A REVIEW OF THE RESEARCH LITERATURE ON THE INDIVIDUAL-LEVEL THEORIES OF HOMICIDE

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Introduction

In a previous report, national, regional, and neighbourhood theories of homicide were reviewed and its related research was analyzed to better understand street or public homicides in Canadian urban contexts (Corrado and Cohen, 2014). One of the main themes from the report was that, despite the importance of these risk factors, they did not explain why so few individuals from these higher risk socio-economic contexts committed homicides or why individuals from lower risk contexts committed homicides. Also, that report did not examine the theories and research on other types of homicides, such as those that occurred in domestic or private residences or those committed by serial killers. As will be evident from this current report, criminological, sociological, and psychological theories and research will be discussed to empirically support the perspective that certain cultural and neighbourhood risk factors often interact with individual level risk factors to explain the most commonly occurring types of homicide in Canada. As domestic or private residence homicide involves a complex and extensive literature, it will not be included in this report. Instead, this report will concentrate on individual level theories and research on homicides that occur in public locations and incidents that involve strangers or acquaintances.

Most homicides in Canada appear to involve perpetrators and victims who know or are acquainted to each other to some degree (Boyce and Cotter, 2013). Given this, there are relatively few stranger-on-stranger homicides. When these do occur, they are commonly associated with substance use (Matejkowski, Cullen, & Solomon, 2008; Shaw, Amos, Hunt, Flynn, Turnbull, Kapur, & Appleby, 2004), mental health issues, or the unintended outcomes related to other serious crimes (Polk, 1993; Williams and Flewelling, 1988). Far less frequently, innocent bystanders are victims of gang targeted homicide incidents (Sherman, Steele, Laufersweiler, Hoffer, & Julian, 1989; Maxson, Gordon, & Klein, 1985).

A fundamental theme of this current review is that homicide in Canada is a low base rate crime (Boyce and Cotter, 2013; United Nations Office on Drugs and Crime, 2011). Understandably, therefore, there are no theories and no research to date that has been able to identify the complete profile of risk factors that are highly predictive of homicide. Of course, even though gang involvement is a significant predictor of street or public focused homicide in certain urban/suburban contexts, such as in Chicago and Los Angeles (Egley and Ritz, 2006; Maxson, Gordon, & Klein, 1985), it is not predictive for most homicides more generally (Loeber and Ahonen, 2013; Weaver et al., 2004). In other words, unlike more prevalent or common crimes, such as property crimes, it is extremely difficult to identify the profile(s) of individuals with a high likelihood of committing homicide. For example, the rampage shooting homicides/suicide by US soldier, Sergeant Lopez, in Fort Hood, Texas was the second mass shootings in 5 years at this military base. Yet, unlike the first rampage mass murders committed by an Army psychiatrist, apparently motivated by radical jihadist beliefs, there were no explicit risk factors that distinguished the latest perpetrator. Senior Army officials have dismissed the obvious risk factors identified in this incident, which included Sgt. Lopez's post Iraq severe depression and anxiety or post-traumatic stress disorder (PTSD) as the primary explanation. In contrast, the first-degree murder conviction of 28-year-old Mathew Foerster for the brutal sexual assault and savage beating

death of 18-year-old Taylor Van Deist involved a prior history of major sexual assault (i.e., home invasion and sexual assault) and, quite likely, psychopathic personality disorder (PPD). But, even PPD is predictive of only approximately 30% of homicides (Laurell and Dåderman, 2007; Woodworth and Porter, 2002). Part of the challenge of explaining, let alone predicting, individuals with high likelihoods of committing homicide is the complex interactions in any pathway among the four levels of risk profiles: (1) individual level (e.g., intelligence and verbal skills); (2) middle level (e.g., family and neighbourhood); (3) organizational (e.g., gangs); and (4) and national level (e.g., hand gun availability) (Corrado and Cohen, 2014). Nonetheless, there have been substantial advances in criminological theory and research concerning pathways that increase the likelihood for homicide.

A significant part of these advances have resulted from the integration of theory and research from psychology, psychiatry, and the medical sciences. The latter disciplines have identified psychiatric syndromes or mental disorders that typically are associated, often causally, with certain types of homicides, such as mass/rampage murderers and serial killers. Yet, in criminological theory, the dominant emphasis has been on "risky lifestyles" associated with serious criminal trajectories that increase the likelihood of committing homicides.

Individual Level Life-Course Criminology and the Role of Risky Lifestyles

The life-course construct in criminological theories has been typically restricted to explanations of criminal trajectories of individuals. Not surprisingly, the most rigorous studies of the individual-level focused explanations of primarily street homicide are American studies. These studies have emphasized life course or developmental criminological theories that attempt to explain criminal trajectories of various specific crimes, such as drug trafficking, sexual assault, arson, armed robberies, and homicide, and patterns of multiple crimes, such as property and violent crimes, and gang involved crimes across the entire life span of an individual. Key constructs from this perspective include, for example, chronic offenders, prolific offenders, versatile offenders, life-course persistent offenders, adolescence limited offenders, adult-onset offenders, and serial violent offenders. While the focus is on individual level risk factors that increase the likelihood of certain crimes, such as developmental psychological disorders, and protective factors that reduce the likelihood of certain crimes, such as high IQ for explaining various types of criminal trajectories, all these theories include the interaction between individual factors and middle level factors, such as the family, schools, neighborhood, and police services. These approaches also focus on the interaction between individual and middle level factors and macro or broad society wide level factors, such as national health care systems, the economy, and the functioning of the welfare system.

Until more recently, retrospective studies of personal risk factors and family risk factors dominated individual level homicide research. Most notably among American homicide researchers, the renowned Professor Kathleen Heide (2003) summarized this research and identified two sets of risk factors. The initial set included prior arrest histories, being the victim of child abuse or neglect, parental alcoholism, divided and violent families, running away from home, low school achievement, early or frequent truancy, and early or frequent suspensions from school. Heide

(1999) also asserted that there were additional important risk factors for homicide, including poor judgment, an inability to deal with negative feelings, access to firearms, use of illicit substances, and witnessing violence as a child. The explanation of homicide is complex because the pathway to homicide offending potentially begins early in childhood, and includes cumulative risk factors. Moreover, as reviewed in Corrado and Cohen (2014), there are critical neighbourhood and national risk factors associated with risky lifestyles related to homicide, including the availability of guns and formal intergenerational adult/youth gangs (Fox and Zawitz, 2007). As will be discussed next, even in the most criminogenic context for young male homicides, interpersonal arguments were identified in the largest and most recent American study as the most predominant motivation for homicide (Loeber and Farrington, 2011). It is possible that risky lifestyles often include relationships where disagreements escalate quickly to unpremeditated homicide. In contrast, certain explicit, but far less prevalent, lifestyles obviously increase the likelihood of homicides, such as during the commission of a felony, such as a robbery, and gang-related motivations (Loeber and Farrington, 2011).

Loeber and Farrington's (2011) Pittsburgh Youth Study (PYS) employed a longitudinal or prospective research design beginning with their initial 1987 survey and then up to 18 multiple follow-up surveys tracking individuals into adulthood. Three different age cohorts of male students (503 in grade 1, 508 in grade 4, and 506 in grade 7) primarily from Pittsburgh's African-American inner-city neighborhoods were included in the study. A variety of official and self-reported crimes, including homicides, were the focus. Because so few females commit homicides, especially street/public based and non-intimate type homicide, only males were included in this study. The PYS over-sampled African American neighborhood schools because, in the United States, street level homicides in urban contexts historically have involved disproportionately African Americans as victims and perpetrators. The risky lifestyle and homicide theme was central to this study's research design since it allowed for the examination of criminological theories based on hypothesized patterns of risk and protective factors for homicide. The expected crime pattern was that most crimes varied with the age curve. For homicide, therefore, it was predicted that the risk of committing a homicide would increase in the late adolescent stage, peak in early adulthood, and decline substantially in subsequent adult stages.

The PYS sample included 1,043 boys. Again, even in highly criminogenic contexts, homicides were relatively infrequent. Of the total sample, 37 youth were convicted of homicide. Given that individual level variables are the focus of this current report, only a few key family and neighbourhood risk factors associated with the lifestyle construct will be restated. Most importantly, from the general criminological perspective, environment or structural variables, broken family, bad neighborhood, being from a family on welfare, and being the child of a young mother were, by some degree, the strongest predictors of the homicide group. In sequence, "bad neighborhood" as measured by a complex set of indicators involving poverty, social disorganization, inadequate housing, and several other standard indicators included in Corrado and Cohen (2014) was the strongest independent risk factor; this was followed by "young mother", "low socioeconomic status", and "unemployed mother." Importantly, for the Canadian context, while there was a vastly higher prevalence of young African American young males involved with homicide nationally, race was not a significant predictor of homicide in the PYS when other explanatory predictors were included. In a recent Canadian study in Toronto, Thompson and

Gartner (2014) also found that race was not predictive of homicide once they controlled for other key family and neighbourhood criminogenic factors.

From the developmental criminological perspective, several key risk factors were identified, including youth who were "suspended from school". In effect, suspended youth were approximately five times more likely to commit a homicide than those who were not suspended from school. Typically, school suspension often involves a series of discipline incidents and or a serious assault/threat that is associated with increased likelihood that a suspended youth is involved in an informal antisocial peer group or a formal gang. In addition, positive attitude to delinquency, a positive attitude to substance use, and disruptive behavior disorders were also associated with greater risk for committing a homicide (Loeber and Farrington, 2011: 63). In the following section, this initial risk profile for homicide will be fully expanded in order to understand how risky lifestyle increases the likelihood of homicide.

