

**INTERPERSONAL VIOLENCE EXPERIENCES IN ADULTS  
WITH AUTISM SPECTRUM DISORDERS:  
A MIXED METHODS APPROACH**

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## Abstract

**Aims:** The aim of this dissertation was to understand violence victimization and perpetration as it relates to the deficits associated with autism spectrum disorder (ASD).

**Methods:** Three studies were conducted. An online community sample of 434 adults without ASD was used to examine how the social, communication, and behavioural deficits found in the Broader Autism Phenotype, and other known risk factors for victimization, predict interpersonal violence victimization and perpetration experiences (Study 1). Subsequently, a clinical sample of 45 adults with ASD and 42 adults without ASD completed questionnaires in order to explore whether those with ASD experience or perpetrate more interpersonal violence than those without ASD, and whether key impairments in ASD serve to explain rates of interpersonal violence perpetration and victimization (Study 2). Finally, 22 individuals with ASD from Study 2 participated in qualitative interviews that further explored perceived risk and protective factors for interpersonal violence victimization in those with ASD (Study 3).

**Results:** Study 1 demonstrated that, among the variables examined, childhood polyvictimization was associated with adulthood polyvictimization and polyperpetration in men and women. For men, emotion regulation was associated with polyvictimization, and for women, emotion regulation was associated with polyperpetration. The Broader Autism Phenotype was not a significant predictor of either victimization or perpetration. Study 2 demonstrated that adults with ASD report experiencing, in childhood, more victimization overall, and specifically more property crime, childhood maltreatment, teasing/emotional bullying, and sexual assault by peers than adults without ASD. Adults with ASD did not report experiencing more overall polyvictimization in adulthood compared to adults without ASD, though they did report experiencing more teasing/emotional bullying, assault with a weapon, and greater sexual contact

victimization. Study 3 elucidated individual and contextual themes that may reduce the risk of victimization (e.g., support from others and building safety skills) in adults with ASD.

**Discussion:** Adults with ASD have an increased vulnerability to violence victimization, and this speaks to the need for intervention and proactive prevention strategies to decrease their vulnerability to, and the impact of, violence victimization. Interventions are needed to support skill development and address environmental components of risk.

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## Chapter 1: Overview

While plenty of research has been completed on the experience of violence victimization and perpetration among adults, research in the area has lagged behind among adults with Autism Spectrum Disorder (ASD). Individuals with ASD have a number of impairments in social communication and social interaction across multiple contexts (American Psychiatric Association, 2013). The current estimated prevalence of ASD is between 9.8 and 11 in 1000 children (Brugha et al, 2011; Centers for Disease Control and Prevention, 2012; NEDSAC, 2013). Approximately 44% have average to above average intellectual abilities (Centers for Disease Control and Prevention, 2016). Research has consistently found differences in prevalence rates of ASD between men and women with ratios ranging from 4:1 – 11:1 (Chakrabarti & Fombonne, 2001; Fombonne, 2005; Gillberg, Cederlund, Lamberg, & Zeijlon, 2006).

There are clear gaps in the literature pertaining to the risk factors associated with violence victimization and violence perpetration in the ASD population. Research has not explored the potential relationship between the deficits inherent within ASD compound known risk factors from the general population. The existing research on ASD and victimization has identified that children with ASD experience high rates of physical and sexual abuse and bullying compared to typically developing peers (Cappadocia, Weiss, & Pepler, 2012; Carter, 2009; Mandell et al., 2005), and that adults with ASD are more likely to experience sexual victimization than those without an ASD (Brown- Lavoie, Viecili, & Weiss, 2014). Research has yet to examine the broader interpersonal violence experiences of adults with ASD beyond sexual violence victimization, or examine self-reported experiences of victimization and perpetration in childhood and adulthood. Rates of polyvictimization have not been examined within this

population, and the variables related to increased risk for interpersonal violence victimization and interpersonal violence perpetration within this population are unclear. Studies have yet to examine factors associated with interpersonal violence that are characteristic of those with ASD. Understanding pathways and the self-reported risk factors identified by adults with ASD is a first step towards violence prevention.

### **Overall Research Design**

The current studies use quantitative and qualitative self-report methodologies that are particularly useful to better understand, predict, and prevent experiences of interpersonal violence victimization and perpetration among individuals with ASD. The combination of qualitative and quantitative methodologies have been recommended as the best means for understanding interpersonal violence victimization, and in particular sexual violence towards women (Testa, Livingston, & VanZile-Tamsen, 2011). Qualitative research is helpful to answer why and how questions, and to expand the methodological diversity of the trauma literature (Campbell & Wasco, 2005). Quantitative methods are complex, allow us to summarize a wealth of information, and allow for statistical comparison and evaluation (Kruger, 2003). Researchers have begun to utilize qualitative interviews in order to better understand the experiences of those with ASD (e.g. Griffith, Totsika, Nash, & Hastings, 2012; Punshon, Skirrow & Murray, 2009).

Relatively few studies have used self-report measures or interviews in the ASD population, which is problematic given that self-report has been identified as one of the 20 core ways of tracking quality of care and national health in the United States (Institute of Medicine, 2009). Self-report of adults with high functioning ASD has been shown to be a valid way measuring ASD symptoms and emotion regulation (Baron-Cohen, Wheelwright, Skinner, Martin, & Clubley, 2001; Berthoz & Hill, 2005), as well as loneliness, self-esteem, well-being and

friendships (Mazurek, 2014). Self-report has been used to study peer victimization in a sample of adolescents and young adults with ASD (Shtayermman, 2007), and sexual violence victimization in a sample of adults with ASD (Brown-Lavoie et al., 2014).

The following studies are the first to thoroughly explore experiences of interpersonal violence in those with ASD, with three goals:

- 1) Understand how the sociocommunicative and behavioural deficits, typically seen among individuals with ASD, interact with other known risk factors to predict interpersonal violence victimization and interpersonal violence perpetration in the general population (Study 1).
- 2) Determine the extent to which individuals with ASD are experiencing or perpetrating interpersonal violence compared to individuals without ASD, and whether key impairments in ASD and history of victimization serve to explain rates of interpersonal violence victimization and perpetration (Study 2).
- 3) Determine what those with ASD identify as factors that promote and inhibit safety related to interpersonal violence and what they believe can be done to increase safety for those on the autism spectrum (Study 3).

### **Review of Interpersonal Violence Victimization and Perpetration Literature**

Interpersonal violence victimization refers to violence and abuse that occurs between people who know each other. Interpersonal violence research encompasses research related to child maltreatment (sexual victimization, physical victimization, and neglect), intimate partner violence, adolescent dating violence, and bullying (Hamby & Grych, 2013) and it is a well known fact that interpersonal violence victimization has far reaching negative sequelae among both children and adults (e.g. Janssen et al., 2004; Mandell, Walrath, Manteuffel, Sgro, & Pinto-Martin, 2005; Weiss, Longhurst, & Mazure, 1999). Research has begun to move from an

understanding of experiences of interpersonal violence in isolation to understanding the co-occurrence and interconnections between experiences of interpersonal violence, known as polyvictimization (Finkelhor, Turner, Ormrod, & Hamby, 2009). A recent review of the interpersonal violence literature on ASD highlights its paucity, specifically for adults, and suggests that research is needed to identify the risk factors that may lead to the abuse of those with ASD (Sevlever, Roth, & Gillis, 2013). Certainly, the existing literature does point to an increased risk and rates for child maltreatment, bullying, and sexual violence (Brown- Lavoie, Vecili, & Weiss, 2014; Little, 2002; Mandell et al., 2005). Grych and Swan (2012) propose that various forms of violence are part of a larger pattern of risk and share common causes and risk factors. It is under this assumption that the shared risks associated with interpersonal violence perpetration and victimization will be considered as they apply to individuals with ASD.

### **Prevalence of Interpersonal Violence Victimization in the ASD Population**

There have been a number of research methodologies used to assess the prevalence of maltreatment in those with ASD. Community and hospital based samples have explored experiences of maltreatment in children with ASD (Mandell et al., 2005; Sullivan & Knutson, 2000), case studies have explored abuse in children and adolescents with ASD (Cook, Kieffer, Charak, & Leventhal, 1993; Perkins & Wolkind, 1991), and one U.S. large-scale community-based study examined rates of victimization in 3,200 children identified with various disabilities, including autism, within a school board by merging administrative databases. This latter study reported that children with an autism identification in the education system were not at an increased risk for sexual victimization compared to peers with other disabilities (Sullivan & Knutson, 2000), with only 0.1% of the maltreated sample being identified with autism. The study did find that children with autism were 1.3 times more likely to experience neglect than

maltreated children without disabilities, and that all children with disabilities had high rates of recorded maltreatment (physical abuse, sexual abuse, neglect) when compared to a national sample of youth. Of note is that the study was unclear as to whether children with high functioning autism were identified in the autism category within the school boards or whether some children were enrolled in the school system without any identification.

Subsequent research has found higher prevalence rates of maltreatment in youth with ASD compared to Sullivan and Knutson (2000). For instance, out of 182 clinical interviews with parents of children with ASD, 18.5% reported that their child with ASD experienced physical abuse, 12.2% experienced sexual abuse alone and 4.4% experienced physical and sexual abuse (Mandell et al., 2005). Studies have found that 65% - 77% of youth with ASD have experienced bullying from peers (Cappadocia, Weiss, & Pepler, 2012; Carter, 2009), and that bullying experiences are 4 times more likely in children with ASD compared to a national sample of youth (Little, 2002). Variability in rates across studies are likely due to who is reporting the abuse (self- or parent-report, clinical chart review, court reports), whether the abuse is substantiated, whether the sample includes both males and females and the level of functioning of the sample.

Little is known about the experiences of physical abuse, property crime, physical assault, peer/sibling victimization, sexual victimization and witnessed/indirect victimization in adults with ASD. Thus far, a majority of the research on ASD has focused on children and maltreatment (including child abuse and bullying), and there is a growing need to focus on adults, especially high functioning adults, who may not be receiving services or connected with community agencies. Our recent study of sexual victimization in an adult population of individuals with high functioning ASD found that 70% had experienced some form of sexual victimization after age 14 and into adulthood, compared to 45% of those without ASD (Brown- Lavoie, Vecili, & Weiss,



2014). Research has yet to examine the broader interpersonal violence experiences of adults with ASD beyond sexual violence victimization, or examine self-reported experiences of victimization in childhood and adulthood.

### **Prevalence of Interpersonal Violence Victimization in the Typically Developing Population**

Interpersonal violence victimization is prevalent amongst typically developing youth and adults, and there is a much more extensive research base on the topic. In Canada, in 2008, an estimated 18,688 cases of physical abuse were substantiated, at a rate of 3.1 cases per 1,000 children (Jud & Trocmé, 2012). Retrospective studies of unsubstantiated sexual abuse in Canada in typically developing children have found rates of 12.8% for females and 4.3% for males (MacMillan et al., 1997). For bullying, in the 2006 Health Behaviour in School-aged Children survey, 36% of students reported being victims of bullying (Public Health Agency Canada, 2008). In terms of Canadian self-reported data on dating violence, young people aged 15 - 24 years are at the highest risk of being victims of dating violence, although they may not report the violence to police (Mahony, 2010). A large-scale study within the USA found that 47% of young adults in romantic relationships experienced some form of interpersonal violence victimization (Renner & Whitney, 2012). Researchers have also explored the differences between sexes in reported dating violence. Sex differences have been found in the prevalence of dating violence victimization in Canadian studies, with women reporting dating violence victimization at a rate almost 10 times greater than same aged men (Mahony, 2010), and adolescent boys reporting more bullying and sexual harassment than girls (Pepler et al., 2006).

Polyvictimization, the experience of multiple forms of victimization, is also common for Canadian children. Research has also determined that the loaded effect of multiple victimization experiences can account for experiences of trauma more so than isolated incidents, with multiple

victimizations being more predictive of trauma symptoms overtime (Finkelhor, Oromond & Turner, 2007). Finkelhor and colleagues (2011; 2013) reported that 25% of youth report exposure to multiple types of direct victimization, over 10% report 5 or more types, and 1.4% report exposure to 10 or more types of violence annually. The Canadian Incidence Study of Reported Child Abuse and Neglect (Trocmé et al., 2001) highlighted that 24% of child maltreatment investigations involved more than one form of maltreatment. A recent study demonstrated that 80% of youth in the sample were reported to have at least one lifetime experience of victimization, with the mean number of lifetime victimizations being 3.7, and found that polyvictims experienced significantly more distress than those who had not experienced polyvictimization (Finkelhor, Ormrod, & Turner, 2009). Examining polyvictimization is important, as it assists in our understanding of the broad experience of the trauma and negative consequences that may result across many victimization experiences, as opposed to one isolated event (Saunders, 2003). Too often forms of violence are studied in isolation, and some authors state that focusing on specific forms in isolation may mask the important information that would be gained by studied the complex, varied patterns of traumas (Kazdin, 2011). Kazdin (2011) also highlights the importance of examining polyvictimization, as the interventions created and implemented at societal and cultural levels may impact multiple forms of violence.

### **Risk Factors for Interpersonal Violence Victimization in the Typically Developing Population**

Interpersonal violence encompasses several kinds of victimization, all of which have associated risk factors identified in the literature. Research in the typical population suggests up to 9 risk factors associated with sexual abuse, 15 with child physical abuse, and 21 with child neglect, with considerable overlap of risk factors across types of victimization (Brown, Cohen,

Johnson, & Salzinger, 1998). Factors at both the individual and broader societal level appear to make important contributions to understanding risk. At the individual level, age, gender, childhood experience of victimization (emotional/physical/sexual abuse), social competence/social skills, and mental and physical health problems have been associated with risk for victimization across a variety of forms of interpersonal violence victimization (e.g. Brown et al., 1998; Darves-Bornoz, Lemperiere, Degiovanni, & Gaillard, 1995; Moffitt, Robins, & Caspi, 2001; Schumacher, Feldbau-Kohn, Smith Slep, & Heyman, 2001; Vicary, Kingaman, & Harkness, 1995; Widom & White, 1997).

There exists an abundance of research on risk factors associated with intimate partner violence, including physical and sexual violence. Risk factors for intimate partner violence in women include less education, unemployment, and a history of child emotional/verbal victimization (Schumacher et al., 2001). Söchting and colleagues (2004) provide a review of distal and proximal risk factors for sexual assault. Distal risk factors include demographics, mental and emotional disabilities, and prior experiences of sexual victimization and according to the review, being a woman, being a woman with low socioeconomic status and being a woman with single marital status are all risk factors for sexual assault. Proximal risk factors for sexual victimization include alcohol use, environment, rape myth acceptance, and perception of danger (see Sochting, Fairbrother, & Koch 2004, for review). Prior sexual assault in childhood (Gidycz, Coble, Latham, & Layman, 1993; Hanson & Gidycz, 1993; Sorenson, Siegel, Golding, & Stein, 1991) and adulthood (see Messman & Long, 1996 for a review) are the strongest predictors of later sexual victimization, even when investigated amongst other risk factors (Maker, Kemmelmeier, & Peterson, 2001). There is also considerable research suggesting that adults who are more vulnerable are more at risk for interpersonal violence victimization, and includes the

presence of emotional difficulties or psychiatric diagnoses and physical or mental conditions, and chronic illness (Daigneault, Hébert, & McDuff, 2009; Darves-Bornoz et al., 1995; Vicary, Klingaman, & Harkness, 1995).

Social competence, communication, and emotion regulation have also been examined as risk factors for violence victimization. Increased risk of sexual victimization has been associated with deficits in social competence and conflict resolution (Avery-Leaf & Cascardi, 2002) and social skills have been shown to be a protective factor against intimate partner violence exposure during adulthood (Moffitt, Robins, & Caspi, 2001; Widom & White, 1997). Communication deficits have also been identified as child-related reasons for an increased risk of sexual abuse in a review of the sexual abuse literature (Howlin & Clements, 1995). Emotion regulation has been examined in women as it relates to risk perception. Research has shown that two specific aspects of emotion regulation (i.e., limited access to emotion regulation strategies and impulse control difficulties) mediate the association between lifetime experiences of victimization and the ability to respond quickly in risky situations (Walsh, DiLillo, & Messman-Moore, 2012).

The bullying literature has identified links between many of the above mentioned risk factors and victimization (Luk, Wang, & Simons-Morton, 2010; Mahady-Wilton, Craig, & Pepler, 2000; Schwartz, McFadyen-Ketchum, Dodge, Pettit, & Bates, 1999). Research has demonstrated links between chronic bullying and maladaptive emotion regulation and aggression-focused coping responses and the presence of mental health problems (Luk et al., 2010; Mahady-Wilton et al., 2000). Hodges and colleagues (1997) hypothesized that friendship mitigates the relationship between behaviour problems (internalizing problems, externalizing problems, and physical weakness) and peer group victimization, and researchers have found that friendship does have a long term moderating influence on the behavioural pathways to

victimization (Schwartz et al., 1999), further implicating a role for social competence as a risk factor for violence victimization.

### **Risk Factors for Interpersonal Violence Victimization within the ASD Population**

Many of the risk factors for interpersonal violence that have been identified in the general population may increase the risk for violence victimization for individuals with ASD.

Perpetrators often select individuals who are personally and interpersonally vulnerable targets (Sainio, Veenstra, Huitsing, & Salmivalli, 2012), and individuals with ASD may fit well into this category. Individuals with ASD have high rates of unemployment and less education (Roux et al., 2013; Shattuck et al., 2012), and many have histories of childhood victimization (Mandell et al., 2005). They have high rates of comorbid mental health disorders into adolescence and adulthood (Bradley, Summers, Wood, & Bryson, 2004; Stahlberg, Soderstrom, Rastam, & Gillberg, 2004), deficits in social competence (Barnhill, 2007; Howlin, 2000), difficulties with emotion regulation (Klin & Volkmar, 2003), emotional processing (Hill, Berthoz, & Frith, 2004) and with deception detection (Dennis, Lockyer, & Lazenby, 2000). Some authors have postulated that emotion dysregulation may precede victimization, rather than occur as a result of it (Walsh, DiLillo, & Messman-Moore, 2012), and this hypothesis may hold true for individuals with ASD as a result of their enduring deficits in emotion regulation (Mazefsky et al., 2013).

The association between friendships and victimization may also be of key relevance when examining risk factors for those with ASD, as adolescents with ASD have been shown to experience significantly more loneliness and have poorer friendship quality in companionship and helpfulness than peers (Locke, Ishijima, Kasari, & London, 2010). Research in adults without ASD has found that individuals with more characteristics of ASD (a stronger broad autism phenotype profile) report significantly more loneliness and fewer and shorter duration of

friendships (Jobe & Williams White, 2007). It is clear that individuals with ASD experience a lack of friendships, as well as difficulties with social skills, issues that may increase risk for interpersonal violence victimization. Edelson (2010) has hypothesized that social-emotional and communication challenges increase the risk for interpersonal violence victimization in those with ASD. More specifically, interpreting the emotions of others and responding empathically are areas of difficulty for many individuals with ASD (Begeer, Koot, Rieffe, Meerum Terwogt, & Stegge, 2008; Prince-Hughes, 2002), and this may limit an individual's ability to identify safe and unsafe individuals, increasing risk.

The literature from the typical population has highlighted a variety of risk factors that have been discussed in the ASD literature, but until now, outside of the realm of violence victimization. The combination of these risk factors, along with the core deficits associated with ASD (social and communication deficits), may put individuals with ASD at a greater risk for violence victimization. While promising, research has yet to determine how these factors are related to rates of childhood and adulthood victimization in this population.

### **Prevalence of Interpersonal Violence Perpetration in the ASD Population**

Few studies have examined rates of violence perpetration in adolescents and adults with ASD. Although research has not provided evidence that individuals with ASD are more likely to commit offences than those in the general population, some authors maintain that they are overrepresented in the criminal justice system, typically for offences connected with arson and sexual violence perpetration (Ghaziuddin, Tsai, & Ghaziuddin, 1991; Mouridsen, 2012). At the same time, reviews of the literature have shown low rates of violence overall among individuals with high functioning ASD (specifically those previously diagnosed with Asperger Syndrome), and specifically with regard to sexual violence, and no clear association between Asperger

Syndrome and violent crime (Bjørkly, 2009; Ghaziuddin, Tsai, & Ghaziuddin, 1991). A handful of case studies have described offenses of a sexual nature in adults with ASD (Chesterman & Rutter, 1994; Kohn, Fahum, Ratzoni, & Apter 1998; Milton, Duggan, Latham, Egan, & Tantam, 2002). One study in the UK examined types of offences committed by 126 individuals with high functioning ASD, and found that violent conduct and threatening behaviour were most common (81% and 75% prevalence, respectively), with sexual offending being less common of an offence (19%; Allen et al., 2008).

Some literature has cautiously speculated that there is increased violence perpetrated by individuals with high functioning ASD compared to those more severely affected by ASD as a result of their high levels of adaptive functioning (Långström, Grann, Ruchkin, Sjöstedt, & Fazel, 2009; Swanson, Holzer, Ganju, & Jonu, 1990). Researchers have found significantly higher levels of ASD symptoms in suspected juvenile sex offenders without an ASD diagnosis ( $n = 175$ ) compared to controls, suggesting that at least in the general population, sociocommunicative deficits and behavioural rigidity is associated with perpetration (Hart-Kerkhoffs et al., 2009). Research in a forensic hospital population has also found rates of undiagnosed ASD at 1.5%, based on case file reviews and clinical interviews (Scragg & Shah, 1994). Recent research has also identified that characteristics of ASD appear to be related to motives for offences (Helverschou et al., 2015). Offenders with ASD may also differ from offenders without. A recent study in Norway has demonstrated that offenders with ASD, unlike those without, show no evidence of substance abuse, have close relationships with victims, and confess to their crimes (Helverschou et al., 2015).

These studies suggest that there may be links between the characteristics of ASD and offending behaviours and motives, but not a definite link between characteristics of ASD and

rates of criminality. A recent systematic literature review has demonstrated that the evidence linking ASD to increased representation in the criminal justice system is scarce (King & Murphy, 2014). Further research is needed to determine the occurrence of violence perpetration in the ASD population and the associated risk factors.

### **Prevalence of Interpersonal Violence Perpetration within the Typically Developing Population**

Perpetration rates are difficult to ascertain, and frequently bi-directional violence (both perpetrating and being victimized) is found. In the 2006 HBSC survey, 20% of students reported being both victims and perpetrators of bullying (Public Health Agency Canada, 2008). A recent meta analysis of teen dating violence found an overall prevalence of 20% for physical teen dating violence and 9% for sexual teen dating violence with no sex differences found in victimization prevalence. Of note is that sex differences were found in perpetration (boys 13% and girls 25%; Wincentak, Connolly, & Card, 2016). A large-scale study from the US found that of the 47% of young adults in romantic relationships who reported experiencing interpersonal violence victimization, the majority reported bidirectional violence between partners (Renner & Whitney, 2012). Another large-scale US study found that nearly 4% of men reported violent behaviour toward an intimate partner in the past year (Roberts, Gilman, Fitzmaurice, Decker, & Koenen, 2010). In a German study, researchers found a 3.7% prevalence rate of being a perpetrator of physical violence, with no significant differences between males and females, although the focus of the perpetration differed (Schlack, Rüdell, Karger, & Hölling, 2013). Women were more frequently victims of physical violence and perpetrators of physical violence and psychological violence with their partners and families than men, while men were more frequently reported to be perpetrators and victims of violence in the workplace and public spaces. It does appear that



certain forms of violence are more commonly perpetrated by men and women.

