

Through the Lens of Trauma: Adverse Childhood Experiences and Crime Classifications

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Through the Lens of Trauma: Adverse Childhood Experiences and Crime Classifications

By Emily Rybak

**Abstract**

The current study was designed to explore the relationship between adverse childhood experiences (ACEs) and crime classifications to determine how the three different ACE categories differ as a function of four crime classifications, and how the number of ACEs experienced relates to chronic offending. This relationship was examined using a Canadian justice-involved population recruited through community residential facilities and support groups. ACE categories were not found to differ as a function of crime classification and the number of ACEs experienced did not relate to chronic offending. Previous research supports findings of the current study regarding the elevated rates of ACEs in justice-involved populations and notable gender differences. This exploratory study added to the ACE literature by exploring the relationship amongst all types of abuse, neglect, *and* household dysfunction in relation to *all* types of self-reported criminal convictions. Future research is encouraged to explore similar relationships among more substantial justice-involved samples.

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### **Adverse Childhood Experiences and Crime Classifications**

Adverse childhood experiences (ACEs) are stressful life events that occur up to the age of 18. Examples of ACEs include abuse, neglect, and household dysfunction (Trossman et al., 2020). Research has demonstrated that ACEs are associated with several unhealthy and antisocial behaviours in adulthood (Anda et al., 1999; Moreira et al., 2020; Trossman et al., 2020; Wiss & Brewerton, 2020). More specifically, ACE exposure has been empirically linked with later criminal behaviours in both adult and juvenile populations (Baglivio et al., 2015; Moreira et al., 2020). For instance, a meta-analysis conducted by Hanson and Slater (1988) found that, on average 28% of child sexual abusers (up to 67%) report having been sexually victimized as children. Researchers have also found that individuals with high ACE scores are more likely to report a criminal history (Baglivio et al., 2015).

A large gap within ACE research exists in regard to forensic psychology. Forensic psychology research on child abuse in relation to types of crime has mainly focused on people involved in the criminal justice system who were convicted of sexual offences, including forming a specific hypothesis regarding sexual abuse and sexual offending (Jespersen et al., 2009; Leach et al., 2016), and virtually ignored the remaining majority of the justice-involved population. This is problematic because it has left integral gaps of knowledge in understanding the relation between childhood adversity and crime in the remaining majority of the correctional population, therefore leaving gaps in approaches and perspectives for treatment interventions. All justice-involved people need to be studied to have a holistic understanding of how ACEs relate to classifications of adult criminal behaviour. To acknowledge and attempt to fill this gap in the research, a generalizable relationship across all types of adverse childhood experiences and crime classifications were examined within the current study. ACEs were categorized based on the original research by Felitti and colleagues (1998). Crime classifications were defined based on the Uniform Crime Reporting Manual (Statistics Canada, 2002, p.17). While thorough meta-analyses of ACE research in Canada have been conducted, there was still a focus on specific types of abuse across multiple studies (Bodkin et al., 2019). To the knowledge of the researcher, this research gap existed outside of

Canada, no study empirically examining all ACEs in relation to types of crime from any country had been found at the time of writing, let alone in a Canadian sample. However, the scope of the present study only intended to fill the gap for a Canadian justice-involved population.

The present paper reviews ACEs and how ACEs relate to justice-involved populations. The goal of the current exploratory study was to expand ACE research in relation to Canadian justice-involved people. This goal was attempted through the exploration of one research question and one hypothesis. The subobjective of Research Question I was to determine if there was a relationship between the three ACE categories and four broad crime classifications. The subobjective of Hypothesis I was to determine if there was a possible correlation between ACE scores (High versus Low) and number of self-reported previous criminal convictions (Low, Medium, High). It is important to note that the research question and the hypothesis were not related. Rather, the research question and the hypothesis individually serve the overarching goal of expanding ACE research in a Canadian justice-involved population.

The four crime classifications (violent crimes, sexual crimes, drug crimes, and non-violent crimes) were defined and organized based on the Uniform Crime Reporting Manual (Statistics Canada, 2002, p. 41-109). The Uniform Crime Reporting Manual was also used by the researcher to create an index of over 150 crimes prior to data collection. These four crime classifications were chosen because they allowed for the most complete and comprehensive classification of all possible crimes that could be reported by participants. Having less comprehensive crime classifications may have led to more descriptive groups, but were not considered to be appropriate under the scope of the current exploratory study. For example, two additional crime classifications of financial crimes and property crimes were originally included within the crime index. However, after completing the index, it was determined that these types of crimes would be better categorized under the nonviolent crime classification in order to allow for more meaningful and comparatively sized crime classification groups.

The ACE questionnaire consists of three categories, namely abuse, neglect, and household dysfunction (Felitti et al., 1998). These categories are not usually taken into specific consideration when examining ACE scores. However, the current study specifically utilized these three ACE categories during data analysis (*Research Question 1*): abuse (physical, emotional, and sexual), neglect (physical and emotional), and household dysfunction (mental illness, incarcerated relative, mother treated violently, substance abuse and divorce). What can be considered a strength of the ACE questionnaire is that it provides a condensed view of adversity experienced during childhood by focusing on specific and objective parental behaviours. Through such specificity, however, the ACE questionnaire only captures family and household adversity, and only a portion of family risk factors (SmithBattle et al., 2024; U.S. Centers for Disease Control and Prevention, 2024). Alternative ways to analyze or structure the ACE questionnaire will be discussed in a later section.

