations that South Asian gang members in BC tend to come from more middle-class families and do not become involved in gang activity until later in the life course (e.g., McConnell, 2015).

As the current study was primarily interested in comparing the network characteristics of gang members (*n* = 55; 55.6% of the sample) to non-gang offenders (*n* = 44; 44.4% of the sample), these two subgroups are compared in Table 1.1 across a range of demographic characteristics, criminal history variables, and victimization experiences. Compared to non-gang offenders, gang members were significantly more likely to be male and significantly more likely to have self-reported that they were from a non-Indigenous minority ethnic group. Perhaps most importantly, on average, gang members (M = 25.49; *SD* =1.37) were significantly younger than non-gang offenders (M = 28.09; *SD* = 1.61) at the time that the ego networks were coded. This means that the non-gang offenders averaged an extra approximately 2.5 years of exposure to opportunities to form conflict and co-offending connections. In other words, these age differences bias the analyses in favor of larger ego networks for non-gang offenders. This information should be kept in mind when interpreting the networks. In terms of criminal history data, gang members averaged a significantly greater number of convictions, significantly more time incarcerated between ages 12-17, and were significantly more likely to have committed a crime using a firearm. Homicide offending, the experience of serious victimization, and early mortality did not vary between gang members and non-gang offenders.

Table 1.1 Demographic and Criminal History Comparisons (n = 99)

	Gang Members M (*SD*)	Non-Gang Offenders M (*SD*)	χ^2/t, p
Demographic Characteristics			
Ethnicity			
White	29 (52.7%)	26 (72.2%)	
Indigenous	13 (23.6%)	9 (25.0%)	$\chi^2(2) = 7.54$, $p = .023$
Non-Indigenous Minority	13 (23.6%)*	1 (2.8%)	
Male	55 (100%)	36 (83.7%)	$\chi^2(1) = 9.64$, $p = .002$
Age at Network Coding	25.49 (1.37)***	28.09 (1.61)	$t(97) = 8.67$, $p < .001$
Offending and Victimization			
# of Convictions (Ages 12-17)†	14.51 (10.52)*	10.32 (7.56)	$t(96) = 2.56$, $p = .023$
Days Incarcerated (Ages 12-17)†	457.95 (349.67)***	216.55 (207.30)	$t(90) = 4.27$, $p < .001$
Homicide Offense	8 (14.5%)	7 (15.9%)	$\chi^2(1) = 0.04$, $p = .851$
Firearm Offense	29 (52.7%)	13 (29.5%)	$\chi^2(1) = 5.38$, $p = .020$
Serious Victimization	18 (32.7%)	17 (38.6%)	$\chi^2(1) = 0.07$, $p = .785$
Deceased	5 (9.1%)	10 (22.7%)	$\chi^2(1) = 3.54$, $p = .060$

† Levene's test of equal variance violated.
* significantly different at $p < .05$; ** significantly different at $p < .01$; *** significantly different at $p < .001$

Procedures

Social network data were collected on all participants. Each participant represented an ego and ties were coded between egos and alters and between each ego's alters. Ethical constraints prohibited examining individuals that were not members of the study. The network procedures involved using a computerized software system, the Corrections Network (CORNET), to code different types of ties formed between the egos and their alters. All available data from CORNET were used. Available data includes alerts by custody staff, police, and the courts regarding (a) individuals that an ego co-offended with, (b) individuals that an ego victimized (e.g., assaulted), and (c) individuals that an ego had a conflict with. Ties could have formed both within the community or in prison. CORNET also includes daily logs completed by criminal justice practitioners in the community and in prison (e.g., probation officers, correctional officers, social workers). Logs could include custody officer reports about the behavior of egos, institutional incident reports, case management reports, risk assessments,

emails between criminal justice system colleagues regarding the status of the ego, ego complaint forms, court-ordered no-contact orders, and pre-sentence reports, among other sources. All network data were recorded in edgelist23 format (Borgatti, Everett, & Johnson, 2013). Ties were coded from a person's first entry on CORNET until the date of data collection (Winter 2019). All social network data were anonymized, which involved identifying whether an individual in one ego-network was the same individual as in another ego-network. Actors in multiple ego-networks with the same first and last name, or the same Correctional Service number, were classified as a single actor in the total combined network. In instances where a single name was provided, the date and the location of the interactions were used to verify the actor's identity. In any instance where it was not definitive whether multiple actors were the same individual or different individuals, they were coded as separate actors in the network. The data likely underestimate the number of mutual ties among the egos and potentially overestimate the total number of unique alters in the network.

Measures

Network ties. The nature of ties between egos and alters was coded into one of five categories: (1) co-offending tie, (2) social tie, (3) conflict tie, (4) victimization tie, (5) unknown (i.e., the nature of the connection could not be verified). Co-offending ties included criminal offenses but also non-criminal offenses that resulted in a charge or official warning (e.g., tampering with prison cells, assaults on inmates, contraband). Social ties were recorded for all interactions that were unrelated to offending but were also not involving conflict (e.g., an ego and alter attending a probation office appointment together, two individuals noted to be spending time at the "heavy table"). Conflict ties included instances in which there was a mutual conflict between an ego and an alter (i.e., the tie was bidirectional). Victimization ties described instances

in which there was a clear victim and a clear aggressor and included physical assaults, verbal threats and emotional victimization (e.g., manipulating or threatening a person to assault another inmate). For the purposes of the current study, victimization and conflict ties were collapsed into a single category to represent general conflict. A deductive coding process was also used to determine whether the tie was formed in the community or in prison. The same process was used to determine in which municipality the tie was formed. For the purpose of the current study, municipalities were categorized as: (1) Surrey, (2) municipality bordering Surrey (e.g., New Westminster, Port Coquitlam, Delta, White Rock, Langley), or (3) municipalities in the Lower Mainland/Greater Vancouver Regional District, and (4) all other municipalities in British Columbia. Connections formed between family members and intimate partners were not recorded unless the tie involved co-offending, victimization, or conflict.

Attribute information. Self-report information and data from CORNET were used to supplement the network analyses with more nuanced characteristics of the egos. Official data sources and self-report information from the Youth Group Activities questionnaire (Descormiers, 2014) were used to identify individuals in the sample that were gang members (n = 55). This approach for identifying gang membership was validated in previous studies (e.g., Esbensen, Peterson, Taylor, & Freng, 2009). Self-report information is especially useful when looking at networks of gang and non-gang offenders as examinations of adolescent gang members showed that self-nomination was the strongest predictor of gang embeddedness (Decker, Pyrooz, Sweeten, & Moule, 2014). Importantly, the study distinguished between gang membership and gang activity. The latter can refer to individuals that are not gang members but engage in offenses on behalf of the gang. CORNET data were also used to identify (a) instances in which the participant experienced serious victimization such as assaults that required trips to the

hospital (*n* = 34), (b) instances in which the participant was deceased (*n* = 15), (c) whether the participant any firearms offenses (*n* = 42), and (d) whether the participant perpetrated a homicide offense (*n* = 15). Serious victimizations referred to incidents such as homicide, stabbings and shootings, or assaults that required, for example, a trip to the hospital. Initial coding revealed that instances of minor assault victimization were experienced by virtually all participants. All-cause mortality was examined when looking at deceased participants. Data on cause of death were not always available. Criminal history data available on CORNET were reviewed to examine whether participants perpetrated an offense with a firearm (e.g., robbery) or whether they were charged with possession of a firearm. Criminal history data were also used to identify individuals that were involved in homicide offenses, which included attempted murder, manslaughter, and first- and second-degree murder).

Analytic Strategy

Social network metrics and sociograms were used to interpret characteristics of the network defined by the 99 egos and their alters. The current study focused on three networks: (1) co-offender ties, (2) conflict ties, and (3) co-offender and conflict ties combined in an all-tie network. These three networks were examined in three different ways: (1) ties formed in the community, (2) ties formed in the community and prison, and (3) ties formed solely in prison. The purpose of doing so was to highlight differences, if any, in what can be learned from incorporating prison-based data into descriptions of criminogenic networks. Prison experiences have been overlooked in studies on gang members (Mitchell, McCullough, Wu, Pyrooz, & Decker, 2019) and this is especially true with respect to understanding criminogenic networks (Kreager et al., 2016).

Analyses of the different networks were conducted using UCINET 6 (Borgatti, Everett, & Freeman, 2002) and sociograms were created using Netdraw (Borgatti, 2002). Key characteristics of the networks were compared between various attributes of the egos. Component analysis in UCINET was used to identify different network components. Network characteristics included examining the centrality of egos within the network. Centrality indices examined included degree and betweenness centrality. Degree centrality measures the total number of ties held by an individual in the network and can indicate individuals that are highly visible in a network and may carry a certain level of prestige, or of potential risk when the measure is constructed from official crime data. Betweenness centrality captures the number of instances in which an individual can act as a 'bridge' between otherwise unconnected actors (Freeman, 1977). Ego network analyses were performed to understand the size and density of ego networks. Ego network size represents the number of alters in an ego's network plus the ego. Given differences in the age of network coding, ego network size was divided by the number of years of follow-up data (beginning from age 12 and ending at the age of network data coding). This provided an age-adjusted measure of ego network size that represented the average number of ties formed per year of follow-up. To understand interconnectivity in the ego network, density analyses were used to show the percentage of all possible ties that were present in each participant's ego network which was calculated as the sum of ties in an ego network divided by the number of possible ties in that ego network. Finally, effective size was calculated to identify an ego's total number of alters minus the average number of ties that each alter has to the ego's remaining alters (Burt, 1992). Effective size thus is similar to degree centrality and density as it represents a count of all possible ties but discounts ties that are redundant (e.g., accounts for alters that an ego could reach through another alter).

The analyses proceeded by first examining the properties of the community, aggregated, and prison-based criminogenic networks. This included describing the number of nodes, ties, and components in the network. For each network, attention was given to the main component, including whether gang members were significantly more likely than non-gang offenders to occupy the main component of the network. The second stage of the analyses focused on whether different offender characteristics were associated with different measures of network properties, including degree and betweenness centrality, ego network size, and effective size. Although the current study was primarily interested in gang involvement, given the recent interest in serious violence perpetration and victimization (Turanovic & Young, 2016), comparisons were also made for individuals with a history of carrying firearms and for individuals that experienced serious victimization. Finally, the third stage of the analytic strategy focused on the mobility of offenders in their acquisition of different ties. Specifically, the municipality in which community ties were formed was examined. Are ties disproportionately found in Surrey, and can SNA identify the backbone of criminogenic ties in this community? Throughout the different stages, case studies were used to help illustrate the nature of the networks of key actors.

Results

Part I. Describing the Criminogenic Networks

The Community Network

For all the networks, different colors represent the different components of the network. Figure 1.1 shows all conflict (red edges) and co-offending (gray edges) ties that formed in the community. All but three of the 99 participants had at least one conflict or co-offending tie in the community. These 96 nodes were connected to a total of 907 unique alters, meaning that, on average, those that had a co-offending or conflict tie averaged ties to 9.45 unique nodes. The full

network (*n* = 1,003) included 2,988 ties. The degree centralization for the full network was 0.036. Triadic closure showed that when two individuals shared a common connection, those two individuals were also connected 37.8% of the time. There were 47 components in the network. The main component in the all-tie community network included 553 total nodes (i.e., 55.1% of the total network) with 1,886 ties (63.1% of total). Gang members and non-gang offenders did not differ in their likelihood of being in the main component.

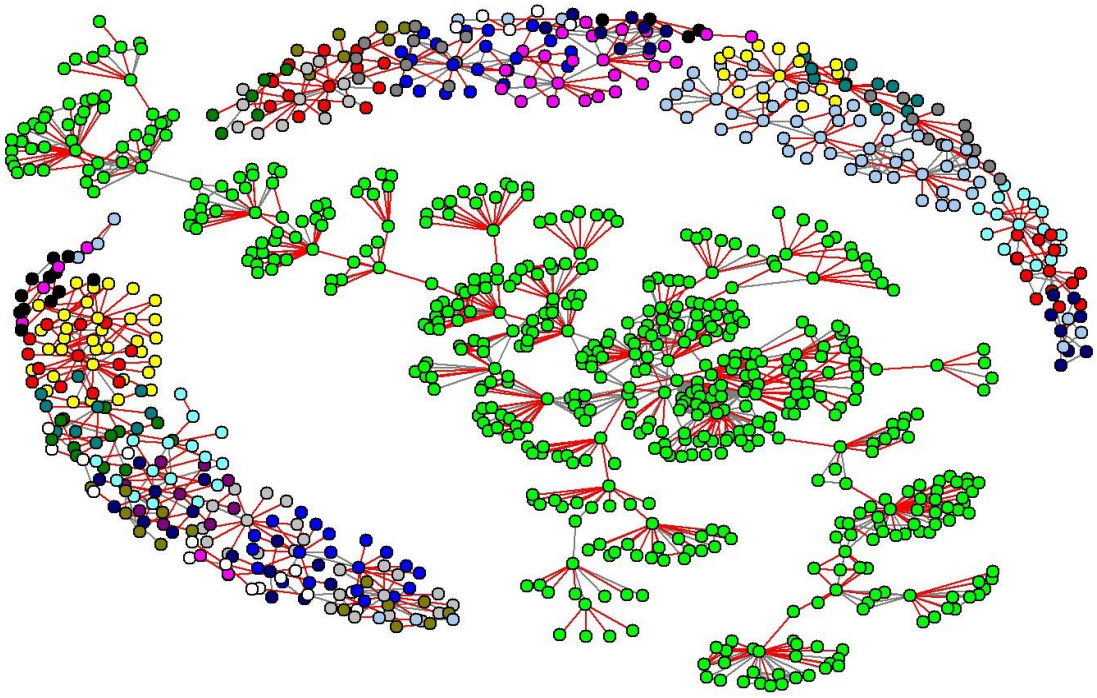

Figure 1.1 Sociogram of all conflict and co-offending ties that formed in the community.
Notes. Light red edges indicate conflict ties; gray edges indicate co-offending ties.

In terms of how specific ties were distributed within the community, 94 of the 99 participants had at least one community-based conflict tie. These 94 nodes were connected to 742 unique alters, meaning that, on average, those that had a conflict tie averaged ties to 7.89 unique nodes. The full network (*n* = 886) included 1,722 ties. The degree centralization for the full network was 0.023. Triadic closure showed that when two individuals shared a common connection, those two individuals were also connected approximately 1% of the time. There

were 61 components in the network (i.e., 48 more components than what was observed in the aggregate network of conflict ties) with the main component comprising 140 nodes (i.e., 16.8% of the sample) and accounting for 324 ties (18.8% of all network ties). Gang members were significantly (χ^2 [1] = 8.90, p = .02) more likely to be in the main component compared to non-gang offenders.

Eighty-two of the 99 participants had at least one community-based co-offending tie. These nodes were connected to 292 unique alters, meaning that, on average, those that had a co-offending or conflict tie averaged ties to 3.56 different nodes. The full network (n = 374) included 1,282 ties. The degree centralization for the full network was 0.053. Triadic closure showed that when two individuals shared a common connection, those two individuals were also connected approximately 73.2% of the time, indicating that triadic closure was much more likely in co-offender networks than conflict networks. There were 58 components in the community co-offending network with the main component comprising 96 nodes (i.e., 25.7% of the sample) and a total of 610 ties (47.6% of all ties). There were no significant differences in the prevalence of gang members versus non-gang offenders in the main component.

In sum, we examined the community network ties because of the well-documented concern about gang activity in British Columbia. Based on what has been reported by policing agencies and other sources, we expected that gang members would be disproportionately found in the core of the community network (i.e., the main component). However, this was not what we observed. Instead, we found a relatively loose network structure; there was not a substantial amount of interconnectivity. Being in the main component of the network was not especially meaningful given that it accounted for just a quarter of all persons in the network. In other words, similarities between gang members and non-gang offenders in terms of their likelihood of

being in the main component was not especially surprising given that association with this component was not informative of being connected to a disproportionately sizeable network. One possibility for the lack of interconnectivity in the network and the lack of a gang effect was due to the failure to account for ties formed in prison. Indeed, as shown in Table 1.1, for gang members especially, a substantial portion of their life course was spent incarcerated. Accordingly, it was possible that the significantly greater number of offenses perpetrated by gang members (see Table 1.1) was related to connections formed while incarcerated. Whether accounting for prison ties helped better understand network connectivity, and how gang members were positioned with this network, was addressed in the section below by combining all community ties and all prison ties.

The Aggregated Network

The above analyses illustrated a relatively disjointed network. There were over 40 different components and the main component of the full community network including only approximately half of the entire network. The analyses in this section explored whether the inclusion of prison-based ties to the community network would reveal greater interconnectivity among offenders. Figure 1.2 displays the network of co-offender and conflict ties that were formed while egos were in the community and in prison. Prison-based ties are denoted by dark red and dark green edges for conflict and co-offending ties, respectively. Community-based ties are denoted by light red and light green edges for conflict and co-offending ties, respectively.

All but one of the 99 participants were located in this network (i.e., had at least one conflict or co-offending tie in either the community or in prison). These 98 nodes were connected to a total of 2,090 unique alters, indicating that the average person in the study had co-offending or conflict ties with an average of 21.32 other offenders. The full network (n = 2,188)

included 6,884 ties. The degree centralization for the full network was 0.042. Triadic closure was 0.10, meaning that when two individuals shared a common connection, those two individuals were also connected approximately 10% of the time. Nine components were found in the full network, which contrasted with the 47 components that were observed for the conflict and co-offending tie community network. Put differently, incorporation of prison ties revealed a much more integrated network. The main component included 2,138 nodes, which amounted to 97.7% of the total network and 6,778 ties (98.5% of all ties). Whereas the community-based network showed that those in the main component comprised a relatively smaller part of the full network, there is actually far more interconnectivity once accounting for ties that also formed in prison. Gang members and non-gang offenders were equally likely to be in the main component (94.6% of gang members and 90.9% of non-gang offenders).

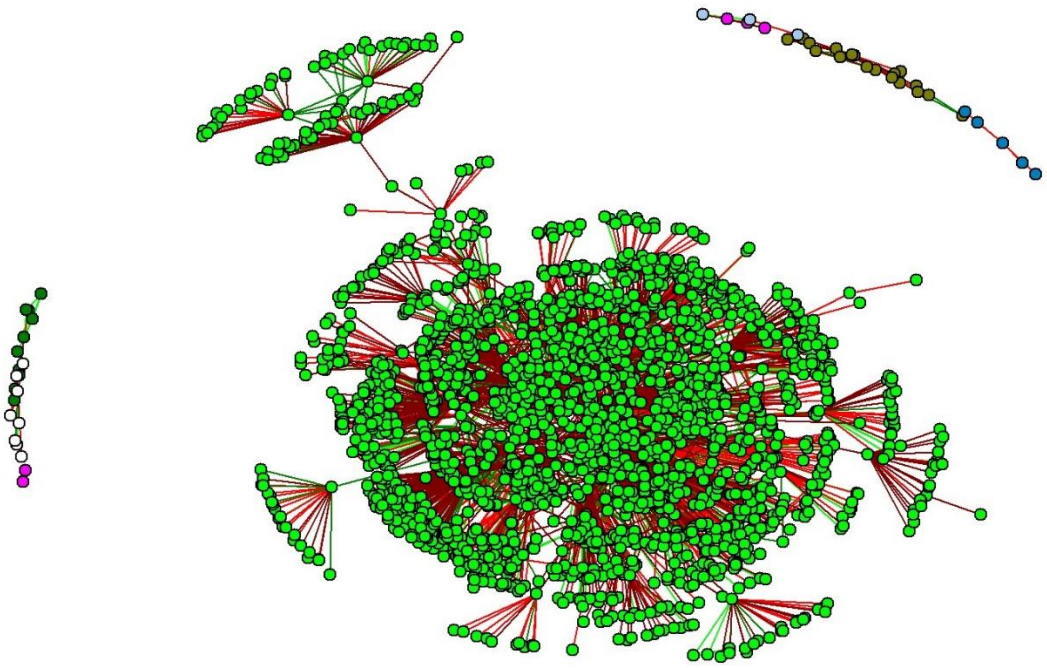

Figure 1.2 Sociogram of all conflict and co-offending ties that formed in the community and prison.
Notes. Dark red edges indicate prison conflict ties. Light red edges indicate community conflict ties. Dark green edges indicate prison co-offending ties. Light green edges indicate community co-offending ties.

In terms of conflict ties that formed both in the community and in prison, all but one of the 99 participants were part of the conflict tie aggregated network. These 98 individuals were connected to a total of 1,864 alters (total n = 1,962), which amounted to an individual ego averaging ties to 19.02 different alters. There was a total of 4,756 different ties in the network. The degree centralization value was 0.043. Triadic closure showed that when two individuals shared a common connection, those two individuals were also connected just 1% of the time. There were 13 distinct components in the network. The main component included 1,826 of the nodes in the network (93.1% of the total network) and 4,498 of all ties in the network (94.6% of all ties). Gang members were significantly more likely to be in the main component of the community and prison conflict network (χ^2 [1] = 6.39, p = .01). Thus, gang members appeared disproportionately tied to conflict in all settings compared to non-gang members.

Ninety-two of the 99 participants were part of the aggregated co-offending network, which included 554 different alters for a total network size of 646. On average, participants in this co-offending network averaged ties to 6.02 different co-offenders. Thus, these types of ties were less common than conflictual ties. These 92 individuals combined for 2,192 unique ties. The degree centralization value was 0.040. Triadic closure showed that when two individuals shared a common connection, those two individuals were also connected approximately 51% of the time. Co-offending networks were not particularly interconnected as there were 48 different components. The main component included 438 nodes (67.8% of the total network) and 1,734 of all ties in the network (70.9% of all ties). In other words, although there were 48 different components, 47 of them averaged only approximately two percent of the total network. Gang members were significantly more likely to be in the main component of the community and prison co-offender network (χ^2 [1] =5.50, p = .02).