Polyperpetration, the perpetration of more than one form of violence, has also been examined. One study examined a subsample of men who self-reported rape or attempted rape, and found that a majority were repeat offenders and had committed other acts of interpersonal violence, such as battery, and child physical and sexual abuse (Lisak & Miller, 2002). Research in adolescents has also shown that those who use violence against various groups (peers and romantic partners) are more likely to utilize more of each type of violence than those adolescents who may only target one group (Foshee et al., 2011). Therefore, those who polyperpetrate are not only more likely to perpetrate more diverse forms of interpersonal violence, they are also more likely to commit that act of violence more often. Links have also been found, again in adolescent boys, between engaging in peer violence and perpetrating sexual aggression or dating violence (Ozer, Tschann, Pasch & Flores, 2004).

### **Risk Factors for Interpersonal Violence Perpetration in the Typically Developing Population**

The interpersonal violence literature has identified various factors as contributing to risk for perpetration. Difficulties with social competence and social relationships are consistently associated with criminality and frequently the target of perpetrator treatment programming. Research in young offenders has found that they perform significantly worse on social skills measures when compared to non-offenders (Snow & Powell, 2008). Some researchers have hypothesized the way individuals process social information may help protect them from personal, social, environmental, or situational pressures towards criminal behaviour (Bennett, Farrington, & Huesmann, 2005). These authors also argue that lower rates of criminal behaviour in women is related to their early acquisition of social cognitive skills and their advanced

prosocial skills when compared to men (Bennett, Farrington, & Huesmann, 2005). Social skill training is a target of programming for the prevention of antisocial behaviour in youth and a meta-analysis confirms the benefit of this treatment towards preventing antisocial behaviour (Lösel & Beelmann, 2003).

Empathy has been examined extensively as a risk factor for interpersonal violence perpetration. Empathy is a process in which a person identifies with another person's feelings or situation, and is an important aspect in the development of prosocial behaviour (Roberts & Strayer, 1996). Research in the general population has indicated that, for females, empathy is a correlate of dating violence perpetration, although not necessarily the underlying cause (Wolfe, Wekerle, Scott, Straatman, & Grasley, 2004). It is a commonly held belief among mainstream criminological thought that there is a connection between empathy and offending, however, the results have been equivocal, with some research finding a connection between the two, and other studies producing null findings (for a review see Jolliffe & Farrington, 2004). Deficits in empathy have been suggested to involve a variety of psychological processes:

...ranging from a perceptual failure to observe the distress of others, to a cognitive failure to take the perspective of others, to an affective failure to experience distress to the suffering of others, or a behavioral failure to act on the empathic responses that have been elicited.

(Howells, Daffern, & Day, 2008, p. 356)

Studies that examine the various components of empathy may help form a better understanding of this relationship. Theory of mind is an important skill that underlies one's ability to form empathic feelings. Theory of mind refers to a person's ability to understand that they and others have perspectives, desires, emotions, and beliefs that may differ and to take the perspective of others into consideration (Keenan & Ward, 2000). In adults, perspective-taking

ability, sometimes referred to as cognitive empathy, has been found to be the strongest predictor of using anger in interpersonal conflicts (Day, Mohr, Howells, Gerace, & Lim, 2012). A recent review of the literature pertaining to empathy and offending found that low cognitive empathy, but not low affective empathy, was strongly related to offending (Jolliffe & Farrington, 2004). Interestingly, this weak relationship between low empathy and offending disappears after controlling for intelligence and socioeconomic status, and the authors suggest that this may be explained by executive functioning deficits (Jolliffe & Farrington, 2004). Links have been found between facial affect recognition, empathy, and delinquency in a sample of male youth offenders (Carr & Lutjemeier, 2005). Research in youth has also demonstrated a link between cyberbullies and low empathy (Steffgen et al., 2011).

The developmental literature has pointed to deficits in theory of mind as an important predictor of aggressive behaviour (Crick and Dodge, 1994), and research in children has made links between theory of mind skills and aggressive behaviour (Capage & Watson, 2001). In children, it has been shown that less developed theory of mind is related to high levels of aggression, however, this relationship was only significant for children whom had experienced high levels of previous victimization (Renouf et al., 2010). Research following children into adolescence has also demonstrated connections between theory of mind and victimization and perpetration. Shakoor and colleagues (2012) demonstrated that poor theory of mind in childhood predicted becoming a victim, a bully, or a bully-victim in adolescence, lending evidence to the connection between theory of mind and both victimization and perpetration.

Researchers have also discussed the theoretical links between emotion regulation and perpetration, specifically in the area of intimate partner violence. Finkel (2007) has proposed links between self-regulation and aggressive impulses within intimate relationships, arguing that

regulation may determine whether violent impulses are acted upon. McNulty and Hellmuth (2008) hypothesize that since individuals with various psychological disorders have difficulty with broad emotion regulation, they may be more likely to engage in interpersonal violence perpetration, as they may be unable to regulate negative emotions that may arise during conflict. Walsh and colleagues (2012) postulate that those with emotion regulation difficulties have problems with awareness and differentiation of their emotions, have negative secondary appraisals of emotions, are impulsive, and have limited access to emotion regulation strategies, all of which will influence one's response in a risky situation and may lead to not only victimization, but perpetration as well. In fact, studies of intimate partner violence suggest that the ability to regulate one's negative emotions may be one factor that helps individuals refrain from interpersonal violence perpetration (McNulty & Hellmuth, 2008).

Emotion regulation and anger expression may also be impacted by one's experiences of maltreatment. The development of a child's emotion regulation can be largely impacted by abuse, as it has been shown that child victims of abuse show disruptions in emotional processing (Pollak, Cicchetti, Hornung, & Reed, 2000; Shackman, Shackman, & Pollak, 2007). It has been argued that these disruptions could lead to heightened vigilance in situations and the perception of ambiguous cues as hostile (Hamby & Grych, 2013), predisposing individuals to anger and violence. It is known that witnessing family violence is related to perpetrating dating violence in adolescent males and females, and that this relationship is mediated by the ability to regulate anger (Wolf & Foshee, 2003).

### **Risk Factors for Interpersonal Violence Perpetration within the ASD population**

A variety of risk factors may increase the chance that an individual with ASD will engage in violence perpetration, yet specific research on the topic is lacking. The most comprehensive

study to date that has examined offending behaviours in those with ASD found that violent offending is associated with the presence of comorbid psychotic and substance use disorders (Långström, Grann, Ruchkin, Sjöstedt, & Fazel, 2009), similar to the association between violent crime and mental health found in the general population (e.g., Arseneault, Moffitt, Caspi, Taylor, & Silva, 2000; Fazel & Grann, 2006; Grann & Fazel, 2004; Johnson et al., 2000). The relationship between mental health disorders and offending may be related to the associated increase in internalizing and externalizing behaviours that comes with mental health disorders, and to underlying difficulties with emotion regulation, a known difficulty for individuals with high functioning ASD (Klin & Volkmar, 2003).

Individuals with ASD also have difficulties with the two interconnected abilities of empathy and theory of mind, which may place them at an increased risk for interpersonal violence perpetration. Research has consistently demonstrated the existence of both cognitive and affective empathy impairments among individuals with ASD relative to typically developing peers (e.g. Baron-Cohen, 2002; Baron-Cohen, Knickmeyer, & Belmonte, 2005; McIntosh, Reichmann-Decker, Winkielman, & Wilbarger, 2006; Minio-Paluello, Baron-Cohen, Avenanti, Walsh, & Aglioti, 2009). Such deficits are pervasive and hard to treat (McGregor, Whiten, & Blackburn, 1998), and are thought to underlie problems of social communication (Frith, 1996). Individuals with ASD are impaired in interpreting others' perspectives and non-literal behaviours (Capps, Yirmiya, & Sigman, 1992), may fail to take others' points of view into account, and have difficulty recognizing, identifying, and interpreting emotion in others (Begeer et al., 2008; Ozonoff, Pennington, & Rogers, 1990; Volkmar & Cohen, 1985). Individuals with ASD have difficulties understanding emotional affect, identifying deception (Dennis, Lockyer, & Lazenby, 2000), expressing both basic and complex emotions (Loveland et al., 1994; Tager-Flusberg,

1992), and integrating appropriate expression into an ongoing social interaction (McGee, Feldman, & Chernin, 1991).

Social information-processing deficits, such as impairments in theory of mind, empathy, social skills, and cognitive schemas, may influence their susceptibility to, and perpetration of, interpersonal violence. Social skills deficits have been well documented in children with ASD, with these deficits continuing into adulthood (Barnhill, 2007; Howlin, 2000). Adolescents with ASD display poorer social behaviours, engage in fewer behaviours related to privacy, and have poorer knowledge of privacy issues than typically developing adolescents (Stokes & Kaur, 2005). Social naivety and misinterpretation of social cues may inadvertently lead to criminal behaviour (Haskins & Silva, 2006; Murrie, Warren, Kristiansson, & Dietz, 2002; Palermo, 2004), inappropriate courting, and stalking behaviours (e.g., Church, Alisanski, & Amanullah, 2000; Stokes & Newton, 2004; Stokes, Newton, & Kaur, 2007). These socially unacceptable behaviours may be misjudged by others and may lead to socially inappropriate sexual behaviours (Realmuto & Ruble, 1999). Many individuals with ASD lack the appropriate knowledge and skills to recognize that their interpersonal behaviours are inappropriate, and will struggle to initiate and maintain healthy peer relationships successfully, even though they have a desire to do so (Henault & Attwood, as cited in Henault, 2005; Ousley & Mesibov, 1991; Stokes & Kaur, 2005). A lack of social and emotional connections may also contribute to sexual aggression, as a lack of close relationships is a common element found in men who sexually abuse (Cox-Lindenbaum, 1990; Fisher & Howells, 1993). In general, individuals with ASD lack shared enjoyment and social reciprocity, show egocentrism, and have difficulties with social rules (Leekam, Libby, Wing, Gould, & Gillberg, 2000; Rogers, 2000), which may each uniquely contribute to the risk of violence victimization and perpetration.

## **Links Between Victimization and Perpetration**

Considerable literature exists linking maltreatment in childhood to delinquency and violence perpetration in adolescence and adulthood, as well as the co-occurrence of victimization and perpetration in both men and women (e.g. Ford, Elhai, Connor, & Frueh, 2010; Glasser et al., 2001; Hamby & Grych, 2013; Pepler et al., 2006). Victimization in childhood, as well as perpetration in childhood, are related to violence perpetration in adulthood. Research has found that adolescents who have experienced polyvictimization are at an increased risk for delinquency (Ford et al., 2010). Bullying research has indicated that there may be an association between engagement in bullying during childhood and later engagement in dating violence, intimate partner violence, child maltreatment and elder abuse (Corvo & deLara, 2010; McMaster, Connolly, Pepler, & Craig, 2002; Pepler & Craig, 2007; Public Health Agency of Canada, 2008). Bullying has also been implicated as a risk factor for further victimization. A study by Pepler and colleagues (2006) on male and female adolescents found that adolescents who bullied others were at increased risk for being the victim of other forms of relationship aggression (Pepler et al., 2006), highlighting the interconnection between victimization and perpetration.

Research has found that some of the pathways between interpersonal violence victimization and interpersonal violence perpetration differ for men and women. For women, a meta analysis found a large effect size between a women's experience of physical violence victimization and her perpetration of violence toward her partner (Stith et al., 2004). In women, problematic alcohol use has been shown to mediate the relationship between childhood victimization and violence perpetration (Widom, Schuck, & White, 2006), and the quality of relationship with an intimate partner has been shown to mediate the effects of childhood abuse on later partner violence (Herrenkohl et al., 2004). In a large study of young adults examining

interpersonal violence within romantic relationships, it was found that for women, childhood neglect was related to both experiencing and perpetrating violence, as well as bidirectional violence, and child physical abuse was associated with bidirectional violence (Renner & Whitney, 2012).

For men, experiencing emotional/verbal abuse, history of partner abuse, depression, and unwanted sexual experiences are some of the factors that have been found to be related to violence perpetration later in life (Stith et al., 2004). For men, child physical abuse has a strong direct effect on the perpetration of intimate partner violence in adulthood (Herrenkohl et al., 2004), and an abuse victim-to-victimizer cycle has been identified in the adult sexual violence literature (Glasser et al., 2001). Another study examining bullying found that men who bullied in school were 1.53 times more likely to perpetrate violence in an intimate relationship than men who did not bully, and the risk was elevated to 3.82 times more likely to perpetrate for those men who bullied peers frequently as a child (Falb et al., 2011). In a large study of young men examining interpersonal violence within romantic relationships, childhood sexual abuse was associated with both perpetration and bidirectional violence (perpetration and victimization; Renner & Whitney, 2012).

## **Conclusion**

The above-mentioned studies highlight that there are unique pathways to victimization and perpetration for men and women, highlighting the importance of examining men and women separately, or at least controlling for sex within analyses. It is unknown whether the above-mentioned links between childhood and adulthood victimization, and the link between victimization to perpetration exists within the ASD population. The above discussion on victimization and perpetration in the ASD and non-ASD literature emphasizes the varying



reported prevalence of victimization and perpetration experiences in the typical literature, and the lack of research on violence experiences within the ASD population. Research has, thus far, highlighted the interconnection between both victimization and perpetration, and many variables, at both the individual and contextual level, have been examined in association with each. A variety of risk factors, such as emotion regulation, empathy, social skills, age, sex, socioeconomic status, and mental and physical health, have been linked to violence experiences. Strong associations have been found between childhood victimization and later perpetration and victimization in those without ASD, yet it is unknown if this same relationship exists for individuals with ASD. Further research is needed in the area of ASD and violence victimization and perpetration, as well as an understanding of the interconnectedness of various forms of victimization and perpetration. Both quantitative and qualitative methodologies would be useful in examining the risks and protective factors of violence victimization and perpetration.

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## **Chapter 2: Study 1- Interpersonal Violence Experiences within the Broad Autism Phenotype**

Interpersonal violence refers to violence and abuse that occurs between people, including child maltreatment (sexual victimization, physical victimization, and neglect), intimate partner violence, adolescent dating violence, and bullying (Hamby & Grych, 2013). A recent review of the violence victimization literature on Autism Spectrum Disorder (ASD) highlights the paucity of literature on the topic, specifically for adults, and suggests that research is needed to examine the risk factors for abuse present for those with ASD (Sevlever, Roth, & Gillis, 2013). Certainly, the existing literature does point to an increased risk of child maltreatment, bullying, and sexual violence (Brown-Lavoie, Vecili, & Weiss, 2014; Little, 2002; Mandell, Walrath, Manteuffel, Sgro, & Pinto-Martin, 2005). Research shows that characteristics related to an ASD diagnosis fall along a continuum in the general population (Constantino & Todd, 2005; Wainer, Ingersoll, & Hopwood, 2011), and examining characteristics of the diagnosis in the general population allows for a deeper understanding of how these symptoms are related to various outcomes.

Thus far, the majority of research on individuals with ASD has focused on children, and there is a growing need to focus on adults, especially adults who do not have intellectual disability. Out of 182 clinical interviews with parents of children with ASD (with and without intellectual disability) in service agencies across the United States, 18.5% of caregivers reported their child experienced physical abuse, 12.2% reported sexual abuse alone and 4.4% reported physical and sexual abuse (Mandell et al., 2005). Children with ASD are also at greater risk than peers for experiencing interpersonal violence from peers. Studies have found that, according to caregiver report, 65%- 77% of youth with ASD have experienced bullying from peers (Cappadocia, Weiss & Pepler, 2011; Carter, 2009), and that bullying experiences are 4 times

more likely in children with ASD compared to a national sample of youth (Little, 2002). Our recent online survey of self-reported sexual victimization in an adult population of individuals with ASD found that 70% had experienced some form of sexual victimization after age 14, compared to 45% of those without ASD (Brown- Lavoie et al., 2014). There is considerable research suggesting that adults who are more vulnerable, including those with emotional or psychiatric diagnoses, are at greater risk for various forms of interpersonal violence victimization compared to adults without these vulnerabilities (Darves-Bornoz, Lemperiere, Degiovanni, & Gaillard, 1995; Vicary, Kingaman & Harkness, 1995). Research has yet to examine the broader interpersonal violence experiences of adults with ASD beyond sexual victimization, or examine self-reported experiences of victimization.

Little research exists that has examined rates of violence perpetration in adolescents and adults with ASD, and even less is known about what may place these individuals at risk for interpersonal violence perpetration. Literature reviews have shown low rates of violence overall among individuals with ASD, specifically with regard to sexual violence, and no clear association between ASD and violent crime exists (Bjørkly, 2009; Ghaziuddin, Tsai, & Ghaziuddin, 1991). A handful of case studies have described offenses of a sexual nature in adults with ASD (Chesterman & Rutter, 1994; Kohn, Fahum, Ratzoni, & Apter 1998; Milton, Duggan, Latham, Egan, & Tantam, 2002). One study in the UK examined types of offences in a community sample of 126 individuals with ASD accessing services at various agencies within in a broad geographical area, and found that violent conduct and threatening behaviour were most common (81% and 75% prevalence, respectively) with sexual offending being less common (19%; Allen et al., 2008).

## **Risk Factors for Interpersonal Violence**

Research in those without ASD has identified numerous risk factors for experiencing forms of violence victimization, and many of these factors are found in even higher rates among individuals with ASD. At the individual level, age, gender, childhood experiences of victimization, and mental and physical health problems have all been associated with risk for victimization (e.g. Brown, Cohen, Johnson, & Salzinger, 1998; Darves-Bornoz et al., 1995; Moffitt, Robins, & Caspi, 2001; Schumacher, Feldbau-Kohn, Smith Slep, & Heyman, 2001; Vicary et al., 1995; Widom & White, 1997). Research has shown that prior maltreatment in childhood and adulthood are the strongest predictors of later victimization, even when investigated amongst other risk factors (e.g. Gidycz, Coble, Latham, & Layman, 1993; Maker, Kemmelmeier, & Peterson, 2001; Schumacher et al., 2001). Perpetrators often select individuals who are personally and interpersonally vulnerable targets (Sainio, Veenstra, Huitsing, & Salmivalli, 2012), and individuals with characteristics of ASD may fit well into this category. Many individuals with ASD have histories of childhood victimization (Mandell et al., 2005), high rates of comorbid mental health disorders into adolescence and adulthood (Bradley, Summers, Wood, & Bryson, 2004; Stahlberg, Soderstrom, Rastam, & Gillberg, 2004), deficits in social competence (Barnhill, 2007; Howlin, 2000), difficulties with emotion regulation (Klin & Volkmar, 2003), emotional processing (Hill, Berthoz & Frith, 2004) and with deception detection (Dennis, Lockyer, & Lazenby, 2000).

Emotion regulation has also been examined as it relates to interpersonal violence victimization. Research has shown that two specific aspects of emotion dysregulation (limited access to emotion regulation strategies and impulse control difficulties) mediate the association between lifetime victimization and responding quickly to risky situations (Walsh, DiLillo, &

Messman-Moore, 2012). Some researchers suggest that victims who have difficulty modulating their emotional experiences and inhibiting impulsive behaviors when they are upset have difficulty extricating themselves from risky scenarios, and that these areas of emotion regulation serve as a pathway from early sexual victimization to delayed risk perception and later increased risk (Walsh et al., 2012). In children, there are clear associations among chronic bullying, maladaptive emotion regulation, aggression-focused coping responses (Mahady-Wilton, Craig, & Pepler, 2000), and internalizing symptoms (Luk, Wang, & Simons-Morton, 2010), although the directionality of these relationships are not known. Many individuals with ASD have enduring deficits in emotion regulation (Mazefsky et al., 2013), though its link to violence experiences has yet to be explored. Interpreting the emotions of others and responding empathically are areas of difficulty for many individuals with ASD (Begeer, Koot, Rieffe, Meerum Terwogt, & Stegge, 2008; Prince-Hughes, 2002), and this may limit an individual's ability to identify safe and unsafe individuals, increasing risk. The interconnected deficits in empathy and theory of mind found among individuals with ASD (Baron-Cohen, 2002; Baron-Cohen, Knickmeyer & Belmonte, 2005; McIntosh, Reichmann-Decker, Winkielman, & Wilbarger, 2006) may place them at risk for victimization and perpetration. High rates of mental health and behavioural difficulties, such as anxiety disorders, depression, paranoia, delusional disorders, conduct disorder, or behavioural disorders (Blackshaw, Kinderman, Hare, & Hatton, 2001; Ghaziuddin, Weidmer-Mikhail, & Ghaziuddin, 1998; Green, Gilchrist, Burton & Cox, 2000; Hurtig et al., 2009; Kurita, 1999; Leyfer et al., 2006; Tantam, 2000) may also be related to experiences of perpetration and victimization.

The interpersonal violence perpetration literature has identified various factors as contributing to risk in the typical population. A deficit in empathy has been examined extensively



as a risk factor for violence perpetration, including difficulties “ranging from a perceptual failure to observe the distress of others, to a cognitive failure to take the perspective of others, to an affective failure to experience distress to the suffering of others, or a behavioral failure to act on the empathic responses that have been elicited” (Howells, Daffern, & Day, 2008, p. 356). In adults, perspective-taking ability has been found to be the strongest predictor of using anger in interpersonal conflicts (Day, Mohr, Howells, Gerace, & Lim, 2012). Links have also been found between facial affect recognition, empathy, and delinquency in a sample of male youth offenders (Carr & Lutjemeier, 2005). In individuals with ASD, the cognitive component of empathy has been shown to be impaired, whereas the emotional component is largely intact (Schwenck et al., 2012). Jones and colleagues (2010) compared boys with psychopathic tendencies (defined as children who exhibit antisocial behaviour coupled with callous-unemotional traits of a lack of guilt and remorse) to boys with ASD, boys with conduct disorder, and a nonclinical group of boys. Boys with ASD were found to have difficulties knowing what others were thinking, whereas those with psychopathic tendencies were reported to have difficulties resonating with other people’s distress. Understanding the unique profile of individuals with ASD with regards to the process of empathy, and breaking down the construct of empathy when examining it within those with ASD, may be critical to understanding violence experiences.

Researchers in the violence perpetration and victimization literature have explored the pathways for various forms of interpersonal violence such as victimization (e.g. Luk et al., 2010) and perpetration (e.g. Herrenkohl et al., 2004), with many overlapping variables being significant across models. Pathways to violence has been discussed in the neurotypical population as a method to inform prevention and treatment programs for those affected, and research examining how they relate to characteristics of ASD would serve to attain the same goal. Examining

pathways to violence victimization and perpetration in adulthood has yet to be done in the ASD or broad autism phenotype literature.

### **Interpersonal Violence in the Broad Autism Phenotype**

One way of furthering our understanding of ASD and interpersonal violence is to explore those with subthreshold symptoms. ASD is a group of complex and heterogeneous presenting problems with hundreds of potential etiologies, and is thus conceived as following a spectrum model of severity and presentation (American Psychiatric Association, 2013), with significant evidence existing for a broad autism phenotype (e.g. Piven, Palmer, Jacobi, Childress, & Arndt, 1997a; Piven, Palmer, Jacobi, Childress, & Arndt, 1997b). This set of subclinical personality traits (social, communication, and behaviour difficulties) has been found in relatives of those with a diagnosed ASD (Piven et al., 1997a). Researchers have also shown that specific groups of individuals without ASD exhibit characteristics of autism (Baron-Cohen, Wheelwright, Skinner, Martin, & Clubley, 2001), providing evidence that samples from the general population demonstrate varying degrees of the ASD phenotype. Researchers have utilized the broad autism phenotype (BAP) to examine various constructs within families of those with ASD (e.g. Losh & Piven, 2007) and community samples (e.g. Jobe & Williams White, 2007; Kanne, Christ, & Reiersen, 2009), and to understand the role that ASD related traits (i.e., sociocommunicative deficits and behavioural rigidities) play in explaining personality factors (Austin, 2005), empathy and systematizing (Wheelwright et al., 2006), and loneliness (Jobe & Williams White, 2007). Researchers have also examined the ASD phenotype in suspected juvenile sex offenders without ASD ('t Hart-Kerkhoffs et al., 2009). Research has not yet examined the experiences of violence among individuals with subthreshold ASD symptoms who do not have an ASD diagnosis.