Homicide Offenders and the High-Risk Lifestyle Profile

In the Loeber and Farrington study (2011), the strongest early self-reported crime linked to homicide was vehicle theft followed by carrying a weapon. Vehicle theft too has been associated with informal group criminal life style and the risky life style theory (McCormick, Plecas, & Cohen, 2007). Additional strong predictors were "... total violence score, minor fraud (avoid paying), robbery, the total theft score, drug selling, vandalism, and theft from car" (Loeber and Farrington, 2011: 68). The versatility of these early prior crimes, which many associate with high-risk/thrill-seeking acts, supports the lifestyle perspective as one pathway to homicide. Surprisingly, and inconsistent with this perspective, self-reported substance use, both hard and soft drugs, was not associated with subsequent homicide offending. In contrast, it was not surprising that convictions for violent offences were more strongly associated with homicides than self-reported violent offences. Arguably, as mentioned above, motivations for street based homicides mostly involved arguments and gang-involved rationales; therefore, these public locations and prior contacts with the police and the criminal justice system likely increased a youth's likelihood of being detected for subsequent occurring homicides. The lifestyle construct also has included participation in the illegal economy, such as drug trafficking and receiving stolen goods. The convictions for the latter crime were a strong predictor of homicide offenders.

Independent early/childhood predictors among the eight significant prior criminal offences included: "other/conspiracy, self-reports weapon carrying, arrests for weapons and simple assault, and self-reports of minor fraud (avoiding paying)" (Loeber and Farrington, 2011: 71). Very importantly for understanding the high-risk lifestyle construct based theory of homicide, of the 72 risk factors, the criminal risk factors were most strongly predictive of homicide. Loeber and Farrington (2011) elaborated on this construct by statistically integrating and assessing all of the above-mentioned independently significant risk predictors from each of three theoretically hypothesized sets into a single statistically derived empirical model. The single model consisted of seven independent "early variables/risk" predictors: two "criminal risk" set variables (i.e., other/conspiracy conviction, and self-reported weapon carrying); one "behavioral set" variable (i.e., positive attitude to delinquency); and three "explanatory" set variables (i.e., suspended from school,

bad neighborhood, and young mother). The homicide risk score derived from this model was able to identify 62% of the 37 convicted homicide offenders in the PSY with a cut-off point of 4 or more risk factors. Considering that only 2% of the total sample was convicted of this crime, this near two-thirds percentage of all the homicide offenders revealed how difficult it is to predict this crime from early childhood/early adolescent sets of risk factors (Loeber and Farrington, 2011).

Several expected early risk factors from the three sets of variables, such as the child-rearing indicators and peer factors were not predictive. The most surprising were child/early adolescent psychopathy indicators, such as lack of guilt, cruelty to people, and callous-unemotional behavior. The psychopathy construct has been the subject of an intense research and theoretical debate concerning its predictive and explanatory utility for adolescent serious and violent offending generally, yet not so frequently for adolescent homicide offenders. Typically, most of the research has identified the anti-social behavioral domain of psychopathy as the most predictive of serious and violent offenders. This finding has raised the fundamental criticism that the other two domains essential to this personality construct (affective and interpersonal) must be primary to justify its conceptual validity and utility for crimes, such as homicide (Frick et al., 1994; Corrado, 2011; Salekin and Lynam, 2010; Warren and Burnette, 2013). It was expected that these child/young adolescent psychopathy traits would be important in the high-risk lifestyle explanation of homicide because they have been associated with the high-risk antisocial behavior dimension for adult serial killers and for the adult psychopathic homicide offenders (Loeber and Farrington, 2011). Nonetheless, many of the above seven independent variables from the three sets of constructs in the integrated model do lend support for the high risk lifestyle perspective for street/public based homicides, especially early weapon carrying, early versatile offending, school suspension, and positive attitude to delinquency.

The “bad neighborhood” predictor also adds to this theme because it is consistent with the above extensive discussion of the critical importance of neighbor risk factors for adolescent and young adult street-based and gang-related homicides. For example, in the on-going Study on Incarcerated Serious and Violent Young Offenders, a 16 year study of 1,600 adolescent offenders in youth detention centers in British Columbia, gang-involved young offenders frequently provided reasons for joining gangs that involved protection concerns in custody and in their neighborhoods, and other lifestyle risk motivations (Descormiers, 2013). Further, several of the major young adult street gangs in the lower mainland region of British Columbia originated in these youth custody facilities and openly acknowledged the thrill seeking and immediate gratification and rewards from their gang involvement. Most American-based gang theory and research and for certain adult/youth gangs, such as those predominantly Aboriginal and African/Caribbean Canadian and Haitian Canadian, the primary motives involved basic lifestyle needs associated with poverty and socially disorganized neighbourhoods. In contrast, in British Columbia, several gang leaders and members were from middle-income families in which survival level or poverty escaping material gain was not always the primary motive. In his book on the contemporary notorious and relatively new adult/youth gangs, Jerry Langton (as cited by Peebles, 2013) described the perceived risky lifestyle that appealed to certain youth and young adults:

> You see places like Prince George where a lot of youth saw gang life as an appealing career choice," he said. "When someone with a high school education rolls up in a luxury car and

> girls are available and spends what you think is a lot of cash, that turns some heads. That is still going on, but it was a real movement when the Bacon Brothers were starting out, and gangs were developing like the Red Scorpions and the UN Gang and the Independent Soldiers and the Game Tight Soldiers. What you're seeing now - and it is why I focused on the Bacon Brothers - is people idolized because of the gangster lifestyle are now showing the reality of what that lifestyle eventually means: pain, fear, prison, torture, murder inflicted on you.(para. 8).
>
> Young, unscrupulous people were attracted to a life of easy money, lavish possessions, sexual preening, and a mystique of power and lack of consequences. One by one, they were attacked, murdered, and imprisoned as were their associates and a lot of their rivals. The glamour was fake (para. 7).

The developmental pattern for the Bacon brothers and other gangs was illustrated in a British Columbian case study based on a subsample of gang members that reported that the gang leader utilized a complex recruitment strategy in undertaking two separate homicides committed 10 years apart. This case study further revealed how a youth-initiated gang evolved into a major adult-based gang that employed serious violence and homicide for classic instrumental reasons (McCuish, Bouchard, & Corrado, submitted).

In addition, in the Study on Incarcerated Serious and Violent Young Offenders, nearly all of the 1,600 incarcerated young offenders had frequently used alcohol, hard drugs, and marijuana as older children (McCuish and Corrado in preparation). This substance use risk factor was important primarily because of the situational contexts in which arguments between individuals disinhibited by alcohol and drugs escalated to serious violence and unplanned homicide. As indicated in the Pittsburgh Youth Study, this escalation frequently involved the use of guns. It is important to note that, in the above British Columbia study, guns were not as frequent in non-gang related homicides as in the American studies, but adolescent homicides more often occurred inadvertently during violent assaults.

As mentioned above in the PYS, motivations for street based homicide were argument related, defensive reactions, and gang related, while other homicide research identified the importance of serious alcohol and drug use. Yet, for street based homicides and gang related homicides, a common theme is high-risk lifestyle and exposure to violent contexts. This theory has been predominate in criminology since the 1970's, especially after major national victimizations studies in the United States, Canada, and elsewhere resulted in criminologists identifying how often criminal victimizations, including homicide, involved individuals who shared most of the same individual and neighborhood characteristics of their assailants. In Canada, the high-risk lifestyle originally was utilized to explain this link between perpetrators and victims of serious crimes (Corrado, Roesch, Glackman, Evans, & Leger, 1980).

One of the initial portrayals of the high-risk lifestyles emphasized adventurousness (recklessness), spontaneity, toughness, the rejection/opposition of conventional authorities and roles, especially police, cleverness in coping with street public challenges, especially physical threats, and manipulation to get what one wants with the least effort or personal sacrifice, even more so in the most threatening context, such as jail or prison (Irwin, 1970). This construct was related to victims who preferred dangerous activities and regularly exposed themselves to dangerous situations

(Hindelang, Gottfredson, & Garofalo, 1978). The key psychological victim trait was persistent risk taking (Garofalo, 1986). Drug use and routine criminal identity, attitudes, and activities, and related spontaneous and chaotic situations, were viewed positively (Menard and Elliott, 1994). Both offender and victims in this theory involved individuals in contexts where crimes were more likely to occur, such as bars, youth parties, and open-air drug markets (Hochstetler and Delisi, 2005). Kennedy and Ford (1990) also utilized this perspective in the Canadian context. The most extreme version of the lifestyle-exposure theory, though, involved individuals who were part of structured criminal networks, such as organized criminal gangs, where serious violence and homicide were essential to their business enterprises and integral to their subculture. Also, as mentioned above, conduct disorder and disruptive behavior disorder for children and adolescents, and psychopathy for adults consist of personality profiles whose characteristics are consistent with this theory. Therefore, these aggressive personality disorders have appeared relevant to explaining a certain proportion of both the more spontaneous street/public homicides and gang targeted homicides. Yet, in the PYS, only 8% to 14% of the high-risk boys in the entire sample were convicted of homicides. In other words, between 86% to 92% of the boys predicted to engage in homicide did not; an extremely high "false positive rate" that challenges the utility of the high-risk exposure theory in understanding homicides, even from a large population high-risk sample like the PYS.

Most studies of homicide typically employ certain statistical techniques to assess key predictor variables in subsamples with higher base rates of the strongest theorized predictor, namely prior violence history. In an earlier analysis of the PYS homicide group, Loeber et al. (2005) reported that 35 of the 39 homicide offenders or 95% had been seriously violent early in their lives, such as self-reporting or being convicted of robbery or aggravated assaults in the late childhood and initial adolescent stages, and prior to homicide conviction(s) in later adolescent and adult stages. In this earlier analysis, most of the same early 63 risk factors for serious violence were also predictive of homicide, but there was a quantitative difference; homicide offenders simply had more early risk factors of violence than non-homicide violent boys.