This paper also reviews ACEs' relevance to the criminal justice system and current correctional practices, which gather information about ACEs but do not integrate this information specifically for the purposes of treatment. While ACE information is available on people involved in the Canadian criminal justice system, there is greater potential for trauma-informed treatment interventions with justice-involved populations within the current treatment model. Also to be discussed is how the findings of the current research, as well as previous meta-analytic research such as Hanson and Slater (1988) and Bodkin and colleagues (2019) can fit well within the jurisdiction of the widely used Risk-Need-Responsivity model (Bonta & Andrews, 2016). This study empirically examined how the three ACE categories differ as a function of different crime classifications within a justice-involved population to identify the roles that ACE scores may play in various crime classifications amongst a Canadian justice-involved population, not just sexual offences. The current study was also designed to examine reported ACE scores in relation to number of self-reported criminal convictions.

### Adverse Childhood Experiences

Adverse childhood experiences (ACEs) are stressful life events that occur throughout development (i.e., up to age 18), including abuse, neglect, and household dysfunction (Trossman et al., 2020) which result in harm to a child (Cohrdes & Mauz, 2020). Research has linked reported ACE exposure with later criminal behaviours in both adult and juvenile populations (Baglivio et al., 2015; Moreira et al., 2020). These experiences threaten the foundations for health which support healthy development (Public Health Ontario, 2020). The study of ACEs is very important in the understanding of developmental psychopathology because it aids in the understanding of processes that underlie both adaptation and maladaptation across the lifespan (Toth & Cicchetti, 2013). This is necessary in order to fully embrace the prevention and treatment of such maladaptive processes.

Felitti and colleagues (1998) demonstrated that 52% of adults had experienced at least one ACE. Various studies have replicated these findings or reported even higher base-rates of ACEs (Cohrdes & Mauz, 2020; Lin et al., 2020; Merrick et al., 2018; Public Health Ontario, 2020). In a sample of university students, Lin and colleagues (2020) found that more than 10% of the sample reported *at least* five ACEs. A study conducted by Philogene-Khalid and colleagues (2020) sampled medical inpatients with substance use disorder (SUD) using DSM-5 criteria. The results showed that 63% of these individuals reported having experienced four or more ACEs, more than four times the amount reported in the general population (Felitti et al., 1998; Finkelhor et al., 2011; Merrick et al., 2018). These examples demonstrated the concept of poly-victimization: the experience of multiple types of abuse, such as a child who is exposed to both physical abuse and sexual abuse. Cohrdes and Mauz (2018) found that the most frequently reported ACEs by youth were emotional (25.7%) and physical (19.9%) neglect, emotional abuse (17.9%), and parental divorce (18.3%, p. 96). Bomysoad and Francis (2020) found that the top five youth-reported ACEs were parental divorce (33%), economic hardship (25%), household exposure to substance abuse problems (12%) or mental illness (10%), and parental incarceration (10%).



In the original study examining ACEs, Felitti et al. (1998) linked childhood adversity and engagement in health-risk behaviours with early mortality. Felitti et al. (1998) proposed that the reason for early mortality was also due to disruptions in social, emotional and/ or cognitive development. Based on a meta-analysis by Bomysoad and Francis (2020), the most potent effects of having experienced multiple ACEs were on alcohol use, poor mental health, and sexual risk taking. ACE research has also linked specific types of abuse with later mental health conditions. For example, Lobbestael and colleagues (2010) found that a history of sexual abuse predicts borderline and paranoid personalities, while physical abuse predicts borderline and antisocial personalities, and emotional abuse and physical neglect predict borderline personalities. Such personality disorders and various mental disorders have also been highly prevalent within justice-involved populations (Beaudette & Stewart, 2016). These observed associations between both ACEs and justice-involved populations with personality and mental disorders cannot be ignored. This commonality demands further examination for how encompassing these empirical relationships relative to ACEs may be within the Canadian criminal justice populations. ACE research has also demonstrated a dose-response relationship with an increasingly diverse number of health-risk behaviours and conditions.