The BAP has yet to be examined as it relates to the experiences of violence perpetration

and victimization in adults. This area of research is particularly important, as it may be that core features of ASD, including empathy, emotion regulation, and perspective taking, contribute to risk for violence experiences. Examining the BAP is useful to assess whether symptoms of ASD, including difficulties with theory of mind, empathy, and emotion regulation, are associated with increased risk for violence victimization and perpetration. Examining these traits in the general population can help us understand the experience of those with clinically significant impairments better. This type of analysis also furthers the literature by adding to our understanding of the role that characteristics of ASD play in moderating the relationship between interpersonal violence and other known interpersonal risk factors.

The goal of the present study was to explore the role that ASD symptoms play in violence experiences above and beyond other known risk factors. We investigated the relationship between violence victimization and perpetration, the broad autism phenotype, emotion regulation, and empathy. It was hypothesized that emotion regulation, the broad autism phenotype, empathy, and perspective taking would be correlated (i.e., those with more deficits in empathy, emotion regulation and perspective taking would have higher scores on the BAP). It was also hypothesized that poorer ability in the areas of emotion regulation, empathy, and perspective taking, and increased childhood polyvictimization and higher scores on the BAP would be related to higher scores on polyperpetration and polyvictimization in adulthood. Research has demonstrated varying rates and correlates of victimization and perpetration in men and women depending on the type being examined, highlighting the importance of exploring this relationship men and women separately.

## Methods

### Participants

Data were collected from a total of 586 English-speaking North American (Canada and U.S.) young adults. Of those 514, nine were removed due to suspicious response patterns in their responding, 49 were removed due to quick questionnaire completion time, falling in the lowest 10% time bracket of survey completion and an additional 21 participants were removed due to reportedly living in a war situation. A total of 435 participants (Table 1) were included in the study, 230 (53%) women and 205 (47%) men, with 204 (46.9%) identifying as male, 224 (51.5%) identifying as female, 4 (.9%) identifying as transgender, and 3 (0.7%) identifying their gender identity as “other”. Ages ranged from 18-25 years ( $M = 22.05$ ,  $SD = 2.02$ ). Seventy-seven (17.9%) of participants endorsed completing some high school/high school equivalent, 231 (54.1%) completed vocational/technical school/college, 105 (24.1%) completed some university or a university degree, and 21 (4.8%) completed a graduate or professional degree.

Table 1

*Participant Characteristics*

Demographic Variables		n (%)
Sex	Women	230 (53)
	Men	205 (47)
Country	Canada	44 (11)
	USA	389 (89)
Level of Education	Some high school/ High school/ High school equivalent	77 (17.9)
	Vocational/Technical School/ College	231 (54.1)
	Some university/University degree	105 (24.1)
	Graduate degree/Professional degree	21 (4.8)

**Measures**

**Demographics.** Participant demographics were attained. Variables of interest included age, visible minority status, living arrangements, sexual orientation, income, country and state/province of residence and level of education. Participants were also asked to indicate their sex and gender identity.

**Childhood Polyvictimization.** The Juvenile Victimization Questionnaire- Adult Retrospective Questionnaire (JVQ-AR) was used as a measure of childhood victimization, adult victimization, and adult perpetration. The original child victimization version is a 34-item self-report questionnaire that collects information on several forms of childhood victimization (Hamby, Finkelhor, Ormrod, & Turner, 2004). The questionnaire assesses the frequency of 34

forms of victimization that vary in severity (e.g. When you were a child, did anyone hit or attack you WITHOUT using an object or weapon?). For childhood victimization, participants reported on the frequency of events they experienced from birth up until their 18<sup>th</sup> birthday (0 through 17 years 12 months) on a 6-point scale (*None, 1 time, 2 times, 3 times, 4 times, or 5 or more times*) as a measure of childhood victimization. The 34 questions are divided into six categories: property crime (e.g. robbery), physical assault (e.g. assault with a weapon), child maltreatment (e.g. psychological/emotional abuse), peer/sibling victimization (e.g. bullying), sexual victimization (e.g. genital assault), and witnessed/indirect victimization (e.g. witnessing domestic violence).

The scoring method used was adopted from Finkelhor and colleagues (2007). Scores were dichotomized into a score of 1 if the participant indicates they have experienced one or more instances of some form of victim in a category, or 0 if they have not had any experience of that type of victimization. This dichotomy was created for each individual item and each aggregate category. This scoring method has been utilized by others due to the “potential overlap among items within an aggregate domain” (Finkelhor, Ormrod, Turner, & Hamby, 2005, p. 393). *Poly-victimization* in childhood was computed by summing the total number of the 34 various types of victimization that could be reported by each participant. This provides a continuous measurement of poly-victimization and a broader understanding of the co-occurrence of maltreatment experiences (McGee, Wolfe & Wilson, 1997). Previous research has used this scoring method (Richmond, Elliott, Pierce, Aspelmeier, & Alexander, 2009), termed the “screener sum version” (Finkelhor et al., 2005). The range of possible scores is 0-34 for polyvictimization, as responding “yes” to each of the 34 items contributes a score of 1 towards the total. Higher scores indicate that an individual has experienced a greater number of discrete victimization experiences.

**Adult Polyvictimization.** A modified version of the JVQ-AR was used where the participants were asked about victimization experiences that occurred during adulthood from their 18<sup>th</sup> birthday on. Questions pertaining to peer/sibling victimization within the school were removed and questions were modified to ask about peer/coworker victimization. Child maltreatment was removed from the adult victimization version, as it is assessed by the original JVQ-AR. This version, assessing victimization experiences in adulthood, consisted of 29 questions that were modified from the childhood victimization questions (e.g. As a adult, has anyone hit or attacked you WITHOUT using an object or weapon?). It was also scored using the screener sum method, with possible scores ranging from 0 - 29. Higher scores indicate that an individual has experienced a greater number of discrete victimization experiences during adulthood.

**Adult Polyperpetration.** A modified version of JVQ-AR was utilized where the participants were asked about perpetration experiences that occurred during adulthood, from age 18 on. Participants responded to 19 questions that mapped onto the above-mentioned victimization questions, re-worded to ask about perpetration (e.g. As a adult, have you ever hit or attacked someone WITHOUT using an object or weapon). Questions pertaining to witness/indirect victimization were removed. This questionnaire was also scored using the screener sum method, with the possible scores ranging from is 0-19. Higher scores indicate that an individual has perpetrated a greater number of discrete acts of violence.

**Broad Autism Phenotype.** The Subthreshold Autism Trait Questionnaire (SATQ: Kanne, Wang, & Christ, 2011) was used as a measure of a broad range of subthreshold autism traits (BAP) in the general population. The questionnaire is composed of 24-items that fall into 5 subscales: Social Interaction and Enjoyment, Oddness, Reading Facial Expressions, Expressive

Language, and Rigidity. A total score was computed and used as a measure of the BAP in all analyses. Participants indicated the extent to which each questions describes them on most days using a 4-point likert scale (0 = *false, not at all true*, 1 = *slightly true*, 2 = *mainly true*, 3 = *very true*). Scores on the SATQ range from 0-72. Participants in the present study had a mean score of 24.4 ( $SD = 9.7$ ; Range 1-51). Acceptable reliability has been found in previous research (Cronbach's alpha = .73; test-retest reliability = .79; Kanne, Wang & Christ, 2011), and this sample demonstrated high internal consistency (Cronbach's alpha = .85).

**Emotion Regulation.** The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004), is a 36-item self-report measure of emotion regulation ability. Subscales assess six dimensions of difficulties: Nonacceptance of emotional responses (Nonacceptance), Difficulties engaging in goal-directed behavior (Goals), Impulse control difficulties (Impulse), Lack of emotional awareness (Awareness), Limited access to emotion regulation strategies (Strategies), Lack of emotional clarity (Clarity). Participants rate how often statements apply to them on a Likert scale with answer categories: 1 = *almost never* to 5 = *almost always*. A total score was computed and utilized in the present study as a broad measure of emotion regulation. Total scores on the DERS range from 36 to 180. Participants in the present study had a mean score of 84.97 ( $SD = 24.74$ ; Range 36 - 156). Higher scores indicate greater difficulty with emotion regulation.

The DERS has been shown to have good internal consistency, test-retest reliability, and construct validity in a sample of adults in college (Gratz & Roemer, 2004; Tull & Roemer, 2007) and was shown to have good construct validity in adult psychiatric patients (Gratz, Rosenthal, Tull, Lejuez, & Gunderson, 2006). It has also been utilized as a measure of emotion regulation in



studies examining post-traumatic stress symptoms (Tull, Barrett, McMillan, & Roemer, 2007). This sample demonstrated high internal consistency (Cronbach's alpha = .95).

**Theory of Mind.** The Interpersonal Reactivity Index (IRI; Davis, 1980) is a questionnaire that measures four components of dispositional empathy. For the present study only the 7 items that compose the Perspective Taking (PT) subscale were administered. The IRI consists of 28 items that are divided into four 7-item subscales. The PT subscale measures an individual's tendency to spontaneously adopt the psychological point of view of others in daily life (e.g. "I sometimes try to understand my friends better by imagining how things look from their perspective"), and does not examine taking the perspective of another's feelings.

Items are answered on a 5 point Likert scale ranging from 0 = *Does not describe me well* to 4 = *Describes me very well*. Some items are reversed scored. Total scores on the PT subscale can range from 4 to 28. Participants in the present study had a mean score of 18.63 ( $SD = 5.12$ , Range 4 - 28). Internal reliabilities range from .71 to .77 for the subscales, and test retest reliabilities range from .62 to .71 (Davis, 1983). This sample demonstrated high internal consistency on the PT subscale (Cronbach's alpha = .82).

**Empathy.** The shortened Basic Empathy Scale (BES; Carré, Stefaniak, D'Ambrosio, Bensalah, & Besche-Richard, 2013) was administered, which measures various facets of the empathy process. The measure consists of 20 items that can be divided into a three-factor model. Items are answered on a 5-point Likert scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*. The Cognitive Empathy subscale measures one's ability to identify others' feelings (e.g. "I find it hard to know when my friends are frightened"). The Emotional Contagion subscale measures how much you are affected by the feelings of others (e.g. "After being with a friend who is sad about something, I usually feel sad"), and the Emotional Disconnection subscale

measures the degree to which you are not affected by the feelings of others, otherwise termed as callousness (e.g. “My friends’ emotions don’t affect me much”). These three areas of empathy were utilized. The shortened BES has been shown to have good test-retest reliability and validity in a sample of adults (Carre et al., 2013). This sample demonstrated good internal consistency across most subscales (Emotional Contagion Cronbach’s alpha = .77; Emotional Disconnection Cronbach’s alpha = .84). The Cognitive Empathy subscale demonstrated poor internal consistency in the current sample (Cronbach’s alpha = .56). Previous research examining internal consistency on this subscale found it to be .69, only marginally higher than the current study, which fell in the questionable range (Carré et al., 2013).

### **Procedure**

This study employed an online survey format. Previous research has shown that private self-report questionnaires and questionnaires in an online format yield increased reporting of sensitive behaviours (Turner et al., 1998). The participants were recruited through Qualtrics’ data system participant database and questionnaires were completed on the online Qualtrics data system ([www.qualtrics.com](http://www.qualtrics.com)) after informed consent was provided. The online database recruits participants from the general population who have expressed interest in completing questionnaires for financial gain. The service provider has access to men and women of all ages, ethnicities, and geographic locations. The provider does not collect information on psychiatric or psychological diagnoses. Those who began to complete the questionnaire and identified as having a diagnosed ASD, or identified as over the age of 25 were stopped from completing the survey through the use of a computer algorithm embedded in the online survey.

### **Data Analysis**

It was hypothesized that increased scores on the BAP, lower scores on perspective taking

and forms of empathy, difficulties with emotion regulation, and increased childhood polyvictimization would predict interpersonal violence victimization and perpetration in adulthood. First, Spearman's rho correlations were used to examine relations among variables given violations to normality among victimization variables. Second, all variables were entered into a regression to predict adult polyvictimization and polyperpetration separately, using two blocks in order to first account for the variance accounted for by childhood victimization. This model was calculated separately for men and women.

## **Results**

### **Self-reported Interpersonal Violence Experiences**

As shown in Table 2, participants reported multiple forms of interpersonal violence victimization during adulthood. It was found that, across all participants, 79% had indicated at least one type of victimization experience, and 50.5% had indicated at least one form of perpetration. Approximately half of both men and women sampled reported experiencing property crime, while 51.2% of men and 36.5% of women reported experiencing physical assault. Overall, men reported a mean score of 3.82 ( $SD = 3.86$ , Range 0-17) on polyvictimization, while women reported a mean score of 4.05 ( $SD = 4.39$ , Range 0-23). Rates by type are depicted below in Tables 1 (victimization) and 2 (perpetration).

Table 2

*Frequency Table for the 29 Types of Adulthood Victimization on the Modified JVQ-AR*

Victimization Type	Overall <i>n</i> (%)	Men <i>n</i> (%)	Women <i>n</i> (%)
<b>29 types of victimization, endorsed at least one type</b>	343 (79)	184 (79)	181 (78.7)
<b>Property Crime aggregate (endorsed at least one type)</b>	224 (51.5)	106 (51.7)	118 (51.3)
Robbery	52 (12)	23 (11.2)	29 (12.6)
Theft	186 (43)	88 (42.9)	98 (42.6)
Vandalism	74 (17)	31 (15.1)	43 (18.7)
<b>Physical Assault aggregate (endorsed at least one type)</b>	189 (43.4)	105 (51.2)	84 (36.5)
Assault with a weapon	23 (5.3)	11 (5.4)	12 (5.2)
Assault without a weapon	107 (24.6)	53 (25.9)	54 (23.5)
Attempted assault	59 (13.6)	31 (15.1)	28 (12.2)
Kidnap, attempted or completed	2 (0.5)	0	2 (.9)
Bias attack	16 (3.7)	8 (3.9)	8 (3.5)
Physical abuse	71 (16.3)	26 (12.7)	45 (19.6)
Assault by group or gang of peers	8 (1.8)	7 (3.4)	1 (0.4)
Genital assault	25 (5.7)	19 (9.3)	6 (2.6)
Dating violence	89 (20.5)	47 (22.9)	42 (18.3)
<b>Maltreatment in Adulthood (endorsed at least one type)</b>	174 (40)	70 (34.1)	104 (45.2)
Physical abuse	71 (16.3)	26 (12.7)	45 (19.6)
Psychological or emotional abuse	145 (33.3)	56 (27.3)	89 (38.7)
<b>Peer/Coworker victimization aggregate (endorsed at least one type)</b>	191 (43.9)	91 (44.4)	100 (43.5)
Assault by group or gang of peers	8 (1.8)	7 (3.4)	1 (0.4)
Genital assault	25 (5.7)	19 (9.3)	6 (2.6)
Bullying	44 (10.1)	14 (6.8)	30 (13)
Teasing, emotional bullying	122 (28)	43 (21)	79 (34.3)
Dating violence	89 (20.5)	47 (22.9)	42 (18.3)
<b>Witnessed/indirect victimization aggregate (endorsed at least one type)</b>	215 (49.4)	108 (52.7)	107 (46.5)
Witness domestic violence	21 (4.8)	8 (3.9)	13 (5.7)
Witness physical abuse	13 (3)	5 (2.4)	8 (3.5)
Witness assault with a weapon	62 (14.3)	41 (20)	21 (9.1)
Witness assault without a weapon	125 (28.7)	71 (34.6)	54 (23.5)
Household theft	99 (22.8)	46 (22.4)	53 (23)
Someone close murdered	36 (8.3)	19 (9.3)	17 (7.4)
Witness murder	10 (2.3)	6 (2.9)	4 (1.7)
Exposure to shooting, bombs, riots	68 (15.6)	37 (18)	31 (13.5)
<b>Sexual victimization aggregate (endorsed at least one type)</b>	141 (32.4)	59 (28.8)	82 (35.7)
Sexual assault, known adult	46 (10.6)	12 (5.9)	34 (14.8)
Sexual assault, unknown adult	18 (4.1)	5 (2.4)	13 (5.5)
Rape, attempted or completed	57 (13.1)	16 (7.8)	41 (17.8)
Flashing or sexual exposure	73 (16.8)	37 (18)	36 (15.7)
Sexual harassment	58 (13.3)	20 (9.8)	38 (16.5)

Men reported an overall mean polyperpetration score of 1.39 ( $SD = 2.03$ , Range = 0-10), while women reported a mean polyperpetration score of 1.43 ( $SD = 2.12$ , Range = 0-11), with the distribution of experiences reported in Table 3.

Table 3

*Frequency Table for the 19 Types of Adulthood Perpetration on the Modified JVQ-AR*

Perpetration Type	<i>n</i> (%)	Men <i>n</i> (%)	Women <i>n</i> (%)
<b>19 types of perpetration, endorsed at least one type</b>	220 (50.6)	103 (50.2)	117 (50.9)
<b>Property Crime aggregate (endorsed at least one type)</b>	141 (32.4)	66 (32.2)	75 (32.6)
Robbery	58 (13.3)	28 (13.7)	30 (13)
Theft	71 (16.3)	31 (15.1)	40 (17.4)
Vandalism	50 (11.5)	23 (11.2)	27 (11.7)
<b>Physical Assault aggregate (endorsed at least one type)</b>	122 (28)	54 (26.3)	68 (29.6)
Assault with a weapon	15 (3.4)	3 (1.5)	12 (5.2)
Assault without a weapon	79 (18.2)	35 (17.1)	44 (9.1)
Attempted assault	21 (4.8)	13 (6.3)	8 (3.5)
Bias attack	2 (0.5)	2 (1)	0
Physical abuse of other adults	80 (18.4)	38 (18.5)	42 (18.3)
Committing assault with a group or gang of peers	4 (.9)	2 (1.0)	2 (.9)
Genital assault	19 (4.4)	11 (5.4)	8 (3.5)
Dating violence	49 (11.3)	8 (3.9)	41 (17.8)
<b>Emotional abuse/bullying aggregate (endorsed at least one type)</b>	104 (23.9)	51 (23.4)	53 (23)
Psychological or emotional abuse	96 (22.1)	45 (22)	51 (22.2)
Bullying	14 (3.2)	10 (4.9)	4 (1.7)
<b>Sexual perpetration aggregate (endorsed at least one type)</b>	43 (9.9)	29 (14.1)	14 (6.1)
Sexual assault, known adult	6 (1.4)	5 (2.4)	1 (0.4)
Sexual assault, unknown adult	1 (0.2)	0	1 (0.4)
Rape, attempted or completed	9 (2.1)	7 (3.4)	2 (0.9)
Flashing or sexual exposure	24 (5.5)	15 (7.3)	9 (3.9)
Sexual harassment	15 (3.4)	8 (3.9)	7 (3.0)

### Interrelationship among variables

As shown in Table 4, as expected, BAP scores, as measured by the SATQ, were positively correlated with the total score on the DERS ( $p < .001$ ), negatively correlated with cognitive empathy on the BES ( $p < .001$ ) and perspective taking on the IRI ( $p < .001$ ). Adult

victimization and perpetration were correlated ( $p < .01$ ), as was childhood victimization with adult victimization and perpetration (both  $p$ 's  $< .001$ ). Adult polyvictimization was also related to cognitive empathy ( $p < .05$ ) and emotion regulation ( $p < .01$ ), while adult polyperpetration was related to the BAP ( $p < .05$ ), emotion regulation ( $p < .001$ ), and perspective taking ( $p < .05$ ). Childhood polyvictimization was related to cognitive empathy ( $p < .001$ ) and emotion regulation ( $p < .001$ ). No two variables demonstrated correlations above .80, indicating low multicollinearity (Field, 2013, p. 224).

Table 4

*Summary of Intercorrelations Among Variables*

Measure	1.	2.	3.	4.	5.	6.	7.	8.
1. Broad Autism Phenotype (SATQ)	-							
2. Emotional Cognition (BES)	-.19***	-						
3. Cognitive Empathy (BES)	-.38***	.36***	-					
4. Emotional Disconnection (BES)	.47***	-.50***	-.34***	-				
5. Emotion Regulation (DERS)	.46***	.19***	-.10*	.16**	-			
6. Perspective Taking (IRI)	-.33***	.23***	.32***	-.35***	-.23***	-		
7. Adult Polyvictimization	.007	.07	.10*	-.02	.24**	.03	-	
8. Adult Polyperpetration	.10*	-.01	.002	.09	.23***	-.12*	.63**	-
9. Childhood polyvictimization	-.002	.06	.17***	-.04	.21***	.07	.63***	.48***

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

## Predictors of Polyvictimization and Polyperpetration

**Adult Polyvictimization.** As shown in Table 5, for women, child polyvictimization was the only significant predictor of violence victimization in women in adulthood, accounting for 46.5% of the unique variance, in an overall significant model,  $F(7, 221) = 27.42, p < .001 (R^2 = .46)$ . For men, child polyvictimization was a significant predictor of adult polyvictimization, accounting for 40% of the variance, in an overall significant model,  $F(7, 197) = 18.71, p < .01, (R^2 = .40)$ . Emotion regulation also emerged as a significant predictor, indicating that greater difficulties with emotion regulation significantly predicted higher rates of adult victimization in men.

Table 5

*Multiple Regression Examining Predictors of Adult Polyvictimization in Women and Men*

	Women		Men	
	SE B	$\beta$	SE B	$\beta$
Step 1				
Constant	.40		.43	
Childhood Victimization	.04	.68*	.04	.59*
Step 2				
Constant	2.54		2.00	
Childhood Victimization	.04	.68	.04	.52*
Broad Autism Phenotype	.03	-.02	.03	-.14
Emotion Regulation	.01	.01	.01	.27*
Perspective Taking	.05	-.06	.05	.10
Emotional Contagion	.07	.04	.07	-.03
Cognitive Empathy	.07	-.06	.06	-.01
Emotional Disconnection	.06	.05	.05	-.03

\*  $p < .001$

**Adult Polyperpetration.** As shown in Table 6, for women, child polyvictimization was a significant predictor of adult polyperpetration, accounting for 31% of the unique variance, in an

overall significant model,  $F(7, 221) = 14.38, p < .001 (R^2 = .31)$ . Emotion regulation was also a significant predictor, indicating that increased emotion regulation difficulties are related to increased polyperpetration in women. For men, childhood polyvictimization was a significant predictor of adult polyperpetration, accounting for 26% of the unique variance, in an overall significant model,  $F(7, 197) = 9.77, p < .001, (R^2 = .26)$ .

Table 6

*Multiple Regression Examining Predictors of Adult Polyperpetration in Women and Men*

	Women		Men	
	SE B	$\beta$	SE B	$\beta$
Step 1				
Constant	.23		.25	
Childhood Vic	.02	.49**	.02	.48*
Step 2				
Constant	1.39		1.67	
Childhood Victimization	.02	.46**	.03	.48*
Broad Autism Phenotype	.02	-.07	.02	-.06
Emotion Regulation	.01	.19*	.01	.11
Perspective Taking	.03	-.12	.03	-.10
Emotional Contagion	.04	.03	.04	-.05
Cognitive Empathy	.04	-.11	.04	-.02
Emotional Disconnection	.03	.03	.03	.01

\*  $p < .05$ , \*\*  $p < .001$

### Discussion

There is a lack of research exploring variables related to polyvictimization and polyperpetration in those with ASD, and research examining the BAP is another step towards furthering our understanding of the violence experiences in this population. This was the first study to address the question of whether the BAP plays a predictive role in rates of reported polyvictimization and polyperpetration of young adults in North America, as well as the predictive nature of emotion regulation, forms of empathy, and perspective taking.