The Prison Network

The analyses above showed that including the prison network illustrates greater interconnectivity among offenders as opposed to relying just on community ties alone. It is also possible that the structure of the prison network is uniquely different from in the community, which justifies disaggregating the prison and community networks. The prison network is shown in Figure 1.3. Like the community-only network, light red edges indicate conflict ties and gray edges indicate co-offending ties.

The prison network clearly demonstrates that conflict ties comprise an overwhelming majority of the network. Ninety-two participants had at least one conflict or co-offending tie in prison. These 92 nodes were connected to 1,242 alters for an average of ties to 13.50 alters. The full network (n = 1,334) included 3,936 ties[1]. The degree centralization for the network was 0.056. Triadic closure showed that when two individuals shared a common connection, those two individuals were also connected 6.4% of the time. There were eight components in the network with the main component comprising 1,247 total nodes (i.e., 93.5% of the sample) that combined for 3,728 ties (94.7% of all network ties). This can again be contrasted with the community network, which had over 40 components that comprised only half of the network size. Gang members were significantly more likely to be in the main component compared to non-gang offenders (χ^2 [1] = 5.35, p = .03).

[1] The sum of the number of community ties plus prison ties is greater than the aggregate network's total number of ties because aggregated network analysis does not count two different ties between the same two actors more than once. If A and B are tied through both conflict and co-offending, this will be counted in both the community and prison networks but will be counted as only once in the aggregated network.

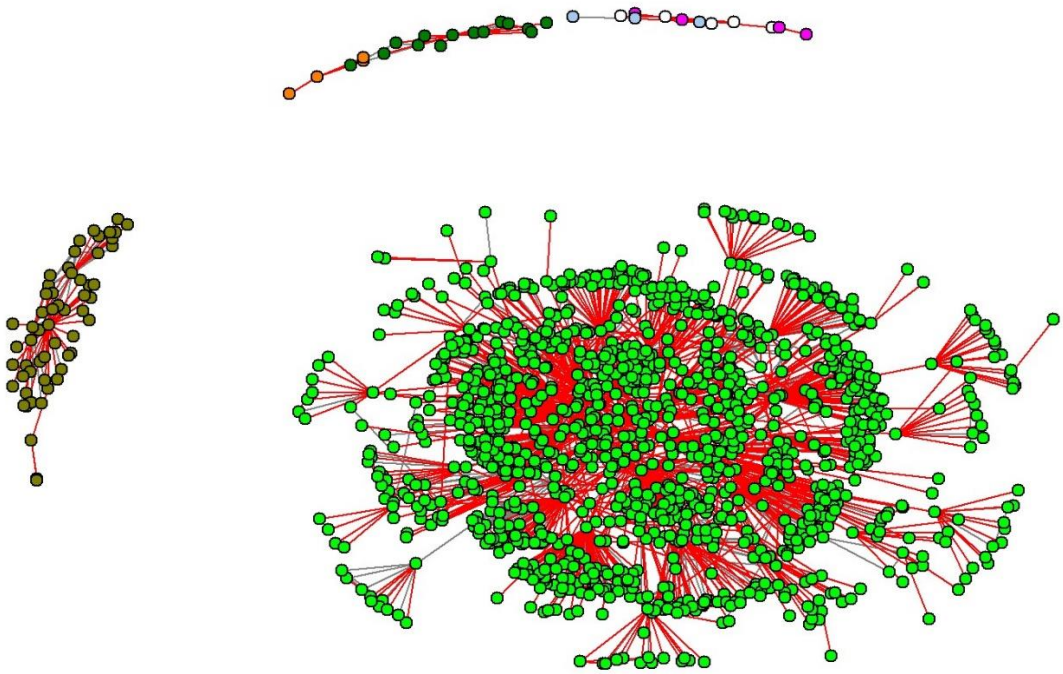

Figure 1.3 Sociogram of all conflict and co-offending ties that formed in prison.
Notes. Light red edges indicate conflict ties; gray edges indicate co-offending ties.

Looking specifically at conflict ties, 90 participants had at least one conflict tie in prison. These 92 nodes were connected to 1,162 alters for an average of ties to 12.63 alters. The full prison-based conflict network (n = 1,254) included 3,058 ties. The degree centralization for the network was 0.056. Triadic closure showed that when two individuals shared a common connection, those two individuals were also connected 1.5% of the time. There were 12 components in the network with the main component comprising 1,164 total nodes (i.e., 92.8% of the sample) and 2,896 ties (94.7% of all ties). Gang members were significantly more likely to be in the prison conflict network's main component compared to non-gang offenders (χ^2 [1] = 8.14, p = .004).

Finally, sixty-six of the study's participants had at least one co-offending tie in prison. These 66 nodes were connected to 278 alters for an average of ties to 4.21 alters. The full network (n = 344) included 914 ties. The degree centralization for the network was 0.039. Triadic closure showed that when two individuals shared a common connection, those two

individuals were also connected 43.2% of the time. There were 46 components in the network with the main component comprising 131 total nodes (i.e., 38.1% of the sample) and 404 ties (44.2% of all ties). Gang members were significantly more likely to be in the prison co-offender network's main component compared to non-gang offenders (χ^2 [1] = 10.11, p = .002). Overall, the prison network was where gang members were especially more likely to be found in the main component of the network compared to non-gang offenders, and this was especially true when it came to co-offending.

Part II. Network Differences Across Offender Attributes

Gang Members

A series of *t*-tests compared gang members and non-gang offenders across a variety (see Table 1.2). These analyses focused on the community network (top of Table 1.2) and prison network (bottom of Table 1.2)[2]. Beginning with the *community network,* for all ties formed in the community, although degree centrality was not significant, when adjusted for age differences (not shown), gang members averaged significantly higher degree centrality values per year in the study. For the all-tie community network, normalized betweenness centrality was significantly higher for gang members compared to non-gang members. Degree and betweenness centrality values were significantly higher for gang members when looking at conflict ties formed in the community. No centrality differences were observed when looking at co-offending ties in the community. Gang members averaged significantly larger age-adjusted all-tie ego networks compared to non-gang offenders. The larger overall ego networks of gang members came from their tendency to have larger conflict networks compared to non-gang offenders. For instance,

[2] It was not necessary to also examine the aggregated network because there were no unique findings in this network (i.e., any significant difference observed in the aggregated network were also observed in either the community or prison networks). This was true for the gang member, victimization, and firearm analyses.

gang members had a conflict network of size 8.45, on average, compared to 5.81 for non-gang members. The same situation was found for effective size, where the larger values for gang members were driven by larger conflict networks.

Table 1.2 Network Comparisons Across Gang Members and Non-Gang Offenders (n = 99)

	Gang Members M (*SD*)	**Non-Gang Offenders** M (*SD*)	*Two-Tailed Test*
Community Network			
Centrality			
Degree (All Ties)	0.01 (0.01)	0.01 (0.01)	p = .113
Betweenness (All Ties)	0.03 (0.04)**	0.01 (0.02)	p = .004
Degree (Conflict Ties)	0.01 (0.01)**	0.01 (0.00)	p = .004
Betweenness (Conflict Ties)	0.002 (0.004)**	0.000 (0.000)	p = .001
Degree (Co-Offender Ties)	0.02 (0.01)	0.02 (0.02)	p = .688
Betweenness (Co-Offender Ties)	0.00 (0.01)	0.00 (0.00)	p = .223
Ego Networks			
Egonet Size (All Ties)	12.98 (7.15)	10.55 (7.15)	p = .113
Egonet Size (All Ties; Age-Adjusted)	0.98 (0.56)**	0.67 (0.46)	p = .007
Density (All Ties)	12.87 (22.51)	15.78 (25.66)	p = .579
Egonet Size (Conflict Ties)	8.45 (4.70)**	5.81 (3.52)	p = .003
Egonet Size (Conflict Ties; Age-Adjusted)	0.64 (0.35)***	0.36 (0.22)	p < .001
Density (Conflict Ties)	0.91 (3.12)	0.00 (0.00)	p = .050
Egonet Size (Co-Offending Ties)	5.42 (4.91)	5.91 (6.18)	p = .689
Egonet Size (Co-Offending Ties; Age-Adjusted)	0.41 (0.36)	0.38 (0.40)	p = .711
Density (Co-Offending Ties)	38.54 (34.36)	40.31 (35.40)	p = .841
Structural Holes			
Effective Size (All Ties)	11.68 (7.10)*	8.44 (5.25)	p = .017
Effective Size (Conflict Ties)	8.40 (4.70)**	5.81 (3.52)	p = .005
Effective Size (Co-Offender Ties)	3.89 (3.53)	3.24 (2.72)	p = .378
Prison Network			
Centrality			
Degree (All Ties)	0.02 (0.01)*	0.01 (0.01)	p = .040
Betweenness (All Ties)	0.03 (0.04)*	0.02 (0.03)	p = .031
Degree (Conflict Ties)	0.02 (0.01)	0.01 (0.01)	p = .058
Betweenness (Conflict Ties)	0.03 (0.04)*	0.02 (0.03)	p = .037
Degree (Co-Offending Ties)	0.02 (0.01)	0.01 (0.01)	p = .224
Betweenness (Co-Offending Ties)	0.01 (0.02)**	0.00 (0.00)	p = .009
Ego Networks			
Egonet Size (All Ties)	22.78 (17.37)*	15.24 (17.02)	p = .044
Egonet Size (All Ties; Age-Adjusted)	1.72 (1.34)**	0.94 (1.02)	p = .002
Density (All Ties)	7.23 (14.46)	5.70 (16.22)	p = .619
Egonet Size (Conflict Ties)	18.96 (15.75)	12.66 (14.60)	p = .055
Egonet Size (Conflict Ties; Age-Adjusted)	1.43 (1.20)**	0.78 (0.80)	p = .005
Density (Conflict Ties)	1.60 (2.01)***	0.26 (0.68)	p < .001
Egonet Size (Co-Offending Ties)	5.28 (3.50)	4.19 (3.60)	p = .239
Egonet Size (Co-Offending Ties; Age-Adjusted)	0.40 (0.29)*	0.25 (0.22)	p = .027
Density (Co-Offending Ties)	29.81 (31.67)	35.57 (37.78)	p = .566
Structural Holes			
Effective Size (All Ties)	21.87 (17.18)	14.81 (16.87)	p = .053
Effective Size (Conflict Ties)	18.66 (15.59)	12.63 (14.57)	p = .066
Effective Size (Co-Offender Ties)	4.34 (3.32)	3.51 (3.29)	p = .332

* significantly different at p <.05; ** significantly different at p <.01; *** significantly different at p <.001

For the *prison network*, the main finding was that, unlike co-offending in the community-based network, betweenness centrality values were significantly higher for gang members in the prison network. This means that gang members have a structural advantage/are strategically positioned in the prison setting when it comes to opportunities for co-offending. All-tie degree centrality values were also significantly higher for gang members. The all-ties ego network size of gang members was also significantly higher compared to non-gang offenders (22.78 vs. 15.24). Once adjusting for age, gang members averaged significantly larger conflict ego networks and co-offending networks. Gang members also averaged a denser prison-based conflict tie network when compared to non-gang offenders. Effective size did not vary across gang members and non-gang offenders regardless of the type of network examined (all ties, conflict ties, co-offending ties). This implies that many of the additional prison contacts of gang members in prison were redundant – they were also connected to other alters.

Offenders with Serious Victimization

Table 1.1 revealed that gang members were no more likely than non-gang members to be victims of a serious crime. In this section, we now ask whether victims, in general, had different networks than non-victims.

Beginning with the *community network* (see Table 1.3), very few comparisons revealed differences between those with and without a history of serious victimization. In fact, the only difference was that victims had significantly less dense all-tie networks. It is possible that individuals that experience more serious victimization are more socially isolated; they lack a network that can insulate them from victimization. With regards to the *prison network* (see bottom of Table 1.3), individuals with serious victimization histories had significantly higher degree and betweenness centrality values for both the all-tie network and conflict network, but not for the co-offending network. In other words, while in custody, those with a history of

serious victimization were surrounded by conflict but did not have proportionate amounts of support in the form of criminal accomplices. These same findings were observed when examining ego network size and effective size.

Table 1.3 Network Comparisons Across Victims and Non-Victims (n = 99)

	Victims	Non-Victims	*Two-Tailed Test*
	M (*SD*)	M (*SD*)	
Community Network			
Centrality			
Degree (All Ties)	0.01 (0.01)	0.01 (0.01)	p = .781
Betweenness (All Ties)	0.02 (0.02)	0.03 (0.03)	p = .568
Degree (Conflict Ties)	0.01 (0.01)	0.01 (0.01)	p = .357
Betweenness (Conflict Ties)	0.00 (0.00)	0.00 (0.00)	p = .862
Degree (Co-Offender Ties)	0.01 (0.01)	0.02 (0.02)	p = .345
Betweenness (Co-Offender Ties)	0.02 (0.01)	0.02 (0.00)	p = .882
Ego Networks			
Egonet Size (All Ties)	12.21 (6.95)	11.76 (7.74)	p = .783
Egonet Size (All Ties; Age-Adjusted)	0.85 (0.53)	0.83 (0.55)	p = .880
Density (All Ties)	7.19 (12.10)	18.08 (27.84)	p = .032
Egonet Size (Conflict Ties)	7.85 (4.43)	6.98 (4.39)	p = .360
Egonet Size (Conflict Ties; Age-Adjusted)	0.55 (0.33)	0.50 (0.33)	p = .518
Density (Conflict Ties)	0.18 (0.80)	0.76 (3.03)	p = .330
Egonet Size (Co-Offending Ties)	4.87 (4.45)	6.08 (5.97)	p = .335
Egonet Size (Co-Offending Ties; Age-Adjusted)	0.34 (0.32)	0.43 (0.40)	p = .337
Density (Co-Offending Ties)	32.64 (31.05)	43.04 (36.24)	p = .244
Structural Holes			
Effective Size (All Ties)	11.24 (6.21)	9.73 (6.68)	p = .287
Effective Size (Conflict Ties)	7.83 (4.41)	6.94 (4.39)	p = .359
Effective Size (Co-Offender Ties)	3.53 (3.00)	3.67 (3.35)	p = .850
Prison Network			
Centrality			
Degree (All Ties)	0.02 (0.02)*	0.01 (0.01)	p = .012
Betweenness (All Ties)	0.04 (0.04)*	0.02 (0.02)	p = .016
Degree (Conflict Ties)	0.02 (0.02)*	0.01 (0.01)	p = .010
Betweenness (Conflict Ties)	0.04 (0.05)*	0.02 (0.03)	p = .022
Degree (Co-Offending Ties)	0.02 (0.01)	0.01 (0.01)	p = .419
Betweenness (Co-Offending Ties)	0.01 (0.01)	0.01 (0.01)	p = .243
Ego Networks			
Egonet Size (All Ties)	25.88 (21.95)*	15.98 (13.60)	p = .010
Egonet Size (All Ties; Age-Adjusted)	1.79 (1.55)*	1.15 (1.03)	p = .022
Density (All Ties)	4.25 (4.09)	7.92 (18.73)	p = .297
Egonet Size (Conflict Ties)	21.91 (20.24)*	13.08)	p = .010
Egonet Size (Conflict Ties; Age-Adjusted)	1.52 (1.43)*	0.94 (0.84)	p = .016
Density (Conflict Ties)	0.90 (1.31)	1.15 (1.95)	p = .537
Egonet Size (Co-Offending Ties)	5.31 (3.36)	4.55 (3.68)	p = .411
Egonet Size (Co-Offending Ties; Age-Adjusted)	0.37 (0.25)	0.33 (0.29)	p = .591
Density (Co-Offending Ties)	24.51 (32.70)	36.70 (33.88)	p = .200
Structural Holes			
Effective Size (All Ties)	25.10 (21.82)**	15.33 (13.30)	p = .008
Effective Size (Conflict Ties)	21.69 (20.10)**	12.92 (11.10)	p = .008
Effective Size (Co-Offender Ties)	4.46 (3.04)	3.72 (3.49)	p = .397

* significantly different at p <.05; ** significantly different at p <.01; *** significantly different at p <.001

Firearm Offenders

Beginning with the *community network* (see Table 1.4), offenders with a history of adjudications for firearm offenses had significantly higher all-tie degree centrality, and this appeared to be due to a greater number of conflict ties but not co-offending ties, as only degree centrality for the former was also significantly higher for firearm offenders. These findings also carried over to the examination of ego network size (13.6 vs 10.6 ties). Firearm offenders also had denser conflict networks in the community. Finally, and perhaps most importantly, firearm offenders had significantly higher effective size values for both conflict ties (8.4 vs. 6.4) and co-offending ties (4.6 vs. 2.9). Thus, unlike gang membership status and history of serious victimization, carrying a firearm was informative of community co-offending.

Table 1.4 Network Comparisons Across Participants with and without a History of Firearm Offenses (n = 99)

	Firearm Offenders M (*SD*)	**Other Offenders** M (*SD*)	*Two-Tailed Test*
Community Network			
Centrality			
Degree (All Ties)	0.014 (0.01)*	0.011 (0.01)	p = .047
Betweenness (All Ties)	0.02 (0.04)	0.01 (0.03)	p = .232
Degree (Conflict Ties)	0.010 (0.01)*	0.008 (0.01)	p = .022
Betweenness (Conflict Ties)	0.00 (0.00)	0.00 (0.00)	p = .101
Degree (Co-Offender Ties)	0.02 (0.01)	0.01 (0.02)	p = .251
Betweenness (Co-Offender Ties)	0.00 (0.01)	0.00 (0.00)	p = .116
Ego Networks			
Egonet Size (All Ties)	13.64 (8.26)*	10.57 (6.49)	p = .046
Egonet Size (All Ties; Age-Adjusted)	1.00 (0.63)*	0.72 (0.43)	p = .012
Density (All Ties)	11.31 (17.61)	16.43 (27.88)	p = .314
Egonet Size (Conflict Ties)	8.49 (4.41)*	6.38 (4.21)	p = .022
Egonet Size (Conflict Ties; Age-Adjusted)	0.62 (0.34)**	0.44 (0.30)	p = .009
Density (Conflict Ties)	1.06 (3.42)*	0.05 (0.33)	p = .019
Egonet Size (Co-Offending Ties)	6.44 (5.33)	5.00 (5.52)	p = .245
Egonet Size (Co-Offending Ties; Age-Adjusted)	0.48 (0.39)	0.33 (0.35)	p = .074
Density (Co-Offending Ties)	36.63 (31.85)	41.59 (37.07)	p = .570
Structural Holes			
Effective Size (All Ties)	12.25 (7.25)**	8.71 (5.48)	p = .008
Effective Size (Conflict Ties)	8.42 (4.41)*	6.37 (4.21)	p = .025
Effective Size (Co-Offender Ties)	4.59 (3.73)*	2.87 (2.54)	p = .013
Prison Network			
Centrality			
Degree (All Ties)	0.02 (0.02)**	0.01 (0.01)	p = .004
Betweenness (All Ties)	0.04 (0.04)**	0.02 (0.02)	p = .006
Degree (Conflict Ties)	0.02 (0.01)*	0.01 (0.01)	p = .014
Betweenness (Conflict Ties)	0.04 (0.05)*	0.02 (0.02)	p = .012
Degree (Co-Offending Ties)	0.02 (0.01)**	0.01 (0.01)	p = .001
Betweenness (Co-Offending Ties)	0.01 (0.02)*	0.00 (0.01)	p = .010
Ego Networks			
Egonet Size (All Ties)	25.20 (19.41)**	14.78 (14.45)	p = .004
Egonet Size (All Ties; Age-Adjusted)	1.83 (1.42)**	1.01 (1.00)	p = .001
Density (All Ties)	5.18 (4.89)	7.81 (20.28)	p = .466
Egonet Size (Conflict Ties)	20.56 (17.34)*	12.21 (12.92)	p = .013
Egonet Size (Conflict Ties; Age-Adjusted)	1.49 (1.25)	0.86 (0.90)	p = .008
Density (Conflict Ties)	1.33 (1.84)	0.80 (1.59)	p = .166
Egonet Size (Co-Offending Ties)	6.34 (3.89)**	3.44 (2.56)	p = .001
Egonet Size (Co-Offending Ties; Age-Adjusted)	0.47 (0.31)***	0.23 (0.17)	p < .001
Density (Co-Offending Ties)	20.87 (21.15)*	43.43 (40.57)	p = .014
Structural Holes			
Effective Size (All Ties)	24.19 (19.24)**	14.33 (14.32)	p = .007
Effective Size (Conflict Ties)	20.30 (17.21)*	12.49 (12.84)	p = .013
Effective Size (Co-Offender Ties)	5.45 (3.72)***	2.66 (2.21)	p < .001

* significantly different at p <.05; ** significantly different at p <.01; *** significantly different at p <.001

Having adjudications for firearm offenses was the offender attribute most informative of *prison network* status (see bottom of Table 1.4). Although it is not clear whether a history of using firearms impacts a person's prison network position, or vice-versa, what is clear is that firearms and prison network status have an important relationship that resulted in firearm offenders having higher degree and betweenness centrality for both conflict and co-offending ties. The higher co-offending betweenness centrality values mean that firearm offenders were in structurally advantageous positions when it came to opportunities for engaging in crimes or violations of rules within the prison context. The prison ego network size of firearm offenders was nearly double that of non-firearm offenders (25.2 vs. 14.8), and this was true when looking specifically at conflict ties and specifically at co-offending ties.