### **Dose-Response Relationships**

A dose-response relationship, also known as a graded relationship, is the magnitude of an individual's response as a function of exposure to a stimulus or stressor over a period of time (Public Health Ontario, 2020). A graded relationship was originally found between the breadth of exposure to abuse or household dysfunction during childhood and multiple risk-factors for a number of leading causes of death in adults (Felitti et al., 1998). Wilson and Scarpa (2015) found that more severe and frequent sex abuse during childhood was associated with increased levels of maladjustment and greater mental health difficulties. Anda et al. (2006) demonstrated a dose-response relationship through elevated ACE scores increasing risk of outcomes related to effective, somatic, substance abuse, sexual and aggression-related domains. Using an adolescent sample from the 2016 to 2017 National Survey of Children's Health,

Bomysoad and Francis (2020) found that youth with one reported ACE were twice as likely to have depression or anxiety, and five times as likely to have a substance use disorder (SUD) than a youth who had no reported ACEs. Youth with four or more ACEs were the most likely to report current depression, anxiety, behavioural or conduct problems, ADHD, and SUD (Bomysoad & Francis, 2020). Studies with adolescent samples illustrate just how early the effects of childhood adversity take hold (Bomysoad & Francis, 2020; Craig et al., 2016; Dierkhising et al., 2013). These early effects go on to shape future lives and lifestyles, only reinforcing the cycle of adversity because of an individual's unwarranted maltreatment.

Dose-response relationships have also been demonstrated by previous research examining trauma and offending behaviours. Zara and Farrington (2016) found that people with chronic involvement in the criminal justice system (participants in excess of 10 criminal convictions) were more likely to grow up in poor parenting conditions described by "family disruption, parental negligence, abuse and neglect, emotional solitude, social deprivation, and psychological desperation" (Zara & Farrington, 2016, p. 46-47). These findings support the direction of *Hypothesis 1*, to be discussed further in a later section.

### **ACE Gender Differences**

Lin et al. (2020) recently demonstrated that females reported higher overall ACE scores than males in a population of adults. Lin et al. (2020) specifically found that females reported higher rates of sexual abuse, emotional neglect, and household mental illness. In a German study examining children and adolescents, boys were more likely to report physical neglect and death of a parent (Cohrdes & Mauz, 2020). In a sample of juveniles who have had experience with the criminal justice system, females were significantly more likely to experience every type of ACE, were less likely to report no ACEs (1.8% versus 3.1%) and had a higher average ACE score compared to young males involved in the justice system (4.29 versus 3.48; Baglivio et al., 2014). In a sample of adult American Indian/Alaska Native incarcerated women, De Ravello et al. (2008) found that 19% of the women reported four or more ACEs and 16% had experienced five ACEs.

Bodkin and colleagues (2019) conducted a meta-analysis to determine the prevalence of childhood abuse among people incarcerated in Canada across 29 studies published since 1987. Across the 29 studies, 65.7% of females experienced any type of abuse, while 35.5% of males experienced any type of abuse. Bodkin et al. (2019) highlight that only seven of the 29 studies reported the rates of experiencing *any* type of abuse, with only one including a male population, so the interpretation of this specific finding is considered limited. Bodkin et al. (2019) found that women were more than twice as likely to experience sexual abuse (50.4% vs 21.9%) and were more likely to experience neglect compared to men (51.5% vs 42.0%), though sufficient gender differences were not substantiated for physical or emotional abuse. These significant gender differences were complementary to previous research findings among youth with lived experience of the criminal justice system (Baglivio et al., 2014). It is important to note that the studies in this meta-analysis seemingly only included binary representations of gender, whereas the current study included multiple representations of gender.

Gender differences among ACEs have been consistently found, but why these differences exist has been debated. Hanson and Slater (1988) argued that males are likely to under-report sexual abuse because it is perceived that reporting sexual abuse contradicts societal expectations that males should be sexually dominant. Gendered approaches to ACE research have demonstrated significant score differences and differences in prevalence rates of different types of abuse in both general and criminally involved populations (Baglivio et al., 2014; Cohrdes & Mauz, 2020; Lin et al., 2020). Overall, the research demonstrates that both boys and girls are at risk of experiencing frequent, but different ACEs. These discrepancies were kept in mind when reporting on ACE data categorized by self-reported gender within the current study. The current study had no exclusion criteria based on gender in hopes to further explore previously documented interactions between ACEs and gender. This study also sought to include gender-diverse individuals and included non-binary options within the demographic questionnaire (see Appendix A).

English et al. (2002) examined the relationship between childhood victimization and subsequent delinquency, adult criminality, and violent criminal behaviour over a 15–24-year period using matched-

control samples. Matched controls were based on exposure to childhood abuse and/or neglect, age, race/ethnicity, gender, and social class. The results supported that childhood abuse and neglect increase the risk of arrest for both males and females over the lifespan. Previously victimized males were significantly more likely to be arrested for a violent crime as an adult compared to matched controls. Similar longitudinal research did not find an increased risk for violent offending when comparing males who had experienced past neglect and abuse with matched controls with no histories of abuse or neglect, however it did find that males who experienced abuse and neglect were at an increased risk for the frequency of violent arrests (Widom & Maxfield, 2001).