Violence victimization is a very common experience for adults in the community. We found that 79% of participants reported experiencing at least one form of victimization in adulthood, and approximately half reported some form of perpetration. When examining patterns of victimization and perpetration, it is clear that what may be considered milder forms of violence (e.g. psychological or emotional abuse, theft) are more commonly endorsed, while more severe forms occur less often (e.g. rape, witnessing murder). Although other studies have not utilized the JVQ-AR to inquire about victimization in adulthood, they have used it with adults to document high rates of childhood victimization. Richmond and colleagues (2009) examined rates using the JVQ-AR in college women and found that 97-98% of women reported experiencing at least one form of victimization in childhood, and a study of young adult men and women who had been identified as “at risk for high school drop out” found that approximately 80% endorsed experiencing at least one form of victimization in childhood (Hooven, Nurius, Logan-Greene, & Thompson, 2012). Other studies have also adapted measures of childhood victimization for adult self-report of adulthood victimization experiences (e.g. Schaaf & McCanne, 1998). It appears that similar rates of victimization, using a broad measure of violence experiences, results in similar rates of endorsed victimization in young adults since they have entered adulthood.

Childhood polyvictimization was consistently found to be a significant predictor of later interpersonal violence, for both sexes. Previous research has found strong associations between victimization in childhood and adulthood, even when investigated among other risk factors (e.g. Maker, Kemmelmeier, & Peterson, 2001; Messman & Long, 1996; Schumacher et al., 2001). The results of the current study indicate that childhood polyvictimization is a stronger predictor of victimization and perpetration than are the social, communication and behavioural difficulties reflected in the BAP, or the associated expected cognitive and emotional risk factors. Experiences

of childhood victimization were related to difficulties with cognitive empathy and emotion regulation. Recent reviews have shown that many forms of childhood victimization can lead to psychopathology in adulthood, by triggering, aggravating, maintaining and increasing the occurrence of psychiatric disorders (Carr, Martins, Stingel, Lemgruber, & Juruena, 2013), and to several negative neurobiological effects (e.g., dysregulation of biological stress systems and various brain circuits; De Bellis & Zisk, 2014). There is a well-known “pathway of violence” from early childhood victimization, to increased dysregulation of emotion and social information processing, to problems with overt or covert aggression and hypervigilance (Ford, Chapman, Mack, & Pearson, 2006). The current results support the notion that early experiences of trauma are related to emotional functioning and victimization and perpetration in young adulthood. Understanding this chronological pathway of violence in men and women in more depth, and the impact of early victimization on sociocommunication skills, emotion regulation, empathy, and theory of mind would provide important information to clinicians and researchers, and build our knowledge base regarding appropriate interventions post-victimization. Doing so with longitudinal designs is particularly important.

Emotion regulation did emerge as a predictor of adult violence experiences, but only accounted for a small amount of variance after considering childhood victimization experiences. For men, emotion regulation emerged as a significant predictor of adult polyvictimization, whereas for women, emotion regulation emerged as a predictor of adult polyperpetration. There is considerable literature examining gender differences in emotional responding, revealing mixed results (Bradley, Codispoti, Sabatinelli, & Lang, 2001; Grossman & Wood, 1993; Labouvie-Vief, Lumley, Jain, & Heinze, 2003), however, the link between emotion regulation and both victimization and perpetration has been identified for men and women.

Both the under- and over-regulation of emotions among individuals of either gender can lead to aggression (Robertson, Daffern & Bucks, 2012). Garner and Hinton (2006) demonstrated, in a sample of boys and girls, that emotion regulation mediates the relationship between family income and bullying, and that bullies and bully-victims had poorer emotion regulation skills than non-bullies/victims. Stuart and colleagues (2006) examined women's self-reported reasons for perpetrating intimate partner violence and poor emotion regulation was one of the most common reasons cited. Shorey and colleagues (2011) found that emotion regulation total scores were associated with increased physical aggression perpetration for females but not for males, but that most areas of emotion regulation dysregulation were higher in male perpetrators of psychological aggression than nonperpetrators. There is some research that indicates that emotion regulation difficulties are associated with increased aggression in female undergraduate students (Shorey, Cornelius, & Idema, 2011), and that across genders, the ability to regulate negative emotions may prevent the perpetration of intimate partner violence (McNulty & Hellmuth, 2008). Gardner and Moore (2008) suggest that overt aggressive behaviours towards others may be attempts to avoid uncomfortable emotional states and/or terminate feelings of emotional vulnerability.

For men, links have been made between emotion regulation and perpetration, but the relationship between emotion regulation and victimization has received less attention in the research literature. Marx's and colleagues (2005) article discussing emotion regulation processes and revictimization may provide an explanation for this study's result of emotion regulation predicting adult polyvictimization in men. The authors argue that, after experiencing victimization, individuals attempt to control their fear/arousal using maladaptive emotion regulation processes that may increase their vulnerability and lead to revictimization. The present study examined emotion regulation as it relates to polyvictimization and polyperpetration, as

opposed to separate forms of violence, such as intimate partner violence. The pathways from emotion regulation to polyvictimization and polyperpetration experiences in adulthood are not yet clear, and further research examining them would be beneficial.

Contrary to our hypotheses, the BAP was not related to adult polyvictimization or polyperpetration, nor was it related to childhood victimization. At the same time, it was related, as expected, to emotion regulation, perspective taking, and empathy, suggesting that this lack of an association is not due to measurement problems. Measures of the BAP are not designed as diagnostic tools for ASD, rather, they measure subclinical traits among individuals who do not have an ASD diagnosis, and researchers have even deemed the utilization of BAP measures on those with ASD as a misapplication (Piven & Sasson, 2014). Those with ASD will likely present with more significant social, communication and behavioural difficulties than those without ASD, and more significant difficulties may have a greater impact on interpersonal violence experiences. Additional research exploring the correlates of victimization and perpetration in the ASD population is needed, as well as further exploration of the relationship between the BAP and discrete forms of victimization in childhood, as it may be that the BAP is more related to childhood experiences of violence. Previous research has made links between characteristics of ASD and bullying (Rowley et al., 2012) and further exploration of the relationship between specific forms of violence in childhood with the BAP may yield important results. Smaller scale studies may be able to further our knowledge in the area of victimization, perpetration, and ASD. Research should focus on more specific analyses of deficits related to ASD as they relate to victimization and perpetration experiences, and explore victimization and perpetration and their correlates in samples of young adults with diagnosed and verified ASD.

## **Limitations**

The current study has several limitations. The participants were solely recruited through an online participant database, which may be affected by self-selection bias and provide a sample with more direct access to the internet or greater socioeconomic status, as indicated by the large percentage of participants with college/ university/ postgraduate degrees. The present study recruited young adults exclusively between the ages of 18-25, and while this narrow range is beneficial in examining the victimization and perpetration in young adulthood, our results may not generalize to an older or broader sample. The narrow age range, and separation of childhood and adulthood at 18 years of age, results in the assessment of a very short time frame of adult experiences, as many participants reported on 1-2 years of violence experiences in adulthood. Participants were not evenly distributed between countries, with a majority of participants being residents of the U.S.A. The results of this study may have been impacted by this distribution, and may not be as applicable to the Canadian population.

Measurement of the characteristics of the BAP, as well as other abilities like emotion regulation and perspective taking, were not actually observed by the researchers in a real-word situation, as they were all examined through self-report. The violence questionnaire used in the present study did not discriminate between ages, relationships, or other variables with regards to the perpetrators of violence. The perpetrators of the reported violence experiences could have varied significantly on the above-mentioned variables. Participant reports may have been impacted by a fear of self-reporting being the victim or perpetrator of interpersonal violence. At the same time, online questionnaires tend to produce limited response bias, have psychometric properties similar to paper and pencil methods, and provide more complete data, even with regards to sensitive topics (Heerwegh, 2009; Ritter, Lorig, Laurent, & Matthews, 2004; Riva,

Teruzzi, & Anolli, 2003). Discrepancies have also been found between self- and partner reports of the BAP (Seidman, Yirmiya, Milshtein, Ebstein & Levi, 2012) and utilizing cross-informant data may have provided valuable information. Additionally, several important comments from a recent meta-analysis may have important implications in the interpretation of the current study results. Wincentawak and colleagues (2016) identified that there are methodological challenges in studies of violence, studies using broad measurement tools may produce higher rates, and that potential moderating factors (e.g., gender, demographics, age) should be taken into consideration (Wincentawak et al., 2016).

### **Implications**

Individual should feel safe within relationships, and within their homes, schools, and communities. The high rates of experienced violence reported by participants points to a need for preventative interventions aimed at increasing safety and reducing victimization risk. Violence victimization prevention can work at various levels. For example, at the individual level programming can target areas such as assertiveness (Sharp, 1996) or safe dating (Foshee et al., 2004), or at the familial level, where increased attention to maternal history of maltreatment and substance use may prevent early childhood maltreatment (Appleyard, Berlin, Rosanbalm, & Dodge, 2011). Psychoeducation on healthy relationships, workplace bullying, and harassment may have important preventative effects. Programming at the college/university level may also serve an important function, as 43% of dating college women and 28% of dating college men (aged 18-29) report experiencing violent and abusive dating behaviours (Knowledge Networks, 2011). Surprisingly, approximately 50% of young adults surveyed (both men and women) reported that it is difficult to identify dating abuse. There is emerging evidence to suggest that bystander prevention programs decrease interpersonal violence on college campuses (Banyard,

Moynihan & Plante, 2007), suggesting that psychoeducational programming can have important impacts on the violence experiences of young adults.

This study further reinforces the need for accessible interventions for youth and young adults who have experienced interpersonal violence. Practitioners must be aware of the overlapping experiences of violence and link between victimization and revictimization and adjust their assessments and interventions to account for this. Strong associations between early victimization and continued victimization and perpetration in adulthood point to the need for targeted interventions for youth. When interpersonal violence does occur, interventions are needed to help youth address the emotion regulation and cognitive sequale, which may have a lasting impact on the future occurrences of both violence victimization and perpetration. Trauma-focused cognitive behaviour therapy is one example of an intervention that works towards improving emotion regulation in youth who have experienced complex trauma (Cohen, Mannarino, Kliethermes, & Murray, 2012). Further, strengthening emotion regulation for all youth may serve as a protective factor against the effects of violence (Kim & Cicchetti, 2010). Some schools have begun to address emotion regulation in youth, with teachers utilizing programs targeting an increase in emotion regulation ability, however, programs frequently lack adequate research evidence. The long-term impact of emotion regulation programming as a protective factor should be examined as it relates to violence experiences in childhood and adulthood.

When exploring interpersonal violence, it is important to keep various ecological levels in mind, from ontogenetic development to the macrosystem (see Messman- Moore & Long, 2003). The present study examined individual factors at the ontogenetic and microsystem level, but exosystem and macrosystem factors may impact victimization as well. This study did not

consider contextual risk factors for violence (e.g. SES, education), which may provide a more comprehensive understanding of polyvictimization and polyperpetration. A comprehensive understanding of how factors at each level relate to and predict victimization would provide information for comprehensive interventions, as contextual factors, such as SES, can have large impacts on violence experiences (e.g. Foster & Brooks-Gunn, 2013).

## **Conclusion**

The present study sought to understand how the sociocommunicative and behavioural deficits, typically seen among individuals with ASD, interact with other known risk factors to predict violence victimization and perpetration in the general population. Results suggest the BAP does not predict victimization and perpetration experiences in young adulthood. These findings highlight that sub-clinical ASD-like social communication and behavioural difficulties do not increase the risk of violence. This study also highlights the importance of emotion regulation, as it was found to be a significant predictor of polyvictimization in men and polyperpetration in women. Findings support the importance of understanding, tracking, and treating childhood victimization, as it is largely related to individual experiences in adulthood.



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### **Chapter 3: Study 2- Victimization and Perpetration Experiences of Adults with an Autism Spectrum Disorder**

Autism Spectrum Disorder (ASD) is a lifelong disorder involving deficits in social communication and social interaction across multiple contexts, as well as restricted, repetitive patterns of behaviour, interests and activities (American Psychiatric Association, 2013). ASD is usually diagnosed in childhood or adolescence and the current estimated prevalence of ASD in the United States is 1% (Brugha et al., 2011; Centers for Disease Control and Prevention, 2012; NEDSAC, 2013). Adults with ASD are often at risk for a range of problematic health and social outcomes (Gillberg & Billstedt, 2000), and at an increased risk for interpersonal violence experiences (Mandell, Walrath, Manteuffel, Sgro, & Pinto-Martin, 2005). Interpersonal violence victimization refers to violence and abuse that occurs between people. Interpersonal violence research encompasses research related to child maltreatment (sexual victimization, physical victimization, and neglect), intimate partner violence, adolescent dating violence, and bullying (Hamby & Grych, 2013). Research has begun to move from an understanding of experiences of interpersonal violence in isolation to understanding the co-occurrence and interconnections between experiences of interpersonal violence, known as polyvictimization (Finkelhor, Turner, Ormrod & Hamby, 2009). The negative effects of interpersonal violence victimization are well known in the non-ASD literature (Hooven, Nurius, Logan-Greene & Thompson, 2002), and additional efforts to understand the characteristics, causes and consequences in adults with ASD are needed.

There is a paucity of research examining discrete experiences of interpersonal violence in those with ASD or of their polyvictimization, although what does exist points to increased risk for child maltreatment, bullying, and sexual violence (Brown-Lavoie, Viecili & Weiss, 2014;

Cappadocia, Weiss & Pepler, 2012; Mandell et al., 2005). Brown- Lavoie and colleagues (2014) examined self-reported rates of violence victimization in adults with ASD. They found that 70% of adults with ASD had experienced some form of sexual victimization after age 14, compared to 45% of adults without ASD. Research has yet to explore the self-reported prevalence and co-occurrence of the broader range of child and adult violence victimization experiences or their associations to each other and to risk factors, in a sample of adults diagnosed with ASD. An understanding of these relations and risks is critical to informing treatment and prevention initiatives.

Deficits in sociocommunicative competence may be a particular set of risk factors for violence experiences in adults with ASD (Barnhill, 2007; Howlin, 2000). Research has shown that there are protective elements to having social skills when considering various forms of interpersonal violence in the general population. Social skills have been shown to be a protective factor against intimate partner violence exposure during adulthood (Moffitt, Robins, & Caspi, 2001; Widom & White, 1997), with deficits in social competence and conflict resolution leading to increased risk of sexual victimization in adolescent dating relationships (Avery-Leaf & Cascardi, 2002). Individuals with ASD have difficulties with social reasoning, are literal thinkers, and may focus on utterances in isolation when interpreting situations, and not on the additional contextual variables (Happé, 1994; Jolliffe & Baron-Cohen, 1999). Many individuals with ASD lack the appropriate knowledge and skills to recognize their sexual behaviours are inappropriate, and cannot initiate relationships successfully (Henault & Attwood, 2002; Ousley & Mesibov, 1991; Stokes & Kaur, 2005). Adolescents with ASD display poorer social behaviours, engage in fewer behaviours related to privacy, and have poorer knowledge of privacy issues than typically developing adolescents (Stokes & Kaur, 2005). Communication deficits and social



isolation in those with ASD have also been identified as child-related reasons for an increased risk of sexual abuse (Howlin & Clements, 1995). It has been postulated that social skills difficulties are related to the experience of bullying in children with ASD (Cappodoccia et al., 2012), as they are related to victimization in the general population (e.g. Delfabbro et al. 2006; Williams & Guerra, 2007).

Sociocommunicative competence may also be related to interpersonal violence perpetration. Research in young offenders without ASD has found that they perform significantly worse on social skills measures when compared to non-offenders (Snow & Powell, 2008), and programming often includes social skills training as an important target of programming for the prevention of anti-social behaviour (Lösel & Beelmann, 2003). Social naivety and misinterpretation of social cues may inadvertently lead to criminal behaviour among individuals with ASD (Haskins & Silva, 2006; Murrie, Warren, Kristiansson, & Dietz, 2002; Palermo, 2004). For instance, authors have noted that individuals with ASD inadvertently engage in stalking behaviours when they seek out contact with others for friendship or intimacy (e.g., Church, Alisanski, & Amanullah, 2000; Stokes & Newton, 2004; Stokes, Newton, & Kaur, 2007). A lack of social and emotional connections may also contribute to sexual aggression, as a lack of close relationships is a common element found in men with developmental disability and other men who sexually abuse (Cox-Lindenbaum, 1990; Fisher & Howells, 1993).

Difficulties in emotion regulation, emotional expression, and emotion processing have been widely discussed in the literature on ASD (Hill, Berthoz, & Frith, 2004; Klin & Volkmar, 2003). Emotion regulation deficits has also been conceptualized as a factor related to violence victimization and perpetration in typically developing adults (e.g. Gratz, Paulson, Jakupcak, & Tull, 2009; Mahady- Wilton, Craig & Pepler, 2000) and children (e.g. Camodeca & Goossens,

2005; Spence, De Young, Toon, & Bond, 2009), and may be particularly salient for adults with ASD. For instance, research has shown that maladaptive emotion regulation is a risk factor for chronic victimization (Mahady-Wilton, Craig & Pepler, 2000), and that limited access to emotion regulation strategies and impulse control difficulties mediate the association between victimization and responding quickly to risky situations (Walsh, DiLillo, & Messman-Moore, 2012). Poor emotion regulation has also been identified as a factor related to interpersonal violence perpetration and mediates the relationship between the childhood experience of maltreatment and intimate partner abuse (Gratz et al., 2009; Stuart, Moore, Hellmuth, Ramsey, & Kahler, 2006).

Little research exists that has examined rates of violence perpetration in adolescents and adults with ASD, and even less is known about what may place these individuals at risk for interpersonal violence perpetration. Literature reviews have shown low rates of violence overall among individuals with ASD, specifically with regard to sexual violence, and no clear association between ASD and violent crime exists (Bjørkly, 2009; Ghaziuddin, Tsai, & Ghaziuddin, 1991). A recent systematic literature review found little evidence linking ASD to increased representation in the criminal justice system (King & Murphy, 2014). As in the typical population, childhood victimization and adverse experiences have been discussed as predisposing factors to offending behaviours in those with ASD (Kawakami et al., 2012; Kumagami & Matsuura, 2009), with many suggesting offending within the ASD population being more closely related to comorbid mental health disorders than the diagnosis of ASD itself (Haw, Radley, & Cooke, 2013; Newman & Ghaziuddin, 2008). At the same time, children with ASD have been known to bully others (Van Roekel, Scholte, & Didden, 2010), and risk of bullying perpetration and victimization are related to emotion dysregulation in youth with ASD and at least average IQ

(Rieffe, Camodeca, Pouw, Lange, & Stockmann, 2012). Additional research is needed to understand the context of violence perpetration across a number of different kinds of acts in adults with ASD (rather than focused solely on bullying or sexual violence for instance).

The present study used self-report in order to gain a reliable estimate of violence victimization and perpetration experiences in adults with ASD living in the community. It is critical to obtain first-hand accounts of violence experiences in adults with ASD, which has traditionally relied heavily on the use of informants, even when assessing the prevalence of violence victimization (e.g., Mandell et al., 2005) and perpetration. There is an increasing awareness of the benefits of self-report of those with ASD and many individuals have begun to share their experience and insights publicly, providing valuable information (e.g., Grandin, 1995; Nazeer, 2006). No research exists examining the retrospective self-report of victimization or perpetration experiences of adults with ASD beyond sexual victimization specifically. The study aimed to compare reported experiences of victimization and perpetration in a sample of adults with ASD with a matched sample of adults without ASD (matched on age, gender, and IQ), and to explore whether key aspects of the impairments associated with ASD are related to violence. Specifically, it is hypothesized that individuals with ASD will report more victimization experiences than those without ASD, and that little or no difference will be found in perpetration rates between those with and without ASD. It is also hypothesized that sociocommunicative competence and emotion regulation will mediate the relationship between having a diagnosis and one's reported experiences of violence victimization and perpetration.

## Methods

### Participants

The sample included 45 adults with ASD between 18-53 years of age ( $M = 30.00$ ,  $SD = 1.48$ ) and 42 adults without ASD, matched on mean chronological age between 19-54 years of age ( $M = 32.12$ ,  $SD = 8.62$ ). Table 1 presents demographic information for both groups. Groups did not differ with respect to the proportion of men versus women (58% of the ASD group and 50% of the non-ASD group were male,  $\chi(1) = .53$ ,  $p = .47$ ). All participants lived in Ontario, Canada. All participants in the ASD group reported a diagnosis of ASD and met the clinical cut-off on the ADOS Module 4 (Lord et al., 2012). Participants in both groups had IQ scores estimated to be in at least the average range as measured by the Wechsler Abbreviated Scale of Intelligence (Wechsler, 1999; no ASD group  $M = 113.33$ ,  $SD = 16.10$ , Range 87-146; ASD group  $M = 110.22$ ,  $SD = 13.19$ , Range 81-134;  $t(85) = -.98$ ,  $p = .36$ ). No differences were found between groups on minority status or IQ. The participants with ASD were less likely to have completed higher education than the group of adults without ASD (university degrees and professional degrees),  $\chi(1) = 10.52$ ,  $p < .05$ .

Table 1

*Participant Characteristics*

Demographic Variables		ASD (N = 45) n (%)	No ASD (N = 42) n (%)
Sex	Women	19 (42)	21 (50)
	Men	26 (58)	21 (50)
Level of Education	Some high school/ High school/ High school equivalent	7 (15.6)	2 (4.8)
	Vocational/Technical School/ College	17 (37.8)	7 (16.7)
	Some university/University degree	15 (33.3)	19 (45.2)
	Graduate degree/Professional degree	6 (13.3)	14 (33.3)
Visible Minority Status	Yes	7 (15.6)	13 (31)

**Measures**

**ASD diagnostic measure.** The Autism Diagnostic Observation Scale, Second Edition (ADOS-2; Lord et al., 2012) is a semi-structured observational measure that examines social and communicative behaviors. Participants self-identified as having an ASD diagnosis, and the ADOS-2 was used to confirm that these participants demonstrated characteristics of ASD. The ADOS-2 Module 4 took approximately 30-45 minutes to administer, providing scores for communication and socialization that support the likelihood of an ASD diagnosis. The ADOS has been found to have good test-retest reliability and excellent internal consistency (Lord et al., 2002).

**Intelligence.** IQ was estimated using the Wechsler Abbreviated Scales of Intelligence (WASI; Wechsler, 1999). The four-subset WASI was administered to obtain a general estimate of intellectual functioning. Full Scale IQ was calculated. This measure has been shown to have adequate to high test-retest reliability ( $r = .72$  to  $.95$ ) depending on the subtest, and high internal consistency across groups and subtests (Cronbach's alpha =  $.87$  to  $.98$ ).

**Childhood Victimization.** The Juvenile Victimization Questionnaire- Adult Retrospective Questionnaire (JVQ-AR) was used as a measure of childhood victimization, adult victimization, and adult perpetration. The original child victimization version is a 34-item self-report questionnaire that collects information on several forms of childhood victimization (Hamby, Finkelhor, Ormrod, & Turner, 2004). The questionnaire assesses the frequency of 34 forms of victimization that vary in severity (e.g. When you were a child, did anyone hit or attack you WITHOUT using an object or weapon?). For childhood victimization, participants reported on the frequency of events they experienced from birth up until their 18<sup>th</sup> birthday (0 through 17 years 12 months) on a 6-point scale (*None, 1 time, 2 times, 3 times, 4 times, or 5 or more times*) as a measure of childhood victimization. The 34 questions are divided into six categories: property crime (e.g. robbery), physical assault (e.g. assault with a weapon), child maltreatment (e.g. psychological/emotional abuse), peer/sibling victimization (e.g. bullying), sexual victimization (e.g. genital assault), and witnessed/indirect victimization (e.g. witnessing domestic violence).