The Criminogenic Networks of Offenders in Surrey

The current study purposefully selected participants that had resided in, or engaged in crime within, the city of Surrey, BC. This was directly in responses to ongoing concerns from a wide range of stakeholders about the level of gang activity in this community. The current study addressed the extent to which ties were solely based on offenses within Surrey. Addressing this question was also important for understanding whether the US-based phenomenon of neighbourhood-rooted gang activity was true in Canadian urban centers. Figure 1.4 replicates the community network shown in Figure 1.1, but with two important differences. First, edges are colored according to the municipality in which the tie was formed. Gray edges denote a tie in Surrey, green edges denote a tie in contiguous territories (e.g., Coquitlam, New Westminster), red edges denote a tie in all other municipalities in the GVRD, and purple edges denote a tie in all other municipalities not captured by the first three categories. There were 82 ties where a municipality could not be identified. These ties were excluded from the network. Second, the

nodes are shaped according to participant characteristics, with square nodes indicating gang membership, circular nodes indicating non-gang offenders, and triangular nodes indicating an unidentified alter.

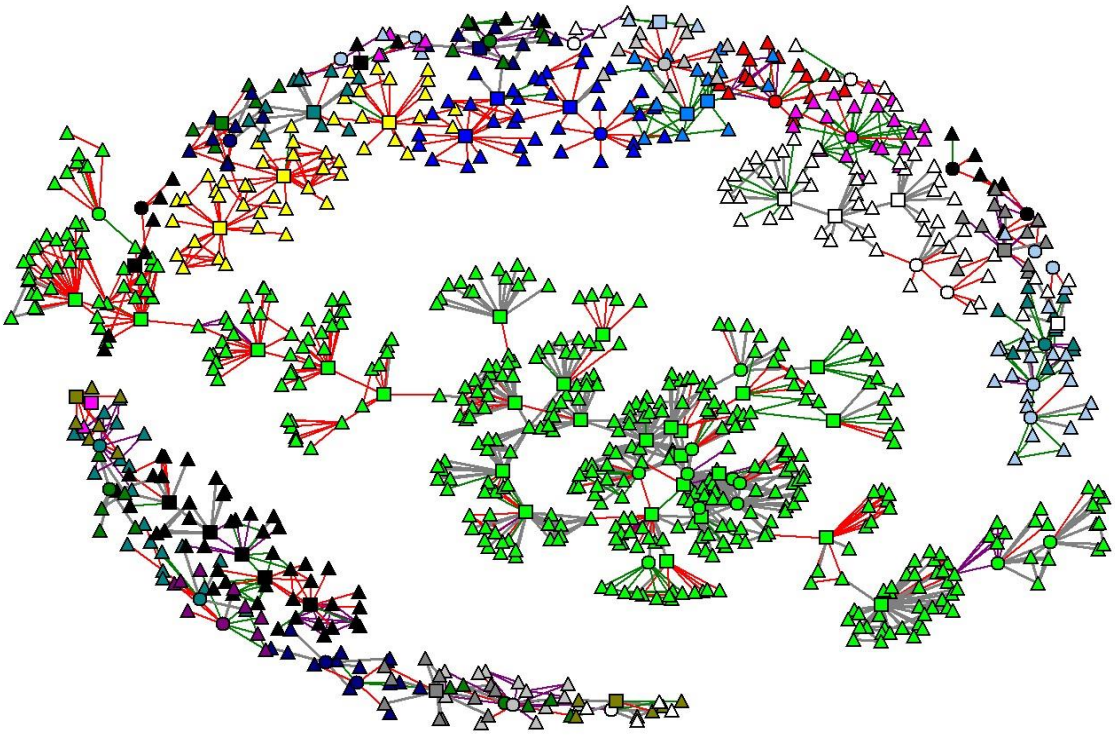

Figure 1.4 Sociogram of all community-based ties across municipalities.
Notes. Gray edges indicate Surrey; green edges indicate contiguous territory; red edges indicate other GVRD municipality; purple edges indicate all other municipalities. Square nodes indicate gang member; circular nodes indicate non-gang offenders; triangular nodes indicate unidentified alter.

Members of the sample were more likely to have formed criminogenic ties in communities outside of Surrey than in Surrey. Specifically, for all community-based ties in which a specific municipality could be identified, there were a total of 2,910 ties among 95 of the study's participants (an average of 9.18 ties to different nodes). Only 44.0% of ties were formed in Surrey. The main component of the network had a slightly larger proportion of all ties that were formed in Surrey (61.4%). Nevertheless, it was clear that the participants in the sample

were active in a range of different locations, not just Surrey. There are two possible explanations for this. The first is that these are individuals that reside in Surrey but travel elsewhere to engage in criminal behavior. The second is that there are many individuals that live outside the city of Surrey but travel to Surrey to become involved in criminal activity. Looking specifically at co-offending networks across different municipalities illustrated a similar phenomenon. There was a total of 1,276 co-offending ties where the location of the co-offense was known. There were 83 participants in this network that had 287 alters for a total network size of 370 nodes. Just over 50% of all ties in this network were formed in Surrey. A quarter of all nodes were in the main component, which resembled the overall network in terms of the proportion of ties former in Surrey versus in other locations. The same observation was made when looking at community-based conflict ties.

The Backbone of Criminogenic Networks in Surrey

Figure 1.5 presents the main component of the community network, but with only the links occurring in Surrey highlighted. In red we find the conflict ties, in green the cooperative ties. We find that 1) cooperative ties convergence towards the center of the network; 2) a few nodes are responsible for a majority of conflict ties, but most of these nodes are found on the periphery of the network; 3) some nodes specialize in conflicts, others specialize in cooperation, and yet others have a combination of both conflictual, and cooperative ties.

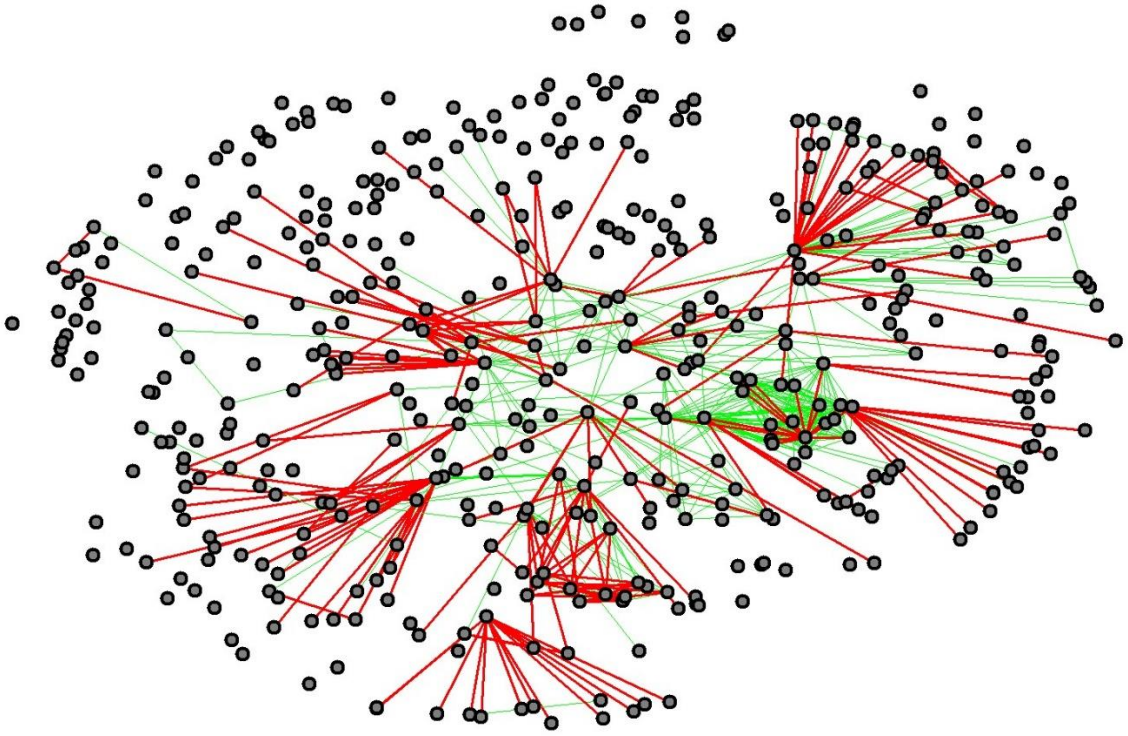

Figure 1.5 Main component of the community network with ties that occurred in Surrey highlighted.
Notes. Conflict ties in red, cooperative ties in green. Nodes with no ties = none of their connections are in Surrey.

We can get a closer look into these patterns by focusing on the core of this network, presented in Figure 1.6 below. Here we only see the nodes that belong to cliques that have at least four members, which we used for node color. We also used a node's betweenness score for node size, so we can see more clearly which nodes stand out in this network. We focus on six nodes in particular, all seeds: four of them are disproportionately involved as brokers in the conflict network (S89, S56, S50, S42), and another two are key brokers of cooperative relationships (S85, S54). These nodes should be a key focus of intervention, but for different reasons. The cooperation brokers drive criminal social capital while avoiding the conflicts in which some of their connections are involved. S54 (centre-right of Figure 1.6) in particular is connected to S50, S56, and S42 who are all deeply embedded into conflicts. Without additional

qualitative information on S54, we can only speculate as to the reasons why he avoided conflicts while his similarly well-connected associated didn't. Yet, S54's position as a broker in the center of the network suggests he has a position of significance in the gang landscape.

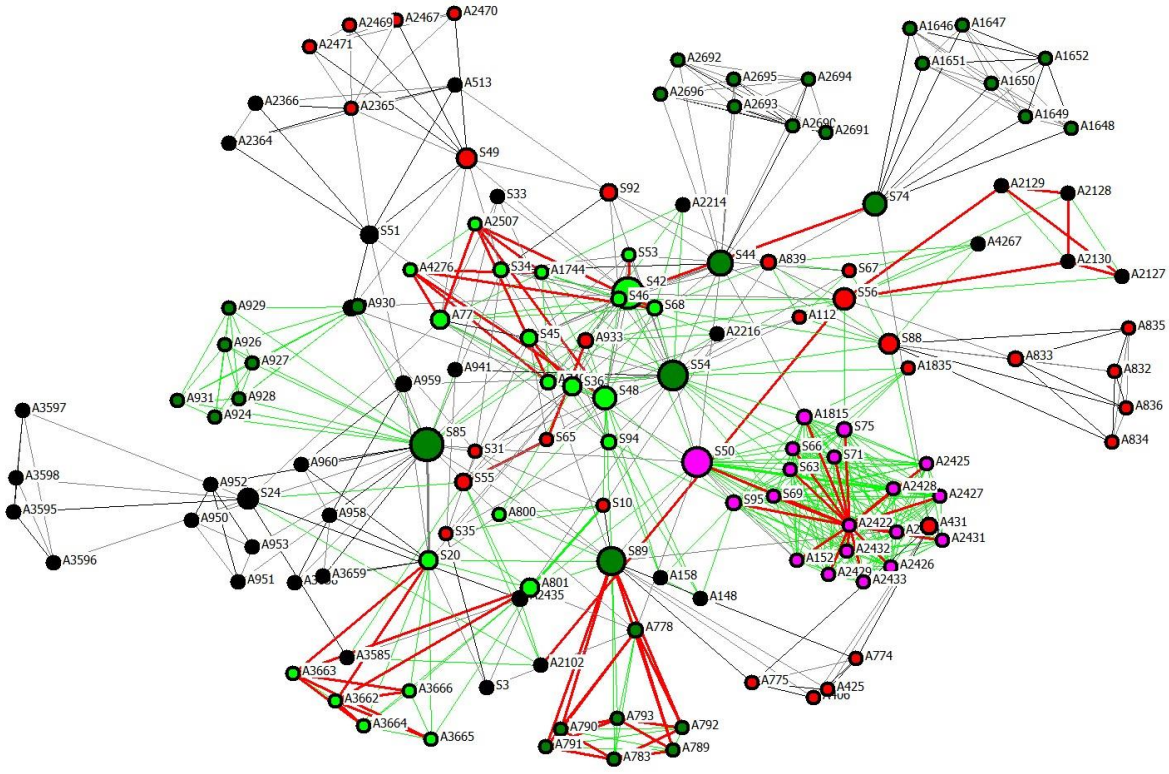

Figure 1.6 Main component of the community network with only the nodes involved in 4-cores or more.
Notes. Ties that occurred in Surrey highlighted: Conflict ties in red, cooperative ties in green. Grey ties: non-Surrey of any type. Node size by betweenness score, node color by subgroup (K-cores): black = 4 cores; red = 5 cores; light green = 6 cores; dark green = 7 cores; pink = 18 cores. Size of the core is determined by the number of nodes to which one is connected that also have similar connections.

Conflict brokers, for their part, should be the object of attention from authorities for public safety reasons. S50 (centre-right of Figure 1.6, below S54), for example, appears to be in the middle of a conflict with three nodes that otherwise do not seem connected to each other (S56, A2102, A2422). A node like A2422 (centre of the pink core in Figure 1.6), not itself part of the seeds we used to build the network, is an especially important driver of violence in Surrey.

This is so despite the fact that A2422's network has not been searched directly; its relevance for this network emerges only because of A2422's conflictual connections to a number of seeds. It would be an individual worth having on the radar for interventions. S89 (bottom-centre of Figure 1.6) and S56 (top-right of Figure 1.6) are found to be in similar situations, being caught in a cluster of conflicts and alliances that suggest events that involved groups rather than individuals. The most noticeable of such clusters is found on the right side of the network, with the pink subgroup having as many as 7 seeds, all of them in conflict with A2422. The alters like him and others (A4276 and A2507 at the top; A778, A3663 and A3662 at the bottom) are caught in multiple conflicts and yet, their own ego networks have not been added to this network representation. To the extent that violence reduction remains a key aim of crime policies in BC, one could imagine an extension of the data collection to include these individuals specifically.

Discussion

The focus of the correctional pathway was on examining the criminogenic networks of incarcerated adolescents followed into adulthood. A common theme among these adolescents was that they all had ties to Surrey, British Columbia. This was important given different news reports, civic gatherings, and municipal and federal government task forces concerning gang violence in Surrey. The current study used SNA as a tool for better understanding the scope of criminogenic networks. There were three major themes of the analyses for the correctional pathway. The first focused on the nature and structure of criminogenic networks among serious and violent offenders with ties to Surrey, including the extent of interconnectivity among offenders, whether prison networks contributed to this interconnectivity, and whether gang members were a key part of this interconnectivity, as shown by a disproportionate likelihood of being in the main component of the network. This first theme also included looking at both

conflict and co-offending ties to understand network structure. The second theme focused on whether key offender attributes, including gang membership, history of experiencing serious victimization, and adjudication for involvement in firearm offenses were associated with being more deeply embedded in the networks examined in the first theme. The third and final theme looked at whether participants from the current study were disproportionately engaging in criminal behavior and having conflicts with other offenders within Surrey. This theme also involved examining whether "key players" could be identified to help better understand which participants were disproportionately responsible for the co-offending and conflict ties that formed in Surrey.

Interpreting the Community and Prison Networks

Table 1.5 summarizes the differences and similarities in network properties across gang members and non-gang offenders and Appendix A provides a summary of the structure and properties of the networks produced in the current study. The analyses in the current study showed there are potentially serious consequences that come from ignoring connections that offenders form in prison. The separation between offenders shown in the community network (see Figure 1.1) is a mirage once accounting for prison ties (see Figure 1.2). Prison may be necessary for responding to serious and violent offending, but it is important to not neglect how this response may contribute to conflicts and collaborations in custody that carry over into the community. If only looking at the community, offenders seem to be part of completely isolated criminogenic network components. Triadic closure in the community is just 3.5%. However, when adding prison ties, despite getting a larger network, there is greater triadic closure (10%). There are also fewer overall components once adding in prison ties. What this means is that relying solely on information from community surveillance will extremely limit the extent to

which criminogenic networks are intertwined. Groups that appear to have no relation to one another may actually be connected by numerous prison-based conflict ties.

Table 1.5 Summary of network differences and similarities between gang members and non-gang offenders

	Community Network Ties			Prison Network Ties		
	All	Conflict	Co-Offending	All	Conflict	Co-Offending
Network Size						
Participants in main component	GM=NGO	GM>NGO	GM=NGO	GM>NGO	GM>NGO	GM>NGO
Centrality						
Degree	GM=NGO	GM>NGO	GM=NGO	GM>NGO	GM=NGO	GM=NGO
Betweenness	GM>NGO	GM>NGO	GM=NGO	GM>NGO	GM>NGO	GM>NGO
Ego Networks						
Egonet Size	GM=NGO	GM>NGO	GM=NGO	GM>NGO	GM=NGO	GM=NGO
Egonet Size (Age-Adjusted)	GM>NGO	GM>NGO	GM=NGO	GM>NGO	GM>NGO	GM>NGO
Density	GM=NGO	GM=NGO	GM=NGO	GM=NGO	GM>NGO	GM=NGO
Structural Holes						
Effective Size	GM>NGO	GM>NGO	GM=NGO	GM=NGO	GM=NGO	GM=NGO

Notes. GM = Gang member; NGO = Non-gang offender.

Comparing Criminogenic Networks Across Offender Attributes

The current study looked at gang membership, serious victimization, and adjudications for firearm offenses as three key attributes potentially informative of an individual's network position. For each attribute, we attempted to make sense of their relationship with criminogenic networks in two ways: (1) is the larger criminogenic network due to ties acquired in the community and/or in prison and (2) is the larger criminogenic network due to ties acquired due to greater levels of conflict and/or greater levels of co-offending?

Beginning with gang members (see Appendix B for an infographic), gang involvement was particularly important for having a large criminogenic network, and once adjusting for age differences, this was true for both community and prison networks. However, the nature of the ties that contributed to these larger networks varied depending on whether looking at community or prison contexts. For the network looking at community ties, age-adjusted ego network size was significantly higher for conflict ties but not for co-offending ties. Effective size in the community conflict network was also significantly higher for gang members. This implied that gang members were in conflict with a number of different individuals with different sources of conflict. It was not simply one large rivalry; gang members had conflict with a range of different individuals that were not always in conflict with each other. It was only in prison that gang members averaged significantly larger conflict tie ego networks *and* co-offending tie ego networks. This may be because gang members averaged more time spent in custody compared to non-gang offenders, which means that they are able to accumulate criminal social capital while in prison that may help place them in structurally advantageous positions while on the inside. Indeed, gang members averaged significantly higher betweenness centrality from the prison-based co-offending network. For prison-based conflict ties, gang members averaged a

significantly denser network compared to non-gang offenders. Higher density means that gang members have a higher proportion of conflict within their network of people available around them, not necessarily that they have conflict with more people. Overall, gang members had two pathways to conflict: (1) conflict in the community because they are connected to individuals with a wide range of different sources of conflict that they have the potential to get pulled into (i.e., effective size) and (2) conflict in prison this is more direct conflicts among the people around them (i.e., density)

Unlike gang members, the network positioning of individuals that have experienced serious victimization (see Appendix C for an infographic) was restricted to a very specific type of context (see Table 1.3). Specifically, serious victimization was unrelated to a person's positioning in the community network, and this was true regardless of whether the analyses were restricted to conflict or co-offending ties. However, things change when looking at the prison network context. Individuals with a history of serious victimization averaged a significantly greater ego network size compared to those without such a history. This difference in the prison was driven by conflict ties only. In other words, the risk that offenders experienced for serious victimization seemed to stem, not necessarily from conflict in the community, but from the disproportionate amount of negative interactions that they have while incarcerated. It is possible that these interactions influence serious victimization in custody; or, they experience serious victimization in the community because the abundance of conflict they have while incarcerated seeps out into the community.

Having a history of adjudications for firearms offenses was particularly informative of network position. For both the community and prison contexts, looking at the all-tie networks (see Table 1.4) revealed that having a history of using firearms was associated with having

higher degree and betweenness centrality and an overall larger ego network characterized by a greater effective size. Most importantly, unlike other attributes examined in the current study, a history of firearm offenses was associated with community-based co-offending networks. Specifically, the ego networks of firearm offenders were characterized by a larger effective size value.

Surrey's Role in the Criminogenic Networks of Study Participants

On its own, Surrey accounted for approximately half of all conflict and co-offending ties formed in the community. Although Surrey was disproportionately responsible for the formation of these ties, it should also be kept in mind that it was a requirement that all participants in the sample were connected to Surrey in some way. Thus, it was expected that there would be a disproportionate number of ties to Surrey. Whether this is more or less than expected is difficult to determine given the exploratory nature of the current study and the fact that, to the best of our knowledge, this never has been examined in other research. Thus, we think the more meaningful interpretation of the municipality networks is to understand which individuals in the network were disproportionately responsible for the co-offending and conflict ties that were formed in Surrey (i.e., to understand criminogenic networks within Surrey as opposed to between-city comparisons). These analyses revealed that a few individuals were conflict brokers, finding themselves in the middle of multiple conflicts in Surrey. Often, a majority of their connections were conflictual in nature, making them key targets for interventions focused on violence reduction. These analyses further revealed that numerous alters – themselves not the focus of data collection – found themselves in conflict with multiple seeds from the study. The central role they played in the conflict network, despite their status as non-seeds, also makes them key individuals to include in initiatives to reduce violence in Surrey.