Interestingly, English et al. (2002) found that previously victimized female participants were roughly seven times more likely to be arrested as an adult for a violent crime in comparison to matched controls. Similar findings were also noted by Widom and Maxfield (2001) where females with histories of abuse and neglect were at an increased risk of being arrested for a violent crime in comparison to matched controls who did not experience abuse or neglect. Papalia et al. (2018) also found that gender moderated the relationship between childhood sexual abuse (CSA) and later offending. More specifically, Papalia et al. (2018) found that female CSA victims had stronger associations with general and violent offending, while male CSA victims had stronger associations with sexual offending. These findings challenge beliefs regarding how previously abused or maltreated females are more likely to manifest their trauma, pain or suffering inwardly through internalized behaviours (Ara, 2016). Based on the increased likelihood for females to be arrested for a violent crime as an adult, English et al. (2002) proposed that females are actually more likely than males to direct their aggression through external means. These findings demonstrated the importance of examining gender differences within ACE research and how these experiences may influence external behaviours. These potential gender differences were also explored within the current study.

### **Diathesis-Stress Model**

The findings of the current study were proposed to be interpreted through the perspective of the diathesis-stress model. This is a model in psychopathology in which the emergence of psychological disorders is the result of an interaction between a person's inherent vulnerability (diathesis) for developing a disorder and the individual's experience of stressful events (Broerman, 2017). The development of a disorder can be triggered and moderated by environmental stress, personal dispositions, and social context (Burns & Machin, 2013). This model posits that everyone has some degree of vulnerability and that the amount or intensity required to trigger the development or disorder depends on the extent to which an individual is inherently vulnerable. In this context, exposure to abuse constitutes inherent vulnerability. Lobbestael et al. (2010) linked specific forms of abuse and neglect with the onset of either paranoid or borderline personalities. The design of the current study aimed to expand the concept of the diathesis-stress model to the experience of ACEs and chronic offending through the exploration of *Hypothesis I*.

### **Cycle of Violence**

The cycle of violence hypothesis poses that a history of physical abuse during childhood likely predisposes the abuse survivor to violence later in their life (Widom, 1992). Although the original longitudinal study conducted by Widom (1992) only hypothesised a relationship with physical abuse, evidence was found supporting a relationship between abuse and neglect with later criminal behaviour. More specifically, it was found that both childhood abuse and neglect increased the odds of later juvenile delinquency as well as adult criminal behaviours by 40%. The association of neglect with later adult criminal behaviour was particularly important in establishing that is not only experienced violence that leads to violence committed by the survivors later in life (Widom, 1992). While most of the sample had no juvenile or adult criminal record, including both the substantiated abuse cases as well as the comparison group of children who had not experienced abuse, being abused or neglected during childhood “increased the likelihood of arrest as a juvenile by 53 percent, as an adult by 38 percent, and

for a violent crime by 38 percent” (Widom, 1992, p. 1). Research has continued to support this theory in association with various types of abuse as well as neglect (Dutton & Hart, 1992; Widom & Maxfield, 2001). Dutton and Hart (1992) examined a large sample of males in federal custody of the criminal justice system and found support for the cycle of violence hypothesis across different types of abuse as well as neglect. More specifically, Dutton and Hart (1992) found that men who experienced childhood abuse were three times more likely to engage in violent acts as adults in comparison to men who had not reported experiencing childhood abuse. The authors also found very intricate patterns in their findings, including that physical abuse was associated with committing adult physical violence, and sexual abuse was associated with committing adult sexual violence. While the findings of Dutton and Hart (1992) were significant, the study only coded for abuse and did not include the breadth of adversity that the ACE questionnaire inherently includes. The research conducted regarding the cycle of violence hypothesis presented here specifically helped to inform and justify *Research Question 1* in the current study. The design of the current study aimed to expand on the types of abuse and neglect experienced during childhood through the ACE questionnaire due to the questionnaire also including aspects of household dysfunction (i.e., incarcerated relative, household mental illness, etc.) and examined these in relation to all types of crime amongst a current Canadian justice-involved population.

### **Current Practices & Recommendations**

At the time of writing to the knowledge of the researcher, there were no current widespread practices or policies that screen for ACEs or general childhood maltreatment within the Canadian criminal justice system for the purpose of direct treatment intervention. During intake to correctional facilities, dynamic factors are meant to be assessed as part of the Dynamic Factors Assessment Report (Government of Canada, 2018). The Dynamic Factor Identification and Analysis, Revised (DFIA-R) Marital/Family Domain contains items that are similar to the ACE questionnaire. The Marital/Family Domain Indicators capture childhood experiences relating to physical, sexual, and emotional abuse, negative relationships with parental figures, witnessing family violence, and family members criminal activity during childhood

(Government of Canada, 2018). This assessment tool provides an even more comprehensive understanding to justice-involved individuals experiences of neglect and abuse than the ACE questionnaire due to the allowance for follow-up questions. However, the DFIA-R is regarded by the Government of Canada (2017) to only be used as a case management tool and can be used to predict risk. While the information gathered from this tool helps to indicate the level of case needs for treatment interventions according to the overall dynamic factor rating guidelines, there does not seem to be any directions or policies regarding the use of this information specifically during treatment (Government of Canada, 2018). The design of the current study aims to provide support for the use of information gathered by the ACE questionnaire or the DFIA-R *during* treatment according to assessment of case needs during intake. This will be done through the replication of previous findings demonstrating elevated levels of reported ACEs by justice-involved people (Baglivio et al., 2014; Bodkin et al., 2019; De Ravello et al., 2008), as well as providing empirical support showing that the type of abuse experienced (captured by the three ACE categories) is associated with specific types of crime classifications. While this information could be used to determine the individual case needs of justice-involved people and has much greater potential for being used during the actual interventions determined necessary by the dynamic factor rating guidelines.