The scoring method used was adopted from Finkelhor and colleagues (2007). Scores were dichotomized into a score of 1 if the participant indicates they have experienced one or more instances of some form of victim in a category, or 0 if they have not had any experience of that type of victimization. This dichotomy was created for each individual item and each aggregate

category. This scoring method has been utilized by others due to the “potential overlap among items within an aggregate domain” (Finkelhor, Ormrod, Turner, & Hamby, 2005, p. 393). *Poly-victimization* in childhood was computed by summing the total number of the 34 various types of victimization that could be reported by each participant, providing a continuous measurement of poly-victimization and a broader understanding of the co-occurrence of maltreatment experiences (McGee, Wolfe & Wilson, 1997). Previous research has utilized this scoring method (Richmond, Elliott, Pierce, Aspelmeier, & Alexander, 2009), termed the “screener sum version” (Finkelhor et al., 2005). The range of possible scores is 0-34 for polyvictimization, as responding “yes” to each of the 34 items contributes a score of 1 towards the total. Higher scores indicate that an individual has experienced a greater number of discrete victimization experiences.

Greater breadth of victimization experiences in childhood was computed by summing the number of categorical experiences of violence. Due to overlap of items within aggregates the items were separated into five different groupings without overlap- conventional crime, child maltreatment, peer/sibling victimization, sexual victimization, and witnessed/indirect victimization. For example, if a participant indicated “yes” to one or more of the items that loads onto Sexual Victimization they were given a score of 1 for Sexual Victimization, and the other aggregates were be coded in the same format and then totaled, for a possible score of 0-5. Higher scores indicate that an individual has experienced a broader array of victimization experiences in childhood.

**Adult Polyvictimization.** A modified version of JVQ-AR was used where the participants were asked about victimization experiences that occurred during adulthood from their 18<sup>th</sup> birthday on. Questions pertaining to peer/sibling victimization within the school were removed and questions were modified to ask about peer/coworker victimization. Child

maltreatment was removed from the adult victimization version, as it is assessed by the original JVQ-AR. This version, assessing victimization experiences in adulthood, consisted of 29 questions that were modified from the childhood victimization questions (e.g., As a adult, has anyone hit or attacked you WITHOUT using an object or weapon?). It was also scored using the screener sum method, with possible scores ranging from 0 - 29. Higher scores indicate that an individual has experienced a greater number of discrete victimization experiences during adulthood. Greater breadth of victimization experiences in adulthood was computed by summing the number of categorical experiences of violence as described above, which falls on a scale of 0-5. Higher scores indicate that an individual has experienced a broader array of victimization experiences in adulthood.

**Adult Polyperpetration.** A modified version of JVQ-AR was utilized where the participants were asked about perpetration experiences that occurred during adulthood, from age 18 on. Participants responded to 19 questions that mapped onto the above-mentioned victimization questions, re-worded to ask about perpetration (e.g., As a adult, have you ever hit or attacked someone WITHOUT using an object or weapon?). Questions pertaining to witness/indirect victimization were removed. This questionnaire was also scored using the screener sum method, with the possible scores ranging from is 0-19. Higher scores indicate that an individual has perpetrated a greater number of discrete acts of violence. Greater breadth of perpetration experiences in adulthood was computed by summing the number of categorical experiences of violence perpetration, which falls on a scale of 0-4. Higher scores indicate that an individual has perpetrated a broader array of acts of violence in adulthood.

**Emotion Regulation.** The Difficulties in Emotion Regulation Scale (DERS: Gratz & Roemer, 2004), is a 36-item self-report measure of emotion regulation ability. Subscales assess



six dimensions of difficulties: Nonacceptance of emotional responses (Nonacceptance), Difficulties engaging in goal-directed behavior (Goals), Impulse control difficulties (Impulse), Lack of emotional awareness (Awareness), Limited access to emotion regulation strategies (Strategies), and Lack of emotional clarity (Clarity). Participants rated how often statements apply to them on a Likert scale with answer categories: 1 = *almost never* to 5 = *almost always*. An overall score was used for the current study, with higher scores indicating greater difficulty with emotion regulation.

The DERS has been shown to have good internal consistency, test-retest reliability, and construct validity in a sample of adults in college (Gratz & Roemer, 2004; Tull, Barrett, McMillan & Roemer, 2007) and was shown to have good construct validity in adult psychiatric patients (Gratz & Gunderson, 2006; Gratz, Lacroce, & Gunderson, 2006; Gratz, Rosenthal, Tull, Lejuez, & Gunderson, 2006). It has also been used as a measure of emotion regulation in studies examining post-traumatic stress symptoms (Tull et al., 2007). Internal consistency for the DERS across the whole sample and individual groups demonstrated good to excellent reliability (whole sample  $\alpha = .95$ , ASD group  $\alpha = .89$ , no ASD group  $\alpha = .94$ ).

**Sociocommunicative Competence.** Sociocommunicative competence was measured using the Multidimensional Social Competence Scale (MSCS: Yager & Iarocci, 2013). The MSCS is a parent rating scale designed to assess individual differences in social competence (i.e. strengths and challenges) among adolescents with ASD. Psychometric evidence provided preliminary support for the reliability and validity of the scale (Cronbach's alpha reliabilities for domain, subscale, and total scores were all above .84; Yager & Iarocci, 2013). A self-report version was created and was provided to the current investigator by the measure authors. The MSCS measures seven domains of social competence: social motivation, social inferencing,

demonstrating empathic concern, social knowledge, verbal conversation skills, nonverbal sending skills, and emotion regulation. Participants rated how statements applied to them, where 1 = *Not true or almost never true*, to 5 = *Very true or almost always true*. An overall score was used for the current study, with higher scores indicating more well-developed sociocommunicative competence.

All subscales, except the emotion regulation subscale, demonstrated good to excellent internal consistency in the present sample (Cronbach's alpha values ranged from .78 to .87). The Emotion Regulation subscale demonstrated unacceptable internal consistency (Cronbach's alpha = .48), and was removed from all analyses. When items pertaining to the Emotion Regulation subscale were removed, the overall Cronbach's alpha within both groups demonstrated excellent internal consistency (no ASD group  $\alpha = .95$ , ASD group  $\alpha = .93$ ). Emotion regulation was also assessed by the DERS, so removing it from the MSCS also addressed a potential issue of multicollinearity.

## **Procedure**

The participants with ASD were recruited through notices regarding the study distributed through community-based programs and organizations offering services to adults with ASD across Ontario. Notices were also posted on online ASD communities, distributed through several colleges/universities academic support services, and by participant's word of mouth to others at their discretion. The comparison group was recruited through postings within the University setting, and through advertising on community message boards. All participants were individually interviewed in person by a trained graduate student. All participants completed questionnaires on the online Qualtrics data system ([www.qualtrics.com](http://www.qualtrics.com)) at the time of the face-to-face interview. The York University ethics board approved this research and all participants

provided informed consent. Participants with ASD received a \$50 gift card to an online retailer for their participation, and those without ASD received a \$25 gift card to an online retailer. Participants with ASD received higher compensation due to the additional time required to complete the study (e.g., ADOS).

### **Data Analysis**

Chi-square analyses and odds ratios were used to examine the hypothesis that individuals with ASD would be more likely to self-report experiencing various forms of victimization than the comparison group. In order to examine the hypothesis that self-reported victimization experiences would be mediated by deficits in sociocommunicative competence and emotion regulation, a test of multiple mediation was run using Preacher and Hayes' (2008) SPSS INDIRECT macro script for testing multiple mediator models with bootstrapping. The INDIRECT macro is most useful in estimating indirect effects when working with smaller sample sizes (e.g. under 400) or if the estimated mediated effect is small or modest (Preacher & Hayes, 2004). This type of analysis determines whether an increased risk for polyvictimization /polyperpetration is mediated by the deficits commonly associated with ASD, including sociocommunicative competence and emotion regulation. In multiple mediation, the effect of one variable is transferred to another variable through the mediator variables. For example, the effect of having an ASD is transferred to victimization experiences through sociocommunicative competence. Perpetration results were calculated in the same manner.

### **Results**

No significant differences between men and women were found with regard to polyvictimization or polyperpetration, or any of the aggregate scores, within either the ASD

group or non-ASD group (all  $p$ 's > .10). The following analyses compare groups of those with and without ASD using combined samples of men and women.

### **Childhood Victimization**

As shown in Table 2, during their childhood, participants with ASD were 6.7 times more likely to report experiencing a form of property crime, and 9 times more likely to have been robbed than peers without ASD. Those with ASD were 4 times more likely to report experiencing a form of child maltreatment, including 3.9 times more likely to endorse physical abuse, and 3.4 times more likely to endorse psychological or emotional abuse from adults. Though peer/sibling victimization overall only approached significance ( $p = .05$ ), there were specific types that were more likely to occur in the ASD group, including being 27.1 times more likely to report teasing/emotional bullying from peers ( $p < .001$ ), and 3.7 times more likely to report bullying from peers ( $p = .004$ ). Participants without ASD were 4.4 times more likely to endorse having sexual relations with someone over 18 than participants with ASD ( $p = .04$ ), while participants with ASD were 7.3 times more likely to endorse sexual assault by a peer ( $p = .007$ ).

Table 2

*Frequency Table for the 34 Types of Childhood Victimization on the JVQ-AR as Reported by Adults With and Without ASD*

Victimization Type	ASD <i>n</i> (%)	No ASD <i>n</i> (%)	Chi-square/Fisher's exact
<b>34 types of victimization, at least one type</b>	45 (100)	41 (97.6)	$\chi^2(1) = 1.08, p = .30$
<b>Property Crime aggregate (at least one type)</b>	43 (95.6)	32 (76.2)	Fisher's exact $p = .01$ ; OR = 6.7
Robbery	40 (90.9)	22 (47.6)	Fisher's exact $p < .0001$ ; OR = 9.1
Theft	31 (68.9)	25 (59.5)	$\chi^2(1) = .83, p = .36$
Vandalism	30 (68.2)	23 (54.8)	$\chi^2(1) = 1.64, p = .20$
<b>Physical Assault aggregate (at least one type)</b>	43 (95.6)	37 (88.1)	Fisher's exact $p = .26$
Assault with a weapon	24 (53.5)	19 (45.2)	$\chi^2(1) = .57, p = .45$
Assault without a weapon	37 (82.2)	28 (66.7)	$\chi^2(1) = 2.78, p = .09$ ; OR = 2.31
Attempted assault	22 (48.9)	13 (31)	$\chi^2(1) = 2.91, p = .09$ ; OR = 2.13
Kidnap, attempted or completed	5 (11.1)	3 (7.1)	Fisher's exact $p = .71$
Bias attack	7 (15.6)	8 (19)	$\chi^2(1) = .19, p = .67$
Physical abuse (not spanking)	26 (57.8)	11 (26.2)	$\chi^2(1) = 8.87, p = .003$ ; OR = 3.9
Assault by group or gang of peers	23 (51.1)	14 (33.3)	$\chi^2(1) = 2.81, p = .09$ ; OR = 2.09
Peer/sibling assault	35 (77.8)	32 (76.2)	$\chi^2(1) = .03, p = .86$
Genital assault	21 (46.7)	15 (35.7)	$\chi^2(1) = 1.07, p = .30$
Dating violence	3 (6.7)	5 (11.9)	Fisher's exact $p = .48$
<b>Child maltreatment (at least one type)</b>	36 (80)	21 (51)	$\chi^2(1) = 8.65, p = .003$ ; OR = 4.0
Physical abuse (not spanking)	26 (57.8)	11 (26.2)	$\chi^2(1) = 8.87, p = .003$ ; OR = 3.9
Psychological or emotional abuse	28 (62.2)	15 (35.7)	$\chi^2(1) = 6.11, p = .01$ ; OR = 3.4
Neglect	9 (20)	6 (14.3)	$\chi^2(1) = .49, p = .48$
Custodial interference or family abduction	5 (11.1)	5 (11.9)	Fisher's exact $p = 1.0$
<b>Peer/sibling victimization aggregate (at least one type)</b>	44 (97.8)	36 (85.7)	Fisher's exact $p = .05$ ; OR = 7.33
Assault by group or gang of peers	23 (51.1)	14 (33.3)	$\chi^2(1) = 2.81, p = .09$ ; OR = 2.09
Peer/sibling assault	35 (77.8)	32 (76.2)	$\chi^2(1) = .03, p = .86$
Genital assault	21 (46.7)	15 (35.7)	$\chi^2(1) = 1.07, p = .30$
Bullying	34 (75.6)	19 (45.2)	$\chi^2(1) = 8.39, p = .004$ ; OR = 3.7
Teasing, emotional bullying	44 (97.8)	26 (61.9)	Fisher's exact $p < .001$ ; OR = 27.1
Dating violence	3 (6.7)	5 (11.9)	Fisher's exact $p = .48$

<b>Witnessed/indirect victimization aggregate (at least one type)</b>	35 (77.8)	31 (73.8)	$\chi^2 (1) = .19, p = .67$
Witness domestic violence	8 (17.8)	9 (21.4)	$\chi^2 (1) = .18, p = .67$
Witness physical abuse	10 (22.2)	8 (22.2)	$\chi^2 (1) = .10, p = .76$
Witness assault with a weapon	17 (37.8)	18 (42.9)	$\chi^2 (1) = .23, p = .63$
Witness assault without a weapon	26 (59.1)	25 (61)	$\chi^2 (1) = .03, p = .86$
Household theft	22 (50)	16 (39)	$\chi^2 (1) = 1.03, p = .31$
Someone close murdered	0 (0)	4 (9.5)	Fisher's exact $p = .05$
Witness murder	1 (2.3)	2 (4.9)	Fisher's exact $p = .61$
Exposure to shooting, bombs, riots	4 (9.1)	10 (23.8)	Fisher's exact $p = .08$ ; OR = 3.13
<b>Sexual victimization aggregate (at least one type)</b>	25 (55.6)	21 (50)	$\chi^2 (1) = .27, p = .60$
Sexual assault, known adult	7 (15.6)	7 (16.7)	$\chi^2 (1) = .02, p = .89$
Sexual assault, unknown adult	3 (6.7)	2 (4.8)	Fisher's exact $p = 1.00$
Sexual assault, with peer	12 (26.7)	2 (4.8)	Fisher's exact $p = .007$ ; OR = 7.3
Rape, attempted or completed	6 (13.3)	5 (11.9)	Fisher's exact $p = 1.00$
Flashing or sexual exposure	9 (20)	6 (14.3)	$\chi^2 (1) = .50, p = .48$
Sexual harassment	16 (35.6)	11 (26.2)	$\chi^2 (1) = .89, p = .35$
Sexual interactions with someone over 18	3 (6.7)	10 (23.8)	Fisher's exact $p = .04$ ; OR = 4.4

Participants with and without ASD were also compared on their breadth of childhood victimization by computing a total score of items endorsed across all 34 items (0-34). Participants with ASD had significantly higher total scores on the JVQ-AR ( $U = 1204, p = .03$ ; ASD  $M = 12.62, SD = 5.45$ ; no ASD  $M = 10.05, SD = 7.12$ ). Participants were then compared on the number of categories of victimization they had experienced, which fell on a scale of 0-5. Participants with ASD were found to endorse more categories of victimization than those without ASD ( $U = 1159, p = .009$ ; ASD  $M = 4.07, SD = 1.08$ ; no ASD  $M = 3.35, SD = 1.33$ ).

### Adult Victimization

As shown in Table 3, participants with ASD were 2.7 times more likely to endorse that they had experienced teasing/emotional bullying during adulthood ( $p = .02$ ). There was a trend towards those with ASD being more likely to report sexual assault from a known adult ( $p = .09$ ), attempted or complete rape ( $p = .07$ ), and dating violence ( $p = .09$ ). There was a trend towards

those with ASD being less likely to report being victims of vandalism ( $p = .06$ ), less likely to report an exposure to shooting, bombs or riots ( $p = .07$ ), less likely to report being flashed ( $p = .10$ ), less likely to endorse psychological and emotion abuse ( $p = .10$ ), and less likely to indicate at least one item within the category of witness/indirect victimization ( $p = .07$ ). Participants without ASD were 4.4 times more likely to endorse assault with a weapon during adulthood ( $p = .04$ ).

Table 3

*Frequency Table for the 29 Types of Adulthood Victimization on the Modified JVQ-AR as Reported by Adults With and Without ASD*

Victimization Type	ASD <i>n</i> (%)	No ASD <i>n</i> (%)	Chi-square/Fisher's exact
<b>29 types of victimization, at least one type</b>	41 (91.1)	39 (92.8)	$\chi^2$ (1) = .09, $p$ = .77
<b>Property Crime aggregate (at least one type)</b>	25 (55.6)	28 (66.7)	$\chi^2$ (1) = 1.13, $p$ = .29
Robbery	9 (20)	9 (21.4)	$\chi^2$ (1) = .03, $p$ = .87
Theft	23 (51.1)	22 (52.4)	$\chi^2$ (1) = .01, $p$ = .91
Vandalism	8 (17.8)	15 (35.7)	$\chi^2$ (1) = 3.59, $p$ = .06; OR = 2.57
<b>Physical Assault aggregate (at least one type)</b>	27 (60)	25 (59.5)	$\chi^2$ (1) = .02, $p$ = .96
Assault with a weapon	3 (6.7)	10 (23.8)	Fisher's exact $p$ = .04; OR = 4.4
Assault without a weapon	20 (44.4)	16 (38.1)	$\chi^2$ (1) = .36, $p$ = .55
Attempted assault	8 (17.8)	9 (21.4)	$\chi^2$ (1) = .18, $p$ = .67
Kidnap, attempted or completed	0 (0)	2 (4.4)	Fisher's exact $p$ = 1.00
Bias attack	2 (4.4)	2 (4.8)	Fisher's exact $p$ = 1.00
Physical abuse	18 (40)	12 (28.6)	$\chi^2$ (1) = 1.26, $p$ = .26
Assault by group or gang of peers	3 (6.7)	4 (9.5)	Fisher's exact $p$ = .71
Genital assault	2 (4.4)	3 (7.1)	Fisher's exact $p$ = .67
Dating violence	12 (26.7)	10 (23.8)	$\chi^2$ (1) = .09, $p$ = .76
<b>Maltreatment in Adulthood (at least one type)</b>	29 (64.4)	21 (50)	$\chi^2$ (1) = 1.85, $p$ = .17
Physical abuse	18 (40)	12 (28.6)	$\chi^2$ (1) = 1.26, $p$ = .26
Psychological or emotional abuse	16 (38.1)	25 (55.6)	$\chi^2$ (1) = 2.66, $p$ = .10; OR = 2.03
<b>Peer/Coworker victimization aggregate (at least one type)</b>	27 (60)	23 (54.8)	$\chi^2$ (1) = .24, $p$ = .62
Assault by group or gang of peers	3 (6.7)	4 (9.5)	Fisher's exact $p$ = .71
Genital assault	2 (4.4)	3 (7.1)	Fisher's exact $p$ = .67
Bullying	12 (26.7)	11 (11.9)	Fisher's exact $p$ = .11
Teasing, emotional bullying	27 (60)	15 (35.7)	$\chi^2$ (1) = 5.13, $p$ = .02; OR = 2.7
Dating violence	12 (26.7)	10 (23.8)	$\chi^2$ (1) = .09, $p$ = .09; OR = 1.16
<b>Witnessed/indirect victimization aggregate (at least one type)</b>	26 (57.8)	32 (76)	$\chi^2$ (1) = 3.31, $p$ = .07
Witness domestic violence	4 (8.9)	4 (9.5)	Fisher's exact $p$ = 1.00
Witness physical abuse	3 (6.7)	3 (7.3)	Fisher's exact $p$ = 1.00
Witness assault with a weapon	6 (13.3)	10 (26.3)	$\chi^2$ (1) = 2.23, $p$ = .14
Witness assault without a weapon	16 (35.6)	19 (46.3)	$\chi^2$ (1) = 1.03, $p$ = .31
Household theft	10 (22.2)	15 (36.6)	$\chi^2$ (1) = 2.45, $p$ = .14
Someone close murdered	5 (11.1)	2 (4.8)	Fisher's exact $p$ = .44
Witness murder	3 (6.7)	3 (7.3)	Fisher's exact $p$ = 1.00
Exposure to shooting, bombs, riots	6 (13.3)	12 (29.3)	$\chi^2$ (1) = 3.29, $p$ = .07; OR = 2.69



<b>Sexual victimization aggregate (endorsed at least one type)</b>	21 (46.7)	17 (40.5)	$\chi^2 (1) = .34, p = .56$
Sexual assault, known adult	11 (24.4)	4 (9.5)	Fisher's exact $p = .09$ ; OR = 3.07
Sexual assault, unknown adult	6 (13.3)	3 (7.1)	Fisher's exact $p = .49$
Rape, attempted or completed	13 (28.9)	5 (11.9)	Fisher's exact $p = .07$ ; OR = 3.01
Flashing or sexual exposure	8 (17.8)	14 (33.3)	$\chi^2 (1) = 2.78, p = .10$ ; OR = 2.31
Sexual harassment	12 (26.7)	8 (19.0)	$\chi^2 (1) = .71, p = .40$

Sexual victimization was further examined in order to separate sexual contact victimization versus noncontact victimization. Sexual assault (by a known adult or unknown adult) and rape (attempted or completed) were summed (resulting in a score of 0 to 3). Individuals with ASD had significantly higher scores on this composite score than those without ASD ( $t(85) = -2.14, p < .05$ ).

Participants with and without ASD were also compared on their breadth of victimization in adulthood by computing a total score of items endorsed across all 29 items. Participants with ASD did not have higher total scores on the modified adult JVQ ( $U = 894, p = .66$ ; ASD group  $M = 6.16, SD = 5.52$ ; no ASD  $M = 5.95, SD = 4.22$ ). Participants were then compared on the number of categories of victimization (0-5 endorsed categories of victimization) and groups were found not to differ ( $U = 973, p = .81$ ; ASD  $M = 2.93, SD = 1.79$ ; no ASD  $M = 2.93, SD = 1.39$ ).

### **Mediators of victimization**

Due to non-normal data, the non-parametric Mann Whitney test was calculated to compare both groups on self-reported sociocommunicative competence and emotion regulation abilities. As expected, the ASD group self-reported less developed sociocommunicative competence (ASD  $M = 3.32, SD = .40$ ; no ASD  $M = 4.05, SD = .40$ ;  $U = 200, p < .001$ ) and poorer emotion regulation abilities (ASD  $M = 2.72, SD = .57$ ; no ASD  $M = 1.88, SD = .51$ ;  $U = 200, p < .001$ ) compared to the comparison group. Spearman's correlations were used to explore

the relationship between sociocommunicative competence and emotion regulation and childhood polyvictimization in childhood. Neither sociocommunicative competence nor emotion regulation was significantly correlated with childhood polyvictimization in the ASD group or the non ASD group.

Multiple mediation analyses were used in order to further examine whether emotion regulation and sociocommunicative competence were related to the group differences found in childhood polyvictimization experiences. The multiple mediation analysis was run using an SPSS supplemental macro script for testing multiple mediator models with bootstrapping (see Preacher & Hayes, 2008). Sex and age were entered as control variables. Table 4 shows the unstandardized coefficients of each pathway, and the bootstrapping results based on 1,000 resamples. The total direct effect (path c) of ASD status was not significant predictor of child polyvictimization (total score from 0 to 34), before entering the mediator variables,  $z = 1.95, p = .05$ . The direction of estimates in the mediator pathways (path a) indicated that having ASD was associated with lower sociocommunicative competence ( $t = -8.30, p < .001$ ) and poorer emotion regulation ( $t = 7.27, p < .001$ ). The total indirect effects did not suggest the presence of mediation, as emotion regulation and sociocommunicative competence were not related to polyvictimization (path b).