Policy Implications and Conclusion

Although prison sentences may be necessary to respond to serious and violent crime, their role in expanding the criminal social networks of gang members may undermine their potential deterrent impact on future criminality. In this study we found that conflict ties, in particular, flourished in the prison context. Prisons provide much denser living conditions than communities, and it may be more difficult for offenders to avoid getting pulled into conflict in prison. This is especially true for gang members, as their gang status is something that pulls them into conflict, not just with their own rivals, but with the rivalries started by other members of their own gang. Surveillance data in the community should be supplemented with what is known about an offender's activity in prison. In the community, non-gang offenders are able to accumulate just as many co-offending ties as gang members yet without getting into the same amount of conflict. This detail can be leveraged by practitioners working with offenders in the community by illustrating to gang members that their status may not necessarily help them procure the rewards of crime, but it will make their lives more difficult and dangerous.

The main findings from the correctional pathway were presented to a group of key stakeholders working with high-risk offenders in Surrey. A round-table discussion regarding the challenges with integrating SNA into the day-to-day practices of practitioners brought to light the challenges for practitioners with respect to maintaining a database that captures the criminogenic ties of clients on probation, in custody, part of an intervention program, etc. It could be beneficial to have a single authority responsible for maintaining a database that stakeholders with appropriate security clearances can request access to for the purpose of populating a client's social network. The cost of developing and maintaining such a database can be compared against the costs associated with failing to prevent serious and violent offenders

from continuing their criminogenic lifestyle. To get a sense of such costs, we examined a particularly active member of the sample. Nicholas Dawson (pseudonym) was age 26 at the time his criminogenic network was coded. His criminal justice system began at age 14 and he accumulated 37 convictions before his 25th birthday. He also spent more than 1,000 days incarcerated over this period. Part of his contact with the justice system related to his gang involvement. Nicholas also experienced serious victimization. He was jumped by a group of six men in Vancouver's Downtown East Side, a known hotspot for drug use and trafficking. This attack resulted in broken bones that placed Nicholas in the hospital for six days. Four years later he experienced a serious assault while incarcerated. He was diagnosed with a concussion and was reported to have experienced severe brain trauma. Table 1.6 represents an attempt to cost Nicholas Dawson's criminogenic lifestyle. When sources identified different dollar amounts, the most conservative source was used. In total, the custody, policing, court, and health-related costs amounted to nearly $2,000,000. This estimate does not include costs associated with police, court, or other criminal justice system domains if the contact did not result in a conviction. It also does not include costs to victims, costs to insurance companies, the welfare system, and other dark-figures not accounted for here. This estimate is also based on costs incurred prior to age 30. Although there are some unique aspects to this case-study, it should also be noted that 19 of the remaining 98 participants incurred a greater number of convictions than Nicholas and 40 of the remaining 98 participants spent more time incarcerated.

Table 1.6 Indexing the cost of a case study of a serious and violent offender

Category	Calculation	Cost	Source link
Custody			
Youth	193 days * $202 / day	$38, 986	Office of the Parliamentary Budget Officer (2018)
Adult	933 days * $213 / day	$198, 729	Malakieh (2018)
Serious Hospitalizations	2 (stays) * 6,135	$12,270	Canadian Institute for Health Information. (2019)
Policing costs	37 (crimes) * 6,500	$240,500	Easton, Furness, & Brantingham, (2014).
Court costs	37 (convictions) * 44,279.80	$1,638,352	Gabor (2016)
Total cost to systems	-	**$1,891,122**	-

In sum, gang members' criminal networks tend to be larger compared to criminal networks of non-gang offenders. However, overall, these larger networks tend to be a product of a greater degree of conflict as opposed to a greater degree of co-offending. It is only in the prison context that gang members appear to leverage their gang-member status into increased opportunities and connections for co-offending. A stronger indicator of co-offending opportunities is an offender's previous perpetration of a crime using a firearm. The ability to procure firearms and use them in the pursuit of offending opportunities may signal a higher degree of criminal social capital that makes the offender an attractive partner in crimes requiring a co-offender. Finally, when it comes to offending that takes place in Surrey, members of the sample were more likely to have formed criminogenic ties in communities outside of Surrey than in Surrey. Looking more closely at ties formed specifically in Surrey, a small number of nodes account for a disproportionate amount of the conflict ties that formed in this city. Using SNA may be a useful way forward for identifying specific individuals that attract conflict that spreads, not only to them, but to their wider social network.

Acknowledgements

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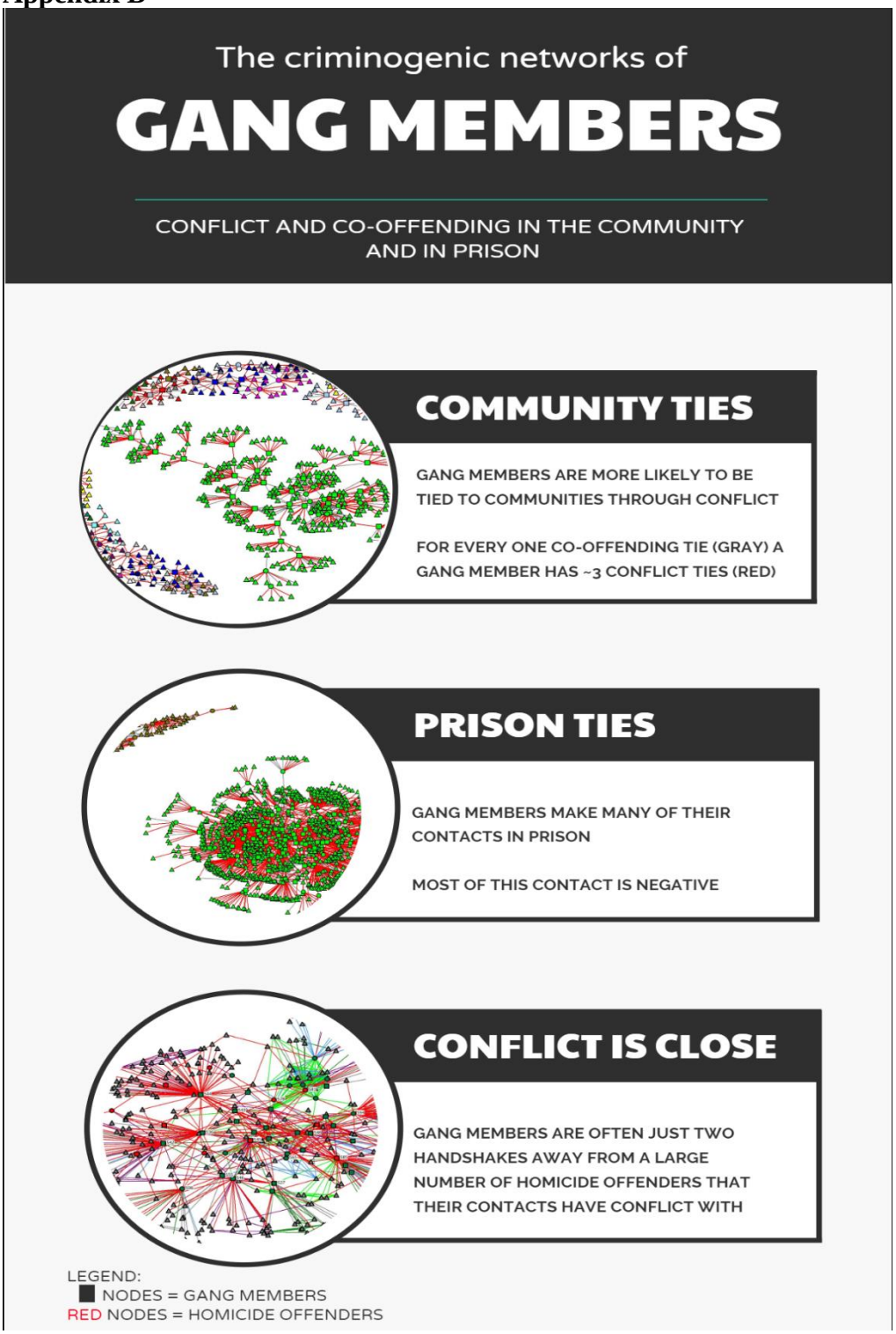
Appendices

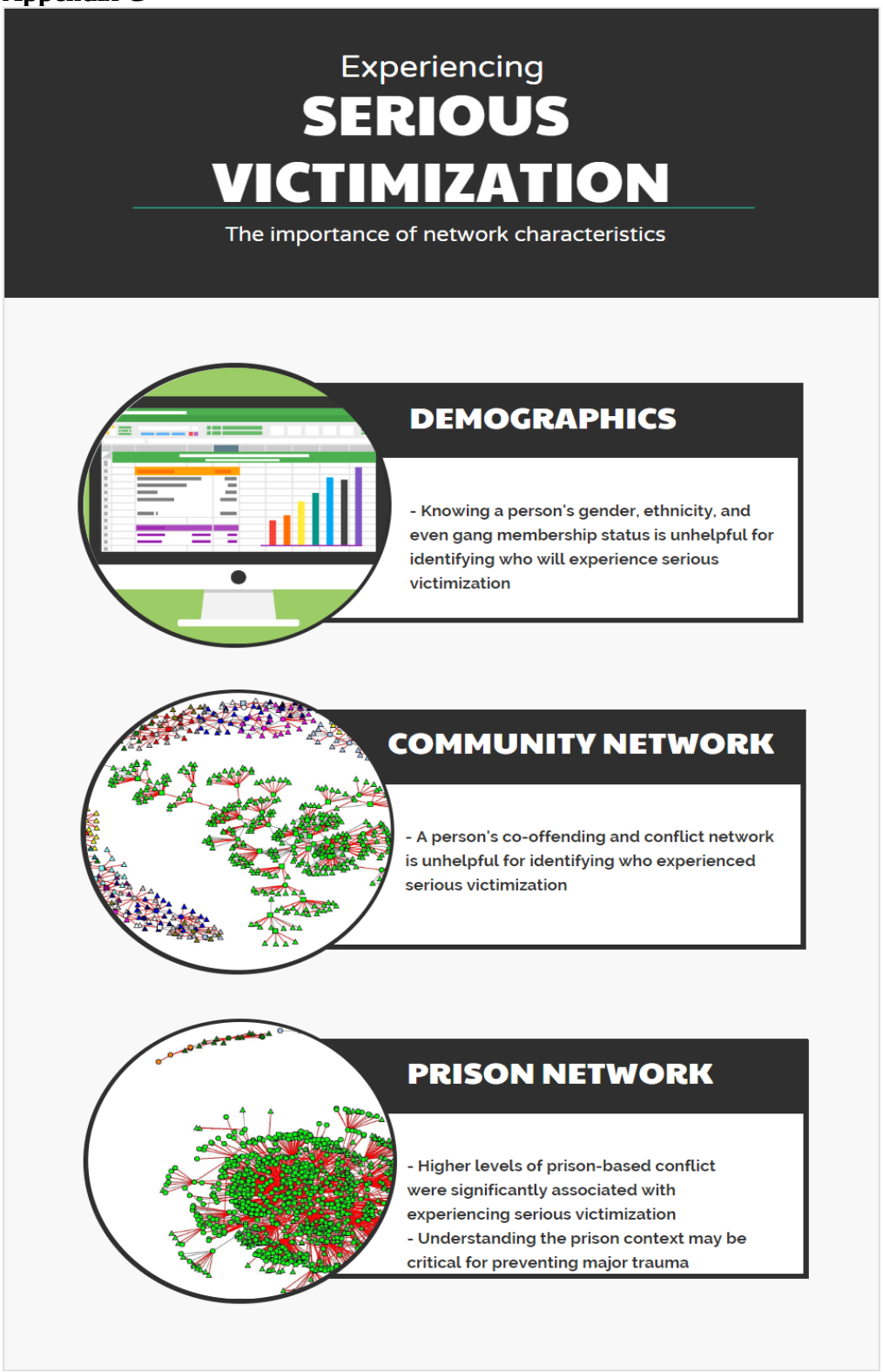
Appendix A. Summary of network structure across the different networks

	Community Network Ties			Prison Network Ties			Aggregated Network Ties		
	All	Conflict	Co-Offending	All	Conflict	Co-Offending	All	Conflict	Co-Offending
Network Structure									
# of participants	96	94	82	92	90	66	98	98	92
# of alters	907	742	292	1,242	1,162	278	2,090	1,864	554
# of ties	2,988	1,722	1,282	3,936	3,058	914	6,884	4,756	2,192
Number of components	47	61	58	8	12	46	9	13	48
Main component size (% total)	55.1%	16.8%	25.7%	93.5%	92.8%	38.1%	97.7%	93.1%	67.8%
Main component ties (% total)	63.1%	18.8%	47.6%	94.7%	94.7%	44.2%	98.5%	94.6%	70.9%
Centralization	0.036	0.023	0.053	0.056	0.056	0.039	0.042	0.043	0.040
Density	0.003	0.002	0.009	0.002	0.002	0.008	0.001	0.001	0.005
Triadic Closure	0.378	0.007	0.732	0.064	0.015	0.432	0.100	0.001	0.507

Appendix B


The criminogenic networks of
GANG MEMBERS
CONFLICT AND CO-OFFENDING IN THE COMMUNITY AND IN PRISON
COMMUNITY TIES
GANG MEMBERS ARE MORE LIKELY TO BE TIED TO COMMUNITIES THROUGH CONFLICT
FOR EVERY ONE CO-OFFENDING TIE (GRAY) A GANG MEMBER HAS ~3 CONFLICT TIES (RED)
PRISON TIES
GANG MEMBERS MAKE MANY OF THEIR CONTACTS IN PRISON
MOST OF THIS CONTACT IS NEGATIVE
CONFLICT IS CLOSE
GANG MEMBERS ARE OFTEN JUST TWO HANDSHAKES AWAY FROM A LARGE NUMBER OF HOMICIDE OFFENDERS THAT THEIR CONTACTS HAVE CONFLICT WITH
LEGEND:
NODES = GANG MEMBERS
RED NODES = HOMICIDE OFFENDERS

Appendix C


Experiencing
SERIOUS
VICTIMIZATION
The importance of network characteristics
DEMOGRAPHICS
- Knowing a person's gender, ethnicity, and even gang membership status is unhelpful for identifying who will experience serious victimization
COMMUNITY NETWORK
- A person's co-offending and conflict network is unhelpful for identifying who experienced serious victimization
PRISON NETWORK
- Higher levels of prison-based conflict were significantly associated with experiencing serious victimization
- Understanding the prison context may be critical for preventing major trauma

Section IIa: The Surrey Anti-gang and Family Empowerment (SAFE): Community Pathways Project

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Theoretical Background

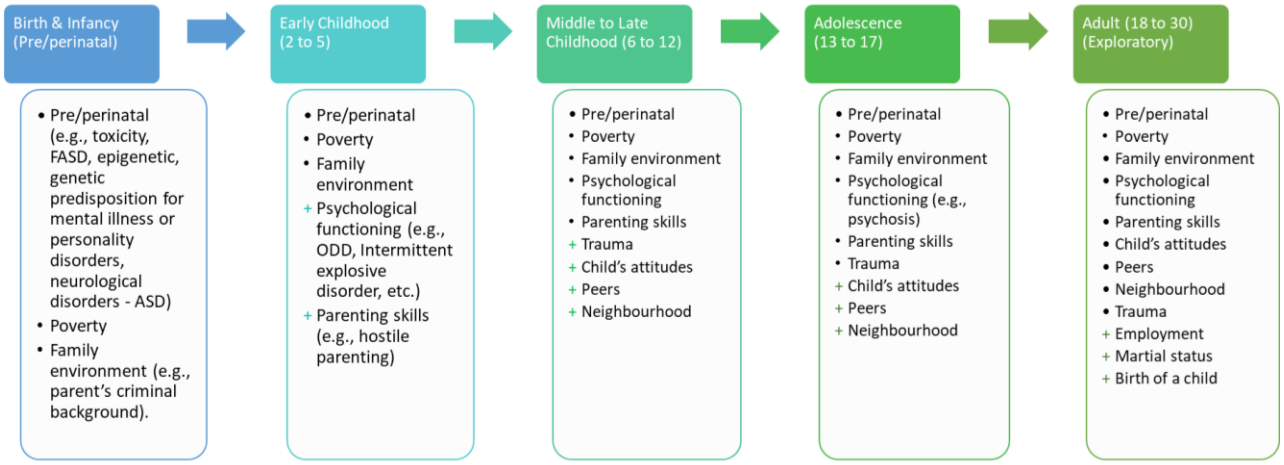
The Cracow Instrument

The Cracow Instrument (CI) is a comprehensive developmentally based risk management instrument designed to identify children and youth at-risk for serious and violent antisocial behavior, as well as to assist community agencies in developing individual, familial, and community interventions to reduce the risk of youth and young adult violence trajectories. The CI is designed to guide service delivery for: (a) children at-risk of becoming involved in serious and violent offending in adolescence and (b) adolescents already involved in this pattern of behavior. Such individuals are identified by the CI's specification of age-specific risk and protective factors at the individual, family, school/peer, and neighbourhood level. The CI helps match the specific risk and protective factor profile of the individual to the type of multi-resource prevention/intervention strategy that is best suited for addressing the specific needs of this individual.

The CI consists of five different domains of risk: environmental (I), individual (II), family (III), interventions, (IV), and externalizing behavior (V). Environmental factors include obstetrical complications, residential mobility, and exposure to violence. Individual factors include executive dysfunction, personality traits, and antisocial attitudes. Family factors include a young mother, parental education, and parenting strategies. Interventions refer to previous interventions and psychosocial treatment received. The above domains of risk are organized to include risk/needs factors that encompass stages from birth (including pre-and perinatal factors) to the end of adolescence. Along with the inclusion of the measurement of multistage risk and needs factors of youth, the CI also includes treatment and intervention options, as well as

externalizing behaviours. The Cracow's model for assessment of risk and needs factors (Lussier et al., 2011) is outlined in Figure 2.1.

Figure 2.1 Cracow Model: Basic Age Stages and Related Key Indicators



Findings from major longitudinal CI cohort research projects in Canada and Germany consistently identified a small percentage (4-8%) of children and youth at risk for serious and violent offending (Lussier, Corrado, Healey, Tzoumakis, & Deslauriers-Varin, 2011; Wallner, Lösel, Stemmler, & Corrado, 2018). The CI was assessed in a longitudinal study of 675 children in Germany (M_{age} = 4.7). Most importantly, individuals with high scores on the CI were over 16 times more likely to demonstrate externalizing behavioral problems during the follow-up period (Wallner et al., 2018). In the Canadian study, located in the Greater Vancouver region, Lussier et. al (2011) also found that the CI successfully identified preschoolers with high levels of physical aggression. These highly aggressive children presented multiple and accumulative risk factors such as poor parenting skills/education, economic dependency, and prenatal and perinatal risk factors.

The community pathways project is part of the larger Surrey Anti-gang and Family Empowerment (SAFE) research project. The focus on the community pathway research is whether intervention programming for youth at-risk for gang involvement and youth gang involved can benefit from a multi-pathway strategy based on risk/needs factors identified in the CI. The next section describes a six-pathway model based largely on the CI and related research.

A Six Pathway Model Approach for Intervention Strategies for Serious and Violent Youth

Since the 1990s, a major policy concern in youth justice in Canada, the United states and most other liberal democratic countries particularly Australia and Scandinavia have been identifying effective intervention strategies for serious and violent young offenders. Meta-analytic studies (i.e. sophisticated statistical analysis of large numbers of quantitative evaluations of similar programs) of intervention or rehabilitation programs consistently indicated low effect sizes (Lösel, 2012). In other words, while many intervention programs were partially successful in obtaining their program objectives, most youth in these programs did not benefit as intended. Arguably, gangs are both the most criminogenic context for persistent serious and violent offending, and programs to either inhibit the joining or desistence from gang-based offending are the most challenging to implement successfully (Maxson, Matsuda, & Hennigan, 2011). In response to the limited understanding of serious and violent offenders, despite many large-scale cohort studies initiated primarily in the last century, and to a lessor extent, ineffective intervention program strategies, the developmental theoretical perspective evolved in the 1990s. For the purposes of this project, this perspective is important because it focuses on early interventions, especially at the earliest developmental stages, which have been asserted to mitigate the cumulative impact of risk factors associated with serious and violent children and

youth (Welsh & Farrington, 2006). While theories associated with this perspective are now numerous, very few intervention program-based risk models exist.

Expanding on Corrado and Freedman's (2011) original model and informed by Freedman's (2013) validity research, Corrado, Freedman & Leschied (2015) and Freedman, Wong & Corrado, 2017) identified six distinct pathways based on a variety of developmental age stage risk factors associated with both serious offending and persistent youth criminal justice system involvement. Again, gang involved youth typically engaged in serious and violent offending, which resulted in custodial sentences not only in adolescence and young adulthood but also as early as late childhood in certain national jurisdictions, especially in the US states (Decker, & Van Winkle, 1996). The pathways intervention model was predicated on identifying the primary risk factor that initiated each pathway and then identifying its interaction with each subsequent developmental stage risk factors. Because youth on each pathway were specified as having differential risk and needs factors, intervention strategies and program responses needed to emphasize a case management plan that addressed the initial causal risk factor as well as the needs associated with the culminative risks in later developmental stages. The six pathways include: the prenatal/neurological risk pathway, the childhood personality disorder pathway, the extreme childhood temperament pathway, the childhood maltreatment pathway, the adolescent onset pathway, and the post-childhood trauma pathway. Based on the current project interviews and case analysis, a seventh pathway is hypothesized, i.e., the cultural pathway to youth criminal justice system involvement.