In the subsequent analysis, an additional 14 early risk factors for violence were added. Of the 72 risk factors (see Appendix A, Loeber and Farrington, 2011: 83), 59 were associated with violence. This clearly indicated a complex profile of risk factors for the far more common violent offenders with the strongest factors including the above discussed high-risk lifestyle exposure traits from the PYS explanatory set of risk factors, namely callous–unemotional, lack of guilt, and hyperactive-impulsivity-attention deficit disorder. From the behavioral set of factors, and also associated with high-risk lifestyle, were prior serious delinquency, having sold hard drugs, having sold marijuana, gun carrying, non-physical aggression, and gang fighting. Regarding statistically independent risk factors, most of the above explanatory set of risk factors, in addition to "cruel to people" and "gun carrying", living in a "bad" neighborhood, poor parent communication, and coming from a broken home were important predictors. Unlike the general sample analysis, for the violent boys subsample, the African American variable was an independent predictor of serious violent offenders. When these independent risk factors were considered together in a risk-for-violence score, its predictive ability was considerable; only 8% of boys with none of these risk score factors were violent, while 100% of those with ten risk factors and nearly all of those with seven risk score factors were violent (Loeber and Farrington, 2011).

Again, the importance of trying to identify a distinctive profile of key risks factors for male homicide offenders that will distinguish them from serious and violent males is that the former are relatively infrequent compared to the far more pervasive latter offenders. Somewhat surprising, the differences between the two risk profiles did not add substantially to the prediction of convicted homicide offenders. However, several potential key differences were identified that were central to the lifestyle exposure theory and the related gang-involved theory of street/public located homicides. First, homicide offenders (41 per cent) were nearly twice as likely to carry weapons as non-homicide serious violent offenders (17 per cent). Second, homicide offenders (28 per cent) were twice as likely to sell hard drugs as the non-homicide offenders (14 per cent). Third, and very importantly, homicide offenders (22 per cent) were far more likely to be involved in gang fights than non-homicide offenders (9 per cent). Unlike the above finding concerning the independent predictor of the African American ethnicity/race factor for serious violent offenders in the general sample, it was not significant for homicide offenders. This decreases the likelihood of the existence of a distinctive African-American sub-cultural theory of homicide, rather than the subculture of homicidal violence having emerged from the above mentioned neighborhood historical factors, independent of ethnicity/race.

The absence of a distinctive risk profile for homicide offenders beyond the models for serious violent offenders confirmed that most street/public located homicides involved "proximal" risk factors, including situational, opportunistic risk factors, and less predictable emotional/psychological risk factors, such as arguments, revenge, and accidental escalations in violence associated with general high-risk lifestyles. This proximal pattern, for example, contrasts with the planned, but not necessarily non-opportunistic, gang involved homicides. The PYS explored these situational factors in its small sample of homicide offenders and largely confirmed the importance of this unpredictability perspective. The subsample of interviews consisted of 27 adults from the original sample convicted of homicides whose mean age was 27 years old, and 27 individuals who were matched for race, birthdate plus 1 year, and lived in the same census tract neighborhood. None of the homicide group had been married, but nearly half (48 per cent) had lived with a partner, while more than three-quarters of the matched group (80 per cent) had either been married (25 per cent) or had lived with a partner (55 per cent) (Jolliffe, Loeber, Farrington, & Cotter, 2011). Obviously, the marriage difference could be explained by the fact that the convicted homicide group had been imprisoned for lengthy periods of time compared to the matched control group. Additional major differences, though, were more clearly associated with the above criminal lifestyle theme; nearly all the convicted homicide individuals (89 per cent) had engaged in drug dealing while only 4% of the controls had. Moreover, approximately three-quarters (74 per cent) of the former had committed serious violence compared to less than one-tenth (7 per cent) of the latter. Finally, a slight majority of the convicted group (52 per cent) had engaged in moderate serious theft with 15% having histories of serious theft compared to no serious theft among the controls, and only 4% with moderate theft. Most importantly, nearly half (48 per cent) of the convicted homicide group had been involved in gangs (mean size, 33 members), while none of the controls had. In addition, with one exception, all gang members had been involved in violent assaults against other gangs (Jolliffe et al., 2011). The average age for joining gangs was approximately 14 years old. Regarding alcohol use, there was no significant difference involving alcohol, but there was an enormous difference in mean alcohol use with the homicide group as they

consumed nearly four times the rate of the controls. Similarly, while both groups used marijuana, the homicide group did so at a higher rate, but not to the degree as the differences in alcohol consumption frequency. Not surprisingly, the most remarkable difference was that, while nearly one-fifth (19 per cent) of the homicide group had used hard drugs, none of the controls had (Jolliffe et al., 2011: 118).

Unlike the initial PYS method for assessing psychopathy traits, this subsample study utilized the 12-item psychopathy checklist-screening version (PCL: SV). As with the psychopathy measures utilized in the far larger violent boys subsample in the prediction of homicide discussed above, nearly two-thirds (n = 18) of the homicide group had scores justifying being considered "putative" psychopaths, while only approximately one-seventh (n = 4) of the controls met the cut-off score for this key personality disorder. Again, it is important to reiterate that the behavioral facets of the PCL: SV were predictive of homicide, rather than the traditionally more conceptually important personality facets of all such anti-social personality disorders. This suggests that impulsiveness and risk taking, rather than the "emotional/feeling/attitudes" states were more central to understanding involvement in the high–risk for violence lifestyle explanation of homicide. Again, this theory posits that these personality/temperament traits increase the likelihood of being in public places and situations where violence leading to homicides frequently occur (Jolliffe et al., 2011).

As predicted, situationally, nearly two-thirds (63 per cent) of the homicides took place on streets with only approximately one-twentieth (19 per cent) in houses during the evening/night (35 per cent) and night/early morning (35 per cent). Of note, more than three-quarters (77 per cent) of the homicides involved the use of a firearm. Alcohol (45 per cent) and marijuana consumption (68 per cent) prior to the homicide event were not uncommon, but the consumption of hard drugs was not common. Approximately, two-thirds (66 per cent) of homicide contexts involved co-offenders. Virtually all homicide offenders (95 per cent) fled from the crime scene (Jolliffe et al., 2011). Obviously, "legal" self–defense contexts were not evident in the PYS subsample. This was evident in the homicide motivation profiles as nearly one-third stated that they committed the homicide during "a robbery gone bad" (29 per cent) or an argument "that got out of hand" (29 per cent). Supposedly, the former situations were planned to some degree, while the latter were more likely spontaneous. In this sample, one-quarter maintained that they acted in self-defense as victims of attempted robberies, but, nonetheless, apparently they did not trust the police and criminal justice system given that virtually all of them immediately left the scene of the homicide. Far less frequent motivations included drug deals (8 per cent), gang victimizations (4 per cent) and vehicle accidents (4 per cent) (Jolliffe et al., 2011).

With the few important exceptions mentioned above, it is important to reiterate that American studies regarding the relationships between individual risk/protective factors for homicide on the one hand and key neighbourhood risk/protective factors, as well as regional/national risk factors, on the other for homicide, have limited generalizability to most Canadian contexts. These limitations are elaborated in the above report on the latter two sets of factors and homicide. Nonetheless, there are definite parallels with Canadian contexts when the risky lifestyle construct is utilized to explain street/public homicides.

Another important set of risk factor commonalities with American contexts for homicide, as well as other comparable countries, such as Western European, is mental illness. Rather obviously, since the 1970s, a contentious and largely unresolved policy challenge is the understanding of the mental risk factors associated with homicides generally and public/street specifically. The latter context typically involves stranger-on stranger homicides and heighted public fear of such apparently unpredictable crimes.

Mental Illness and Homicide: General Themes

By the late 1970s, it became most evident to police officials in many American cities that the deinstitutionalization of the mentally ill into community settings constituted a fundamental policy challenge. Teplin's (1984) pioneering study of Chicago police first identified that aggressive mentally ill individuals who acted out in public places, and who would typically been forcibly placed in secure and large mental health hospitals or institutions, were now being remanded to jail. The primary reason for jailing these individuals was that hospitals were not accepting them because the staff did not have the resources to cope with actual or potential violence threats associated with certain mental illnesses. Several key policy issues became associated with the criminalization of the mentally ill beyond deinstitutionalization that remain relevant to understanding homicide. Very importantly, community mental health facilities that were supposed to substitute for the often geographically isolated large mental health facilities were either not available or underfunded. As well, there was the inability of mental health officials to ensure that patients maintained their daily antipsychotic drug regimens to avoid psychotic public episodes, especially for paranoid schizophrenic patients. Homelessness and comorbid alcohol and substance misuse constituted another challenge because of the increased likelihood of the mentally ill being victimized or engaging in nuisance crimes. Drug dependency disorders resulted in increases in more serious property crimes and drug trafficking, again, in public places where confrontations with drug dealers, other mentally ill individuals, innocent bystanders, and police officers all increased the likelihood of both serious victimization and homicide. In other words, certain mental illness profiles are associated with risky lifestyles that increase the likelihood of homicide and being victimized (Fields, 2013).