Table 4

*Multiple Mediation Analysis Results for the Mediating Effect of Sociocommunicative Competence and Emotion Regulation on the Relationship Between Group and Childhood Polyvictimization After Controlling for Sex and Age*

DV	IV, Mediators, and Control	Path	<i>B</i>	<i>SE</i>	<i>z/t</i>	<i>p</i>	Bootstrapping for Indirect Results		
							Point estimate	Lower	Upper
Poly victimization in childhood	Sex	Control	.81	1.41	.57	.57			
	Age	Control	.08	.08	1.03	.30			
	Group	C	2.68	1.37	1.95	.05	-.17	-4.13	3.90
		C'	2.84	2.01	1.42	.16			
	Emotion Regulation	A	.85	.12	7.27	<.001	1.17	-2.07	1.83
		B	1.37	1.36	1.01	.32			
	Sociocommu- nicative Competence	A	-.77	.09	-8.30	<.001	-1.34	-4.35	4.14
		B	1.73	1.71	1.01	.32			

The second mediation analysis examined predictors of the number of categories of childhood victimization an individual endorsed (0-5 endorsed categories of victimization). As shown in Table 5, the total direct effect (path c) of ASD status was a significant predictor of the number of categories of victimization reported by a participant, before entering the mediator variables,  $z = 2.96, p = < .01$ . As with the preceding mediation analysis, having ASD was associated with lower sociocommunicative competence ( $t = -8.55, p < .001$ ) and poorer emotion regulation ( $t = 7.95, p < .001$ ). The total indirect effect did not suggest the presence of mediation, with neither mediators being related to the number of categories of childhood victimization endorsed.

Mediation analyses were not computed for adulthood polyvictimization, as no significant differences were found between groups in categories of victimization or total victimization reported. Neither sociocommunicative competence nor emotion regulation was significantly correlated with adult polyvictimization in the ASD group or the non ASD group.

Table 5

*Multiple Mediation Analysis Results for the Mediating Effect of Sociocommunicative Competence and Emotion Regulation on the Relationship Between Group and Number of Categories of Victimization Experienced After Controlling for Sex and Age*

DV	IV, Mediators, and Control	Path	B	SE	z/t	p	Bootstrapping for Indirect Results		
							Point estimat e	Lower	Upper
Categorical poly victimization in childhood	Sex	Control	-.12	.27	-.43	.67			
		Age	.03	.01	1.72	.09			
	Group	C	.79	.27	2.96	<.01	-.47	-1.18	.20
		C'	1.26	.40	3.13	<.05			
	Emotion Regulation	A	.93	.12	7.95	<.001	.03	-.55	.53
		B	.03	.27	.11	.92			
	Sociocommuni- cative Competence	A	-.80	.09	-8.55	<.001	-.50	-1.13	.02
		B	.62	.33	1.88	.06			

### Perpetration in Adulthood

Table 6 presents the frequencies of endorsing each type and category of perpetration, and the comparisons across groups. No significant differences were found between groups on any form of perpetration, with very low rates reported.

Table 6

*Frequency Table for the 19 Types of Adulthood Perpetration on the Retrospective JVQ as Reported by Adults With and Without ASD*

Victimization Type	ASD <i>n</i> (%)	No ASD <i>n</i> (%)	Chi-square/Fisher's exact
<b>19 types of perpetration, endorsed at least one type</b>	32 (71)	25 (59.5)	$\chi^2(1) = 1.29, p = .26$
<b>Property Crime aggregate (at least one type)</b>	25 (55.6)	28 (66.7)	$\chi^2(1) = 1.13, p = .29$
Robbery	7 (15.6)	7 (16.7)	$\chi^2(1) = .02, p = .88$
Theft	9 (20.5)	4 (9.5)	Fisher's exact $p = .23$
Vandalism	8 (19)	8 (18.2)	$\chi^2(1) = .01, p = .91$
<b>Physical Assault aggregate (at least one type)</b>	27 (60)	25 (59.5)	$\chi^2(1) = .002, p = .96$
Assault with a weapon	3 (6.8)	2 (4.8)	Fisher's exact $p = 1.00$
Assault without a weapon	14 (31.8)	15 (35.7)	$\chi^2(1) = .15, p = .70$
Attempted assault	8 (18.2)	3 (7.1)	Fisher's exact $p = .20$
Kidnap, attempted or completed	0 (0)	0 (0)	-
Bias attack	0 (0)	0 (0)	-
Physical abuse of other adults	13 (29.5)	12 (28.6)	$\chi^2(1) = .01, p = .92$
Committing assault with a group or gang of peers	1 (2.3)	1 (2.4)	Fisher's exact $p = 1.00$
Genital assault	3 (6.8)	2 (4.8)	Fisher's exact $p = 1.00$
Dating violence	5 (11.9)	10 (22.7)	Fisher's exact $p = .26$
<b>Emotional abuse/bullying aggregate (at least one type)</b>	19 (43.2)	16 (38.1)	$\chi^2(1) = .23, p = .63$
Psychological or emotional abuse	19 (43.2)	15 (35.7)	$\chi^2(1) = .50, p = .48$
Bullying	5 (11.4)	2 (4.8)	Fisher's exact $p = .43$
<b>Sexual victimization aggregate (at least one type)</b>	3 (7.1)	4 (9.1)	Fisher's exact $p = 1.00$
Sexual assault, known adult	1 (2.3)	0 (0)	Fisher's exact $p = 1.00$
Sexual assault, unknown adult	1 (2.3)	0 (0)	Fisher's exact $p = 1.00$
Rape, attempted or completed	1 (2.3)	0 (0)	Fisher's exact $p = 1.00$
Flashing or sexual exposure	2 (4.5)	2 (4.8)	Fisher's exact $p = 1.00$
Sexual harassment	3 (6.8)	2 (4.8)	Fisher's exact $p = 1.00$

Participants with and without ASD were compared on their breadth of perpetration in adulthood by computing a total score of items endorsed across all 19 items, and with regard to the number of categories of perpetration they had endorsed. Groups did not differ with regard to breadth ( $U = 1006, p = .59$ , ASD group mean = 2.40,  $SD = 3.02$ ; no ASD group  $M = 1.90, SD = 2.09$ ) or the number of categories of perpetration ( $U = 896, p = .67$ , ASD group mean 1.67,  $SD =$

1.15; no ASD group  $M = 1.71$ ,  $SD = 1.00$ ). Mediation analyses were not computed, as no significant differences were found between groups in categories of perpetration or total perpetration reported. Correlations were also computed between sociocommunicative competence, emotion regulation, and polyperpetration. Neither sociocommunicative competence or emotion regulation were significantly correlated with polyperpetration in the ASD group or the non ASD group.

### **Discussion**

The goals of the current study were to examine self-reported experiences of victimization and perpetration in adults with ASD, to compare those rates to those of adults without ASD, and to examine the association of perpetration and victimization to sociocommunicative competence and emotion regulation. Adults with ASD self-reported a greater number of discrete types of victimization during childhood when compared to adults without ASD, matched on sex, IQ and age. The patterns of victimization also differed between groups. In terms of specific types of victimization, adults with ASD were more likely to report experiencing, in childhood, a greater breadth of victimization. They were more likely to report experiencing physical abuse, psychological/emotional abuse from an adult, peer/sibling victimization, various forms of bullying from peers, robbery, and sexual assault by a peer in childhood than those without ASD. Adults with ASD were also more likely to report experiencing, in adulthood, teasing/emotional bullying, and sexual contact victimization than those without ASD.

Mental health problems and problem behaviours are frequently seen in those with ASD, and victimization may further compromise their mental health. Child maltreatment has significant negative sequelae, with the number of types and severity being associated with increased trauma symptoms (Clemmons, Walsh, DiLillo, & Messman-Moore, 2007), and with the development of

psychopathology in adulthood, by triggering, aggravating, maintaining and increasing the reoccurrence of psychiatric disorders (Carr, Martins, Stingel, Lemgruber, & Juruena, 2013). Although the short and long-term impact of victimization, or trauma more broadly, on individuals with ASD is relatively unknown, peer victimization in youth with ASD has been related to internalizing and externalizing symptoms (Cappadocia et al., 2012; Storch et al., 2012), and maltreatment among youth with ASD has been related to externalizing behaviour, suicide attempts, conduct and academic problems (Mandell et al., 2005). Importantly, comorbid psychological problems in children with ASD, such as depression, behaviour problems, and being teased, are also predictive of suicidal ideation and risk (Mayes, Gorman, Hillwig-Garcia, & Syed, 2013; Richa, Fahed, Khoury, & Mishara, 2014). The heightened rates of victimization in childhood found in the current study suggests a need for evidence-based treatments for trauma in children with ASD and a greater understanding of the ways they may process these experiences compared to peers, particularly as they develop. Researchers and clinicians have highlighted the paucity of literature on the effects of trauma on those with ASD and the limited research base regarding effective treatments, with some recommending adjustments to evidence-based practices for trauma treatment for children with ASD (Grosso, 2012; Hoover, 2015).

Contrary to expectations, sociocommunicative ability and emotion regulation deficits in adults with ASD did not explain their heightened risk for victimization. That is, these two variables did not appear to increase the risk of victimization found in adults with ASD. Polyvictimization scores, both in childhood and adulthood, were not correlated with sociocommunicative competence or emotion regulation in either group. Research in the typical population suggests that there are several factors associated with each discrete category of victimization (e.g., bullying) and these other factors may be important for risk as well. At the

individual level, age, gender, childhood experience of victimization (emotional/physical/sexual abuse), social competence/social skills, and mental and physical health problems have been associated with risk for victimization across a variety of forms of interpersonal violence (e.g., Brown, Cohen, Johnson, & Salzinger, 1998; Darves-Bornoz, Lemperiere, Degiovanni, & Gaillard, 1995; Moffitt, Robins, & Caspi, 2001; Schumacher, Feldbau-Kohn, Smith Slep, & Heyman, 2001; Vicary, Kingaman, & Harkness, 1995; Widom & White, 1997). Risk factors for intimate partner violence in women include less education, unemployment, demographics, alcohol use, and perception of danger (e.g., Schumacher et al., 2001; Sochting, Fairbrother, & Koch 2004). Research has also made links between vulnerability, emotional difficulties and psychiatric diagnoses, and risk for victimization (Darves-Bornoz et al., 1995; Vicary, Klingaman, & Harkness, 1995), a link that may be especially important for those with ASD, many of whom experience concurrent mental health disorders. In samples of individuals with ASD, sex differences have been found in types of bullying (Cappadocia, Weiss, & Pepler, 2012; Hofvander et al., 2009), but not in self-reported sexual victimization (Brown-Lavoie et al., 2014). Sex was combined in the present study, as no significant differences were found within groups when comparing men and women on polyvictimization and polyperpetration. Further analysis of sex differences in experiences may be warranted, to examine whether reporting differences and patterns exist across sexes. Research should examine the role the above-mentioned risk factors, at both the individual and contextual level, play within the victimization experiences of those with ASD.

There were also reports of forms of childhood interpersonal violence that occurred more frequently in the non ASD group. Individuals without ASD were significantly more likely to report a sexual experience with someone over 18 years of age while they were under 18 years. It



is unclear whether this question captures abuse between a child and an older adult, or two consensual teenagers with an age difference (i.e., a 17 year old with an 18 year old). Some research has specified age restrictions when examining statutory sex offences, narrowing the age specifications in order to account for this discrepancy (e.g. Finkelhor et al., 2005), but this was not a specific inquiry in this study.

Overall, no differences were found between groups with regards to polyvictimization in adulthood. Groups did differ in a number of specific areas of victimization. Individuals without ASD were more likely to report experiencing assault with a weapon in adulthood, while individuals with ASD were more likely to report experiencing teasing/emotional bullying from other adults in adulthood. Because polyvictimization in adulthood did not differ between groups, there was no way of examining whether sociocommunicative competence and emotion regulation explained group differences. The two variables were not correlated to rates of polyvictimization in either group. It may also be that particular risk factors are related to particular types of maltreatment in adulthood, such as the relationship between lower levels of sexual knowledge and experiences of sexual victimization (Brown-Lavoie, et al., 2014).

The results regarding overall sexual victimization in adulthood also coincide with previous research examining rates of sexual violence in this population (Brown-Lavoie et al., 2014), with a trend towards higher rates of sexual assault by a known adult and rape (attempted or complete), and significantly higher rates when considering these variables together. For example, 24% of adults with ASD reported experiencing at least one sexual assault with a known adult compared to 10% of adults without ASD, and 29% of adults with ASD endorsed experiencing attempted or completed rape, compared to 12% of those without ASD. In contrast, one third of adults without ASD reported being flashed as an adult, compared to 18% of adults

without ASD. It appears that in the present study direct contact sexual assault is more common in those with ASD compared to those without.

Groups had similar rates across all forms of perpetration and categories of perpetration. Participants with ASD were not more likely to endorse specific forms of perpetration, nor greater polyperpetration than adults without ASD. These results map onto the existing reviews of the literature that have shown low rates of violence overall among individuals with ASD and no clear association between ASD and violent crime (Bjørkly, 2009; Ghaziuddin, Tsai, & Ghaziuddin, 1991). Low rates were found across both groups for both severe and more minor occurrences of interpersonal violence perpetration. Certain forms of perpetration were more highly endorsed than others, with the pattern of perpetration being similar across both groups. Participants in both groups were most likely to report perpetrating some form of physical assault (ASD group = 60%, no ASD group = 59.5%) with assault without a weapon and physically abusing another adult being the most common forms of physical assault perpetrated. Participants in both groups were also likely to report perpetrating psychological or emotional abuse (ASD group = 43.2%, no ASD group = 35.7%). This study is the first to compare two matched community samples on rates of self-reported perpetration, further adding to the literature that there is no empirical evidence for those with ASD being at greater risk for perpetrating violent crime (Bjørkly, 2009). Although no clear link exists, further research examining risk factors and triggers of perpetration may be warranted.

### **Limitations**

The present study is based on retrospective reporting of childhood victimization, and did not longitudinally track victimization experiences. Victimization was operationalized as having at least one occurrence of each event, and the present study cannot speak to either frequency or

severity. The data are based on participant perceptions, not documented events, and as with all studies that utilize retrospective reporting, it is possible that responses were not completely accurate. Participant abilities, including emotion regulation skills and sociocommunicative functioning were also measured using self-report. Participants may over or under report childhood victimization, or their abilities. Participation was not anonymous, with participants completing questionnaires in the presence of the researcher and this may have affected transparency in reporting for both groups. It is possible that this sample represents a more well-adjusted and functional group of individuals with ASD, and thus the results of this study may over or under estimate the violence experiences of those who have greater difficulties. It is also possible that other important factors that were not directly measured in this study, including socioeconomic status, are significantly related to interpersonal violence experiences. Additionally, this study had a small sample size and relatively low power for low frequency occurring kinds of victimization or perpetration. Future research should utilize self-report in larger community samples to further explore the risk and protective factors of violence victimization and perpetration.

### **Implications and Future Directions**

Future research can further explore the self-reported experiences of this group of individuals, to better understand the psychological impact of victimization. Finding new ways to protect this vulnerable group, especially in childhood, is of utmost importance. A variety of changes may need to occur within families, schools, and societies to proactively address the victimization of those with ASD. Additional research may focus on the perpetrators of violence, in order to develop targeted interventions and prevention efforts. Awareness and knowledge about victimization may increase dialogue and, in turn, prevention efforts within agencies,

communities, and homes. Research has also yet to explore the relationship between those with ASD and those who are their abusers, as well as the relationship between those with ASD and whom they are perpetrating violence against. Knowing who is perpetrating violence against those with ASD may provide important information for targeted interventions. Reactively, clinical interventions addressing trauma are needed for individuals with ASD, many of whom have experienced increased childhood trauma compared to individuals without an ASD.

### **Conclusion**

The present study presented self-reported victimization and perpetration rates from two samples of adults living in Ontario, Canada. Participants with ASD reported experiencing greater polyvictimization in childhood, compared to a sample of adults without ASD, as well as specific forms of childhood and adulthood victimization. Participants with and without ASD reported similar rates of polyvictimization and polyperpetration in adulthood. This study highlights that those with ASD have an increased vulnerability to victimization, especially in childhood, and highlights the need for intervention and proactive prevention strategies to decrease their vulnerability to, and the impact of, victimization. Understanding experiences from the perspective of the individual is of utmost importance when examining and treating trauma, and first hand accounts provide information regarding victimization and perpetration that cannot be attained in other ways.

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#### **Chapter 4: Study 3- Safety Barriers and Promotion as Discussed by Individuals with ASD**

Adults with Autism Spectrum Disorder (ASD) experience a variety of difficulties that may make them more likely to experience interpersonal violence victimization, which includes sexual victimization, physical victimization, intimate partner violence, adolescent dating violence, and bullying. Research has shown that children, youth, and adults with ASD are at risk for various forms of interpersonal violence. In children, there have been high rates of caregiver reported sexual abuse and physical abuse (Mandell, Walrath, Manteuffel, Sgro, & Pinto-Martin, 2005) and bullying from peers (Carter, 2009; Cappadocia, Weiss & Pepler, 2012; Little, 2002). Little is known about the interpersonal violence experiences of adults with ASD. A recent study of sexual victimization in an adult population of individuals with ASD found that 70% had experienced some form of sexual victimization after age 14 and into adulthood, compared to 45% of those without ASD (Brown- Lavoie, Vecili, & Weiss, 2014). A variety of risk factors for interpersonal violence in the general population may increase the risk for individuals with ASD. Individuals with ASD have high rates of unemployment, less education and difficulty transitioning into employment (Roux et al., 2013; Shattuck et al., 2012), and histories of childhood victimization (Mandell et al., 2005). There are also high rates of mental health problems in adolescence and adulthood (Stahlberg, Soderstrom, Rastam, & Gillberg, 2004), difficulties with emotion regulation (Klin & Volkmar, 2003) and difficulties with deception detection (Dennis, Lockyer, & Lazenby, 2000). The combination of these risk factors, along with the core deficits associated with ASD, may put individuals with ASD at risk for interpersonal violence.

There are considerable benefits to using qualitative inquiry to understand and prevent victimization in people with ASD, as this methodology can further our understanding of

individual experiences, provide new leads for quantitative studies, and enhance social awareness (Bölte, 2014). Self-reported experiences by people with ASD have provided valuable information to families and to researchers on challenges and required supports (e.g., Howard, Cohn, & Orsmond, 2006; Huws & Jones, 2008), including in areas of employment, life experiences, theory of mind, social support, social relationships, sensory experiences and receiving a diagnosis (Griffith, Totsika, Nash, & Hastings, 2011; Hurlbutt & Chalmers, 2002, 2004; Huws & Jones, 2008; Jones & Meldal, 2001; Jones, Quigney, & Huws, 2003; Müller, Schuler, Burton & Yates, 2003; Müller, Schuler, & Yates, 2008; Punshon, Skirrow, & Murphy, 2009). Qualitative research has also explored highly emotional experiences in adults with ASD, such as the quality of trauma recall after motor vehicle accidents (Harvey & Bryant, 1998). Another study examined the online written descriptions of individuals with ASD regarding negative emotional experiences, and from the accounts found themes of alienation, frustration, depression, and a pervasive sense of fear or apprehension (Jones, Zahl, & Huws, 2001). Müller and colleagues (2008) conducted qualitative interviews with 18 adults with ASD around social supports and social challenges. Individuals with ASD often reported a sense of isolation, difficulty initiating social interaction, and longing for greater intimacy, and converged on the need for external supports (e.g. highly structured or scripted social activities), communication supports, and self-initiated strategies. Clearly, many people with ASD have the desire and ability to discuss strengths and difficulties associated with the disorder, as well as reflect on supports received and still needed. Studies have yet to examine the risk and protective elements to interpersonal violence as told by those with ASD.

There is a need for qualitative methods in order to further our understanding of the risk and protective factors of victimization. As Cooper and Schindler (2006) note, “Qualitative research is designed to tell the researcher how (process) and why (meaning) things happen as

they do”, providing researchers with a means to explore the underlying information that may not be attained through quantitative means. To date, almost all studies on interpersonal violence in this population have been quantitative in nature, whether it be about sexual victimization in adulthood (Brown- Lavoie et al., 2014), bullying in youth (e.g. Cappadocia et al., 2012), or child maltreatment (Mandell et al., 2005). One exception has been the research conducted by Humphrey and Symes (2010), who utilized qualitative interviews with youth with ASD to examine the use and role of social support in bullying experiences. The present study examines the beliefs of individuals with ASD regarding risk and protective factors for interpersonal violence.

## **Methods**

### **Participants**

Participants included 22 adults, 10 women (45%) and 12 men (55%), with ASD that ranged in age from 18 to 53 years ( $M = 30.0$ ,  $SD = 10.47$ ). ASD diagnosis was confirmed with self-report and the completion of the Autism Diagnostic Observation Schedule-2 (Lord et al, 2012). All individuals had IQ scores ranging from 94 to 133 ( $M = 112.05$ ,  $SD = 9.8$ ), as measured by the Wechsler Abbreviated Scale of Intelligence (WASI-II; Wechsler, 1999).

### **Methodological Approach**

The interview questions were designed by the lead author and the consultation team, and several changes were made in the process to make the question more concise. An initial prompt about interpersonal violence and what it encompasses was included to identify that the interview was specific to interpersonal violence. This was due to concerns that broad questions about safety may result in participants discussing alternate topics related to trauma experiences that were not interpersonal in nature (e.g., natural disasters, medical trauma). The questions were designed to

bring forth the thoughts and opinions of those with ASD regarding risk and protective factors of interpersonal violence. The questions were intended to be broad in scope and thought provoking. It was the hope that participants would feel comfortable answering such questions whether or not they had encountered violence, as the questions were not specific to their own personal experiences. The questions were written at a high school reading level, and separated in presentation to allow the participant to answer one question at a time. Questions were also presented in written form so that participants could refer to them if needed. The open-ended method was used in order to help elicit detailed responses (Morse & Field, 1995).

All participants completed an audio-taped, open-ended, in depth qualitative interview conducted by the first author. Participants were informed that the researchers were interested in what individuals with ASD see as risk and protective factors for interpersonal violence victimization. A minimal number of broad, data-generating questions were asked that were designed to encourage participants to discuss relevant risk and protective factors for those with ASD. The interview script read as follows, with pauses for participant responses between questions:

“We are interested in learning about interpersonal violence. Interpersonal violence is violence that occurs between two people, such as child abuse, abuse from a partner, physical abuse, sexual abuse, and emotional abuse. We know lots of people experience interpersonal violence and we want to learn more about how we can keep individuals with ASD from experiencing interpersonal violence. What would you say makes it hard for individuals with ASD to stay safe? What are some things that you would recommend individuals with ASD can do for themselves to help keep themselves safe? What are

some things that you would recommend be done by families and professionals (like teachers, therapists, people in the community) to help keep individuals with ASD safe?"

The interviewer utilized the methodology as described by Mathieson (1999), where participants are listened to, their responses are interpreted by the researcher, and the interpretations are then provided to the participant, resulting in a co-authored interview shaped by the participant's responses. Open-ended queries (e.g. "Tell me more about it") were also utilized to facilitate the narratives. Care was taken to not introduce themes during queries. Interviews were transcribed verbatim.