A cultural pathway to youth gang involvement has been suggested in a previous Public Safety Canada review by Dunbar (2017) entitled *Youth Gangs in Canada: A Review of Current Topics and Issues*. Dunbar (2017) postulates that immigrant youth in Canada are susceptible to

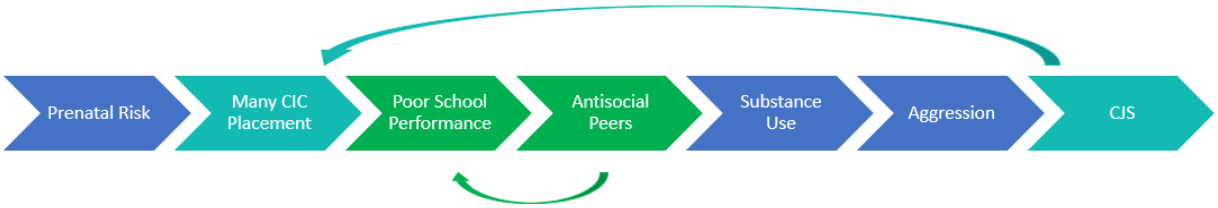
gang involvement when they encounter a “breakdown of identities and the lack of a sense of belonging” as a result of predominantly adverse personal, social, and societal experiences (p. 15). In addition, Ngo, Calhoun, Worthington, Pyrch, and Este (2017) conducted 30 interviews with current and former gang-involved immigrant youth between the ages of 14 to 38 (M_{age} = 23) from diverse ethnicities in Calgary, Canada, with the purposes of identifying a unique cultural pathway to gang-involvement. The researchers found that gang-involved immigrant youth reported numerous, serious, and extended personal or relational difficulties which led to a deterioration in connections with others in the home, school, and community context. This deterioration was found to contribute to a lack of self-concept as well as a disconnect from ethnic and Canadian identities. In this case, engaging with at-risk social groups or gangs was perceived as an optimal alternative to fulfil a void in social belonging and connectedness (Ngo et al., 2017). Within these at-risk groups, immigrant youth may experience encouragement, identity, and support through a sense of interpersonal connections, social identity, security, and economic or social status gains (Ngo, 2010).

Overall, there remains a paucity of research investigating the differences in youth cultural pathways to gang involvement in Canada. For instance, Ngo et al (2017) argues that future research is needed to “explore the unique experiences and nuances of criminal gang involvement of youth from specific ethnocultural communities” (pp. 79-80) and, by extension, the possibility of unique experiences within different Canadian cities. Given the increasing public concern regarding gang violence and drug crime in Surrey, British Columbia, Canada (Boynton, 2019), it is essential for researchers to explore cultural pathways to gang-involvement that are unique to this community. The identification of a primary causal risk/needs factor in the cultural pathway

is crucial in the development of individualized multi-service intervention plans that vary according to the main factor(s) motivating at-risk youth toward gang involvement.

Again, each of the original six pathways to criminal justice system involvement was differentiated by a primary causal risk factor, which case managers need to frame their program responses to addressing, to the extent that the appropriate program(s) exists and is available. Additionally, this approach emphasizes that early intervention prior to the accumulation of multiple risk factors associated with subsequent stages. Although many youths involved in the criminal justice system experienced similar negative life events such as poor school performance, residential instability, antisocial peer networks, substance use, and aggressive behaviours, youth on different pathways experienced the same risk factors differently because of differential exposure and sequence occurrence. As is evident in Figure 2.1, most risk factors are not exclusive to any of the six pathways, yet intervention implications for risk management and intervention strategies vary depending on the primary risk factor. The six pathways are outlined below:

Figure 2.2 Pathway A: Prenatal/Neurological Risk



A variety of risk factors for aggression and violence to which children were evident in utero. These factors included exposure to alcohol, lead, cigarette smoke, and poor maternal nutrition among others, can negatively impact the healthy development of the brain. Typically, depending on levels of toxins/injuries, the time sequence (i.e. first, second, & third trimesters), and whether left untreated has resulted in permanent neurological damage, which has been associated with a heighten risk of antisocial behaviours in subsequent developmental stages (Mick, Biederman, Faraone, Saye, & Kleinman, 2002; Needleman, Riess, Tobin, Biesecker, & Greenhouse, 1996; Streissguth et al., 2004; Raine, 2004).

The prenatal and neurological risk pathway's **primary causal risk factor** is poor prenatal development or as stated above, neurological developmental disorders. Factors related to poor prenatal development have been associated with later multi-stage physical aggression (Streissguth Bookstein, Barr, Sampson, O'Malley, & Young, 2004). Fetal Alcohol Spectrum Disorder (FASD) is such a neurological developmental disorder associated with this pathway. FASD has caused changes in brain morphology linked to cognitive deficits and the development of multiple related mental health problems. However, because FASD is a spectrum, visible physical facial abnormalities have not been common. To date, the standard diagnostic assessment of FASD has involved a lengthy, specialized and costly program process. Another diagnostic challenge are behavioural symptoms common to other childhood disorders (e.g. Oppositional Defiant Disorder; ODD) such as persistent and angry rejection of authority figures regarding

following rules and low empathy in most social relationships. For individuals afflicted with FASD, poor behavioural control across developmental stages has largely been explained by the damage caused by alcohol exposure in utero, which impeded the development of neural structures necessary to the regulation of impulsivity and aggression. In effect, FASD inhibits the ability to process routine prosocial cues that typically mitigate inconsiderate and inappropriate behaviours. In turn, these disinhibitions frequently elicit negative social and authority responses, which then routinely and rapidly escalated frustration. The latter overreaction among individuals with FASD has been associated with inappropriately aggressive responses, and, far less commonly, with violence (Berman & Hannigan, 2000; Bookstein, Streissguth, Sampson, Connor, & Barr, 2002; Schonfeld, Paley, Frankel, & O'Conner, 2006).

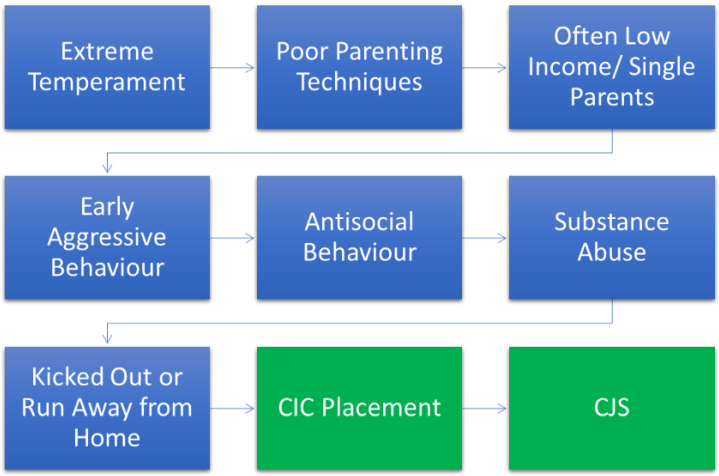
Common **intervention strategies** for youth on this pathway included, first, an appropriate diagnostic assessment of the neurological impairment. This typically has established the health and learning performance program needs of each individual, spectrally. Additionally, program services to FASD caregivers has assisted their coping with daily stresses of caring for a high-needs child/youth. This intimate care support has promoted age related prosocial behaviours. In addition, the education system has become an essential intervention resource on its own and to care givers as well. Specialized education environments and comprehensive programs have improved the learning context both by reducing irritability and frustration and providing for prosocial peers and teachers (Paley & O'Connor, 2009; Green, 2007). Beyond its vital diagnostic function, health care systems including psychiatric and psychological programs in conjunction with education-based counselling services have contributed to the monitoring and treatment of the onset of related childhood disorders such as ODD, and adult co-morbid disorders often involving substance dependency.

Figure 2.3 Pathway B: Childhood Personality Disorders

Within this pathway, the **primary causal risk factor** targeted through intervention strategies is a clinically diagnosed childhood personality disorder (Figure 2.3). Typically, this has included at least one of the following: Conduct Disorder (CD), Oppositional Defiant Disorder (ODD), or the presence of early onset persistent callous-unemotional traits. Symptoms of these disorders typically emerged in the post-toddler stage and family-based risk factors (such as inconsistent discipline, family breakdown) had either mitigating or aggravating effect. The early childhood education system pre-school and kindergarten programs have been important for several reasons. Poor behavioural controls central to these disorders commonly resulted in poor early school learning performances and disruptive behaviours. The latter both engendered: negative teacher interactions; negative labelling by teachers and caregivers; and marginalization from prosocial peers and the related increased likelihood of antisocial peer associations. Both in family and home/care-giver contexts, negative or potentially abusive caregiver reactions, has been related to youth running away from home, truancy, and increased risk of being taken into child welfare system (Patterson, 1986).

Recommended **interventions** for youth along this pathway include a focus on caregiver information and training programs to respond to early signs of a personality disorder as well as cognitive skills training programs. Additionally, non-stigmatizing alternative learning programs with a higher teacher to student ratio where the teacher becomes the role model instead of antisocial peers, is recommended.

Figure 2.4 Pathway C: Extreme Child Temperament

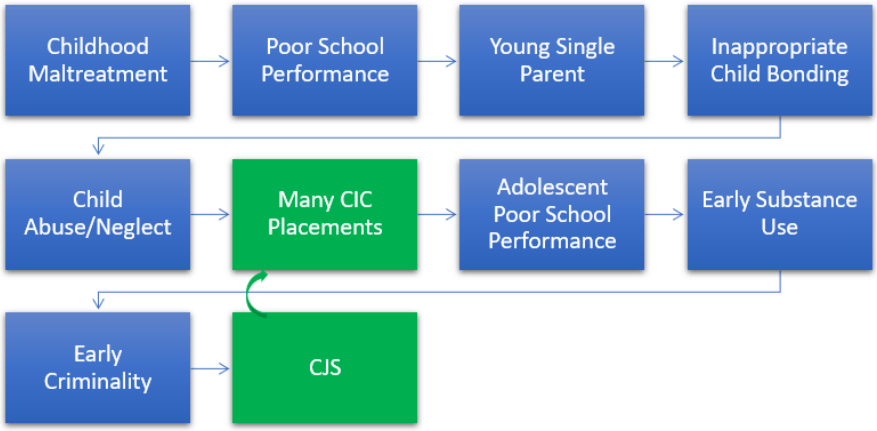


Evident at four months of age, temperament refers to the range of behavioural responses elicited by an individual to various environmental experiences, often labeled emotional reactivity (Kagan & Snidman, 2004). There are several definitions of temperament with most definitions stating that it is inherited, evident early in life, and stable across all developmental stages (Frick, 2004). Optimal childhood temperament is the ability to be flexible and adapt to different social contexts, especially new environments (Eisenberg & Morris, 2002). This facilitates positive attachments to their mother and to other caregivers, helps develop prosocial relationships, and rapid learning acquisition. Issues arise when children are either highly reactive or low reactive as these children are both more likely to receive negative parental responses and engage in antisocial behaviour. Highly reactive toddlers more likely to have difficulty accepting and internalizing control and disciplinary communications. These toddlers tend to react to situations with frustration, irritability, anger and withdrawal. Parents may interpret these reactions as willful defiance, which thereby increases harsh responses by parents, and further exacerbates the child's aggression. This can commonly lead to a cycle of negative behaviours between the parent and child (Figure 2.4). Therefore, high reactive children are at a higher risk for substance use as a

result of their extreme irritability which prevents them from having protective prosocial peer groups. Alternatively, parents of low reactive children may not discipline their child often because they appear easy going, and this may prevent opportunities for the child to practice behavioural self-regulation (Kagan & Snidman, 2004). Both extremely high and low levels of emotional reactivity likely increase the risk for antisocial behaviour (Frick Cornell, Bodin, Dane, Barry, & Loney, 2003; Loney, Frick, Clements, Ellis, & Kerlin, 2003).

The **primary causal risk factor** of this pathway, therefore, is the presence of extreme temperament in childhood. For both the cases of high and low reactive children, responses from parents are often related to low socioeconomic status and single parenthood where access to social capital is limited, and parents often do not have the financial capabilities to properly raise the child. For youth along this pathway, recommended **intervention strategies** include bonding and early toddler prosocial learning training, home nurses, youth mentorship and sports programs, and ensuring a proper transition into middle school by providing prosocial role models and experiences.

Figure 2.5 Pathway D: Childhood Maltreatment

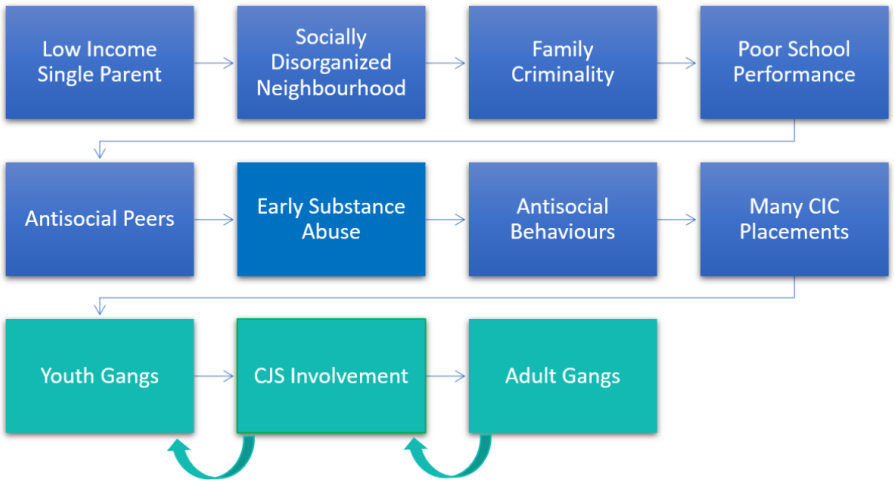


Extreme or repeated maltreatment is a serious risk factor for delinquent behaviour when trauma goes untreated or unidentified, or when it interacts with other risk factors such as low monoamine oxidase A (MAOA) activity (Caspi, McClay, Moffitt, Mill, Martin, Craig, Taylor, & Poulton, 2002; Hamilton, Falshaw & Browne, 2002; Perry, 1997; Ryan & Tetsa, 2005). The defining characteristic and **primary causal risk factor,** therefore, of the childhood maltreatment pathway is the presence of some form of traumatic maltreatment, abuse, or neglect in early childhood. Typically, youth who experience some form of maltreatment often are raised by single parents and are exposed to harsh parenting and disciplinary practices (Benzies, Keown, & Magill-Evans, 2009). This can lead to long term attachment problems, conduct problems and strained family relationships, which may result in the youth being placed in care. If the youth has externalizing behaviour problems, this can lead to multiple placement switches, which further exacerbates the youth's feeling of rejection and lack of attachment. Youth along this pathway often rely on substances as a means of self-medication to cope with unresolved vulnerabilities, trauma linked to the abuse, and the development of certain mental health disorders as a result of their childhood experiences, e.g., anxiety and depression (Ruggiero, McLeer & Dixon, 2000). There is a consensus that this pathway is common among indigenous youth, who experience

intergenerational maltreatment and trauma. These experiences of maltreatment can help to explain the risk of disproportionate involvement of Indigenous youth in foster care programs (Figure 2.5).

For youth on the childhood trauma pathway, best practices in terms of **interventions** include providing parental education training programs combined with school-based programs which can improve outcomes for youth with trauma related hypervigilance, feelings of rejection, isolation, self harm/suicidal ideation.

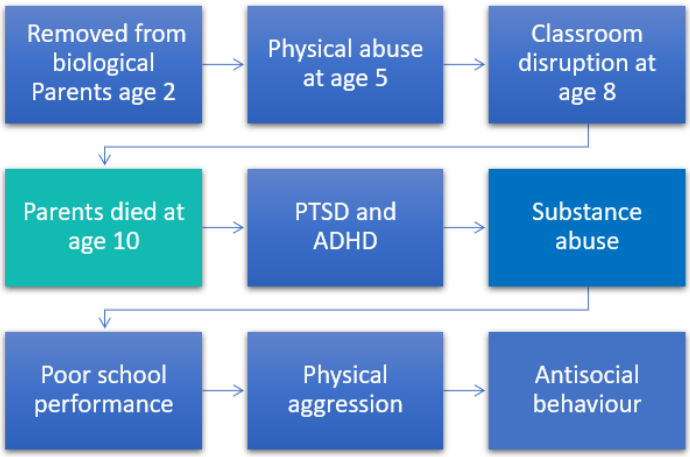
Figure 2.6 Pathway E: Adolescent Onset (Rational Choice Pathway)



The adolescent onset pathway is the most prevalent pathway and involves the fewest of the common criminogenic risk factors (Moffitt, 1993). Generally, this pathway is characterized by age-normative rebellion to parents and other authority figures (**the primary causal risk factor**), and youth seeking out an adult lifestyle (ex: intimate relationships, no curfew, drinking). Therefore, vulnerabilities are high in transition periods through the life-course, such as switching from middle to high school where youth develop new social networks, develop self-identities, have higher expectations for school performance, and movement away from parental control to more peer influences. During this period, there is increased opportunities for illegal behaviours through subgroups, cliques, informal criminal groups. Additionally, youth will commonly skip classes resulting in poor school performance, and in come cases dropout. More serious cases involve association with older antisocial peers and mimicking them (Moffitt, 1993). These youth are at higher risk for victimization and exploitation, including from both youth and adult gang members who exploit vulnerable youth (Howell & Egley, 2005; Linden, 2010; Thornberry, Lizotte, Krohn, Smith & Porter, 2003) (Figure 2.6).

Recommended **interventions** for youth on this pathway include implementing parenting programs focusing on flexible autonomy approaches that reward responsible prosocial behaviours while responding with proportionate sanctions to prevent illegal behaviour can mitigate extreme parental rebellion. Additionally, after school and community-based programs can also give youth a sense of autonomy and social involvement (like mature adults) prosaically.

Figure 2.7 Pathway F: Post-Childhood Trauma Pathway (*Pathway graphic based on case illustration).



The sixth pathway to youth antisocial behaviour is characterized by trauma occurring at later stages of development and distinct from childhood maltreatment. The nature of the trauma (ex: witnessing violence), the youth's age at the time of the event, and the duration of the event all differed, but in each of the cases, the traumatic event substantially shifts the behaviour of the youth (ex: PTSD) and triggers more risk factors. Therefore, the **primary causal risk factor** is a traumatic life event outside of early childhood. Similar to the childhood maltreatment pathway, youth or children who experience a traumatic experience outside of the early childhood stage may also begin to rely on substances as a coping mechanism to manage the effects of their traumatic experience, which may inhibit them from developing prosocial connections and relationships. These later onset traumatic experiences can also increase stress levels and initiate a process of antisocial development that is difficult to disrupt (Ireland, Rivera & Hoffman, 2009) (Figure 2.7). For youth on this pathway, programs targeted at mitigating the effects of PTSD are recommended. In addition, a therapeutic approach that follows the immediate detection of the trauma by family members whereby family physicians, social workers, teachers, and criminal

justice officials work together to provide long-term support is recommended. These caregivers likely are to require long-term support resources, which are essential to successful intervention.

Community Pathways Project Aims

The primary goal of the community pathways section of the two-part Surrey Anti-gang Family Empowerment (SAFE) research project is to assess the utility of the Cracow comprehensive aggression/violence risk management instrument (CI) in providing SAFE agencies with a multi-service case planning tool. The project examines a small selected (non-random) sample of SAFE agency cases of at-risk or gang involved youth on key risk/needs variables embedded in nine domains of the CI: (1) prenatal and perinatal factors, (2) socio-economic situation, (3) family environment, (4) youth's psychological functioning, (5) parenting style, (6) youth's anti-social attitudes, (7) peer socialization, (8) neighbourhood factors, and (9) school functioning. In addition, variables related to previous risk management interventions and outcomes as well as externalizing behaviour are examined. A secondary goal of the project is to explore the existence of a distinctive developmental pathway for gang involvement. The intention is to determine whether the CI could be adapted to fit the needs of the SAFE agencies in employing effective intervention and case management techniques tailored specifically to gang involved youth. A third goal is to include research data from the Vancouver Gang-Involved Youth project in order to illustrate the utility intervention of policy/programs based on the CI derived multiple pathways for SAFE partners.

Methodology

Design & Procedure

Researchers evaluated a total of 14 at-risk or gang-involved youth cases from agencies in partnership with the SAFE Program in Surrey, British Columbia, Canada. Ten agencies are involved in the SAFE Program:

1. City of Surrey
2. DIVERSEcity Community Resources Society

3. Kwantlen Polytechnic University (KPU)
4. Options Community Services Society
5. Pacific Community Resources Society (PCRS)
6. Progressive Intercultural Services Society (PICS)
7. Royal Canadian Mounted Police (RCMP)
8. Simon Fraser University (SFU)
9. Solid State Community Society
10. Surrey School District

Several cases from agencies involved in the SAFE program were assessed on the presence or absence of key Cracow variables from nine developmental life-course domains. As part of the initial implementation of the SAFE program, Surrey municipal government officials and Public Safety Canada wanted to explore an integrated multi-service gang case planning instrument for SAFE agencies based on empirically validated developmental research and theory, i.e., the Cracow instrument. All at-risk youth sample cases were accessed over a two-month period in 2019. SAFE program leadership personnel were contacted from the various participating agencies for data collection. The case inclusion criteria were:

- The youth is at-risk, or gang involved.
- Youth was referred to the agency through the SAFE program.
- The youth has had at least one counselling appointment/assessment/intake meeting with a SAFE agency staff member.
- The case involved the youth directly.