The trend involving police interactions and confrontations with major street/public mentally ill individuals was evident in several studies conducted in the 1990s in Vancouver. One early study revealed the extraordinary high prevalence of major mental illness, especially involving the above comorbidities in the now defunct Vancouver Pretrial Detention Centre (Corrado, Cohen, Hart, & Roesch, 2000). Another study outlined the enormous costs and ineffectiveness of relying primarily on a criminal justice response to mentally ill offenders who had a high risk for violence or homicide (Corrado, Doherty, & Glackman, 1989). Disturbingly, particularly from a developmental criminological perspective, this pattern of serious mental illness and substance abuse disorders and misuse remains evident in recent studies of youth detention centers in British Columbia (Gretton and Clift, 2011; McCreary Centre Society, 2013), in Ontario (Cesaroni and Peterson-Badali, 2005, 2010), in Manitoba (Smandych, Dyck, La Berge, & Koffman, forthcoming), and in Saskatchewan (Savarese, forthcoming). Other major earlier Canadian studies on street high risk lifestyles in Vancouver and Toronto (Hagan and McCarthy, 2008) and Edmonton (Baron, 2004; Baron and

Hartnagel, 2002) also concluded that many adolescents and young adults engaged in "survival criminal lifestyles" that substantially increased their likelihood for engaging in violence and being victimized. With the addition of both informal and well organized street level adult/youth gangs in the 1990s, these vulnerable individuals were at a greater risk of joining these violent and mainly drug trafficking groups, which increased their risk for engaging in homicides. Beyond these group-based dynamics, there is a consistent pattern of a small proportion of individuals with major mental illnesses who have an increased likelihood of committing homicides. However, as will be evident, there have been surprisingly few such homicides annually, though, when they do occur, they receive extraordinary media attention and create considerable public fear of the mentally ill. These cases often result in further, persistent challenges to the police, most immediately when they escalate into violent, and less frequently into fatal confrontations. The subsequent policy challenges to other criminal justice agencies and institutions, especially corrections services, are related to the inherent complexities of prosecuting violent individuals with major mental illness, and providing effective long-term treatments beginning in custody and continuing in the community. It is necessary, therefore, to examine the research concerning the low probability of major mental illness and homicide, yet nonetheless, the considerable policy challenges that these relatively few cases persistently raise.

One important theme is whether homicides linked to mental illness have increased over the last 50 years given the above changes in mental health, such as deinstitutionalization versus community based mental health resources, as well as "break-through" drug and clinical based therapies. There are at least two competing perspectives about mental illness related homicides involving the above trend. The first view holds that a large proportion of homicides in Canada have occurred because, in the absence of sufficient community based resources, severely paranoid psychotic individuals and angry bi-polar individuals in manic phases with co-occurring delusions do not take their anti-psychotic medicine. The contrasting view holds that improvements in diagnoses, medicine, the availability of emergency facilities, and better informed and trained first responders, such as paramedics and police officers, along with more informed and conscientious family, friends, neighbours, have contributed to reducing the number of homicides. Clearly, frequent emotion-laden media depictions of such homicides and attempted murders across Canada, and the widely disseminated research, such as the 2008 and updated 2013 Vancouver Police Department (VPD) report, *Vancouver's Mental Health Crisis*, that asserted that up to 80% of police responses involved mental health concerns, suggest the opposite trend (Wilson-Bates, 2008; VPD, 2013). The latter research appears to confirm the negative images that have become associated in the broader public perceptions involving the few aggressive and visibly mentally ill individuals who locate their panhandling in public/street locations and often 24-hour business services. Yet, despite these competing views, there have been few studies of long-term trends concerning homicides by mentally disordered individuals in Canada or elsewhere.

HOMICIDE AND MENTAL DISORDER RELATED TRENDS

Another perspective that emerged from epidemiological research is that "the rate of homicide by the mentally ill is associated with the prevalence of mental illness and thus unrelated to the rate of other homicides" (Large, Smith, Swinson, Shaw, & Nielssen, 2008: 130). The imminent researcher

on this theme, Coid (1983) asserted in the 1980s that the incidence of homicides involving mentally disordered (HMD) individuals occurred at a fixed rate of .013 per 100,000 in all countries, and that "the higher the rate of homicide in a population, the lower the proportion of homicide offenders that are mentally disordered" (Large et al., 2008: 130). In a long term trend study of this relationship in England and Wales, the actual number of such homicides ranged from a low of 50 in 1957 to above 100 in 1971 and 1979 with the highest rate (0.245 per 100,000) having occurred in 1973. Despite Coid's (1983) assertions, in England and Wales, according to studies that used criminal justice definitions of mental illness, while the HMD rate was positively related to the general homicide rate between 1957-1980, it was negatively correlated to the general homicide rate between 1981-2004. As well, from 2000 to 2007, the HMD rate (0.07) was the lowest since the early 1950s. In effect, the general homicide rate had increased from 1960 to 2005, yet the HMD rate had declined steadily and substantially (Large et al., 2008). One part of the explanation for this trend was the above societal level changes in England and Wales that also occurred in Canada, such as changing patterns of internal and external migration, increased patterns of substance misuses, and increased availability of weapons, especially hand guns and automatic weapons. The second part concerning the decline in HMD likely involved mainly vastly improved mental health policies and, possibly, their more effective coordination with related policing policies. More specifically, Large et al. (2008) mentioned the vital importance of responding with a strong therapeutic response to the initial reported psychotic episode in reducing subsequent HMD. This theme will be examined further below since it necessarily includes the role of police officers in detecting, reporting, and participating in case management planning.

In a more recent study that utilized a different conceptualization of HMD[1], Swinson et al. (2011) disputed the above encouraging HMD trend in the United Kingdom and in other countries. According to the latter study, the number of individuals who presented with mental illness, specifically psychotic symptoms, at the time of a homicide incident had increased. However, the homicides involving mental illness, in particular those with a diagnosis of schizophrenia, had elevated rates of lifetime alcohol and drug misuse over time. In one study sample these researchers referred to, the most frequent drug was cannabis (n = 121) followed by cocaine (n = 43) and amphetamines (n = 39) (Swinson et al., 2011). They further asserted that this increase in recent apparent HMD was not explained by any increase in the prevalence of psychosis in the general population, improvements in the quality of psychiatric reports, the statistically insignificant small

[1] In the previous studies, 'Abnormal homicide' was utilized. This legal construct "is a criminal justice system definition of homicide by someone with mental illness and includes those receiving verdicts of diminished responsibility, not guilty by reason of insanity, unfitness to plead owing to an incapacity to comprehend the court proceedings or infanticide (only applicable to women who kill an infant as a result of 'the balance of her mind being disturbed by childbirth'" (Swinson et al. 2011: 485). In the Swinson et al. (2011) study, "irrespective of mental health history, psychiatric reports prepared for court were requested on all perpetrators from the courts, forensic mental health units, and psychiatrists. Data extracted from these reports included the perpetrator's psychiatric history, mental state at the time of the offence (including psychotic symptoms), alcohol and substance misuse, and recommendations made by the report's author with regard to receiving a verdict of diminished responsibility at trial. Diagnoses were established from either the questionnaire completed by the perpetrator's consultant psychiatrist or from the psychiatric report. Any discrepancies between diagnoses in the court report and the questionnaire were resolved by consensus agreement between senior clinical members of the Inquiry team" (Swinson et al. 2011: 485-486).

increase in immigrants with higher prevalence's of psychoses, increases in urban homicides where there was a greater prevalence of psychoses, and homicides committed by individuals who experienced short duration psychotic episodes before contact with psychiatric services could be established. Instead, the explanation for the increased HMD trend was the above-mentioned associated increased trend in alcohol and drug misuse at the time of the homicide offence. These substances frequently have been associated with the intensification of psychotic symptoms that, according to Swinson et al. (2011), then likely contributed to the homicide occurring. In contrast, they hypothesized that studies that used legal conceptualizations of mental disorders and indicated the declining HMD trend most likely reflected changing judges' interpretations of psychiatric recommendations regarding legal guilt, rather than any actual decline. However, the most recent report by the National Confidential Inquiry into Suicides and Homicides by People with Mental Illness, covering the years 2007 to 2010, supported the downward trend perspective for three types of HMD; mental health patients, individuals with schizophrenia, and individuals with mental health symptoms (Appleby et al., 2013). The explanation was that treatment programs for the mentally disordered had improved, particularly for those with dual diagnoses, and, very importantly, forensic psychiatric patients had longer periods of hospitalization linked to policy concerns regarding the prevention of violent recidivism.

The difficulty of assessing the potential changing trends in HMD because of different definitions of criminal responsibility is evident in a 2009 Dutch study (Vinkers, Barendregt, & de Beurs, 2009). The criminal law in the Netherlands stipulates that criminal courts be guided by a 5-point scale; complete responsibility, slightly diminished, diminished, considerably diminished, and total absence. Across a 7-year period, 1,212 homicide cases were adjudicated as 5.7% total absence of responsibility, 6.2% considerably diminished, 23% diminished, 33.3% slightly diminished, and 25% completely responsible. Of these cases, 11.3% had assessed psychotic disorders. Vinkers et al. (2009) also asserted that, along with the deinstitutionalization of the mentally ill, changing definitions can explain differences in the above trends within and across countries. In the Netherlands, they concluded that the declining diminished responsibility trend reflected the "…declining enthusiasm for treating personality disordered and sexually deviant killers under the *Mental Health Act* legal category 'Psychopathic Disorder'" (Vinkers et al., 2009: 186).

In a recently published Swedish study, Sturup and Lindqvist (2014) noted that, while the incidence of homicide had not changed over a 20 year period (1987-2006), both the incidence and proportion of HMDs with schizophrenia spectrum disorders, including schizophrenia, delusional disorder, unspecified psychosis, and brief psychotic disorder, decreased (5 per cent) even though these disorders continued to be disproportionately (10 per cent) high among the 1,758 homicides.