A thematic analysis was utilized within individual semi-structured interviews (Braun & Clarke, 2006), in order to explore the risk and protective factors for interpersonal violence as identified by those with ASD. Previous research has used thematic analysis (constant comparative method) to examine qualitative interviews conducted with individuals with ASD and with family members of those with ASD (Ryan, 2010; Ryan & Cole, 2008). The first author removed all identifying information from the transcripts and checked them for accuracy. They were analyzed electronically utilizing a thematic approach with support of NVivo7. The present study utilized the thematic analysis phases, including 1) data familiarization, 2) generation of initial codes, 3) searching for themes, 4) reviewing themes, 5) defining and naming themes, and 6) report production (Braun & Clarke, 2006). The research team discussed their overall sense of the data, and potential themes and codes that the data may produce. Two members then generated initial codes and themes and double coded the transcripts, reviewing and discussing their process through each quarter of the transcripts. Discrepancies in coding were examined through discussions with members of the research team until a consensus was reached. A third member participated in defining and naming themes and report production. Members of the research team

have considerable experience working with individuals with intellectual and developmental disabilities, including ASD across the lifespan, demonstrating prolonged engagement with the population. Negative case analysis (consideration of inconsistent responses relative to emerging themes) and peer debriefing (informal and formal discussions to examine ideas and potential preconceived notions emerging within analyses of interviews) were utilized to ensure rigor and methodological soundness.

### **Procedure**

Individuals with ASD participating in Study 1 were invited to partake in qualitative interviews after the completion of Study 1. Participants who self-identified as having an ASD were recruited through notices regarding the study distributed through community-based programs and organizations offering services to adults with ASD across Ontario. Notices were also posted on online ASD communities, distributed through several colleges/universities academic support services, and distributed by participants to others at their discretion. The York University ethics board approved this research and all participants provided informed consent.

The main author of the study interviewed all participants. Interviews were conducted in a private space, largely in participants' homes or in private locations in the community (private rooms in libraries and office spaces). Location and time of day was arranged with participants and their preferences were followed. Sensory needs were also accommodated when identified by participants (e.g., lighting). Participants were able to skip questions if they desired to do so and some participants chose to skip one question when they felt they did not have an answer. The interview times varied considerably, lasting from 5-35 minutes.

Participants, unprompted, shared their personal stories of violence, anger, sadness, and frustration. Many were eager to share their views and opinions, while others provided more

succinct, careful answers, and rarely elaborated on their responses when provided with the opportunity. Some participants lacked discretion in their responding, sharing overly personal information in the process, while others, after the audio recording was turned off, would share their stories and discuss how violence had been a part of their life since childhood. Many participants identified their perpetrators during these discussions, sharing about violence experiences with their parents in their home, and feeling they had been victimized by teachers and peers within the school. Physical violence and emotional abuse were discussed often. They shared feelings of hopelessness, and that advocates were not there when they needed them most. Some recognized the impact of time and culture on their experiences, as some grew up in the 1980's when there was a lack of awareness of ASD and a lack of understanding regarding the supports that they may have needed as youth. Many of the stories shared with this author were childhood experiences, lending evidence to the quantitative studies pointing to increased risk of violence in childhood. Participants, while sharing their stories, did not become visibly emotional (e.g., crying), however, they spoke to their feelings in the moment (e.g., "It makes me sad to think about..."). One participant voiced interest in accessing therapeutic support at the end of their interview, and requested information from this author, who then provided them with a list of services in their geographical location.

## **Results**

The results of the thematic analysis found two overarching themes: 1) Building Safety Skills and 2) Support From Others (Figure 1). These themes, as well as the subthemes found within them, are described below.

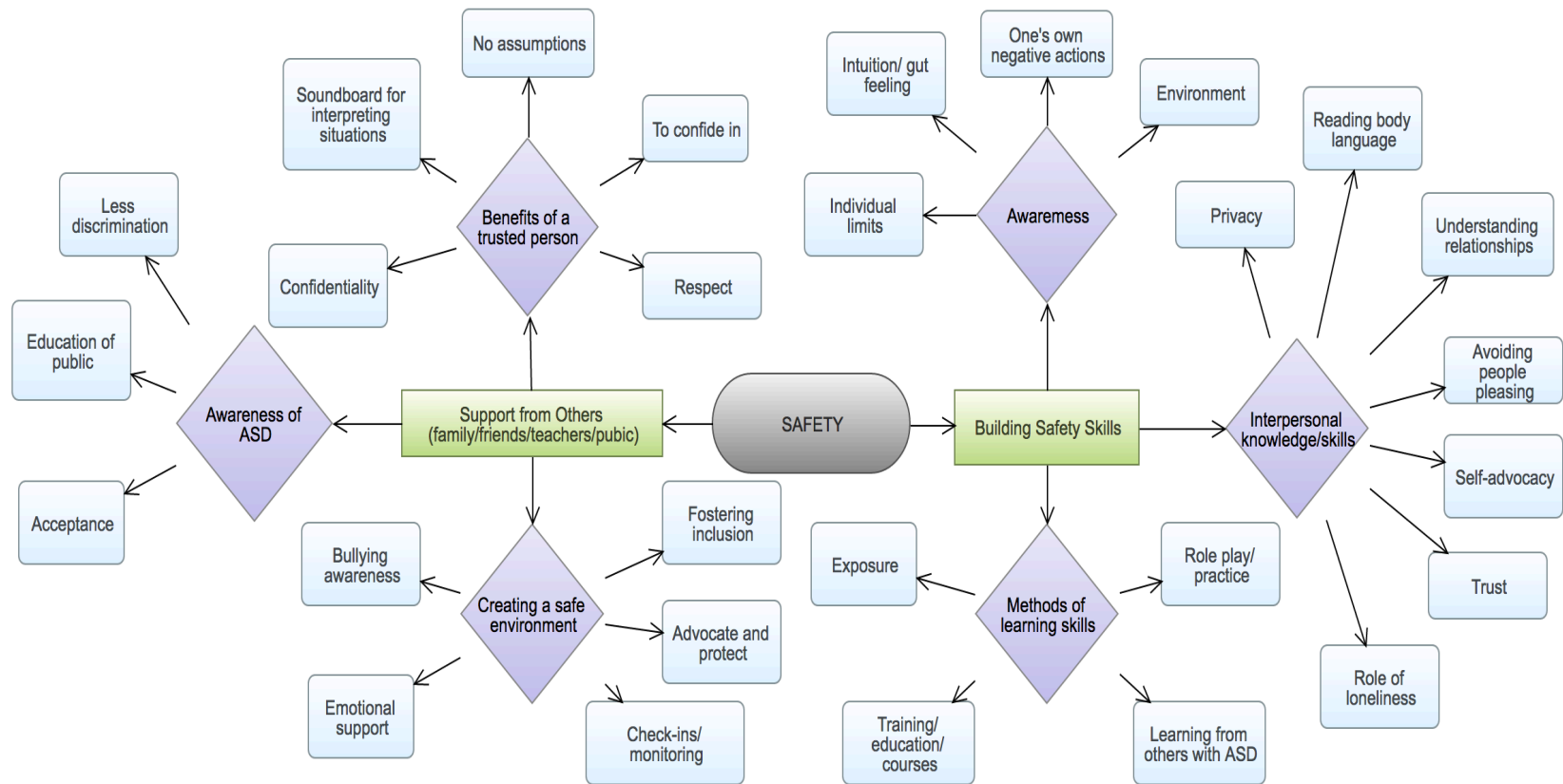


Figure 1: Themes identified in thematic analysis



## 1. Building Safety Skills

Participants discussed several aspects of skill building. Almost all participants highlighted the importance of increasing awareness and knowledge with regards to safety skills, and various ways of teaching safety skills to those with ASD.

**1.1 Awareness.** Participants described various forms of awareness as important precautions and skills to promote safety for those with ASD. Several described challenges with regards to having an awareness of their environments, their own influence within social interactions, their intuition, and an awareness of their individual limits.

Participants described the importance of having an *awareness of one's surroundings and to various stimuli within the environment*: “I would say always be aware of your surroundings. Like the worst thing you can do in public is to zone out...” (Participant 21, female). “Zoning out”, or not being aware, may lead to increased vulnerability to violence. Participants described a *lack of intuition, or gut feeling*, with regards to safe and unsafe situations, as well as having self-doubts about their own intuition. One participant also described feeling that their intuition was disregarded as a child: “I think for me it's harder to rely on that instinct in some way plus because in my childhood I was often told that I don't have instinct so I was told to always doubt my gut” (Participant 21, female). Individuals with ASD may experience self-doubt with regards to their intuition, as deficit focused language may be frequently used by professionals and parents with regards to intuition.

One participant also clearly described the delay in understanding what their gut feeling may be telling them with regards safety in a relationship. This quote exemplifies that participants may experience a gut feeling, or intuition, within relationships, however the process of connecting that gut feeling to meaning within the relationship may be delayed.

It's always the case that if I am bullied, or taken advantage of... the person gets to do it for a while because it takes me a long time to realize what they are doing. Even though I don't feel right around them, it takes me a while to make the connection that they are behaving in a way that somewhere in my brain is saying "unsafe". I am not really sure why that is but ... I don't usually know I am feeling. (Participant 5, female)

A few participants highlighted the need for an *awareness of their own individual limits*. Being overwhelmed, and the need to multitask, were both identified as factors to be considered and aware of within social situations. Individuals emphasized the importance of knowing what they could tolerate, and how interactions can become overwhelming when there is too much information to take in and consider.

...just being aware of the fact of that at least for me, every little thing is an individual thing that I have to pay attention to and therefore I can sort of guess of what I can do on top of that's an activity as far as other people are concerned. And so I think that that's just being aware of what your limits are. (Participant 5, female)

Participants also described the need to have an *awareness of their own negative actions* within social interactions, and their impact on the nature of the interaction: "People with social deficiencies might upset other people without knowing it" (Participant 23, female). They spoke of making mistakes in social situations, perhaps offending others, and how that could lead to violence or anger on the part of the other person. Some participants attributed these mistakes to a lack of knowledge around social interactions and appropriate and inappropriate things to say in the moment.

**1.2 Interpersonal Knowledge/Skills.** Participants described the importance of being taught more about relationships and to open dialogue around the disclosure of ASD. Individuals

described the importance of *understanding relationships*, specifically learning how to identify negative relationships and abuse and the importance of choosing appropriate people to surround yourself with, and actively being aware of who one should not spend time: “Be very careful with people. Pick your companions very carefully” (Participant 15, female). A complex issue arises due to the lack of relationships and worries with regards to *loneliness*. The impact of loneliness was mentioned by several participants, as well as the impact that loneliness can have on safety. Several participants spoke of “desperation” for a connection, and that need for connection leading to contact with unsafe individuals, or maintaining contact with those who mistreat them: “It was just because I was so desperate for friendship. I would be weary of that. I was lucky that you know nothing ever came of it but that desperation for contact can sometimes leads you to things you wouldn’t normally or people you wouldn’t normally associate with” (Participant 12, male). A reliance on a limited number of relationships may also lead to individuals staying within dysfunctional, and possibly dangerous, relationships. One participant spoke about the combination of this desperation for a connection, and limited choices in relationships as a “catch 22”, where they felt that if they stayed in the relationship the outcome would be negative, and if they left the relationship they would be left alone.

Participants described the concept of *“people pleasing”* and a lack of assertiveness, and shared that it may contribute to them staying involved with those who may make them feel unsafe: “And often a desire to be compliant in a situation with an authority figure or with adults” (Participant 3, male). Some participants reported difficulty saying “no” within relationships, not wanting to displease others, or being fearful of not being able to emotionally handle the back and forth of an argument. They also shared that as children they had been encouraged to say “yes” to authority figures, and that this was a problematic trait carried forward to adulthood. There was

also a concern about the tendency to be *easily trusting*, and a need for vigilance in whom one should trust: “Really make an effort to get to know people as best you can because you start to learn whom you can trust and whom you can’t. And if you can’t trust them, stay away from them” (Participant 15, female).

Some shared that they felt learning more about *reading body language and nonverbal cues* could help individuals with ASD safe, as many nonverbal cues may indicate danger, and some individuals may miss these cues: “They don’t always pick up social cues, certain body language I guess could be missed” (Participant 18, male). They elaborated by also speaking about the importance of learning about *privacy and boundaries*, as individuals with ASD may speak openly or intimately with individuals they do not know well. They cited difficulties reading social cues, such as body language, or danger cues within interactions: “...they’d be more vulnerable to violence from friends or dates. Like they’d not pick up on a cue that their date is taking advantage of them or forcing them to do something” (Participant 19, male).

There were mixed thoughts about *self-advocacy* of their ASD diagnosis, with some participants advocating for the importance of disclosing their diagnosis, and others who highlighted the risks associated with doing so. On the one hand, telling people about a diagnosis can result in assistance in understanding what a person is struggling with, and in legal requirements for additional support. On the other hand, others knowing their diagnosis may lead to being taken advantage of. Participants highlighted that it can sometimes be appropriate and sometimes not to share the diagnosis: “I think it absolutely will lead to them taking advantage because it gives people an excuse” (Participant 5, female). Participants felt that when a person has a disability, or ASD more specifically, this could lead others to have an "excuse" to bully, isolate, and treat a person poorly in general.

**1.3 Methods of learning skills.** A majority of participants described various methods to assist those with ASD learn the above mentioned skills, including role play, courses and training, exposure to the outside world, and learning from others with ASD. Participants viewed practice and repeated exposure to content as critical to learning.

*Courses* focusing on areas of deficit were recommended, for various ages and ability levels, both within and external to the school system: “maybe just a general course that kids or teens or young adults can take on staying safe” (Participant 8, female). Courses should focus on specific areas of deficit and use specific examples: “Like you’re going through sexual violence say “keep an eye out for this, these are risk factors, these are things you want to avoid”, these are – because, like I said they might not things that are obvious to a neurotypical person might not be obvious to someone with ASD. So things like that could be very useful” (Participant 18, male). Several participants highlighted the importance of *practice and role-play* in order to assist with the integration of skills and knowledge regarding safety: “...what would really be helpful is to practice – like when their child is young is to practice role-playing games in various dangerous situations so they’ll know exactly what to do when something like that happens” (Participant 21, female).

Participants highlighted the importance of *exposure* to the world, and the things one can learn through independent living and life experiences. They spoke of not being sheltered and helped when it isn’t needed:

Well, some parents because we have autism think that they we need to sheltered, we need to be like caged in, we need help when some of us don’t need help. Like I am perfectly fine in doing things by myself, I could take care of myself...Some of them do need help but not all. (Participant 24, male)

Several participants mentioned the importance of not limiting the freedom of those with ASD to build their safety skills:

... we have a little bit more freedom...parents should give their kids like a chance to prove themselves so they can take care of themselves instead of doing it for them. They should be able to do it themselves. Like test them to see if they can do it themselves...Like almost not treating us like children like a person. (Participant 24, male)

A few also recommended *learning from others with ASD*:

And people who are on the spectrum need access to their peers to learn from each other ... there's a blog I read...she is on the spectrum though and she was writing the other day that she basically had to be taught how to tell lies and that that in some situations can actually help people stay safe and that goes contrary to popular opinion of course...But if telling a lie means that for example you're able to leave a harmful situation sooner than you would have otherwise been able to then you know what? You go ahead and tell that lie. (Participant 14, female)

The above quotes speak to the importance of independence, experiential learning, and being treated like an adult. Individuals spoke of "sheltering" a person with ASD as a way of further isolating them, and not letting them blossom and demonstrate their skills out in the world. Skills can be transferred in a variety of ways, and one important way that was highlighted was through others with ASD. Individuals with ASD can be a valuable, untapped resource of knowledge for others with ASD.

## **2. Support from Others (family/friends/teachers/pubic)**

Almost all participants highlighted involving others, or having access to others, for support, knowledge, and protection. They spoke of the importance of advocates, increasing

awareness of ASD in the community, and the benefits of feeling accepted, respected, and included by others.

**2.1 Benefits of a trusted person.** Participants shared the many benefits of a trusted person, including having *someone to confide in* and act as a *soundboard for interpreting situations*. Participants described the importance of having someone who is accessible, nonjudgmental, and willing to listen, whether this be a family member, friend, or professional:

... being there for them and emphasizing that you are somebody to talk to if you don't feel safe. You can talk about – it's having that one person to go to. Like I find that the people with ASD who have that go to person are always better off. (Participant 8, female)

One participant shared that “not all of us have the luxury of having someone to confide in” (Participant 23, female), highlighting that some individuals with ASD may not have a trusted support person in place. Some participants also articulated a level of discomfort in speaking with their parents regarding safety concerns:

That's a problem because I knew all of this stuff. We learned about boyfriends and abuse and stuff in school, I knew it all. But it still happened anyways. So, I don't know, I guess maybe if you had somebody else you could talk to because I couldn't talk to my parents so there was no way I could tell them what was happening but I guess if you had at least one other person you could talk to ... (Participant 10, female)

Several individuals mentioned the importance of having the opportunity to have a *soundboard for interpreting situations*, consult with a trusted person around specific social situations:

Yeah, 'cause at least for me it's always been... like I am from a big family so I always have people I can ask because if something doesn't feel right like say well they did this and this

... what does that mean? They know me well enough to say that person is not your friend.

(Participant 5, female)

They shared that it is important to “get information from a variety of different people ...[as] one person’s perspective isn’t the same as everybody’s” (Participant 14, female). The lack of relationships identified by the participants is likely contributing to limited sources of information and less people to consult with regarding tricky social situations. Participants saw the importance of having "go-to" individuals in their lives with diverse opinions and strategies for social situations.

Many focused on the need for society to show greater *respect*, specifically around people *not having assumptions, maintaining confidentiality, and valuing their opinions*. Assumptions can have negative impacts, when they are held by both society and/or individuals in the community: “You can’t just assume that because somebody is functional and live in their own apartment and drives a car that they are able to understand what needs to be done in every situation” (Participant 23, female). Participants commented on the importance of being involved in their treatment and care, and being consulted in decision making: “Lack of assumptions is a big one here again. Don’t assume that intervention or treatment or whatever you want to call it is always wanted or the best thing” (Participant 14, female). Environments need to send the message that *opinions are listened to and valued*:

Find people whether they’re friends or teachers or people at your workplace that see you for you and are willing to listen to what you want and what you need rather than imposing their own ideas and that’s not just something for people who are on the spectrum, I think everybody needs that if you are marginalized or vulnerable in some way it’s so important to have people who will actually take your side. (Participant 14, female)



**2.2 Awareness of ASD.** Individuals also commented on society's awareness of ASD and its importance in decreasing discrimination and promoting acceptance. A few participants made links between the perception of disability and ASD in the community, and how negative views and *discrimination* may lead to interpersonal violence: “[it seems] okay to discriminate against people with ASD and because of that people have licensed to do whatever. What we need to do is we need to change that attitude” (Participant 15, female). Increasing *public knowledge of ASD* and its associated areas of deficit and strength may also reduce contexts that discriminate:

For one thing the public has to learn more about ASD. The public has to learn that it's not okay to discriminate against us. The public has to learn that it is okay to be different just because we're not like them doesn't mean that we are any less. (Participant 15, female).

Public knowledge may also lead to more advocates, who could potentially play a protective role for individuals with ASD.

One participant highlighted that even though awareness of ASD is important, there are people in the community, and within their families, that may be closed off to awareness and furthering their understanding:

Again, awareness, awareness, awareness. Which is difficult too because I know even with relatives and whatever it's like “ugh, you're supposed to do something about Asperger's again” ... I get fed up you know but it's like either people are keenly interested and then there's the other people that say nothing and you know that a lot is still more good than harm. So, too bad for those other people. Don't read it [information on ASD] if you are so opposed. Don't get annoyed just because I post something that you don't want to read.

And, so yeah, if people were more aware. (Participant 20, female)

Moving beyond awareness, to *acceptance* was also stressed:

I think also acceptance is a big thing. Um, and also letting – if you accept that you’re ASD – find out that there’s a lot of people out there who are as well and hopefully you can find them if you put yourself out there. I know it can feel super hard when you’ve met rejection so many times but there are a lot of people out there and hopefully there will be more resources in the future to connect each other. (Participant 12, male)

Both awareness and acceptance may decrease rejection, foster new relationships, and perhaps provide more understanding and inclusion within the immediate context (e.g., family).

Participants saw awareness as a way to decrease the feelings of burden and negativity that their diagnosis brought within their families and society.

**2.3 Creating a safe environment.** Participants voiced that creating a safe environment was critical, through check-ins, emotional support, bullying awareness, advocates, protection, and by fostering inclusion. Participants spoke of the importance of *advocates* in the community, school, and in the legal system, to assist with filling out forms for services, advocating for their needs and safety within various systems, addressing their safety concerns or needs, and needing supports in place for reporting experiences of violence or abuse, as overwhelm may get in the way of clearly articulating what happened. Many shared that they experienced difficulties with advocating for themselves, and it would be useful to know who could potentially advocate for them and *protect* them in tricky situations: “I think advocacy too. I cannot find advocacy. I would have loved to have advocacy through this” (Participant 20, female). This participant went on to speak of the stress of navigating systems (ODSP, lawyers, etc.) and the benefits of having someone assist you with the process: “I am getting conned? Am I going to remember everything? ... you know, you can really get taken advantage of in those situations”. They also shared the importance of having an advocate when situations become overwhelming:

When you go mute someone can speak up and say “okay, this is what’s going on and this is what’s happening right now and let me explain”. And when the person’s getting frustrated, even a lawyer, you know someone should be there to explain when you just can’t – you know, self advocacy is great but sometimes you just can’t do it. (Participant 20, female)

This participant spoke of wanting to stand up for herself, but being held back at times due to being overwhelmed within a situation. A variety of factors can lead to overwhelm (e.g., sensory sensitivities, multiple dialogues at once, new environments), and individuals felt that in those times support would be beneficial to ensure that they were not taken advantage of.

Participants wanted others to be more *aware of bullying*, especially covert bullying within various environments (school, work, etc). Several spoke about their bullying experiences not being taken seriously, or being bullied by their teachers. Some also shared that their parents had not believed them, and the negative impact this had on their reporting of bullying: “When I was a kid, I’ve been bullied a lot. I often told my mom what happened. Sometimes she would not do anything...” (Participant 1, male).

*Checking in* on individuals with ASD and offering support were both mentioned as important contributions support persons could make:

I think looking back at how I was as a kid. I was sort of quiet and off in the corner and seemed content and people just sort of left me alone but that meant that I grew up sort of on my own. I think it’s probably a good idea to check in on kids like that... Even though they might seem perfectly happy to not have interaction, it’s not about keeping them happy, it’s about preparing them to be functional adults. (Participant 23, female)

Support persons were also encouraged to offer *emotional support* to individuals with ASD,

beyond assistance with situations and checking in, as emotional support may lead to more open dialogue with regards to safety and dangerous situations:

But overall, just emotional moral support is always good to have. For myself, I always relied on my mom and brother even when I didn't have friends that supported me in the same way. I always knew the people I could go back to. And sometimes just knowing someone has your back a lot of the time can give you the confidence to be able to navigate around better. If you are going around and you feel kind of like – not rejected but you feel like you are not listened to by that many people or you don't have a strong support system in really anybody then I think that's a very potentially dangerous situation. (Participant 6, male)

A few participants also discussed the importance of *fostering inclusion* and integration of those with ASD within the community, with one participant highlighting that fostering inclusion should start with children: “that inclusion thing is gotta come in ... to the kids”. Encouraging inclusion with children was discussed as a way of preventing both isolation and bullying within the school environment.