Initial in-person informational interviews with the senior personnel of all SAFE agencies were conducted by the Principal Investigator of the Community Pathway project, Dr. Raymond Corrado. These interviews all included discussions on: a) confidentiality assurances concerning any information each agency was to be provided to project researchers; b) the range of standardized intake criteria and procedures routinely employed by each agency regarding the provision of their specific services to potential clients; c) the types of services provided; d) services' outcome goals; d) process and outcome evaluation criteria; e) types of individual case information to be shared with community pathways project researchers; and, e) views on the

need for a comprehensive risks needs case management tool for their SAFE clients. After the initial interview, interview arrangements by SAFE agencies' personnel and project researchers were made to gain access to types of information that would be available in selected case files for coding. Several options for coding cases were given to each agency to ensure that appropriate steps were taken to maintain case confidentiality and anonymity.

Cases

A total of 14 cases were examined from five SAFE agencies including PICS (*n* = 5), PCRS (*n* = 2), STEP (*n* = 4), and DIVERSEcity (*n* = 3), The cases included 10 male and 4 female at-risk or gang-involved youth ranging in age from 9 to 26.

Measures

Cracow Risk Management Instrument (CI). The CI is comprised of three sections assessing the risk/needs of at-risk youth, intervention strategies, and externalizing behaviours. For adolescence, the risk/needs section includes 9 domains: (1) The prenatal and perinatal domain measures five items related to neuropsychological deficits, i.e., maternal substance use, pregnancy or birth-related complications, low birth weight, and premature birth; (2) The socio-economic situation domain assesses seven items related to low socio-economic status, i.e., low parental occupational status, low income, poor education, family adversity such as large family size, high residential mobility, and economic dependency, and being raised by single parent; (3) The family environment domain evaluates seven family criminogenic risk/needs factors, i.e., mental health problems of parent(s), antisocial behaviours of parent(s), criminal history of parent(s), presence of intimate partner violence, poor familial support, early caregiver disruption (e.g., foster care), and antisocial parental attitudes; (4) The youth's psychological functioning domain measures eight items related to the following: low verbal intelligence, callousness,

negative emotionality, daring and risk taking, attention deficits, hyperactivity, personality disorder/traits, and mental health disorder(s)/symptom(s); (5) The parenting domain includes four risk/needs factors that measure maladaptive parenting, i.e., the presence of a hostile parenting style, the lack of consistent discipline, lack of positive involvement with the child, and the presence of inadequate norms/rules; (6) The youth's attitudes examines the presence of antisocial attitudes pertaining to violence, entitlement, and antisocial intent, for examples of specific attitudes see the Measures of Criminal Attitudes and Associates scale (MCAA; Mills, Kroner, & Hemmati, 2004); (7) The peer socialization domain includes the youth's connection to antisocial or gang involved peers, e.g., associating with peers who have criminal records (see the Antisocial Associates subscale of the MCAA; Mills, Kroner, & Hemmati, 2004); (8) The neighbourhood domain encompasses three risk/needs factors related to knowledge of the residential area(s) the youth currently lives or has lived, residential mobility, and residing in a high-risk neighbourhood for criminal or gang activity; (9) The school functioning domain includes six items pertaining to school participation/embeddedness, i.e., school attendance, academic functioning, learning or behavioural problems impairing school success, attention at school, school suspension or expulsion, previous school attended/history.

Section two of the Cracow evaluates risk management such as previous intervention(s), accessibility to intervention, family and youth responsivity to intervention(s). The third section measures externalizing behaviours for example, authority-conflict, recklessness, police interactions, charges or convictions, knowledge of co-offending networks, substance use/dependence, and prescribed medications.

The CI was coded based on case file information. Each of the items within the three sections including all risk/needs factors listed in the 9 domains were coded on whether the

information was gathered (1) or not gathered (0) by the agency on a particular youth case. Depending on the agency and case, case file information may include intake or referral documentation and clinical counselor notes/observations.

Childhood Physical Aggression. Childhood physical aggression alone has been associated with future violent and non-violent acts of delinquency during adolescence (Broidy et al., 2003). As such, four indicators were used to assess the agencies knowledge of previous acts of childhood physical aggression: (a) has the child kicked, bitten, or hit anyone; (b) shoved, pushed; (c) physically fought with another person; (d) thrown objects at another person. Each case was coded on whether the information was gathered (1) or not gathered (0) on an at-risk youth case. It has been consistently supported that the best predictor of future behaviour is past behaviour (LeBlanc, 1999). Past physical aggression in childhood may help to inform case managers and clinicians of the developmental pathways and trajectories underlying a certain case (Loeber & Hay, 1997). The goal is to tailor effective intervention strategies according to the specific youth's risk/needs profile.

Results

DIVERSEcity Community Resources Society

DIVERSEcity Community Resources Society is a not-for-profit agency that provides new immigrant families in the Surrey, Delta, Langley, and White Rock area with language training, employment services, counselling, translation services, and child and youth programs. In addition, DIVERSEcity receives cases through the SAFE program and offers community clinical counselling to youth and families at-risk for gang involvement/recruitment. DIVERSEcity counselling for at-risk or gang involved youth is a new program; therefore, only a few cases based on first time visits with clients are available. A total of three (one female; ages 9 to 18) at-

risk or gang-involved youth cases are examined from DIVERSEcity on key CI variables. Results reveal that factors associated with neuropsychological deficits, socioeconomic status, family criminogenic risk factors, youth's psychological functioning, and youth's offending history are not collected (see Table 2.1 for details). Other CI variables such as low income, economic dependency, low parental occupational status, partner violence, personality traits/disorders, childhood aggression, and family responsivity to previous intervention are sometimes available. All DIVERSEcity cases follow the potential new immigrant/cultural pathway for youth gang-involvement.

Table 2.1 Evaluation of Three DIVERSEcity Cases on CI Variables.

CI Domains & Sections	CI Indicators Available	CI Indicators Sometimes Available	CI Indicators Not Available
Prenatal and Perinatal Factors			Maternal substance use, pregnancy and/or birth complications, low birth weight, and premature birth.
Socioeconomic Situation	Family adversity (e.g., large family size, many siblings, or high residential mobility), and raised by a single parent.	Low income, economic dependency, and low parental occupational status.	Poor parental education.
Family Environment	Early caregiver disruption/attachment, parental mental health problems, teenage pregnancy, and poor familial support.	Partner violence.	Criminal background of the parents, parental antisocial behavior/attitudes.
Youth Psychological Functioning	Low verbal IQ, negative emotionality, attention deficits, hyperactivity, mental health issues, antisocial attitudes, and poor coping abilities.	Personality traits/disorder.	Callousness and risk taking behaviour.
Parenting Skills	Hostile parenting, lack of discipline, lack of positive involvement, and inadequate norms/rules and		

Childhood Aggression		Kicked, hit, bit others, shoved, pushed, physically fought with others, and thrown things at others.	
Peer Socialization	Connections to antisocial youth.		
School Functioning	Skipping, struggling academically, learning/behavioural problems, attention at school, suspended or expelled, and changed schools.		
Neighbourhood Risk Factors	Knowledge of living area and high-risk neighbourhoods for gang/criminal activityKnowledge of moving.		
Youth's Offending History			Access to police interactions/charges/convictions. Co-offending networks/details.
Youth's Substance Abuse History	Experimenting with drugs/alcohol, on medications, and dependent on drugs/alcohol.		
Interventions	Previous interventions, accessibility to interventions, child responsivity to intervention, and contact with other agencies.	Family responsivity to intervention.	

The Pacific Community Resources Society (PCRS)

The Pacific Community Resources Society (PCRS) is a non-profit agency that delivers a variety of services focusing on employment, housing, addiction counselling, outreach, and education/prevention programs for youth, adults, and families. PCRS, in partnership with SAFE, offers the Female Youth Gang Intervention Program (FYG) that provides individualized intensive care to female youth, ages 12 to 19, who are at-risk for gang-involvement. The program delivers trauma and social support for female youth in the Surrey area. FYG is a new program that currently has a total of six at-risk youth cases. The majority of FYG cases have limited

information; this can be attributed to the difficulties of motivating youth to engage in their care plan. As a result, researchers coded two FYG cases with the most file information. Results reveal that some CI variables associated with neuropsychological deficits (i.e., pre/perinatal risk/needs factors) and family criminogenic risk factors are not gathered in the PCRS case files (see Table 2.2 for details).

Table 2.2 Evaluation of Two FYG Cases on CI Variables.

CI Domains & Sections	CI Indicators Available	CI Indicators Not Available
Prenatal and Perinatal Factors	Maternal substance use.	Pregnancy and/or birth complications, low birth weight, and premature birth.
Socioeconomic Situation	Low income, low parental occupational status, poor parental education, family adversity (e.g., large family size, many siblings, or high residential mobility), economic dependency, and raised by a single parent.	
Family Environment	Criminal background of the parents, early caregiver disruption/attachment, parental mental health problems, partner violence, teenage pregnancy, and poor familial support.	Parental antisocial behavior/attitudes.
Youth Psychological Functioning	Low verbal IQ, callousness, negative emotionality, risk taking behaviour, attention deficits, hyperactivity, personality traits/disorders, mental health issues, antisocial attitudes, and poor coping abilities.	
Parenting Skills	Hostile parenting, lack of discipline, lack of positive involvement, and inadequate norms/rules and	
Childhood Aggression	Kicked, hit, bit others, shoved, pushed, physically fought with others, and thrown things at others.	

Peer Socialization	Connections to antisocial youth.	
School Functioning	Skipping, struggling academically, learning/behavioural problems, attention at school, suspended or expelled, and changed schools.	
Neighbourhood Risk Factors	Knowledge of living area and high-risk neighbourhoods for gang/criminal activity. Knowledge of moving.	
Youth's Offending History	Access to police interactions/charges/convictions. Co-offending networks/details.	
Youth's Substance Abuse History	Experimenting with drugs/alcohol, on medications, and dependent on drugs/alcohol.	
Interventions	Previous interventions, accessibility to interventions, family and child responsivity to intervention, and contact with other agencies.	

Furthermore, cases were reviewed whether the presence of a distinctive developmental pathway for gang involvement could be identified. FYG Case 1 demonstrates extreme reactive temperament issues persisting from childhood into teenagerhood, a trajectory characteristic of *Pathway C: The Extreme Temperament Pathway* (Corrado, Freedman, & Leschied, 2015). In addition, FYG Case 1 consists of the following *Pathway C* risk/needs components: poor parenting techniques, single-parent household, early aggression, antisocial behaviour, removed from the home, and criminal justice involvement (see Figure 2.4). On the other hand, FYG Case 2 shows risk factors associated with prenatal and neurological deficits indicative of *Pathway A: Prenatal, Neurological/Developmental Risk* (Corrado, Freedman, & Leschied, 2015). Further, FYG Case 2 includes other *Pathway A* risk/needs components: many foster care placements,

poor school performance, antisocial peers, substance use, aggression, and criminal justice involvement (see Figure 2.2).

Research has shown that the motivations for female gang involvement are diverse, though, female gang-involved youth most commonly reported social pressure as the main reason for joining a gang. More specifically, gang affiliated peers or higher gang members utilized coercive social pressure strategies such as "grooming tactics" to push vulnerable or antisocial youth into gang involvement (Archer & Grascia, 2006). Once recruited, female gang-involved youth were shown to be at a greater risk for sexual exploitation, physical abuse, early pregnancy, and inconsistent employment (Thornberry, Krohn, Lizotte, Smith, & Tobin, 2003). In both FYG cases, the youth became gang-involved after developing a relationship with a gang affiliated peer. This distinctive accumulation of multiple risk factors pattern for gang involved females confirms the need for a dynamic case management/intervention plan that includes immediate crisis and longer-term risk management strategies.

Progressive Intercultural Community Services Society (PICS)

A total of five (all male; ages 16 to 26) at-risk or gang-involved youth cases were examined from the Progressive Intercultural Community Services Society (PICS) on key CI variables. PICS is a non-profit organization that provides an array of community services and programs including youth employment training and services, youth community engagement projects, and the foreign credential recognition program. More specifically, the Intercultural Family Intervention program at PICS, in partnership with SAFE, specializes in proactive outreach specifically for immigrant or refugee children, youth, and families within the Newton, Surrey area who are at-risk for gang involvement. Outreach workers provide a proactive provision of care in the community or through at-home visits with children, youth, and their

families. Outreach workers utilize an intake evaluation form to connect children, youth, and families with programs and services pertinent to their specific needs. This can include referrals to the Combined Forces Special Enforcement Unit of British Columbia (CFSEU-BC), Surrey Safe Schools program, and DIVERSEcity for clinical counseling or to Children and Youth At-Risk Table (CHART) for further case evaluation and referral recommendation. Researchers coded five *At-Risk Youth Intake Forms* from PICS on whether key CI variables were available in the file intake documentation. Overall, results show that several factors associated with neuropsychological deficits (i.e., pre/perinatal risk/needs factors), socioeconomic status, family criminogenic risk factors, youth's psychological functioning, parenting style, childhood physical aggression, and school functioning were not collected at the time of intake (see Table 2.3 for details). However, other supplementary variables were collected such as (a) the existence of a chronic disease, physical disability, or pregnancy; (b) parent-child conflict; (c) witnessing a traumatic event, experiencing grief, or engaging in self-harm; (d) possessing unexplained cash, material objects, or weapons; (e) gambling; (f) threatening public health or safety, being the perpetrator or victim of bullying, and engaging in drug trafficking.

Table 2.3 Evaluation of Five PICS Intake Forms on CI Variables.

CI Domains & Sections	CI Indicators Available	CI Indicators Not Available
Prenatal and Perinatal Factors		Maternal substance use, pregnancy and/or birth complications, low birth weight, and premature birth.
Socioeconomic Situation	Low income, economic dependency, and raised by a single parent.	Low parental occupational status, poor parental education, and family adversity (e.g., large family size, many siblings, or high residential mobility).
Family Environment	Criminal background of the parents, teenage pregnancy and early caregiver disruption/attachment.	Parental mental health problems, parental antisocial behavior/attitudes, partner violence, and poor familial support.

Youth Psychological Functioning	Mental health issues, antisocial attitudes, and poor coping abilities.	Low verbal IQ, callousness, negative emotionality, risk taking behaviour, attention deficits, hyperactivity, and personality traits/disorders.
Parenting Skills	Lack of discipline and lack of positive involvement.	Hostile parenting and inadequate norms/rules.
Childhood Aggression		Kicked, hit, bit others, shoved, pushed, physically fought with others, and thrown things at others.
Peer Socialization	Connections to antisocial youth.	
School Functioning	Skipping, struggling academically, suspended or expelled, and changed schools.	Learning/behavioural problems and attention at school.
Neighbourhood Risk Factors	Knowledge of living area and high-risk neighbourhoods for gang/criminal activity.	Knowledge of moving.
Youth's Offending History	Access to police interactions/charges/convictions.	Co-offending networks/details.
Youth's Substance Abuse History	Experimenting with drugs/alcohol, on medications, and dependent on drugs/alcohol.	
Interventions	Previous interventions, accessibility to interventions, family and child responsivity to intervention, and contact with other agencies.	

Based on these findings, several indicators of aggression and violence in the CI are not being captured by the PICS intake form. These indicators are essential for determining adequate referral for case management and intervention. For instance, prenatal and perinatal factors may suggest an underlying neuropsychological deficit such as Autistic spectral disorder (ASD) or fetal alcohol spectral disorder (FASD) and attention deficit hyperactive disorders (ADHD). A more comprehensive approach to violence risk/needs intake assessment provides an organized and data continuous system to accumulate at-risk youth case information that: (1) assists in

identifying key individual and environmental risk/needs factors that accumulate over developmental stages; (2) guides appropriate intervention strategies and referrals; and, (3) establishes an initial assessment baseline to monitor a youth's progression. Aggression and violent behaviour frequently evolve over developmental stages; therefore, it is important for clinicians and case workers to capture the risk/needs factors that typically persist or accumulate overtime (Lussier, Corrado, Healey, Tzoumakis, & Deslauriers-Varin, 2011). Early childhood risk factors have been associated with violent acts later in adulthood (Lussier, Farrington, & Moffitt, 2009). In addition, aggression and violence have been found to be multidetermined i.e. risk/needs factors such as biological predisposition(s) (Moffitt, 1993), socioeconomic deprivation (Farrington, 2005), personality (Morizot, & LeBlanc, 2005), social attachment (Farrington, 2005), parental or peer antisocial behaviour/attitudes (Patterson & Yoerger, 1993), and parenting style (Schroeder, & Mowen, 2014).

The Surrey Transition and Education Program (STEP)

The Surrey Transition and Education Program (STEP) receives referrals from the Surrey Wraparound Program (WRAP). WRAP consists of a cooperative referral program between the Royal Canadian Mounted Police (RCMP), City of Surrey, and the Surrey School District. WRAP connects at-risk youth to adult mentors, recreational activities, volunteer opportunities, education, i.e., STEP, and intervention. The main purpose of STEP is to help at-risk school-aged youth achieve success in school. Four at-risk youth cases (one female; ages 15 to 16) from STEP were analyzed on key CI variables. Overall, the results show that CI variables associated with parental antisocial behaviour and attitudes, personality traits or disorders, childhood aggression are inconsistently gathered. Prenatal and perinatal risk factors are rarely collected (see Table 2.4). STEP receives file information from several agencies.

Each case begins with an online WRAP referral intake form, then proceeds to an initial youth assessment, an in-depth youth assessment, and an intake with primary caregivers. Prior to STEP, the Ministry of Children and Family Development (MCFD) case information, police data, school data, and outside agency data, for example, probation data are used to create a care plan that prioritizes risk/needs factors within five life domains: (1) individual, (2) school, (3) family, (4) peers, and (5) community.

Table 2.4 Evaluation of Four STEP Cases on CI Variables.

CI Domains & Sections	CI Indicators Available	CI Indicators Sometimes Available	CI Indicators Not Available
Prenatal and Perinatal Factors		Maternal substance use.	Pregnancy and/or birth complications, low birth weight, and premature birth.
Socioeconomic Situation	Low income, low parental occupational status, poor parental education, family adversity (e.g., large family size, many siblings, or high residential mobility), economic dependency, and raised by a single parent.		
Family Environment	Criminal background of the parents, early caregiver disruption/attachment, parental mental health problems, partner violence, teenage pregnancy, and poor familial support.	Parental antisocial behavior/attitudes.	
Youth Psychological Functioning	Low verbal IQ, callousness, negative emotionality, risk taking behaviour, attention deficits, hyperactivity, mental health issues, antisocial attitudes, and poor coping abilities.	Personality traits/disorders	
Parenting Skills	Hostile parenting, lack of discipline, lack of positive involvement, and inadequate norms/rules and		

Childhood Aggression		Kicked, hit, bit others, shoved, pushed, physically fought with others, and thrown things at others.	
Peer Socialization	Connections to antisocial youth.		
School Functioning	Skipping, struggling academically, learning/behavioural problems, attention at school, suspended or expelled, and changed schools.		
Neighbourhood Risk Factors	Knowledge of living area and high-risk neighbourhoods for gang/criminal activity. Knowledge of moving.		
Youth's Offending History	Access to police interactions/charges/convictions. Co-offending networks/details.		
Youth's Substance Abuse History	Experimenting with drugs/alcohol, on medications, and dependent on drugs/alcohol.		
Interventions	Previous interventions, accessibility to interventions, family and child responsivity to intervention, and contact with other agencies.		

STEP Cases 1 and 4 provide support for an immigrant youth pathway for gang-involvement. The primary causal risk factor of this pathway was the breakdown of self-identity which stemmed from a lack of social connection and belonging (Dunbar, 2017). Previous research on immigrant youth suggests that gang involvement often fulfilled a need for social inclusion. Indeed, youth who experienced numerous risk factors over an extended duration, for example, socioeconomic deprivation, linguistic/communication challenges, maladaptive family environment, poor school functioning, and poor community or social ties developed a poor self-concept (Schleifer, & Ngo, 2005). Youth with a poor self-concept more likely gravitated towards

alternative or antisocial peer groups to satisfy their need for belonging, bonding, and group identity (Ngo, 2010).

Ministry of Children & Family Development (MCFD)

The Ministry of Children and Family Development (MCFD) provides several services including child protection, mental health, custody programs, programs for children and youth with special needs, and adoption services. While not formally involved with the SAFE program, MCFD provides complementary services to SAFE agencies. Two youth probation officers (YPOs) were interviewed concerning the CI variables routinely collected on a case basis for at-risk or gang-involved youth. Family criminogenic risk factors, youth psychological functioning, childhood aggression, peer socialization, school functioning, neighbourhood risk factors, youth's substance abuse history, and past interventions are not consistently collected (see Table 2.5 for details). Instead, the YPOs explain that the availability of information on these nine domains is case dependent, usually involving three criteria: (1) voluntary self-disclosure; (2) whether the youth has a social or mental health worker; and, (3) whether the youth is out on bail. Concerning the presence of information needed for establishing a distinctive immigrant/cultural developmental gang involvement pathway, the YPOs agreed that this pathway is not uncommon among MCFD cases.

Table 2.5 MCFD Informational Interview: CI Variables.

CI Domains & Sections	CI Indicators Available	CI Indicators Sometimes Available
Prenatal and Perinatal Factors	Maternal substance use, pregnancy and/or birth complications, low birth weight, and premature birth.	
Socioeconomic Situation	Low income, poor parental education, economic dependency, and low parental occupational status, family adversity (e.g.,	

	large family size, many siblings, or high residential mobility), and raised by a single parent.	
Family Environment		Parental mental health problems, parental antisocial behavior/attitudes, criminal background of the parents, partner violence. poor familial support, teenage pregnancy, and early caregiver disruption/attachment.
Youth Psychological Functioning		Low verbal IQ, callousness, risk taking behaviour, negative emotionality, attention deficits, hyperactivity, personality traits/disorders mental health issues, antisocial attitudes, and poor coping abilities.
Parenting Skills	Hostile parenting, lack of discipline, lack of positive involvement, and inadequate norms/rules and	
Childhood Aggression		Kicked, hit, bit others, shoved, pushed, physically fought with others, and thrown things at others.
Peer Socialization		Connections to antisocial youth.
School Functioning		Skipping, struggling academically, learning/behavioural problems, attention at school, suspended or expelled, and changed schools.
Neighbourhood Risk Factors		Knowledge of living area and high-risk neighbourhoods for gang/criminal activityKnowledge of moving.
Youth's Offending History	Access to police interactions/charges/convictions. Co-offending networks/details.	
Youth's Substance Abuse History		Experimenting with drugs/alcohol, on medications, and dependent on drugs/alcohol.