The above differences within country and between country HMD trends partly reflect different legal definitions and psychiatric conceptualizations, as well as differences in research designs. As discussed above, even within country studies utilized different different data resources, such as police incident reports versus criminal convictions. Other studies involved national population estimates in assessing mental illness associations with homicides, while others used far smaller national subsamples. These research limitations, therefore, require caution in assessing trends that especially affect key policy decisions involving serious mental illness and criminal justice policy

initiatives generally, and, especially for the police and other agencies responsible for responding initially to potential mental illness escalations to homicide incidents.

STRANGER HOMICIDES BY MENTALLY DISORDERED INDIVIDUALS

The apparent trend involving lifetime alcohol and drug misuse is particularly important for the Canadian context, especially in contexts with higher concentrations of individuals from vulnerable ages, such as incarcerated young offenders, street youth and young adults, and ethnic subgroups, such as Aboriginal people in both urban settings and rural reserves. As will be further evident, the relationship of mental illness generally to specific mental disorders, such as schizophrenia, is inherently complex and there are few definitive studies that have fully detailed this critical relationship. However, as discussed above, homicide of strangers by individuals with mental illness has become an important criminal justice policy concern and broader political issue. Importantly, in Canada, mental health is a provincial jurisdiction while criminal law is federal. Given this, there is variability in provincial/territorial treatment responses to psychoses. For example, in Ontario, the enormous negative publicity resulting from the killing of a former NHL player and sports broadcaster Brian Smith by a severely mentally ill offender resulted in an amendment to the provincial *Mental Health Act* concerning compulsory treatment, known as "Brian's Law" (*Brian's Law (Mental Health Legislative Reform), 2000;* CBC News, 2000). Part of the public's reaction and that of mental health officials, including police officers, paramedics, fire and rescue, and hospital emergency staff, reflects the dilemma between the rights of the mentally ill to refuse treatment and the right of society to be protected from major injury and homicide as a result of an untreated mental illness. In a recent 2013 incident in Vancouver, a mentally ill immigrant university student from Edmonton checked himself into St. Paul's Hospital because of violent ideation, but was released quickly, according to the established protocol that included a brief psychiatric screening. This psychotic individual then proceeded to randomly severely assault and nearly murder three elderly women in the Rogers Arena area before giving himself up to police officers and fully admitting his immediate psychotic mental state and history. There were 96 serious mental illness incidents since January 2012 in Vancouver, including 26 victims attacked in 11 individual incidents by individuals with extensive Mental Health Act histories (Lee, September 14, 2013).

Such stranger attempted or completed murder incidents occur annually, but nonetheless, they constitute an extremely small proportion of the total homicides in Canada. For example, in one study, 1.7% of stranger homicides involved mentally ill offenders or mental retardation (Langevin and Handy, 1987). Of this small percentage, only one-quarter presented with paranoia or a "sense of doom". Similarly, in the United Kingdom, only 4.3% of stranger homicides involved schizophrenic offenders (Nielssen et al., 2011). Most critically, the overwhelming percentages of schizophrenics are not homicidal. In the United Kingdom, the widely accepted annual rate has been 1 in 3,000 (Wallace, Mullen, Burgess, Palmer, Ruschena, & Browne, 1998). In a more recent and very sophisticated meta-analytic, cross-national study that included homicide and mental illness cases from Quebec and Ontario between 1990 and 2005, only 0.5% of stranger homicides involved schizophrenia. The estimated annual risk of such homicides was 1 in 70,000 (Nielssen et al., 2011). Given these widely varied, but all extremely low estimated HMD homicide base rates, a

fundamental part of the policy challenge for first responders is assessing the immediacy of the threat of potential or actual violence leading to homicide when encountering psychotic individuals.

Several individual profile characteristics were also examined in the above comparative study. In that piece of research, nearly all of the HMDs involved were, on average, 31 year-old males (40 males and 3 females) with varying types of schizophrenia diagnoses. As well, they were more likely to have been homeless, to have childhood conduct disorders, and to have exhibited frequent adult anti-social conduct disorder. Very importantly, the majority (57 per cent) of the stranger homicides occurred in public places with most of the remaining having taken place in hospitals and in prisons. Only 10% involved family residences. Regarding the key treatment policy theme mentioned above, slightly more than one-quarter (27 per cent) of the small sample of the HMD from the four countries in the study had not been treated with anti-psychotic medicines prior to committing a homicide. According to Nielssen et al., "the rate of homicide during the first episode psychosis is as much as 15 times greater than the annual rate after treatment" (2011: 573).

While the public and politicians typically appear to react more angrily and with frustration towards the tragedies involving stranger HMD, even though such incidents are very rare, the immediate victim families, friends, and acquaintances of HMD individuals also experience these emotions, in addition to extreme grief.

GENERAL HOMICIDES BY MENTALLY DISORDERED INDIVIDUALS

As is evident in the above discussion on HMD trends, mental illness refers to psychoses, particularly schizophrenia spectral types. These illnesses have low population base rates compared to the far more prevalent personality disorders depicted in the DSM IV, Axis II section. Hypothesized links to serious violence are Cluster B group narcissistic personality disorder (ND), borderline personality disorder (BPD), and antisocial personality disorder (ASD). The latter subsumes the psychopathy personality disorder (PPD). All these personality disorders have higher prevalence in prison populations and have been associated with serious violence, including homicide. Most obviously, serial killers typically have been diagnosed as PPD, as well as less frequently PPD comorbid with psychoses, usually less serious schizophrenia in that they retain sufficient contact with reality to plan, conduct, and attempt to escape homicide scene. Importantly, personality disorders alone, to date, have not been accepted as "substantive defences" in determining legal guilt in homicide and the alternate finding of not guilty because of mental impairment or illness. It has been argued, though, that more recent brain research suggests that certain personality disorders might meet the common law criteria for the inability to control impulses that may lead to serious offending behaviours, including homicide (Freedman and Verdun-Jones, 2010). Given the far greater prevalence of certain of the above personality disorders associated with violence generally, and homicide more specifically, there has been a debate over which of these two types of disorders are stronger predictors of homicide.

Asnis, Kaplan, Hundorfean, and Saeed (1997 as cited in Koh and Peng, 2005) reviewed previous studies that utilized multiple data sources and samples consisting of former psychiatric inpatients and outpatients samples, community samples, and violent offenders, including homicide offender samples. It was concluded that "substance abuse (including alcohol abuse) and antisocial

personality disorder were particularly associated with an increased risk for violent/homicidal behaviours; with schizophrenia, mood disorders, and anxiety disorders appearing to have somewhat greater risk than the general population, but not of the same magnitude as substance abuse and antisocial personality disorder" (Asnis et al., 1997 as cited in Koh and Peng, 2005: 311). A more recent Singaporean study (Kenneth, Koha, Penga, Huakb, & Kohc, 2005) involving 100 homicide offenders and 80 random violent offenders (the latter subsample had histories of mental illness) examined differences between schizophrenia and major affective disorders and personality disorders in distinguishing those offenders who committed homicide versus those who had engaged in non-homicidal violence. Again, the assumption was that the former more serious types of mental illnesses would be more predictive of homicide.

No demographic differences were evident between the homicide and non-homicide offenders for gender ratio, educational level, marital status, housing, and age at the time of offence with two exceptions. While few in proportion, the uniformly mentally ill non-homicide offenders sub-group (13 per cent) were six times more likely to have lived alone than the mixed mentally ill/non-mentally ill homicide offenders sub-group, and approximately one-quarter (27 per cent) of the homicide group had been jobless compared to nearly half (47 per cent) of the non-homicide control group. However, when psychiatric illness was controlled for, the homicide offender with mental illness were twice (51 per cent) as likely to have worked menial or unskilled jobs compared to the control group (24 per cent). This suggests that substantial lifestyle differences were prevalent involving interpersonal independence, which might contribute to the homicide explanation.

Of note, the non-homicide group had slightly more than twice the odds ratio (OR = 2.3) concerning the likelihood of prevalence of prior violence. Still, the lifestyle theme might be important in the escalation dynamic of homicide incidents given that half of the homicide group compared to approximately one-quarter (23 per cent) of the non-homicide group had used substances in the 24 hours prior to the offence. Equally important for this dynamic, those in the homicide group were overwhelmingly more likely (OR = 9.8) to have had formal diagnoses of alcohol abuse and dependence disorders than those in the non-homicide control group. Also, while few in number (n = 9) in the homicide group and in the control group (n = 5), the former had 3 times (OR = 3.1) the likelihood of having had major depression. Schizophrenia was slightly more likely (OR = 0.251) diagnosed in the control group and infrequent in the homicide group (n = 6). Very surprisingly, there were no statistical differences in the prevalence of personality disorders; however, homicide offenders (n = 12) were far more likely (OR = 12.5) to have experienced paranoid delusions than the control group. Possibly linked to these delusions, homicide offenders with mental illness were overwhelmingly more likely (OR = 10.1) than the non-homicide offenders to employ a combination of sharp trauma (e.g., knives) and blunt trauma (e.g., heavy objects) in their offending. In effect, the likely intent of the assaults with combination instruments was homicide, not just serious injury.

The high-risk lifestyle or violence escalation dynamic context is evident in the significant differences in the victim profiles for the two groups. Nearly half (46 per cent) of the homicide victims were females compared to less than one-fifth (18 per cent) of the control group (OR = 3.7). Importantly, homicide victims were considerably more likely (OR = 3.8) to have consumed alcohol within one day of the offence incident. No differences in the use of other substances were found. As mentioned above, homicide offenders too were far more likely to have consumed alcohol during the

same period before the incident. It is quite likely, therefore, as other research has overwhelmingly suggested, that alcohol can be a central part of the dynamic that contributes to escalating violence contexts, including homicide, especially in combination with certain mental disorders. Schizophrenia, in particular, has been linked to this escalating violence dynamic; yet, there has been considerable controversy about this purported relationship.