### **Discussion**

The present study examined the beliefs of individuals with ASD regarding risk and protective factors for interpersonal violence victimization. Together, the results of this study demonstrate that there are various skills and supports that individuals with ASD feel would contribute to their safety. Many of the risks and protective factors included but also extended beyond a focus on the person with ASD, to what needs to occur in their contexts: The provision of safety and supports in a society that promotes skill building and safe environments. The ecological theoretical framework of interpersonal violence supports these findings. This

framework has been described by Messman-Moore and Long (2003) as it applies to violence revictimization. This framework is founded on understanding experiences within four levels of factors; ontogenic development factors (individual factors or experiences such as mental health, knowledge of safety and relationships etc.), microsystem factors (the immediate context of victimization, personal relationships etc.), exosystem factors (the community context in which relationships occur, such as school and work, the available community resources etc.) and macrosystem factors (broader societal/cultural norms around abuse and ASD, disability inequalities etc.). The ecological model provides a guiding theory that is inclusive of various systems and theoretical perspectives. Participants commented on areas for change or intervention across all four factors.

Connections with others and social supports play an important role in safety for those with ASD. Participants spoke of personal struggles with loneliness and people pleasing and how those may lead to the continuance of negative or unsafe relationships. Research has shown that adolescents with ASD experience more loneliness, have poorer friendship quality and have lower social network status' than their typically developing peers (Locke, Ishijima, Kasari & London, 2010). A recent study examining loneliness and social support in teens found that adolescent boys with ASD self-reported experiencing loneliness more often than youth without ASD, yet those with greater perceived social support reported less loneliness (Lasgaard, Nielsen, Eriksen, & Goossens, 2010). Social support (e.g., relationships with family, close friends, groups, and support persons) may provide or contribute to several protective factors for these youth and adults, as research has shown many benefits of social support for the parents of youth with ASD (e.g., Ekas, Lickenbrock, & Whitman, 2010). In terms of adults, research in men with ASD who are in a relationship has shown that informal support predicts adaptation (Renty & Roeyers,

2007). Participants raised an important point, identifying a connection between loneliness and staying in unhealthy or unsafe relationships. We must not only focus on educating those with ASD about safe and unsafe relationships, but also focus on maintaining and strengthening connections with friends and family.

Individuals with ASD may require various forms of teaching, training and knowledge building to promote safety. Participants cited teaching skills through role-play, exposure, practice, courses, and through the school system, as well as learning from others with ASD, as useful for keeping those with ASD safe. Research has shown that a lack of sexual health knowledge for those with ASD is related to sexual victimization (Brown-Lavoie et al., 2014), and this relationship to alternate forms of knowledge may also exist (e.g. safety, relational knowledge, etc). A review examining methods of teaching safety skills to individuals with developmental disabilities concluded that prompting, reinforcement, and role-playing are effective teaching procedures across a variety of participants, skills, and settings (Dixon, Bergstrom, Smith, & Tarbox, 2010), lending evidence to the importance of experiential learning through exposures and role-play. A variety of safety programs are currently being designed, implemented and evaluated for youth and young adults with ASD, often focused on practical aspects of safety, such as street crossing (Josman, Ben-Chaim, Fridrich, & Weiss, 2008), abduction prevention (Gunby, Carr & LeBlanc, 2010), help seeking when lost (Taylor, Hughes, Richard, Hoch, & Rodriguez Coello, 2004), and sexuality and relationships (Corona, Fox, Chistodulu & Worlock, 2015); however, very few programs are widely accessible and being utilized in the broader community and within school boards. Broader programs exist beyond safety training that may assist in addressing some of the risks associated with ASD. Social skills programs that target peer interactions, such as the PEERS program (Laugeson, Frankel, Gantman,

Dillon, & Mogil, 2012), are becoming more commonly accessible in North America, and have increasingly strong evidence base for long-term outcomes (Mandelberg et al., 2014). Another potential avenue could be to modify available curriculums and utilizing pre-existing resources targeting interpersonal violence prevention (e.g. PREVNet: [www.prevnet.ca/](http://www.prevnet.ca/)).

This study also elucidated the contextual targets for interventions to address victimization among individuals with ASD. A lack of awareness, openness, acceptance, and advocacy for individuals with ASD may result in unsafe environments. Participants openly spoke about the benefits of support persons for such improvements to their environments, as well as for socioemotional support and ultimately for social protection, and this may be a particularly important message for individuals with ASD. One study compared caregiver beliefs about social vulnerability in children with ASD, Williams syndrome, and Down Syndrome, and found that those with ASD had less risk awareness and less social protection when compared to these two other disability groups (Fisher, Moskowitz, & Hodapp, 2013). Safe, supported environments are needed both in schools and in the workplace, in order to foster social connection and advocacy. Acceptance of ASD is increasing on college campuses (Robertson & Ne'eman, 2008), but further interventions and programming are needed to promote the integration, and acceptance of, adults with ASD in other environments. There is emerging evidence for the effectiveness of peer-mediated social skill interventions (DiSalvo & Oswald, 2002), which provide a unique opportunity to increase social skills in those with ASD, while simultaneously increasing awareness in peers without an ASD. Research has demonstrated that receiving support from classmates is one of the most important means of reducing the frequency of bullying (Humphrey & Symes, 2010), therefore finding ways to increase connections and supports between individuals with ASD and their classmates may serve an important protective function.

This study also reveals the implications of the long-term psychological effects of interpersonal violence for people with ASD. Peer victimization is associated with internalizing symptoms in children with ASD (Mayes, Gorman, Hillwig-Garcia, & Syed, 2013; Storch et al., 2012), and physical and sexual abuse, and bullying can increase the risk of suicide ideation or attempts in individuals with ASD (Richa, Fahed, Khoury, & Mishara, 2014). The current study suggests a need for evidence-based treatments for trauma in youth and adults with ASD and a greater understanding of the ways they may process these experiences compared to those without an ASD. Researchers and clinicians have highlighted the paucity of literature on the effects of trauma on those with ASD and the limited research base regarding effective treatments, with some recommending adjustments to evidence-based practices for trauma treatment for youth with ASD (Grosso, 2012; Hoover, 2015). Trauma-focused cognitive behaviour therapy is one example of an evidence based intervention that works towards improving emotion regulation in individuals who have experienced complex trauma (Cohen, Mannarino, Kliethermes, & Murray, 2012), yet this form of therapy has yet to be examined for its effectiveness for those with ASD. Proactive programming and steps to prevent violence victimization, coupled with interventions to assist those who experience trauma, are together critical endeavors for future work.

### **Limitations**

The present study is based on adult report and did not elicit the input of youth with ASD or others. Future research would benefit from hearing from parents and educators of those with ASD, and their views on what is necessary to promote safety for this vulnerable group. Participation was not anonymous, and was limited to those interested in completing an in person interview in the presence of the researcher, and this may have affected transparency in sharing their opinions. Participants completed their interviews after completing several structured



questionnaires inquiring about various forms of interpersonal violence. It is possible that the experience of completing the questionnaires prompted individuals to consider their own experiences when responding to the questions presented in this study. It is possible that this sample represents a more well-adjusted and functional group of individuals with ASD, and thus the results of this study may not be generalizable to the experiences of others with ASD or other developmental disabilities. Member checking, where themes are presented and reviewed by consulting participants in order to explore the viability of emerging findings, was not used in this study, and may have provided important information in the formation and organization of themes.

### **Conclusion**

This study contributes to the existing literature by providing first hand beliefs and opinions from those with ASD around promoting safety for those on the spectrum of any age. Many adult participants shared personal stories of violence, bullying, and neglect, and voiced the need for more formal and informal supports, and training. Although research has started to provide evidence for various interventions focused on training and skill building, they are not universally available or accessible within communities. Evidence-based curriculums must be developed and effectively disseminated and made accessible in order to provide the skills and knowledge needed to proactively address interpersonal violence victimization.

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## **Chapter 5: General Discussion**

The primary goal of this dissertation was to further understand violence perpetration and victimization in adults with ASD. The first study in this dissertation explored the broad autism phenotype (BAP) in a sample of young adults without a diagnosed ASD to ascertain the relationship between characteristics of ASD and the experience of violence. The second study compared reported experiences of victimization across individuals with and without ASD living in Ontario. The third study used qualitative methodology to elicit the opinions of those with ASD on the topic of violence risk, prevention, and safety.

### **Summary of Findings from Studies 1, 2 and 3**

There is a lack of research exploring variables related to polyvictimization and polyperpetration in those with ASD, and research examining the BAP is another step towards furthering our understanding of how violence may be related to ASD characteristics. Study 1 was the first to address the question of whether the BAP, emotion regulation, forms of empathy, and perspective taking were related to rates of polyvictimization and polyperpetration of young adults in North America. Childhood polyvictimization was consistently associated with interpersonal violence in adulthood, for both sexes, supporting previous research that has found strong links between victimization in childhood and adulthood, even when investigated among other risk factors (e.g., Maker, Kemmelmeier, & Peterson, 2001; Messman & Long, 1996; Schumacher et al., 2001). Further, childhood polyvictimization emerged as a stronger statistical predictor of victimization and perpetration than the social, communication and behavioural difficulties reflected in the BAP, or the associated expected cognitive and emotional risk factors. Experiences of childhood victimization were related to difficulties with cognitive empathy and emotion regulation, and emotion regulation did emerge as a predictor of adult interpersonal violence, but

only accounted for a small amount of variance after considering childhood victimization. For men, emotion regulation emerged as a significant predictor of adult polyvictimization, whereas for women, emotion regulation emerged as a predictor of adult polyperpetration. Contrary to hypotheses, the BAP was not related to adult polyvictimization or polyperpetration, nor was it related to childhood victimization. The BAP was related, as expected, to emotion regulation, perspective taking, and empathy, suggesting that this lack of an association is not due to measurement problems. As the focus of the study was on polyvictimization and polyperpetration, as opposed to separate forms of violence (e.g., intimate partner violence) it may be that there are connections between specific forms of violence and the above-mentioned variables, which is a possible avenue for future research.

Study 2 was the first to gather self-reported data across a broad array of victimization and perpetration experiences from adults with ASD, and to compare with a matched sample of individuals without ASD. This study also examined the association of polyperpetration and polyvictimization to sociocommunicative competence and emotion regulation. Adults with ASD self-reported a greater number of discrete types and breadth (i.e., various forms) of victimization during childhood when compared to adults without ASD. The sociocommunicative ability and emotion regulation deficits found in adults with ASD did not explain their heightened risk for victimization and polyvictimization in childhood. Groups did not differ in the overall rate of polyvictimization or polyperpetration in adulthood, yet did differ on specific forms of victimization. Individuals with ASD were more likely to report experiencing teasing/emotional bullying from other adults in adulthood and more likely to report sexual contact victimization. Similar to Study 1, sociocommunicative competence was not correlated to rates of

polyvictimization. Groups similarly reported low rates across all forms of perpetration and categories of perpetration.

Study 3 was the first to utilize qualitative methodology to elicit the opinions of those with ASD on the topic of violence risk, prevention and safety. Participants spoke of various skills and supports that they felt would promote safety and decrease risk, as well as the contextual problems that they faced that contribute to violence victimization. They cited the benefits of teaching skills through role-play, exposure, practice, courses, and through the school system, as well as learning from others with ASD, as useful for keeping those with ASD safe. Loneliness, people pleasing, and a lack of supports were highlighted as having the potential to lead to the continuance of negative or unsafe relationships. A lack of awareness, social protection, openness, acceptance, and advocacy for individuals with ASD in the broader community may also result in unsafe environments.

### **Implications**

The ecological model of interpersonal violence provides a guiding theory that has both clinical and research implications when considered within the results of this dissertation. This framework is founded on understanding experiences within four levels of factors; ontogenic development factors (individual factors or experiences such as mental health, knowledge, etc.), microsystem factors (the immediate context, personal relationships etc.), exosystem factors (the community context in which relationships occur, such as school and work, the available community resources etc.) and macrosystem factors (broader societal/cultural norms). Study 3 provided a framework for exploring factors at every level, with participants highlighting safety factors and targets for intervention at the ontogenic, microsystem, exosystem and macrosystem levels as important to consider when addressing violence. It appears that a multi-faceted, cross-

environmental approach is necessary for addressing the prevalence of violence experiences. This dissertation also examined ontogenic factors quantitatively (Study 1 and 2) by examining the associations between violence and individual factors, including sex, diagnoses, empathy, theory of mind, and sociocommunicative competence.

**Future research.** Studies that focus on the prevalence, risk factors, and outcomes of violence experiences for those with ASD have important research and clinical implications. There is a particular need to address risk in childhood, as youth with ASD are at greater risk of victimization than the general population. Results of this dissertation indicate that individuals with ASD experience significantly more victimization in childhood, as well as certain forms of victimization in adulthood, emphasizing the importance of exploring variables that are predictive of individuals having these experiences and the subsequent outcome. Involving adults, and perhaps youth, with ASD in designing research questions and studies may also lead to important findings and directions for future research. Higher functioning individuals with ASD are clearly able to participate in knowledge sharing and are consumers of current research, and their involvement in research goals and study design would be beneficial.

Research is needed to elucidate the complex mechanisms under which exposure to violence operates. We must continue to explore other correlates of victimization and perpetration in the ASD population, as important variables that have been examined in the broader violence literature were not examined in the present dissertation. At the individual ontogenic level, important variables such as deception detection, sex and gender, and social variables (e.g., friendships, partnerships, social-information processing, whether sex differences in reporting and patterns exist) were not examined. Future research can explore the individual level self-reported experiences of this group of individuals to better understand the psychological impact of

victimization and evaluate evidence based treatments to treat trauma. The results of these studies also demonstrate the importance of considering the experiences of violence of those with ASD in research and interventions of mental health, therapeutic outcomes, and well-being.

This study did not quantitatively consider contextual, microsystem and exosystem risk factors for interpersonal violence (e.g., SES, education), which may have provided a more comprehensive understanding of polyvictimization and polyperpetration as it occurs in this population. Participants in study three shared that microsystem factors, including family, relationships, friends, supports, and advocates, all had an important role in protecting and building skills and confidence in those with ASD. Research exploring the interplay between supports from others and risk for victimization, and whether skill building programming has a protective element would all build knowledge around protective factors. Research is needed at the microsystem level to identify the perpetrators of violence against those with ASD and where violence is most likely occurring (e.g., school, work, daycare, home etc.). Knowing who and where violence is being perpetrated against those with ASD may provide important information for targeted interventions.

Exosystem factors that were identified by participants in study three included available programming, discrimination in places such as school and the workplace and within the community, and a lack of acceptance of being different. Reviews of available programming within geographical locations, the acceptance and willingness to engage with individuals with ASD, and exploring their individual experiences within certain contexts could inform the development of further programming to influence integration and knowledge around ASD. Broader macrosystem factors including awareness and acceptance of violence at the societal

level, and the education of the public about ASD and disabilities more broadly, may serve as a protective element that could decrease risk for violence.

At the macrosystem and exosystem level, it is also of interest to learn more about the broader social norms and beliefs around those with ASD, and explore potential changes to increase acceptance and understanding. Literature reviews and cultural examinations of factors at the macrosystem level (e.g., evaluating the awareness of ASD in the population) may provide essential information about the perception and knowledge of society regarding ASD, and the potential impacts that may have. Employing longitudinal designs to study the pathway of violence in men and women with ASD in more depth, and to understand the impact of early victimization on social communication skills, emotion regulation, empathy, theory of mind, and relationships would provide critical information to clinicians and researchers, and build our knowledge base regarding appropriate interventions post-victimization by mapping the interconnections between various ecological levels.

**Clinical next steps.** Clinically, this study reinforces the need for accessible interventions for people with ASD who have experienced violence, and provides important information for families, caregivers, and clinicians that can inform clinical practices. Interventions and services within the home, school, and community level are needed in order to address the multi-level issues identified by participants. The frameworks and clinical goals of these services could greatly be informed by a comprehensive understanding of how factors at each ecological level relate to and predict victimization.

At the ontogenic level, this dissertation reveals the implications of the long-term psychological effects of violence victimization for people with ASD. Practitioners must be aware of the overlapping experiences of violence and the association between victimization and

revictimization, to adjust their assessments and interventions accordingly. Proactive, and easily accessible programming and interventions, are together critically important. There is currently a lack of information regarding effective trauma treatments for this group of individuals. There is a need for a more established research base on evidence-based trauma treatment options for individuals with ASD, and trauma-focused cognitive behaviour therapy, an evidence based approach for trauma treatment, should be examined to determine its effectiveness in treating trauma in this population.

Participants in Study 3 shared that microsystem factors, including family, relationships, friends, supports, and advocates, all had an important role in protecting and building skills and confidence in those with ASD. Further knowledge of who is perpetrating violence against this group of individuals could assist in developing targeted prevention programming focusing on increasing knowledge and acceptance in the perpetrator group. Knowing who is perpetrating would also be critical information for those direct support persons who may be playing a protective role. Only with additional insight around risk factors, including known perpetrator groups, can tailored interventions be provided that target perpetrators in an effort to prevent victimization from occurring within this group of individuals.

Families hold a particularly important role, according to individuals with ASD, and finding ways to support and strengthen family ties, social supports, and compassion for and within the family unit would be beneficial. Parents of individuals with ASD experience increased parenting stress compared to parents of neurotypical children and children with other disabilities (Hayes & Watson, 2013), and experience increased parent burden (Cadman et al., 2012). Providing supports, accommodations, and networking opportunities for family units as a whole may have long-term beneficial impacts. Emotion focused family therapy (EFFT), a family based



intervention stemming from the theoretical framework of Emotion Focused Therapy (EFT), may be an intervention that could provide skills, empathy, and to support persons of individuals with ASD. EFFT focuses on emotional processing, and works with caregivers to explore their own emotional blocks, and teaches caregivers to attend to, validate, label, and meet the emotional needs of their loved one. Clinicians can explore the clinical utility of this framework within families of those with ASD, as well as within the broader context of schools, teaching not only parents, but also peers, the power of empathy and emotion regulation. Programming at the school level, to foster inclusion, friendships, and relationships with professionals may also have broad positive impacts. There is emerging evidence for strength based school programming targeting bullying, with research showing significant decreases in bullying and increases in students' personal awareness of their strengths (Rawana, Norwood, & Whitley, 2011). Programs such as these can be expanded from their current frameworks to include disability awareness and inclusion initiatives.

**Policy implications.** A variety of changes may need to occur within societies to proactively address the victimization of those with ASD. Exosystem factors highlighted by participants included available community level programming, discrimination in places such as school and the workplace and within society, and acceptance of being different. Awareness and knowledge about victimization, through political awareness and advocacy, may increase dialogue and, in turn, prevention efforts within agencies, communities, and homes. An additional exosystem factor not described by participants, but which may be particularly important to consider, is the historical discrimination experienced by those with ASD. In Canada, there was a shift towards deinstitutionalization that occurred in the 1980's-90's, a shift that drastically changed the life course of many individuals with developmental disabilities. Some of the older

participants in this research may have been a part of that movement and shift, and it is possible that historical, institutional maltreatment was a part of their personal story. Many of the participants in this study grew up at a time where the discourse of ASD was muddied by accusations against parents of poor parenting, maltreatment, and a lack of empathy (e.g., the refrigerator mother), the identification of individuals with autism as "retarded" and/or "violent", and the provision of controversial interventions that lacked evidence (e.g., LSD, electroconvulsive therapy).

Although many of these myths have been dispelled, and treatments are evaluated using more rigorous means, there are still many myths that persist within the community (e.g., vaccinations being linked to ASD). At the macrosystem level participants spoke about increasing awareness of ASD and education of the public as a protective element that could decrease risk for violence. Providing accurate, clear information to society about the diagnosis, increasing the presence of ASD in the daily sphere (e.g., the character Max in the TV show "Parenthood"), and providing strategic plans for care and quality of life at the policy level could potentially change the life course of individuals with ASD. National level programming is needed within schools to teach youth, parents, support staff, and administration about ASD and encourage involvement in the lives of individuals with ASD. A recent study of middle school students' knowledge of ASD found that less than half (46%) reporting having heard of autism, and awareness and knowledge of autism varied across schools surveyed (Campbell & Barger, 2011). Studies such as this provide important information when considering national strategies for autism awareness. Youth, and adults, have varying levels of awareness and knowledge of ASD, and only with exposure to accurate information will knowledge increase.

## **Limitations**

The dissertation has several limitations. The research may have been affected by self-selection bias and attained samples of individuals with ASD who have more direct access to the internet or community services. The samples used in this dissertation represent a group of individuals with ASD who are cognitively average to above-average, who may be a more well-adjusted and functional group of individuals with ASD, and thus the results of this study may over or under estimate the violence experiences of others with ASD or other developmental disabilities. Larger, community based studies may be able to advance our knowledge in the area of victimization, perpetration, and ASD by allowing for more complex and powerful statistical analyses of variables at various levels, and a broader, and potentially more representative, sample of individuals with ASD living in North America. The present study is based on adult report and did not elicit the input of youth with ASD or important others in their direct environments, such as parents or caregivers. Participation for studies 1 and 2 was not anonymous, with participants completing questionnaires in the presence of the researcher. The data collected was based on retrospective reporting of victimization and perpetration, was based on participant report alone, not documented events, and did not longitudinally track victimization experiences. It is possible that participant responses were not completely accurate. Participant abilities were also measured utilizing self-report and not by objective measures of skill/ability.

There are alternative methods available for measuring constructs such as cognitive empathy, emotion regulation, violence and social skills that were not used in this dissertation, many of which do not rely on self-report of specific abilities or experiences. For example, theory of mind, or cognitive empathy has been measured utilizing false belief tasks (e.g. First- and Second-Order Theory of Mind task, Bowler, 1992), and animation tasks (e.g., Theory of Mind

Animation Task (Abell, Happe', Frith, & Frith, 2000; Castelli, Frith, Happe', & Frith, 2002). In the violence literature, researchers sometimes utilize file reviews, crime report databases or documented convictions to ascertain victimization and perpetration data on participants (e.g., Cheely et al., 2012). Using alternate forms of measurement that do not rely on self-report of abilities may provide more accurate information about skills, deficits, and experiences.

Cross informant report can also yield important information, and was not used in this study. Research has examined a variety of cross-informant data as it relates to individuals with ASD, with research identifying both high and low concordance rates between informants. For example, some research has found that parent and teacher ratings of behavioural symptoms in children with ASD are strongly correlated for only more severely affected children (Azad, Reisinger, Xiw & Mandell, 2016). The research has produced mixed results when examining parent-child concordance, with authors finding both differences and similarities between parent and child reported anxiety in children with ASD (Blakeley-Smith, Reaven, Ridge, & Hepburn, 2012; Russell & Sofronoff, 2005). On a broader measure of behaviour and emotional problems moderate agreement was found between adolescent (with ASD) and parent ratings of psychopathology and social functioning, but in general, parent and teacher ratings and adolescent and teacher ratings differed significantly (Jepsen, Gray, & Taffe, 2012), with some authors suggesting caution in using and interpreting self report measures on psychiatric symptoms (Mazefsky, Kao, & Oswald, 2011). In studies of bullying it has been found that parents and teachers differ in their reports of bullying for youth with ASD (Rowley et al., 2002), and teachers significantly report far more bullying and victimization than the adolescents peers about the child with ASD and significantly more than the child with ASD reported about themselves (Van Roekel, Scholte, & Didden, 2010). If adults with ASD follow a similar pattern of responding to

youth with ASD, the present study may actually be an underestimate of violence experienced in childhood.

### **Conclusions**

This dissertation presented self-reported victimization and perpetration data from various samples in an effort to further the research literature regarding violence and ASD. The results demonstrate that individuals with ASD report experiencing greater polyvictimization in childhood and specific forms of childhood and adulthood victimization when compared to those without ASD. Individuals with ASD did not report greater polyperpetration, and similar rates of perpetration were found across groups for all types of violence perpetration. Those with ASD appear to have an increased vulnerability to victimization, especially in childhood, and intervention and proactive prevention strategies are needed to decrease their vulnerability to, and the impact of, victimization. Individuals with ASD have the capacity to provide important information regarding safety promotion and risk factors for victimization, and their insightful thoughts and recommendations presented in this dissertation should play a role in guiding future endeavors that promote safety.

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