Interventions		Previous interventions, accessibility to interventions, child responsivity to intervention, family responsivity to intervention, and contact with other agencies.

Simon Fraser University (SFU)

Simon Fraser University (SFU), in partnership with SAFE provides assessments and clinical counseling to youth at-risk for gang involvement. One clinical counsellor was interviewed concerning the CI variables routinely collected on a case basis for at-risk or gang-involved youth. All CI variables are collected including prenatal and perinatal factors, family environment, youth psychological functioning, parenting skills, childhood aggression, peer socialization, school functioning, neighbourhood risk factors, youth's substance abuse and offending history, and past interventions (see Table 2.6 for details). Like STEP, evaluation procedures are comprehensive and include the following steps:

- Consultations with school staff
- Review of file information
- Teacher interview
- Parent interview
- Student interview

Numerous assessments are available including, intelligence, achievement, cognitive, learning, memory, perceptual, mental health, and behavioural tests/assessments (e.g., Stanford Binet Intelligence Scales-5th Edition, Woodcock-Johnson III Tests of Achievement, Woodcock-Johnson IV Tests of Cognitive Abilities, Wide Range Assessment of Memory and Learning-2nd Edition, Test of Auditory-Perceptual Skills, The Beery-Buktenica Developmental Test of Visual-Motor Integration-6th Edition, Multidimensional Anxiety Scale for Children, BECK Youth Inventories, Children's Depression Inventory, and Brilliant Behaviours Checklist). School-based

team notes are also available from weekly meetings with professionals on the youth's case. Team notes include insights from school psychologists and counsellors, administrative personnel, case management staff, and teachers concerning the youth's behaviour.

Table 2.6 SFU Informational Interview: CI Variables.

CI Domains & Sections	CI Indicators Available	CI Indicators Not Available
Prenatal and Perinatal Factors	Maternal substance use. pregnancy and/or birth complications, low birth weight, and premature birth.	
Socioeconomic Situation	Low income, low parental occupational status, poor parental education, family adversity (e.g., large family size, many siblings, or high residential mobility), economic dependency, and raised by a single parent.	
Family Environment	Parental antisocial behavior/attitudes, criminal background of the parents, early caregiver disruption/attachment, parental mental health problems, partner violence, teenage pregnancy, and poor familial support.	
Psychological Functioning	Low verbal IQ, callousness, negative emotionality, risk taking behaviour, attention deficits, hyperactivity, personality traits/disorders, mental health issues, antisocial attitudes, and poor coping abilities.	
Parenting Skills	Hostile parenting, lack of discipline, lack of positive involvement, and inadequate norms/rules and	
Childhood Aggression	Kicked, hit, bit others, shoved, pushed, physically fought with others, and thrown things at others.	

Peer Socialization	Connections to antisocial youth.	
School Functioning	Skipping, struggling academically, learning/behavioural problems, attention at school, suspended or expelled, and changed schools.	
Neighbourhood Risk Factors	Knowledge of living area and high-risk neighbourhoods for gang/criminal activity. Knowledge of moving.	
Youth's Offending History	Access to police interactions/charges/convictions. Co-offending networks/details.	
Youth's Substance Abuse History	Experimenting with drugs/alcohol, on medications, and dependent on drugs/alcohol.	
Interventions	Previous interventions, accessibility to interventions, family and child responsivity to intervention, and contact with other agencies.	

Conclusion

The primary goal of the current research community pathways section is to assess the utility of the Cracow comprehensive aggression/violence risk management instrument (CI) in providing SAFE agencies with a multi-service case planning tool. Overall, from the limited cases examined thus far, some SAFE agencies inconsistently collect CI variables associated with neuropsychological functioning, i.e., prenatal/perinatal risk/needs factors, parental antisocial behaviour/attitudes, personality disorders, and childhood aggression. Given that the initiation of the SAFE program in late 2018, most partner agencies are in the initial stage of accumulating cases and building client-caseworker/counsellor relationship. Also, given the complex and dynamic nature of youth at-risk for gang involvement, many agencies report similar issues with contacting and engaging youth in their care plan. Although preliminary, the current results suggest that the CI could be beneficial in establishing information consistency among the SAFE partners on the types of risk/needs factors collected. As stated previously, prenatal and perinatal risk/needs factors are especially important in providing effective intervention/case management that directly focuses on neuropsychological deficits to ameliorate school/social challenges. Based on three SAFE cases, preliminary support for the immigrant/cultural pathway related to factors surrounding risk/needs related to language barriers, lack of identity, negative family/school environment, and lack of belonging contribute to gang-involvement. More research on SAFE cases is needed to explore these unique factors embedded within the cultural pathway as well as the potential for distinct factors to emerge as a result of different ethnocultural backgrounds.

Section IIb: Results from the Study on Specialized Community Case Management of Young Offenders: An overview of the profiles of gang-involved youth in the Lower Mainland, British Columbia

Introduction

As mentioned above, serious-/violent young offenders, generally, and gang involved youth/young adults in particular, typically require complex and diverse case management resources. Youth gang members have been associated with more multi-risk and aggressive behaviours including delinquency (Esbensen & Huizinga, 1993), general criminality (Merrin et al., 2015), crimes involving drugs (Chu, Daffern, Thomas, & Lim, 2011), more arrests (Tapia, 2011), and violent behaviours (Li et al., 2002). These youth too have been found to be more likely to re-offend and have been characterized by a range of risk factors that increased their likelihood of remaining in a gang (Chu et al., 2011).

Key risk factors that are demonstrated to increase the chance of offending during adolescence have included abuse, caregiver substance use, and poverty (Schram & Gaines, 2008), and, in addition, for gang involvement, weakened family structure, lack of supervision, and strong links to peers (Chu et al., 2011; Esbensen et al., 2009). Low socioeconomic status, being male, and engaging in antisocial behaviour too have been identified as risk factors (Merrin, Hong, & Espelage, 2015). Research has also shown that general risk factors for gang affiliation/membership in youth included substance use, risk-taking behaviours, and general deviant behaviour (Petering, 2016; Trulson et al., 2012). Youth who have self-identified as gang members further had negative general lifestyle outcomes, such as lower educational attainment and higher unemployment (Pyrooz, 2012).

The Study on Specialized Community Case Management of Young Offenders

The *Study on Specialized Community Case Management of Young Offenders* developed after a senior manager from the British Columbia Ministry of Children and Family Development (MCFD) approached Dr. Corrado in 2010 to undertake a research project on two recently

implemented experimental youth probation caseloads in Vancouver. The study employed a quasi-experimental design to examine the impact of the: (1) the Serious-Violent/Gang-Involved Young Offender (SV/GIYO) caseload; and (2) the Mentally Disordered Young Offender (MDYO) caseload on youth's reoffending outcomes. After several meetings with the respective parties, a jointly designed research project was established by MCFD, Dr. Corrado, and Dr. Peters, later joined by Dr. Karine Descormiers. This study involved the collection of detailed and diverse risk/needs factors in the case files of youth probationers in Vancouver and the Lower Mainland (e.g., North Vancouver, Richmond, Burnaby, Surrey, Coquitlam, Maple Ridge) who were assigned to one of the two specialized caseloads or traditional probation caseloads. To be included in the study, cases had to meet the following criteria: committed a serious-violent offence; gang affiliated; involved in high profile cases; and/or having had a serious mental health diagnosis.

A comparison group of traditionally supervised youth in the Lower Mainland was compiled through consultations with youth probation and corrections staff based on the specialized caseloads' criteria. Data was collected from 2011-2014, from 192 youth probationer case files (previously or actively supervised between 1999 and 2014). These years represented the time between youth's first official probation caseload intake (either on a specialized or traditional caseload), and final data collection ended.

Research Questions

Youth justice personnel, including probation officers, rely on structured risk assessment ratings and caseload designation to guide supervision and case management decision-making. Studies have demonstrated the heterogeneity in the specific profiles of risk/needs factors serious youth offending, generally, and gang involved youth, specifically, although typically there was

considerable shared risk/needs (Fanniff & Kolko, 2012; Schwalbe, Macy, Day, & Fraser, 2008). To develop appropriate case management planning responses, an initial research question is whether distinctive differences exist between gang involved and non-gang involved youth who engaged in serious and violent offending.

The present research examines whether there are:

(1) Differences in risk profiles for gang-involved compared to non-gang involved youth probationers?
(2) Differences in offending profiles of gang-involved compared to non-gang youth probationers?
(3) Differences risk /needs profiles between sub-groups of SV/GIYO?
(4) Differences, when controlling for several key reoffending indicators that predict a higher likelihood of recidivism among high-risk/need youth probationers?

Methodology

Sample and subsamples

The *Study on Specialized Community Case Management of Young Offenders'* sample included a total of 192 youth probation case files from Lower Mainland, BC. There were 50 youth probationers from the specialized SV/GIYO Caseload, 46 from the specialized MDYO Caseload, and 92 youth probationers from traditional caseloads across the Lower Mainland; 50 had similar offending profiles to the serious-violent/gang-involved youth probationers and 46 had similar diagnoses to the mentally disordered young offender profiles. Cases from the specialized probation groups were pre-determined based on youth's referral to one of these caseloads. A list of specially supervised youth was obtained from the clinical youth probation supervisor at Robson Square Youth Probation Services, and then cases were retained in the study based on the availability of their probation case file information.

A comparison group of youth from traditional caseloads was derived form an extensive list of potential young offender names was compiled based on probation youth who appeared to

meet the study criteria and who were actively supervised on youth probation between 2004 and 2011. Regarding study selection criteria, Dr Peters reviewed the comparison group individual offending histories and mental health files along with risk/needs factors associated with demographic information including age, gender, and ethnicity. Youth who had been charged with an offence relating to serious threats to others, assaults, weapons offences, and any offence categorized as well as even more serious offences such a assault causing bodily harm, assault with a weapon, assault against a peace officer, aggravated assault, robbery, sexual assault, aggravated sexual assault, manslaughter, attempted murder, and first or second degree murder were included in the serious-violent/gang comparison group. Youth who had one or more mental health diagnoses, beyond the common ADHD, CD, and ODD (e.g., anxiety, depression, SUD, bipolar disorder, and including FASD), were included in the mentally disordered young offender comparison group.

Of the 192 probationers, 100 youth were identified as serious-/violent youth and 66 were confirmed to be gang involved.

Data & Indicators

The dataset for this study also included information on youth families and early developmental stage risk/needs, educational experiences, abuse, substance use, mental health, peer associations, gang involvement, and recidivism.

Again, the key independent variable was youth probation gang-involved membership. This was defined as confirmed youth membership in a gang typically based on confirmation from the police (e.g., the gang crime unit or Yankee 10 youth probation unit) and/or the youth probation officers' knowledge of this from their close partnership with the police. It was coded as a categorical, yes/no, variable. As was evident in the gang literature, family-level/living

environment factors was overwhelmingly associated with both offending and gang involvement, therefore, several family-level variables were included. The first measure was a categorical variable for youth's primary caregiver prior to the age of 13 with sub-categories: (1) both biological parents; (2) biological mother only (as an indication of some disruption in the youth's life and acting as a means to assess the impact of a single parent and no steady male role model); and; (3) other (which included living primarily with any other family member or being placed in some type of care placement). The "other" category represented the most disruptive risk/needs, in part, because the vast majority of cases youth repeatedly were moved between the "other" and one or both of their parents. The "father" care giver type was placed in the other category based on the majority of this sample's fathers identified as very high risk/unstable. Also, less than five percent of youth lived primarily with their biological father only prior to age 13.

The family risk scale consisted of a four-point scale: (1) no family risk factors; (2) one family risk factor; (3) two family risk factors; and, (4) three or more family risk factors. Youth were assigned one point on the scale per issue (i.e., substance abuse, mental illness, criminal involvement) per family member (i.e., mother, father, and sibling g(s)).

The historical abuse was an additive scale with four values based on whether the youth was suspected or confirmed to have experienced physical, sexual, mental/emotional, and/or neglect. The abuse scale too involved a three-point measure: (1) no reported abuse, (2) one reported form of abuse, and (3) more than one reported type of abuse. As with other scales, this scale improved the distribution of this variable needed to for the appropriate statistical analysis.

The key academic variable in this study was educational attainment level, which was defined ordinarily according to highest grade level attained by the youth. This variable ranged from 3 to 12 (representing school completion). Additional school related variables included

whether youth had been suspended (0 = no, 1 = yes) or expelled (0 = no, 1 = yes) which were combined into one dichotomous variable assessing whether the youth had ever been suspended or expelled (0 = no, 1 = yes). This was the vast majority of youth typically who had experienced one also experienced the other. Also, some files did not provide clear differentiations between the two categories.

The substance use and mental health indicators were additive scales combining all the substances used (e.g., alcohol, marijuana, cocaine, acid, crack, heroine, crystal methamphetamine, prescription drugs) and diagnosed mental illnesses. Mental health disorders included bipolar disorder symptoms, borderline features or disorder, borderline or low intelligence, ADHD, ADHD and FASD, anxiety and attachment, adjustment, anxiety, attachment, learning disability, seasonal affect disorder, OCD behaviour, paranoia, psychotic episodes, and schizophrenia.

Youth's peer associations involved assessing whether the young offender's peers were mostly prosocial or antisocial (i.e., were they involved in the justice system and/or substance use). This was coded as: (1) mostly prosocial peers, (2) a mixture of prosocial and antisocial peers, and (3) mostly antisocial peers.

Differences in the severity of offending was based on offence seriousness (e.g., Bonta et al., 1998). Two continuous variables measured the severity level of youth's first most serious offence, as well as a severity rating for the first oversell set of offenses as some of the sample youth were convicted of multiple offences at the same time.

Youth's risk assessment ratings involved probation officers' completion of the formerly used Community Risk/Needs Assessment (CRNA) instrument. Prior to the adoption of the

Structured Assessment of Violence Risk in Youth (SAVRY) in 2012, these were used to determine youth's risk, need, and supervision levels following their conviction.

Recidivism was measured using official conviction data, and thus defined as reconviction one or more times, but did not include administrative offences. The recidivism variables were binary variable for general recidivism, administrative recidivism, drug-related recidivism, and serious recidivism, as well as chronic recidivism and chronic serious recidivism.

Analytical strategy

SPSS was used to perform the quantitative analysis of the data. Basic bivariate analyses were used first to illustrate the risk/protective profiles of youth probationers in the sample, with particular emphasis on the differences between gang and non-gang youth. A two-step cluster analysis was conducted to assess whether underlying youth probationer groups or typologies based on several of the above-listed key indicators could be identified. Based on the two typologies, additional bivariate analyses were conducted to examine the relationship between these clusters and recidivism rates. Multivariate analyses were used next to examine the relationship between gang membership and other important risk indicators on youth probationer recidivism.

Results

Research Theme 1: Gang & Non-gang Youth Profiles

Based on the comparisons between gang and non-gang youth, a significantly higher proportion of gang youth in the specialized community probation study sample were male (89.4%) and of the other ethnic category (47.0%; e.g., Middle Eastern, Asian, Black) compared to youth not identified as gang involved (see Table 3.1). A significantly lower percentage of youth identified as gang-involved were in care (39.4% versus 59.1%) and had lower ratings on

the family risk scale (2.29 versus 2.92) than non-gang youth probationers. This finding was in stark contrast previously cited literature from the United States, which overwhelmingly found youth gang members had high familial level risk factors. Gang-involved youth who were supervised on the examined probation caseloads also had significantly higher educational attainment than non-gang youth (9.82 versus 9.25) and a higher age of onset (i.e., 13 years of age or older) for first drug use (57.6% versus 30.2%). Not surprisingly given that a substantial proportion of youth probationers in the sample were identified based on the presence of mental health issues, youth gang members (59.1%) had lower rates of mental illness (compared to 84.1%) and lower levels of mental health-related interventions (e.g., counselling and pharmacological treatment) than non-gang youth (see Table 3.1). Nonetheless, with more than half of the gang involved youth with some type/level of mental health needs supported the study theme about the importance of multiple pathways case management approach. Gang-involved had significantly higher ratings on the antisocial peer scale (2.76) than the non-gang involved youth (2.56), though this difference was slight. The former were more likely to be both substance users and/or criminally involved the latter.

Table 3.1 Gang & Non-gang Youth Profiles (N=192)

Domain	Indicators	Non-Gang (n=126)	Gang (n=66)	t/x^2
Demographics	Age Probation Intake	14.64	14.95	-1.29
	Gender – Male	**79.4%**	**89.4%**	**3.06**†
	Ethnicity			7.00*
	Caucasian	46.0%	28.8%	
	Aboriginal	24.6%	24.2%	
	Other	**29.4%**	**47.0%**	
Family	Primary Caregiver			3.84
	Biological Parents	20.6%	28.8%	
	Biological Mother Only	34.9%	40.9%	
	Other	44.4%	30.3%	
	Ever In Care	**57.1%**	**39.4%**	**5.46***
	Family Environment	2.28	2.17	.90
	Family Risk Factors	**2.92**	**2.29**	**3.66*****
	Abuse Scale	1.99	2.05	-.43
School	**Educational Attainment**	**9.25**	**9.82**	**-2.65****
	Expelled or Suspended	73.8%	71.2%	.20
	In an Alternative School	79.4%	83.3%	.44
Substance Use	Total Substance Use	5.28	5.21	.18
	Age Onset Substances			17.37***

		None	7.9%	0.0%	
		12 or younger	61.9%	42.4%	
		13-14	**26.2%**	**45.5%**	
		15 or older	4.0%	12.1%	
Mental	**Health**	**Mental Health Issues**	**84.1%**	**59.1%**	**14.7*** **
		Mental Health Scale	**4.75**	**3.50**	**2.77****
Peers /Social	**Capital**	**Antisocial Peer Scale**	**2.56**	**2.76**	**-2.24***
		Romantic Partner	55.6%	63.6%	1.2
		Ever Employed	63.5%	71.2%	1.2

***p ≤0.001, **p ≤ 0.01, *p ≤ 0.05, †p ≤ 0.10

Table 3.2 Gang & Non-gang Youth Risk Assessment & Interventions (N=192)

Domain	Indicators	Non-Gang (n=126)	Gang (n=66)	t/x^2
Risk Assess-ment	High Risk Rating	65.1%	66.7%	2.3
	High Need Rating	68.8%	65.6%	1.46
	High Supervision Rating	69.6%	76.6%	1.58
Offence Severity & Custody	Seriousness First Offence	2.67	2.59	.73
	Seriousness First Offence Set	7.52	6.47	1.26
	Ever in Custody	96.0%	98.5%	0.9
	Days in Custody	436.0	406.9	0.4
Caseload	**Specialized Caseload**	**44.4%**	**60.6%**	**4.5***
	Serious-Violent Youth	41.3%	72.7%	17.2***
	Mentally Disordered Youth	58.7%	27.3%	-
Interv-ention	**Ever in Counselling**	**76.2%**	**56.1%**	**8.3****
	Ever taken Medication	**65.9%**	**45.5%**	**7.5****

***p ≤0.001, **p ≤ 0.01, *p ≤ 0.05

The variables or risk factors in this study associated with an increased probability for gang involvement are presented in Table 3.3. While having ever been placed in foster care, having a younger age of substance use onset, and having high comorbidity of mental health issues were negatively associated with gang involvement, having experienced higher levels of abuse (i.e., physical, sexual, neglect, or witnessed) was positively associated with gang involvement.

Table 3.3 Logistic Regression Results Predicting Likelihood for Gang Involvement

Indicators	**Gang Involvement**		
	B	**Wald**	**Exp(β)**
Age Probation Intake	-.04	.10	.96
Gender – Female	-.73	2.11	.48
Ethnicity		3.21	
Indigenous	.74	2.44	1.74
Other	.55	1.94	1.12
Raised Bio-Mum Only	.12	.11	1.12
Ever in Care	**-.71**	**3.06**	**.49†**
Abuse Scale	**.43**	**3.54**	**1.54†**
Paternal Criminality	.47	1.16	1.60
Enrolled in Alternative School	.47	1.15	1.60
Substance use onset <12	**-.81**	**5.36**	**.45***
Mental Health Scale	**-.14**	**4.58**	**.87***

***p ≤0.001, **p ≤ 0.01, *p ≤ 0.05, †p ≤ 0.10

The contrast between gang-involved youth to other high-risk/need youth probationers supervised on probation in the Lower Mainland revealed that gang youth had different risk profiles than the same two groups studied in the United States. Canada's Youth Criminal Justice Act (2002) mandated provincial/territorial youth justice systems typically have focused on the most intensive case management resources on the most serious offending cases, which can largely explain these differences between the two countries. Under this legislation, only the most serious-/violent-/persistent cases of youth delinquency/offending are addressed via the formal youth justice system.