The use of the Risk-Need-Responsivity (RNR) model is widespread throughout many successful correctional treatment programs (Andrews & Bonta, 2010). The three principles use the characteristics of people involved with the criminal justice system to help determine level and type of rehabilitative effort taken in criminal justice settings (Andrews et al., 1990). The Risk framework posits that individuals of higher risk require higher levels of service. The Need framework is meant to ensure that the services provided target the criminogenic needs of the justice-involved person. The Responsivity framework ensures that the style of services provided match the learning styles and abilities of the individual justice-involved person. It is important to note there is also a fourth principle: Professional override. This final principle gives discretion to the professional service providers to make appropriate decisions under the present conditions, but only with consideration of the first three principles (Andrews et al., 1990). A large

portion of success for the RNR model can be attributed to its targeting of specific risk factors and individual needs. Consideration of these specified factors and needs allows treatment programs to engage most effectively with clients (Andrews & Bonta, 2010). Relevant to the current study, a history of trauma is considered relevant to all three frameworks of the RNR model (Fritzon et al., 2021; Holloway et al., 2018). Following the description of the current study, it will be explained in a later section how trauma is relevant to each framework of the RNR model.

Baglivio and colleagues (2021) examined the interaction between trauma and best treatment practices by means of matching treatment and appropriate dosage. More specifically, they sought to evaluate if individualized services for dynamic risk factors were effective in reducing recidivism among youth with lived experience of the criminal justice system who had extensive exposure to ACEs (4+) in comparison to youth with lived experience of the criminal justice system who did not have exposure to ACEs. Participants in this study received matched programming based on their individualized criminogenic needs assessed by Lipsey's Standardized Program Evaluation Protocol (SPEP) which also gave indication for their appropriate dosage. It was found that elevated ACE exposure (4+) increased recidivism and was related to smaller reductions in dynamic risk. However, juveniles who received individualized matched services had greater treatment progress (quantified by a reduction in dynamic risk) and lower risk of recidivism among both low-ACE and high-ACE juveniles. These findings demonstrated the potential for people who have experienced ACEs to benefit from structured, but individualized treatment modelling which would appropriately fall under the Needs component of the RNR model.

### **Connecting Theory to Justice-Involved Populations: ACEs & Criminality**

The idea that there could be a connection between childhood and adult behaviours with respect to antisocial and otherwise criminal behaviours has been studied for decades (Farrington et al., 2021). Beginning in 1961-1962, the Cambridge Study in Delinquent Development (CSDD) aimed to study the development of offending and antisocial behaviour amongst inner-city London males. The findings from



the CSDD are based on nine interviews with male participants starting from ages 8-48, as well as retrieving criminal records up to the age of 61 (Farrington et al., 2021). In a study by Farrington (2020) life-course persistent offending constitutes a criminal career lasting for at least 20 years. Using the CSDD data, Farrington (2020) found that childhood risk factors including harsh parental discipline, poor parental supervision, a convicted father, and parental conflict were the strongest predictors of life-course persistent offending. These childhood risk factors closely or directly compare to items of the ACE survey (see Appendix A; Items 7 & 10). The CSDD data indicates that a combination of childhood adversities is associated with antisocial and impulsive children who continue to face problems in adulthood including offending behaviours, unemployment, and substance abuse (Farrington et al., 2021). The CSDD aimed to determine the extent to which future antisocial and criminal behaviour could be predicted based on this longitudinal study, which it was able to accomplish. It is important to note this study in order to understand the breadth of longitudinal research that associates childhood adversity with delinquency, antisocial behaviour, and adult criminal behaviours. The current research extends upon and specifies this idea by examining if specific types of childhood adversity, as measured by the ACE questionnaire (Felitti et al., 1998), are associated with specific crime classifications, rather than childhood adversity in relation to general criminal or antisocial behaviour.

Craig and colleagues (2023) were also interested in examining how ACE scores were associated with different offence types across two generations of data collected from the CSDD. Notably, the study addressed only total ACE scores and focused on male participants from the CSDD and only their male children. However, these items do not detract from the value of such a substantial longitudinal sample of research and the results it yielded. Such results included the association of high ACE scores with various offence types within generations, namely property and violent offences. While a relationship between parental ACEs and offending amongst the subsequent generation could not be substantiated by Craig et al. (2023), these previously unexplored questions are important in the consideration of future rehabilitation and crime prevention initiatives in both youth and adult justice-involved populations. This research also

supports the current study by demonstrating the differential impact that ACEs have on different types of offences.