Mental health advocates and research critics claim that this widely accepted public perception of schizophrenia causing serious violence is based too often on highly sensationalized and misleading media representations of tragic mass homicides, such as the West Virginia Tech University student Seung-Hui Cho, who shot and killed 32 and wounded fellow 17 students in 2007. A Virginia court two years before had declared him mentally ill, a danger to himself, and ordered him to undergo psychiatric treatment (Effron, 2013). His English poetry course and Internet posted video before the massacre suggested extreme anger, including violent sexual assault and homicidal paranoid ideations. Similar portrayals were evident regarding James Holmes, a graduate medical student, who shot and killed 12 and injured 58 others in a movie complex in Aurora, Colorado in 2012. Media reports revealed an extensive history of paranoid delusions and statements to his therapist that he had begun his complex mass homicidal plan (Goode, Kovaleski, Healy, and Frosch, 2012). His preliminary court appearances also suggested a continued schizophrenic state; however, the presiding trial judge ordered a second psychiatric evaluation in response to Holmes "plea of not guilty by reason of insanity" (Ingold, 2014).

Virtually every year in Canada and in other advanced liberal democratic countries, particularly the United States, severe mental illness, most commonly paranoid schizophrenia spectral types, appear to be implicated in mass murders, which is defined as four or more homicides in a single or immediately related incidents. Incidents involving gang related mass homicides were excluded from this study, as were armed robbery and domestic incidents. It is quite likely that the scale of such homicides in the United States influences public perceptions in Canada and elsewhere. A recent lengthy study by Mother Jones (April 2, 2014), an investigative magazine, reported that, most likely, 38 out of 61 mass homicides in the United States in the last 30 years involved individuals who had presented serious mental health problems before the homicide incidents (Follman, Aronsen, & Pan, 2014). This study also indicated that mass homicides had increased during this period, and that this trend was likely related to the easier access to rapid firing or automatic weapons by mentally ill individuals. More than half took place at schools (n = 12) and at work places (n = 20) with the other 30 occurring at malls, restaurants, government facilities, and religious establishments. With a single exception, all the perpetrators were male, with an average age being 35 years old; the youngest was 11 years old. The majority (n = 44) involved Caucasians. In only 2 incidents (Columbine High School and West Hill Middle School) was there more than one homicide offender (Follman et al., 2014).

However, based on another study employing a broader conceptualization of mass murder (i.e., not limited to public places and FBI data), Fox and DeLateur (2014) asserted that mass homicides had not increased, but has remained steady at an average of 20 such homicides per year from 1976 to 2011. These researchers also claimed that these incidents were well planned and involved standard motives, including profit, power, revenge, loyalty, and terror, rather than psychotic impulses or the notion that an individual just snapped and attacked random victims. They reported that the

dominant profile of psychological traits characteristic of this type of murderer is common in the general American Caucasian male population. The risk profile Fox and DeLateur (2014) referred to included depression, resentment, social isolation, the tendency to externalize blame, fascination with graphically violent entertainment, and a keen interest in weaponry (Fox and Levin, 2003). Their profile, therefore, is a mixture of broad psychological traits and interests, rather than the more focused and standardized psychiatric categories identified in the DSM IV and the more recent DSM V. In effect, these researchers appear to reject the more commonly held perspective that major mental illness, in particular schizophrenia spectral types, constitutes a valid theory of most mass homicides in public places. Fox and DeLateur (2014) further asserted that all of the existing and proposed comprehensive gun legislation and mental health legislation designed to reduce these incidents have been and would be ineffective. Regarding the latter mental health proposals, as stated above, they argued that their reported risk profile is too pervasive in American society. All gun legislation too has failed because, according to these researchers, nothing short of a revolutionary restructuring of gun laws, competitive cultural values, and income/material inequalities, at a minimum, would reduce the full range of mass homicides included in their study.

Again, as was evident in many of the conflicting research findings on other themes discussed in the above sections, this variability usually can be explained by the different conceptual operationalizations and research designs employed in the competing studies. Nonetheless, for the purposes of this report, there is sufficient evidence to support the importance of major mental illness, such as schizophrenia spectral disorders, in explaining certain types of mass homicide. Regarding other types of more prevalent homicides, it is important to explore this theme in the violence escalating contexts that more generally have been associated with the increased likelihood of homicide.

SCHIZOPHRENIA AND VIOLENCE

Most epidemiological studies have indicated a small, but statistically significant, association between schizophrenia and violence; however, in a small United Kingdom study of 50 homicide cases where the perpetrators had recent contact with mental health services, only 5% had a diagnosis of schizophrenia. Again, alcohol and drug misuse was involved in nearly two-thirds of the homicides in this study (Swinson et al., 2007). Whether it is researchers, such as Fox and DeLateur (2014), or mental health clinicians and advocacy groups, there is the perspective that such mental health links to violence are a myth, generally, and even more assertively, have no relationship when treatment has occurred. This debate reflects the desperate research that has reported no relationship to risk on the one hand, to the research suggesting that the risk is up to seven times higher. Fazel et al. (2009) summarized this often inconsistent and even contradictory research with several key conclusions. The risk for violence increased, as did the risk for other psychosis, for individuals with schizophrenia (OR ≥ 1). The range for males was broader (OR = 1 to 7) than for females (OR = 1 to 4). Very importantly for the violence escalation dynamic to homicide, comorbidity with substance abuse disorders increased the range substantially (OR = 3 to 25). Moreover, these estimated ranges did not vary across the countries included in the review. In addition, there were no differences in these ranges with other psychoses than schizophrenia when comorbid substance abuse disorders were involved. Given this, Fazel et al. concluded that “the risk

of any individual with schizophrenia committing homicide was very small at 0.3% and similar to the risk for individuals with substance abuse (0.3%)… risk estimates do not appear to be elevated with the increasing severity of violent offence in individuals with psychosis" (2009: 8). The absence of this relationship was evident even for countries, such as the United States, with higher population base rates of violence or higher availability of guns compared to countries like Sweden.

While this review found a low prevalence rate of psychosis and homicides, they reported a particularly strong statistical association between them. Yet, Fazel et al. (2009) cautioned that this relationship appeared very complex given certain comorbidity patterns. According to Fazel et al., "the relationship between comorbid substance abuse and violence in schizophrenia may be mediated by personality features and/or social problems, and is unlikely to be a simple additive effect" (2009: 12). This perspective is consistent with the risky lifestyle and the related escalating violence dynamic themes discussed above. Specifically, social interactions, particularly among males who have alcohol or substance misuse or disorders in public contexts, especially bars, clubs, and entertainment/street locations, that involve strangers and acquaintances, are at greater risk for violence and, far less frequently, escalation to homicide. The more specified escalation dynamics, when gang related individuals are not involved, for individuals with psychoses, neurological developmental disorders, and Axis II Cluster B group personality disorders comorbid with alcohol or substance misuse or disorders have yet to be described nor validated by quantitative studies. As with more recent multiple pathway models to serious and violent offending, there are the very likely multiple and complex pathways to the far lower base rate homicide phenomenon (Corrado and Freedman, 2011).

Gender is another differentiating risk factor for most types of homicide, as indicated by nearly all of the research discussed above. There have been conflicting findings regarding whether females have lower rates of aggressive psychoses, including schizophrenia spectrum types. Several studies claim that, historically, "police leniency", such as the more frequent use of "mad" rather than "bad" label, has resulted in misleading lower estimates regarding the purported females rates for schizophrenia along with other psychoses and violent offending (Brennan, Mednick, & Hodgins, 2000; Coid et al., 2006; Wallace et al., 2004). A well-designed Australian study in the state of Victoria by Bennett, Ogloff, Mullen, and Thomas (2012) examined psychotic disorders among 569 female homicide offenders (FHOs) between 1997 and 2005. Only 3.6% of the homicides involved strangers, while more than half of the victims were either their partners (36 per cent) or another relative, including children (24 per cent). Approximately one-third (36 per cent) of the victims were friends or acquaintances. In effect, this female pattern appears focused more likely on domestic contexts, rather than the public/street contexts involving stranger and acquaintances more evident for males. During the 8-year study period, male homicides (n = 141) overwhelmingly predominated female homicides (n = 18), including murder suicide (Male = 13 and Female = 9). There was approximate parity only for infanticide (Male = 13 and Female = 9). The average age for the female homicide offenders was 38 years old, and, very importantly, regarding the risky lifestyle theme, slightly more than half (55 per cent) had prior criminal records (x = 2.5) with nearly one-third (31 per cent) having at least one conviction for a violent offence.

Continuing with this theme, nearly two-thirds (69 per cent) of the FHOs had mental health contacts, with nearly half (45 per cent) before reaching the age of 25 years old. This Victoria state study

included a population comparison sample that revealed overwhelming differences in the mental illness profiles. Specifically, only one-tenth of the comparison sample had prior mental health contact; less than 1% of the comparison sample had a diagnosis of schizophrenia, while the similar proportion for the FHOs was 16%; and one-fifth of the FHOs had other psychoses diagnoses compared to 1.2% of the controls. The female schizophrenia rate was approximately twice the male homicide offender rate (8 per cent) though the latter rate (1 per cent) within the male comparison sample was nearly identical to the female comparison sample rate. An important difference was reported concerning the first psychotic episode and homicide. Specifically, FHOs (43 per cent) were more likely than male homicide offenders (30 per cent) to have committed a homicide after the initial psychotic incident. In a study by Nielssen, Westmore, Large, and Hayes (2007), they reported that the homicide rate generally for mentally ill individuals decreased from one in 500 per year before first treatment to one in 10,000 per year after initial treatment.