Research Theme 2: Gang & Non-gang Convictions and Recidivism

Differences in offence types and recidivism rates for gang-involved compared to non-gang youth probationers are the second research themes in this study. The results in Table 3.4 indicate that gang youth have approximately six times the drug-related convictions (12.1%) than non-gang youth (1.6%) associated with their first set of offences and modestly higher levels of violence-related convictions (36.5% versus 31.8%). Drug-related offences often included possession for the purposes of trafficking and violent offences included threats, assault, robbery, attempted murder, murder, and manslaughter. Gang-involved youth are thus engaging in criminal activity that can lead to potentially large financial gains, as well as high-risk behaviours.

Table 3.4 Gang & Non-gang Offence Profiles (N=192)

	Non-Gang (n=126)	**Gang (n=66)**	**x^2**
First Conviction Offence Type			**11.9***
Drug	**1.6%**	**12.1%**	
Weapons	2.4%	6.1%	
Violent	**31.8%**	**36.5%**	
Drug & Weapons/Violent	1.6%	1.5%	
Multiple Violent	22.2%	16.7%	
Other	35.7%	31.8%	

***p ≤0.001, **p ≤ 0.01, *p ≤ 0.05, †p ≤ 0.10

Recidivism rates were measured using official reconviction data. Differences between gang and non-gang youth were nonsignificant, with the exception of the property offences. For the latter non-gang youth have modestly significant higher rates. Although gang-involved youth have higher rates of reconviction for administrative offences and drug offences, these differences were not significant. However administrative charges not uncommonly have been utilized by police and probation officers reduce the likelihood gang members' offending. This form of focused deterrence has been effective in moderately reducing crime in US contexts (Braga, Weisburd, & Turchan, 2018).

Table 3.5 Recidivism Rates for Gang and Non-gang Youth Probationers (N=192)

Recidivism	**Non-Gang (n=126)**	**Gang (n=66)**	**x^2**
General recidivism	82.5%	77.3%	.77
Administrative recidivism	74.6%	80.3%	.78
Drug-related recidivism	15.9%	21.2%	.85
Serious recidivism	70.6%	66.7%	.32
Property recidivism	66.7%	54.5%	2.72†
Chronic offending	46.8%	36.4%	1.93
Chronic serious offending	21.4%	18.2%	.28

***p ≤0.001, **p ≤ 0.01, *p ≤ 0.05, †p ≤ 0.10

Research Theme 3: SV/GIYO Clusters (N=100)

After examining the risk and offending profiles of the complete sample of youth probationers from the community probation study (N=192), further analyses were conducted after removing the cases of youth on probation who had severe mental health issues. The remaining sub-sample facilitated a more focused examination of the risk/needs of only those youth categorised as serious-/violent or gang-involved young offenders in order to assess both whether sub-groups of SV/GIYO existed and any potential differences in their risk/needs profiles. These results are presented in Tables 3.6 and 3.7, and Figures 3.1 and 3.2.

Table 3.6 SV/GIYO Cluster Profiles (n=100)

Domain	Indicators	"Low-risk"/Gang (n=62)	High-risk (n=38)	t/x^2
Demographic	**Age Probation Intake**	**15.31**	**14.32**	**4.20*****
	Gender – Male	**100.0%**	**73.7%**	**30.30*****
	Ethnicity			78.30***
	Caucasian	21.0%	47.4%	
	Aboriginal	4.8%	47.4%	
	Other	**74.2%**	**5.3%**	
Family	Primary Caregiver			41.54***
	Biological Parents	33.9%	15.8%	
	Biological Mother Only	43.5%	39.5%	
	Other	**22.6%**	**44.7%**	
	Ever In Care	**24.2%**	**60.5%**	**37.82*****
	Family Environment	**1.87**	**2.55**	**5.58*****
	Family Risk Factors	**1.92**	**3.39**	**14.60*****
	Abuse Scale	**1.58**	**2.34**	**5.98*****
School	**Educational Attainment**	**10.03**	**9.84**	**6.50*****
	Expelled or Suspended	77.4%	78.9%	8.28
	In an Alternative School	**79.0%**	**94.7%**	**13.93***
Substance Use	**Total Substance Use**	**4.13**	**6.34**	**8.10*****
	Age Onset Substances			32.50**

		None	1.6%	0.0%	
		12 or younger	**40.3%**	**71.1%**	
		13-14	43.5%	26.3%	
		15 or older	14.5%	2.5%	
MH		**Mental Health Issues**	**38.7%**	**86.8%**	**70.51*** **
		Mental Health Scale	**1.94**	**4.29**	**41.04*** **
Peers / Social Capital		**Antisocial Peer Scale**	**2.65**	**2.84**	**5.03*** **
		Romantic Partner	66.1%	68.4%	17.65**
		Gang Involvement	60.6%	12.1%	44.41***
		Ever Employed	**80.6%**	**71.1%**	**20.09*** **

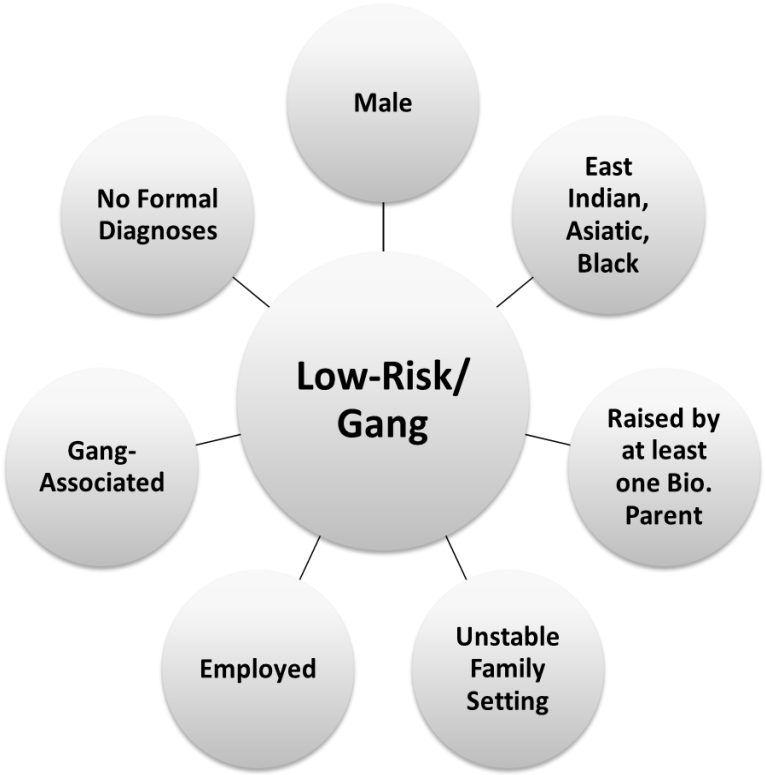
***p ≤0.001, **p ≤ 0.01, *p ≤ 0.05, †p ≤ 0.10

Table 3.7 SV/GIYO Cluster Risk Assessments & Interventions (n=100)

Domain		Indicators	"Low-risk"/Gang (n=62)	High-risk (n=38)	t/x^2
Risk Assess-	**ment**	**High Risk Rating**	**59.7%**	**81.6%**	**19.63†**
		High Need Rating	**53.3%**	**86.5%**	**24.96***
		High Supervision Rating	70.0%	81.1%	13.46
Offence Severity &	**Custody**	Seriousness First Offence	2.66 (.72)	2.68 (.78)	0.58
		Seriousness First Offence Set	7.32 (6.21)	8.45 (5.78)	0.94
		Ever in Custody	96.8%	100.0%	7.98
		Days in Custody (SD)	**404.06 (396.68)**	**732.11 (500.25)**	**6.67*****
Interven-tions		**Specialized Caseload**	**58.1%**	**36.8%**	**9.29†**
		Ever in Counselling	**48.4%**	**86.8%**	**26.25*****
		Ever taken Medication	**17.7%**	**63.2%**	**79.53*****

***p ≤0.001, **p ≤ 0.01, *p ≤ 0.05, †p ≤ 0.10

Figure 3.1 SV/GIYO Clusters – Low-risk Profile/Gang Youth (n=100)



The cluster analysis results revealed the presence of two unique subgroups of young offenders. The largest cluster is the **low-risk/gang-involved** group with 62 youth probationers. This group of offenders has the oldest age of onset (i.e., justice system entry; *M*=15.31, *SD*=1.69) and is comprise of exclusively male probationers (100.0%). Closer to two thirds (60.6%) of these youth have associations with criminal organizations. This cluster consists of 74.2% East Indian, Asiatic, Black, or Hispanic youth. Approximately three-quarters (77.4%) were raised by at least one of their biological parents, but closer to two thirds (61.3%) came from an unstable family environment. In terms of protective factors, 80.6% had been previously employed and 62.9% of youth had no formal mental health diagnosis.

Figure 3.4 SV/GIYO Clusters – High-risk Profile/Serious-violent Youth (n=100)

The second cluster is **the high-risk serious violent** young offenders. The average age of entry in this cluster is 14.32 years of age with approximately three quarters (73.7%) male. Equal proportions are Caucasian (47.4%) and Indigenous youth (47.4%). In terms of family relations, nearly half (44.7%) were not raised by either of their biological parents. Approximately three quarters experienced both high conflict homes (71.1%) and high residential mobility (73.7%), Virtually all (92.1%) in this cluster had an unstable family environment. Drug use was also common; approximately three quarters 71.1% had substance use onset prior to the age of 12, and effectively all (97.4%) engaged in hard drug use. Half (50.0%) of the youth had three or more mental health diagnoses. The overwhelming majority (83.8%) have a high-risk rating.

Research Theme 4: Gang-Involvement & Recidivism

The results of the multivariate regression models used to assess the relationship between key reoffending indicators are presented in Tables 3.8, 3.9, and 3.10. Included in these measures is gang involvement, and the outcome measures are each type of recidivism (i.e., general, administrative, drug, serious), chronic, and chronic serious reoffending.

Both young offenders' initial age of entry into probation and gender are significant but are weakly associated with recidivism. Older age and female youth are significantly less likely to recidivate with any new offence, with a drug offence, and with a serious offence than younger youth and males. As well, older youth and females are less likely to be recidivists/chronic offenders. The most important predictor of general, administrative, and drug-related recidivism is substance use (see Tables 3.8 and 3.9). Based on formal reconviction data, gang involvement is not significantly predictive of any type of recidivism or chronic offending pattern.

Table 3.8 Youth Probationer General and Administrative Recidivism (N=192)

	General Recidivism			Administrative Recidivism		
Indicators	**B**	**Wald**	**Exp(β)**	**B**	**Wald**	**Exp(β)**
Age Probation Intake	**-.94**	**19.71**	**.39*** **	**-.78**	**20.08**	**.46*** **
Gender – Female	**-1.30**	**3.45**	**.27†**	-.59	.93	.56
Ethnicity		.88			1.30	
Indigenous	.73	.71	2.07	.45	.43	1.57
Other	.46	.42	1.43	-.33	.46	.72
Family Risk Scale	-.27	1.20	.77	-.31	2.03	.73
Ever in Care	.53	.73	1.69	.07	.02	1.08
Abuse Scale	.48	.81	1.62	.23	.24	1.26
Substance Use Scale	**.34**	**6.36**	**1.41****	**.42**	**10.24**	**1.52*** **
Mental Health Scale	.02	.05	1.02	-.01	.01	.99
Peer Scale	.58	1.80	1.61	.30	.91	1.36
Gang Involvement	-.43	.57	.65	.66	1.61	1.94

***p ≤0.001, **p ≤ 0.01, *p ≤ 0.05, †p ≤ 0.10

Table 3.9 Youth Probationer Drug and Serious Recidivism (N=192)

	Drug-Related Recidivism			Serious Recidivism		
Indicators	**B**	**Wald**	**Exp(β)**	**B**	**Wald**	**Exp(β)**
Age Probation Intake	-.11	.61	.90	**-.96**	**29.13**	**.37*** **
Gender – Female	**-1.36**	**3.52**	**.26†**	**-1.66**	**8.39**	**.19****
Ethnicity		3.17			6.26*	
Indigenous	-.22	.16	.80	**1.70**	**6.09**	**5.49****
Other	.81	2.31	2.24	.49	1.08	1.64
Family Risk Scale	-.31	2.45	.73	.01	.01	1.01
Ever in Care	-	-	-	.18	.14	1.20
Abuse Scale	.53	1.32	1.70	-.16	.13	.85
Substance Use Scale	**.29**	**7.48**	**1.34****	.15	2.20	1.16
Mental Health Scale	.05	.48	1.05	-.06	.54	.94
Peer Scale	.84	2.94	2.31	.35	1.18	1.42
Gang Involvement	.09	.05	1.10	-.31	.43	.73

***p ≤0.001, **p ≤ 0.01, *p ≤ 0.05, †p ≤ 0.10

In relation to chronic offending, a notable finding is that youth with higher scores on the antisocial peer scale (indicating associating with youth who engage in substance use and/or criminal activities) have increased odds of being a chronic offender (5+ reconvictions; see Table 3.10). This supports the long-standing theoretical perspective and related research that emphasized the predominant importance of negative/antisocial peers in the context of the gang

organizational structure. And, further, that anti-gang intervention programs need to focus on this theme.

Table 3.10 Youth Probationer Chronic and Chronic Serious Offending (N=192)

	Chronic Offending			**Chronic Serious Offending**		
Indicators	**B**	**Wald**	**Exp(β)**	**B**	**Wald**	**Exp(β)**
Age Probation Intake	**-.52**	**16.49**	**.60*** **	**-.73**	**18.48**	**.48*** **
Gender – Female	**-1.11**	**5.49**	**.33***	-.38	.48	.69
Ethnicity		1.60			1.45	
Indigenous	.05	.01	1.05	.24	.23	1.28
Other	.54	1.51	1.72	.66	1.44	1.94
Family Risk Scale	.21	1.62	1.24	.25	1.32	1.28
Ever in Care	.58	2.06	1.78	.58	1.33	1.79
Abuse Scale	.11	.08	1.12	-.40	.71	.67
Substance Use Scale	.11	1.62	1.11	-.03	.08	.97
Mental Health Scale	.05	.57	1.05	.13	2.65	1.13
Peer Scale	**.89**	**6.49**	**2.44***	.47	1.21	1.60
Gang Involvement	-.42	1.17	.66	.12	.06	1.12

***p ≤0.001, **p ≤ 0.01, *p ≤ 0.05, †p ≤ 0.10

Discussion

Ethnicity and degree of antisocial peer associations are the most notable risk profile differences between gang and non-gang youth. There has been mixed research on the ethnic composition of gangs, but according to data from the 2002 Canadian Police Survey on Youth

Gangs, 60% of youth gang members in Canada were from these minority groups (i.e., Black, East Indian/Pakistani, Asian, Latino/Hispanic, Middle Eastern/Arabic) for provinces with these data were available. British Columbia had the highest percentage (37%) of Asian youth gang members (Astwood, 2003). Generally, though, research has not supported a strong relationship between immigration and crime; however, second- and third-generation immigrants have higher rates of delinquent/criminal involvement (Bersani et al., 2013; Peguero, 2013). Theoretical explanations of this pattern have focused on how these youth attempt to balance competing cultural values and respond to discriminatory hostility, which have been hypothesized to account for the disproportionality antisocial and criminal behaviours reported for second and third generation immigrant youth (Khanlou, 2008; Peguero, 2013; Sampson, 2008). Many of the youth probationers in this study were second-/third-generation Canadian youth who likely experience a number of obstacles, especially balancing their ethnic heritage culture and identity and Canadian culture and identity (Sersli, Salazar, & Lozano, 2010). This perspective supports the continued need for implementing and evaluating culturally informed program interventions for inhibiting the appeal of gangs.

Further, the identification of potentially high-risk and criminal peer relations is critical to devising effective case management decisions. Negative peers and lacking access to positive networks are traditional delinquency and criminality causing strains (Agnew, 2001; Dufur et al., 2015). Interventions delivered in a group setting should therefore be explored as they can provide youth with educational resources, supportive peers, mentors, and promote prosocial attitudes.

A two-cluster grouping is evident when the community sample is reduced to only youth probationers who were identified as serious-violent/gang-involved. The identified clusters were

significantly associated with recidivism at a bivariate level. Compared to the low-risk/gang-involved youth, the **high-risk group** had higher rates of recidivism for all types of offending measured, with the exception of drug-related recidivism (low risk/gang = 21.0%, high risk = 10.5%). For the **lower-risk group**, YPOs should be concerned most with general recidivism and administrative recidivism (as these rates were highest at 79.0% and 69.4% respectively). Alternatively, the **high-risk SVYO** group evidently present the greatest challenges for probation officers and SAFE partners' case planning given the extraordinarily high prevalence of all forms of recidivism.

Based on youth probationers' official justice records (e.g., presentence reports, risk assessments, and conviction histories), gang youth have similar profiles to other high-risk/need youth in areas of age of justice-system/probation intake and first offence severity. Gang youth, however, are distinctive in terms of ethnicity yet lower rates of familial, school, and mental health "risk", as well as later substance use onset. A key case management challenge, nonetheless, primarily for MCFD YPOs is gang involved higher scores on the antisocial peer scale and higher rates of drug-related recidivism.

Higher levels of substance use/experimentation, Indigenous heritage, and high scores on the negative/antisocial peer scale all are significantly associated with recidivism likelihood, yet gang involvement is not. In the secondary analysis using on the SV/GI probationers, youth had very similar first offence severity profiles, however, youth in the low-risk/gang cluster avoided reoffending and/or, more likely, avoid further offence detection and convictions. The older "age of onset" for official justice-system involvement for this cluster suggests that youth who are at risk for joining gangs are likely missing out on important early intervention needs opportunities. This pattern confirms the importance of standardized instruments that identify gang-related

activity/offending specifically, especially by the police who can assume a lead role in facilitating early multi-agency supports to youth in this cluster.

The results of this preliminary research reveal that the traditionally accepted risk factors for gang involvement that have been identified in previous studies are not as pronounced among a sample of high-risk/need youth supervised on community caseloads in the Lower Mainland, British Columbia. Instead, as has been suggested in other research and based on anecdotal information from the youth in this sample, young people who join gangs in British Columbia appear to be distinctive. These gang-involved youth in the Vancouver/Lower Mainland are typically middle class from diverse ethnic backgrounds who are attracted to non-conforming models of gang group-based identity, validation, immediate "high" status, and material rewards. Regarding the latter motivations, gangs offer lucrative employment opportunities which incentivizes joining a gang particularly for young people desiring material success (Mellor, MacRae, Pauls, & Hornick, 2005).

Based on the findings of this study, youth who became involved with gangs appeared to be best placed in the childhood maltreatment case management pathway and adolescent onset case management pathway proposed above by Corrado and Freedman (2011) and updated by Freedman, Wong & Corrado (2017). The childhood maltreatment pathway includes early experiences of abuse and single parent living contexts, which often results in weakened bonding between caregivers and children, as a result of harsh parenting styles and neglect. Although gang identified youth in the community probation sample had a later onset and lower levels of substance use and mental health issues, as well as higher educational attainment when compared to non-gang youth, many of the gang-involved youth did exhibit needs in these areas, as proposed in Corrado et al.'s (2011, 2017) childhood maltreatment pathway. Due to the older age

of onset for some gang identified youth probationers, some of these young people more appropriately align with the adolescent onset case management pathway. Key risk indicators of gang and criminal justice involvement in this pathway include single-parent households and antisocial peers, which were also pronounced among youth gang members in the probation sample. Future research on at-/high-risk youth that extracts official and self-report data from and related to multi-systems (e.g., social, education, health, and justice) can be instrumental to further understanding and refining these pathways, thereby improving the intervention strategies that can be developed to prevent and reduce youth gang involvement and the associated offending.

Limitations and Future Directions

There are several limitations with the present study. First, only a small and non-random sample of exclusively selected high-risk/needs youth probationers is utilized, therefore, the study findings and conclusions are necessarily tentative or exploratory. Second, access to official data forms and file information as well as interview questions with several SAFE partners and MCFD were restricted by several confidentiality requirements. Key risk/needs factors based on self-report data were not available. These include more nuanced differences in how youth experienced and explained their offending, socioeconomic status, and neighbourhood-level measures, as well as more gang-focused information such as specific gang affiliation, motivations to join the gang, gang-peers, and gang-related offending were not obtained.

Since the conclusion of this research study in 2014, Dr. Corrado and Dr. Peters have commenced a follow-up SSHRC-funded study titled the *Longitudinal Study of the Reoffending Outcomes of Serious-Violent, Gang-Involved, Mentally Disordered, and Sex Offenders Supervised on Specialized Youth Probation*. This follows the same sample youth into early

adulthood and includes over 150 additional youth cases. Analysis of this data will begin this summer with the intention of increasing the statistical power of the results. An additional proposed study stage includes interviews with young offenders supervised in the community to obtain self-report data.

Conclusion

While the research design limitations of the community pathways SAFE project preclude definitive answers to this project two main themes, tentative answers are appropriate. First, both interview and documentation information indicate that many of the Cracow Instrument's developmental stages' risk/needs factors are available in case files of the SAFE partners and MCFD. Not surprisingly, information needed for the initial in utero stage is very limited and, typically, is most likely found in hospital and family doctor. Given major confidentiality limitations, the latter sources are not accessed routinely but rather it is obtained on an infrequent case basis by MCFD family officials and Ministry of Health officials. Second, interview and documentation information suggest that the multi-pathways case management approach associated with the Cracow instrument is relevant for gang involved youth. Of course, this policy inference is highly problematic in the absence of an appropriately research designed study of the SAFE partners case processing as this project moves forward over the next 5 years. In addition, these information sources indicate the case management relevance of specifying a new cultural initiated pathway for gang involved youth. Third, the Vancouver study results suggest more systematic empirical support for both the Cracow instrument and the multi-pathway case management approach to gang involved youth. Again, a definitive conclusion is dependent on further research suggested above.

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