A considerable amount of research has found connections between ACEs and criminal behaviours in both juvenile and adult populations. Moreira et al. (2020) found that a sample of youth who had experienced ACEs were more likely to offend and reoffend. Baglivio et al. (2014) found that youth with lived experience of the criminal justice system were 13 times less likely to report zero ACEs (2.8% compared to 36%) in comparison to the adult participants from the original ACE study conducted by Felitti et al. (1998). Again, comparing data to Felitti et al. (1998), youth with lived experience of the criminal justice system were also four times as likely to report four or more ACEs (50% compared to 13%). In a later study, Baglivio et al. (2015) found that 24% of high-risk youth with lived experience of the criminal justice system reported six or more ACEs.

More detailed research has been conducted by Vitopoulos and colleagues (2019) examining both male and female youth populations with involvement in the criminal justice system, detailing the relationship between trauma, recidivism risk factors from the RNR Model, and reoffending. Vitopoulos et al. (2019) found that several types of maltreatment and childhood adversity were related to various criminogenic needs. Criminogenic needs are considered risk factors for reoffending within the RNR Model (Vitopoulos et al., 2019). Maltreatment was also found to be the strongest predictor for recidivism in a model that included criminogenic needs, regardless of gender. These findings indicate that while gender differences have been substantiated in relation to ACEs, there are more niche relationships between the types of maltreatment or childhood adversity experienced and their impact on specific risk factors for reoffending.

Longitudinal research conducted by Widom (1992) examined the relationship between childhood abuse and neglect alongside delinquency and adult criminality. Participants included individuals with substantiated cases of neglect and abuse processed by the court from 1967 through 1971, as well as matched controls based on gender, age, race, and socioeconomic status who did not have an official history of abuse or neglect. Widom and Maxfield (2001) built upon this longitudinal research by

examining the same participants' arrest records six years after the last arrest records were obtained. These studies were interested in examining this relationship in relation to the cycle of violence hypothesis which propositions that a history of childhood abuse predisposes those who experience it to violence later in life. The results indicated that histories of abuse and neglect increased the likelihood of juvenile arrest (59%), adult arrest (28%), and violent crime (30%) in comparison to matched controls (Widom & Maxfield, 2001). It was also found that abused and neglected children were involved in crime at an earlier age, committed more offences and more often became repeat or people with chronic involvement in the criminal justice system in comparison to controls. Widom and Maxfield (2001) notably extended the cycle of violence hypothesis to not only include histories of abuse, but histories of neglect as well. This is particularly important considering that "harsh parenting," which encompasses things such as physical neglect and emotional abuse, is nearly three times as prevalent as physical abuse in Canada (62% versus 22%; Government of Canada, 2023a). The research discussed here has consistently established elevated rates of abuse in justice-involved populations of juveniles and adults. Taken together, the elevated prevalence rates of abuse and neglect, and the associated risks later in life demand that attention be paid to all types of childhood adversity.

Wolff, Baglivio and Piquero (2015; as cited by Craig et al., 2016) also demonstrated that youth with higher ACE scores were more likely to reoffend and at a faster rate in comparison to youth with lower ACE scores. English et al. (2002), using a similar study design to Widom (1992), found a relationship between childhood abuse and neglect with delinquency, adult criminality, and violent criminal behaviour (i.e., homicide and rape). Abused and neglected kids were nearly five times more likely to be arrested as a juvenile, two times more likely to be arrested as an adult and three times more likely to be arrested for a violent crime than the matched controls (English et al., 2002). Logistic regression revealed that physical and sexual abuse, neglect, and emotional abuse predicted higher violent arrest rates. The design of the current study examined more specified relationships among ACE categories and crime classifications (*Research Question 1*), and high ACE scores (4+) in relation to chronic offending (10+ self-reported criminal convictions; *Hypothesis 1*). These findings are supported by a recent

meta-analysis demonstrating that ACEs increased the risk for recidivism in samples of youth with exposure to the criminal justice system (Yohros, 2023).

Research has also begun to explore more nuanced relationships between ACEs and criminality. Craig and Zettler (2020) explored the effects of ACEs on offence type, namely violent recidivism, while also exploring how the effects may differ across sex, and racial/ethnic subgroups amongst youth with experience of the criminal justice system. The results echoed or supported previous research findings where ACEs increased a participant's likelihood of being rearrested for a violent crime (DeLisi et al., 2017; English et al., 2002; Widom & Maxfield, 2001). Further analyses revealed that this effect was strongest for domestic violence and sexual offences among white females and minority males (Craig & Zettler, 2020). Despite these effects of race/ethnicity, previous research has found that ACEs increased the likelihood of committing a sexual offence among all males across different race/ethnicity groups (DeLisi et al., 2017), while other research could not substantiate a significant relationship between ACEs and recidivism for race/ethnicity or gender specific models in a youth justice-involved sample (Zettler & Craig, 2023). Together these findings support the general objective of the current study in that there are more complicated and detailed relationships between ACEs and crime that should be explored further, particularly in a Canadian sample.