In summarizing their key findings gender differences regarding homicides, Bennett et al. stated, "the finding of a 20% rate of psychosis and 16.4% rate of schizophrenia in our sample of female offenders is higher than previously reported for violent offending in male and mixed gender samples of 8%" (2012: 239). The rate is also higher than for their sample of 380 males homicides of whom 8.9% were psychotic (Bennett et al., 2012). Regarding the more general themes of prior mental illness and known substance abuse, these researchers concluded:

> The chance of finding psychosis among female homicide offenders was 20.77 times higher than among comparisons, while for schizophrenia the odds ratio was 43.17. Most of the mentally ill homicide offenders had a relatively long prior history of mental illness. The prevalence of did not differ for female homicide offenders with or without a psychotic illness but was higher than for controls. The prevalence of known substance abuse did not differ for female homicide offenders with or without a psychotic illness but was higher than for controls (Bennett et al., 2012: 231).

The latter finding confirms the critical importance of known substance abuse as a mediating factor for homicides in general (Monahan, Steadman, Silver, Appelbaum, & Robbins, 2001). The situational context and dynamics for homicide typically differ in public and domestic locations, even though there are certain commonalities, such as the known substance abuse risk factor. Yet, a not well-understood risk factor for both contexts is the homicide vulnerability of mentally ill individuals. In other words, to what extent are such individuals more susceptible to place themselves in high risk for homicide contexts? Again, the research focus excludes gang-involved homicides. While there have been few large scale studies of this victim dynamic outside of gang contexts, a recent Swedish study by Crump, Sundquist, Winkleby, and Sundquist (2013) is a major exception.

THE MENTAL ILLNESS PROFILE OF HOMICIDE VICTIMS

As is evident in most of the above studies differences in estimates of general homicide trends, HMD offenders' characteristics and stranger/victim homicides by mentally ill individuals varied, often, substantially. In previous studies, the mentally disordered risk rates for being the victim of a homicide ranged from 2 to 6 times the rate for the general population (e.g., Hillard, Zung, Ramm, Holland, & Johnson, 1985; Hiroeh, Appleby, Mortensen, & Dunn, 2001). However, there are several research design advantages in the recent Crump et al. (2013) study concerning the mental health

profiles of homicide victims in Sweden. Most importantly, it included the entire Swedish adult population of 7,253,516 million people (17 years old and above) in 2001, and an eight-year follow-up review.

This study incorporated most of the key individual, neighbourhood, and large community risk factors for higher homicide rates discussed in this report and the previous report (Corrado and Cohen, 2014), including high deprivation housing and service/entertainment areas. These areas also had a high prevalence of comorbid substance use individuals and higher social contact levels among mentally ill people. The latter more likely were less capable of assessing their safety needs, including their vulnerability both for being victimized opportunistically and being perceived as threatening or dangerous. In either scenario, it is again the general higher risk lifestyle hypothesis, including violence escalating to homicide that explains the increases in the greater likelihood of being both a homicide offender and victim. This lifestyle theme also has been related to differences in mortality rates more generally and not just homicide. In this study, for example, the mortality rate for the general population was 1.1 per 100,000 and 0.9 for those without mental disorders, which is less than the rate (2.8 per 100,000) for individuals with mental disorders. It is important to place these general mortality rates in a comparative national context too. Historically, Sweden has been one of the most comprehensive welfare states with extensive welfare, health, mental health, unemployment, free education, maternity leave/support, and day-care programs. It also has had a consistently wealthy advanced industrial economy with a pervasive middle class profile, and until recently, racially/ethnically homogeneity with relatively few internal and external immigrants compared, for example, to Canada, France, Netherlands, the United Kingdom, and the United States. In other words, Sweden has largely avoided the presence of high neighbourhood and national risk factors for violence discussed above and extensively in the previous report (Corrado and Cohen, 2014).

During the study period, 615 homicidal deaths (410 men and 205 women) were recorded, including 141 HMDs (104 men and 37 women) (Crump et al., 2013). Males had double the risk for being homicide victims, even after controlling for other sociodemographic risk factors, including low education, low income, non-employment, and living in large cities. Clearly, being married or cohabiting was a protective factor; divorcees and never married doubled the risk for this victimization. Somewhat surprising and inexplicably, age was not a risk factor.

Approximately, one-quarter (23 per cent) of homicide victims had been diagnosed with a mental disorder in the study period compared to slightly less than one-tenth (9 per cent) for the general population (Crump et al., 2013). Even after controlling for gender and age, there was seven times the risk for this victimization for those with any mental disorder. An approximate 16-fold risk was evident for those with substance use disorders. While there were too few cases to assess the relationship with bipolar disorder, schizophrenia was associated with a fivefold increase. An even higher increase (seven times) was associated with personality disorders, but less with anxiety and depressive disorders (three times). These mental disorder risk factors diminished somewhat when sociodemographic risk factors were adjusted for, but they still remained significant and large. Given the lifestyle risk for homicide death discussed above, the unexpected exception to this pattern was schizophrenia; the remaining 1.8-fold risk of homicidal death no longer was statistically significant.

Somewhat inconsistent with the above-demonstrated consistent importance of substance abuse disorders as the key independent risk factor for homicide, for homicide victims, a two-fold increase remained for those who had never been diagnosed with a substance use disorder (Crump et al., 2013). Similarly, personality disorders or anxiety disorders retained their association with homicide death after controlling for substance use disorders. It is not readily evident why comorbid substance use disorders appeared to be less important since it is typically considered an essential component of the risky lifestyle for violence, as well as for the escalation from general violence to homicide victimization dynamic too.

Victim-Precipitated Homicide

While not directly related to the risky lifestyle concept, a related and often street /public located type of homicide associated with mental illness is "victim-precipitated homicide". In these homicides, there is a typically accepted substantive legal defence by the perpetrator, most frequently, a police officer using fatal force to protect the public, family/friends, or themselves. Again, several difficult policy issues include whether these types of homicides are increasing, and what are the most effective police and first responder programs.

In a recent *Wall Street Journal* report (Fields, 2013), both mental health advocates and law-enforcement professionals asserted that there was a trend indicating a substantial increase in fatal encounters between mentally disordered individuals and police officers. While there are intense controversies over police use of deadly force in responding to the mentally ill, as mentioned above, there is a consensus that the deinstitutionalization of the seriously mentally ill and the inadequacy of community based programs are the primary explanation for the responsibility to respond to aggressive or violent mentally disordered individuals in public contexts, including hospitals, jails, prisons, courts, and educational institutions shifting to criminal justice officials. However, in the United States, proponents of the increasing trend perspective typically rely on anecdotal evidence since access to mental health records has been restricted both at the state and federal levels by law and regulations. In addition, even though the FBI records "justifiable homicides", it does not add whether mental illness was involved in each incident. However, one national estimate was that, in 2012, there were 410 justifiable homicides by police compared to 297 in 2000 despite the substantial decline in the overall homicide numbers and increasing American population discussed above (Fields, 2013). Very importantly, this 2012 estimate indicated that such homicides constituted an extremely small proportion of the total homicides (16,259) in the United States in 2012. In this Wall Street report, a treatment advocate asserted that half of the American population lives in regions where police officers receive no training in how to respond to "suicide by cop" incidents.

There are similar policy concerns in Canada, which resulted in the advocacy of specialized training. In one of the few such studies in Canada, Parent (1996) examined 28 cases of fatal police shootings between 1980 and 1995, and found that one-third of the RCMP shootings involved mental illness and suicide, with the most frequently mentioned diagnosis being schizophrenia. Parent (1996) maintained that most police training programs inadequately prepared police officers and often only provide a few course hours on mental illness, far too little to understand and respond to the

complexities of confrontations with aggressive or violent mentally ill individuals. More recently, several major police departments, including the Vancouver Police Department, have implemented specialized training and programs to prepare police officers for contacts with mentally ill individuals. In 2002, the Vancouver Police Department introduced a 32-hour Crisis Intervention Training (CIT) course (Wilson-Bates, 2008). This program was terminated in 2011 due to budget reductions. The Montreal Metropolitan Police utilize a 3-stage model that focuses on police despatcher specialized training. This approach focuses on mental health responder for non-externalizing threat, such as suicide and self–harm, mental health and police responders for property aggression and destruction, and, police officers with CIT training for mental health and violence threatened or perpetrated (Service de police de la Ville de Montréal, 2012).

The above review establishes that there is a very limited ability to predict when psychotic episodes will result in homicides, despite the tragic incidents that imply otherwise. However, there is evidence that mental health responders are the most likely to have information concerning individuals whose schizophrenic ideation involves homicide threats. Most criminal justice reactive measures require that such information be available to the police and other health/mental health agencies in order to facilitate emergency responses. In addition, family members and friends are another potential important source of such information. Integrated mental health and police information networks appear to be a minimum requirement followed by actual integrated teams that can respond to emergency and potentially escalating homicide incidents. A third theme involves integrating comprehensive mental health education component into basic police training. As well, other criminal justice agencies, including the judiciary, corrections, and probation/parole, can very likely contribute to more timely interventions for certain mental health to homicide dynamics. However, critically important confidentiality and information sharing issues would have to be addressed given the unpredictability of psychosis and how quickly psychotic episodes escalate to homicide. Paradoxically, the infrequency of such incidents appears to be part of the explanation for why the integrated team approach has not always been sustained during provincial budget restrained periods. In effect, there are relatively few incidents where seriously mentally ill individuals commit homicide. Yet, there are programs that appear likely to further reduce this low probability form of homicide.

Multiple Developmental Pathways to Homicides

Despite several unexpected findings, even Crump et al.'s (2013) sophisticatedly designed study lends support to the theme in this report that the low base rate homicide crimes, particularly in countries such as Canada and Sweden, are not well understood quantitatively. There are the obvious and typical research design limitations, such as incomplete file and interview data on the enormous range of multilevel individual risk factors, neighbourhood/regional risk factors, and national risk factors. In addition, developmental criminology has focused on multiple pathways to serious and violent offending, including homicide, which are enormously complex since this approach can include up to a thousand distinct variables (Lussier, Corrado, Healey, Tzoumakis, & Deslauriers-Varin, 2011). More recently, these pathways begin with genetic and pregnancy risk/protective factors, birth and infancy factors, and move into the more traditional early, middle, and late childhood stages preceding adolescence and then, finally, adulthood stages. Serious violent

crimes, such as sexual assault and homicides, occur at all stages from middle childhood forward. Yet, only recently have researchers, such as Adrian Raine (Raine, Buchsbaum, & LaCasse, 1997; Schug, Yang, Raine, Han, & Liu, 2010) and those reviewed in Fabian (2010), have been able to begin integrating the major breakthroughs in genetics and epigenetics with knowledge of the human brain to explore the biological-social "causes" of homicide.

Beyond the psychoses discussed above, in addition to psychopathy and the related Axis II Cluster B group personality disorders, this more recent research and theorizing has facilitated an examination of neurological developmental disorders, such as fetal alcohol spectrum disorder (FASD), autism spectrum disorder (ASD), attention-deficit/hyperactive disorder (ADHD), and homicide. For example, a legal/research controversy emerged from the Newton, Connecticut mass killings about whether Adam Lanza's purported major autistic disorder became comorbid with paranoid schizophrenic ideations and social isolation that caused the sudden shift from a history of non-violent behaviour to the violent tragedy of murdering children, school teachers, and a devoted mother (Wachtel and Shorter, 2013). The concern among clinicians and ASD interest group advocates is that the potential homicidal label will result in further social isolation, discrimination, and fear of children and adults with ASD. Another neurological disorder with hypothesized links to serious violence, suicide, and homicide is chronic traumatic brain encephalopathy often related to severe and persistent violent contact sports, such as boxing, wrestling, football, and hockey. For example, in 2007, the World Wrestling Entertainment professional wrestler, Chris Benoit, a Canadian, murdered his wife and son and committed suicide (CBC News, 2007). Many fellow professional wrestlers, friends, and family, along with some neuroscientists, attributed these domestic homicides to the repeated and extensive trauma to Benoit's brain over a lengthy amateur and professional career. However, while the research hypothesizing the relationships between these neurological disorders and the infrequent homicides are preliminary and tentative at best, their theoretical and policy relevance needs to be explored further as potentially distinctive pathways to homicide.

A key theoretical challenge in explaining homicide at the level of individual risk factors, therefore, is that there appears to be multiple "causal pathways" to the different types of homicide. Perhaps adolescent and adult gang involvement is the simplest pathway to homicide, excluding domestic homicide. The assumption here is primarily rational choice; joining a gang confers several benefits, but the costs of being in a gang, such as a conviction for serious offending, including homicide, are hypothetical. In other words, in the minds of some, the benefits outweigh the perceived costs. Similarly, from the rational choice perspective, the aggressive and violent personality disorders pathway involves individuals who focus on immediate rewards of committing homicide and are largely unconcerned with punishment costs. Unlike the gang involvement pathway, though, there is limited theoretical understanding of the origins or the initial risk factors in the pathway(s) to homicidal psychopaths, like serial killers. The research has focused on genetic risk factors, environmental risk factors (e.g., harsh and inconsistent child rearing practices), and a combination of these previous sets risk factors (e.g., gene X environment). However, there is less understanding of the "secondary psychopath" or those individuals characterized by major childhood trauma that has been hypothesized to be a primary cause of the callous, but rage infused homicide, as opposed to the callous and unemotional pattern evident in "primary psychopaths". In addition, there quite likely is a more general severe trauma based pathway to homicide as well. For example, child

soldiers and adult victims of extreme violence have been hypothesized to engage in homicides based on survival reactions to immediate and persistent threats of being killed. Yet, even in historically stable societies, such as Canada and the United States, while likely very infrequent, untreated severe abuse too has been hypothesized to increase the likelihood of homicide, even outside domestic contexts. The neurological developmental disorders pathway is even less understood primarily because it has been only been identified and theoretically explicated in the last several decades with the breakthrough advances in brain imaging, genetics, epigenetics, and diagnostic instruments. However, as discussed above, individuals with these disorders have overwhelming not committed homicides.

Finally, the psychosis pathway research has long been perceived by the public as a primary threat for homicide, despite the above discussed research. However, the latter clearly suggests that substance abuse disorders are a more significant risk factor for homicide, rather than psychoses alone. Nonetheless, schizophrenia spectrum disorder involved homicide, especially involving strangers or mass murder, has resulted in considerable public frustration, fear, and anger. Part of these reactions appear related to unpredictability and the inability of mental health and the police responders to identify the mentally disordered who pose an immediate or the highest homicide threat, and to protect the most vulnerable victims and the public more generally.

Conclusion

As discussed in the first report by Corrado and Cohen (2014), the number of homicide across Canada has remained relatively consistent over several decades, and the rate has been very low and comparable to other similar countries to Canada in terms of political and economic development levels. Most major homicide fluctuations were evident only at the city level and appeared largely associated with gang violence cycles. Again, while few in number, in most Canadian contexts, gang related homicides often take place in public and are perceived as highly threatening to the general public safety. The policy efforts to reduce the likelihood of adolescent and young adult gang involvement necessarily focus on traditional programs that provide practical alternatives to the benefits that gangs typically offer to attract male members. Certain youth and young adults in socially disadvantaged neighbourhoods that have histories of poor school performance, discipline, attendance, and high dropout rates, and are from historically discriminated or marginalized ethnic/racial/or income groups are particularly vulnerable to the allure of gang involvement. Another gang trend discussed above, namely gang involvement of non-traditionally disadvantaged individuals attracted to the "glamour" of the gang lifestyle, constitutes a different policy challenge. Arguably, the police likely have a more direct role in reducing the gang recruitment ability of the latter type of gangs because high arrest, conviction, and incarceration rates of such gang members are widely publicized and provide police officers with an important information tactic to approach and dissuade vulnerable youth from joining gangs initially or leaving them subsequently. In effect, police can have an essential role in "deglamorizing" gang involvement. Beyond this traditional police role, at the youth level, police coordinated efforts with school officials, ethnic/racial community groups, and youth probation officers, particularly in youth custody centres, can also provide another opportunity to convey the disproportionate costs of gang involvement.

The risky lifestyle explanation of public/street homicide applies also to non-gang involved individuals. Typically involving males in their middle adolescent to the early adulthood stages, arguments and confrontations contact with strangers or friends and acquaintances in certain public contexts, such as bars and clubs, and adjacent spaces along with rapid transit and school locations, especially when alcohol or drug consumption is involved, can escalate to result in an unplanned homicide. Historically, the police response has been to concentrate their presence in these "hot spots" contexts in anticipation of this dynamic. Usually, this police presence is sufficient to prevent the escalation; however, the additional use of Closed Circuit Televisions (CCTV) monitors increasingly has been utilized as both a deterrent and investigative resource. However, it is not evident whether CCTV has been effective regarding homicide prevention. Also, there an increasing awareness by police engaged in patrolling Hot Spot locations of the importance of identifying high-risk lifestyle individuals based on prior contact or obvious aggressive behavours. The deterrent assumption is that, once an individual has been identified by the police officer and been made aware of this, such individuals are less willing to engage in the violence dynamic leading to homicide for the obvious incarceratory costs that inevitably would be incurred. An essential element of the risky lifestyle that involves a persistent criminality component is the increased likelihood that a sexual assault or robbery will escalate to homicide. Yet, there is insufficient research, even involving psychopaths, that specifies why this escalation occurs in some incidents and not in others. Typically, though, resisting the initial crime or concern with being identified explains this homicide dynamic. In effect, prevention strategies for this pattern remain illusive.

With regard to mental illness and homicide prevention, the policy options are inherently challenging and complex. Again, this pattern of homicides is relatively infrequent and, therefore, difficult to predict or anticipate. Also, in public contexts, the escalation to a homicide situation can occur rapidly with little warning. However, there are situations where there is advance information that such an escalation is likely. As discussed above, there is an increased information sharing capacity for mental health officials and family/acquaintances to readily coordinate for a police emergency response. Also, given the persistent homeless contexts for severe mental illness and comorbid substance disorders in many major urban Canadian contexts, police education and training programs concerning this pattern can likely help reduce the violence escalation to homicide and victim precipitated homicide. As well, a multi-service agencies coordinated team approach with a designated police officer in such contexts might also assist in the de-escalations. This team-coordinated approach is particularly relevant for individuals with histories of violence and mental illness who are transitioning back into the community from custodial institutions.

A general theme evident in the research is that there are different types of homicide and distinctive multi-risk pathways to each type, even though some risk factors are in common, such as a high-risk lifestyle. Very importantly, this report did not review the theories and research regarding domestic violence. Clearly, this type of homicide is very prevalent in all countries' homicide profile, and involves certain distinctive policy themes than those discussed in this report or the previous Corrado and Cohen (2014) report. Another general theme is that, other than gang involved homicide patterns, homicide prevention is highly complex and, at a minimum, requires extensive multi-ministry information and program coordination, as well as trusting relations with the public that facilitates their alerting police and other agencies about obvious concerns and information about individuals likely to be homicidal.

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