A comprehensive meta-analysis was conducted by Bodkin and colleagues (2019) examining prevalence rates of childhood abuse (physical, emotional, and sexual) and neglect among adult Canadian prison populations. The results of the meta-analysis found that half of the people in the Canadian prison populations had experienced at least one type of abuse during childhood. While this meta-analysis did not explore the types of criminal convictions, or crime classifications, exploratory analyses were conducted regarding federal versus provincial facilities. These exploratory analyses found a higher prevalence of emotional abuse for youth, and for people in provincial–territorial facilities, in comparison to adults and federal facilities. These exploratory analyses and findings are important in the context of the current study because it highlights the need to explore specific types of abuse in relation to experiences within the criminal justice system. By nature of the type of facility (federal versus provincial–territorial), there are

considerable differences in the length of the sentence and therefore the seriousness of the crime. This echoes a similar premise in the current study in regard to crime classifications, and supports the exploratory premise of *Research Question I*.

The meta-analysis by Bodkin et al. (2019) led to three recommendations, the first of which was enacted through the current study: “[...] researchers should advance research to elucidate the severity and nature of exposure to childhood abuse and the mechanisms linking such abuse to imprisonment among people in prisons in Canada” (Bodkin et al., 2019, p. 9). In the context of the current study, it was believed that crime classification may serve as this mechanism to provide greater insight into the relationship between childhood adversity and adult criminal behaviours in a Canadian sample. An aim of the current study was to support the authors’ second imperative detailing that “correctional authorities should promote trauma-informed services that seek to create a safe, transparent, and empowering environment while avoiding retraumatization” (Bodkin et al., 2019, p. 9) by framing the importance of this research as potential support for trauma-informed care (TIC) within the Canadian criminal justice system.

The Government of Canada (2023) set out to identify the prevalence of ACEs in federal Canadian justice-involved populations using the administrative data from the Correctional Service of Canada (CSC). The prevalence of ACEs in this federal justice-involved population was also used to determine any association with institutional and community outcomes, including correctional program dropout and substance abuse, respectively. The sample included people in custody released from 2009 to 2015 on at least 30 days of community supervision, the majority of which were men ( $n = 22,096$ , 94%). It should be noted that the nature of the CSC administrative data allowed for the identification of all but two ACE items: divorce and mental illness of a family member. The study found that a high majority of people involved in the criminal justice system experienced at least one of the eight identified ACE items (80% men, 86% women; Government of Canada, 2023b). These reported ACEs were also associated with negative outcomes relevant to both institutional and community outcomes. These findings also echo justification regarding the need for TIC with Canadian justice-involved populations (Bodkin et al., 2019).

Research has also demonstrated a compelling extension of the dose-response relationship between ACEs and criminal behaviour. For example, Smith and Thornberry (1995) not only found a significant relationship between childhood maltreatment occurring before 12 years old and later delinquency, but more extensive histories of maltreatment were also associated with higher rates of delinquency. Dierkhising and colleagues (2013) also found that more severe forms of maltreatment (chronic and frequent) and trauma exposure were associated with more severe and chronic delinquency. Youth who were involved in the criminal justice system reported earlier and higher rates of trauma, supporting the need to establish a trauma-informed justice system for traumatized youth (Dierkhising et al., 2013). As mentioned previously, Zara and Farrington (2016) were interested in studying various concepts in relation to people with chronic involvement in the criminal justice system such as the age of onset for criminal activity and average career duration. Zara and Farrington (2016) found that people with chronic involvement in the criminal justice system (participants in excess of 10 criminal convictions) were more likely than people with non-chronic involvement in the criminal justice system (less than 10 criminal convictions) to grow up in poor parenting conditions. A dose-response relationship between exposure to ACEs (High versus Low) and number of previous criminal convictions (Low, Medium, High) was examined by *Hypothesis 1* in the current study, specifically based on the previous research conducted by Zara and Farrington (2016), however the thresholds of categorization for criminal history varied which will be detailed in a further section.

As mentioned previously, a breadth of research has focused on people with a history of sexual offences (DeLisi et al., 2021; Drury et al., 2017; Hanson & Slater, 1988; Jespersen et al., 2009; Leach et al., 2016; Levenson & Socia, 2015; Levenson et al., 2015; 2016; Ramirez et al., 2015). Leach et al. (2016) specifically examined the sexually abused-sexual abuser hypothesis which states that people, particularly males, who are sexually abused as children are at an increased risk of sexually abusing others later in life. This hypothesis was tested using a large sample of only boys and was examined within the context of the wider birth population of Australia. Despite this specified hypothesis, no specific association was found between sexual abuse and later sexual offending, nor was an association found between sexual abuse and

other types of criminal behaviour. However, poly-victimization, rather than a single type of maltreatment, was found to be significantly associated with later sexual, violent, and general offending. Notably, a meta-analysis conducted by Jespersen and colleagues (2009) examined the sexually abused-sexual abuser hypothesis more broadly and did find that people with sex offence convictions were more likely to have been sexually abused in comparison to people with non-sex offence convictions. Papalia and colleagues (2018) demonstrated the profound effects regarding CSA when it was shown that both male and female participants who had experienced sexual abuse were more likely to engage in all types of criminal behaviour. Ramirez and colleagues (2015) examined childhood maltreatment and violent offending in relation to anger in a sample of males convicted of sexual offences. Ramirez et al. (2015) found that among people convicted of sexual offences who rated as angrier, they were more likely to have been abused as children and used violence during the commission of their crime.

In their meta-analysis, Bodkin and colleagues (2019) also noted that only seven (24%) of the studies examined *any* type of abuse, and a majority of the studies were focused on experiences of sexual abuse (89.6%). Research presented in this literature review has clearly demonstrated previous fixations on either specific types of crime or specific types of abuse when studying the relationship between childhood abuse and later criminal behaviour. The design of the current study aimed to address this general research limitation and give additional comprehensive understanding to experiences of adversity in a population of Canadians who have been involved with the criminal justice system as captured by the ACE questionnaire which includes categories of abuse, neglect, *and* household dysfunction.

Similar to ACE research that has focused specifically on people who commit sexual offences specific, other research has also focused on specific types of crime. DeLisi and colleagues (2017) examined the relationship between ACEs and specific types of crime (homicide, sexual assault, and serious persons/property offending) in a US sample of male juvenile delinquents, specifically examining if these effects vary across race and ethnicity. In this sample of juveniles ACEs were found to be positively associated with sexual offending, which supports previous research (Hanson & Slater, 1988; Jespersen et al., 2009; Levenson & Socia, 2015; Levenson et al., 2015; 2016; Ramirez et al., 2015),

however ACEs were negatively associated with homicide and serious person/property offending. The authors conclude that ACEs “do not operate on criminal outcomes in a directly linear matter and have considerably differential effects” (DeLisi, 2017, p. 7). This research is an important concept that should be explored; however, it only examines specific types of crime and only the number of ACEs experienced rather than type of ACEs experienced. The design of current study was interested in examining these effects across all types of crime for the purpose of integrating such findings into the existing RNR model for people who have committed *all* types of crime and in consideration of the specific types of abuse that they have experienced. This is considered necessary seeing as multiple studies have found elevated ACE scores in populations of people who have lived experience with the criminal justice system (Baglivio et al., 2014; De Ravello et al., 2008; Lin et al., 2020; Merrick et al., 2018).

While individual correlations have been made between ACEs and specific types of crime (DeLisi et al., 2017) and reoffending (Dierkhising et al., 2013; Wolff, Baglivio and Piquero, 2015; as cited by Craig et al., 2016; Zara & Farrington, 2016), further empirical validation is required, which this study intended to address. Many components of the long-term negative effects associated with ACEs are highly relevant to correlates observed in justice-involved populations, namely behavioural problems, and mental health disorders (Beaudette & Stewart, 2016; Bomysoad & Francis, 2020; Craig et al., 2016; English et al., 2002; Lobbestael et al., 2010; Moreira et al., 2020). The design of the current study also intended to specify the relationship between trauma and crime by examining the relationship between specific ACE categories (abuse, neglect, and household dysfunction) and crime classifications (violent crimes, sexual crimes, drug crimes, and non-violent crimes).

### **The Current Study: Definitions & Research Objectives**

As mentioned previously, ACEs were categorized based on the original research by Felitti and colleagues (1998). This includes three categories: abuse, neglect, and household dysfunction. Each of the ten items on the ACE scale corresponds to one of these three categories. The four crime classifications (violent crimes, sexual crimes, drug crimes, and non-violent crimes) were defined and organized based on



the Uniform Crime Reporting Manual (Statistics Canada, 2002, p. 41-109). Violent offences were defined as “a violation of the law which has included the use of aggressive action (with the intent to do harm) or threat of such action by one person against another” (e.g., arson, murder, robbery; Statistics Canada, 2002, p.17). Non-violent crimes were defined as the converse to a violent offence, meaning “the absence of aggressive action or threat with the violation of the law” (e.g., dangerous driving, fraud, theft; Statistics Canada, 2002, p.17). Non-violent crimes also include property crimes and financial crimes for the purpose of the current research in order to allow for more meaningfully sized groups during analysis. Drug crimes were any self-reported crimes pertaining to drugs (e.g., possession, production, or supplying an illegal substance). Sexual crimes were any crimes with a sexual component including exceptions from violent crimes as indicated in the Uniform Crime Reporting Manual (Statistics Canada, 2002; e.g., sexual assault, sexual interference, voyeurism). These are considered to be exceptions because although they could be considered a violent crime by nature of including an aggressive action by one person against another that is a violation of the law, they are instead classified under sexual crimes due to their specific sexual connotation. It should be noted that there were exceptions for some violent offences and were instead included within the sexual crime classification based on this exception also being made in the Uniform Crime Reporting Manual (Statistics Canada, 2002). The Uniform Crime Reporting Manual was also used to create an index of over 150 crimes prior to data collection for analytical purposes within the current study. This crime index was later used to code participants self-reported criminal histories into the four crime classifications. Justification for using more general crime classifications was based on previous research examining the relationship between different types of childhood abuse and crime (Siegel & Williams, 2003; Smith et al., 2005). Using these four predetermined crime categories also allowed for more meaningful group sizes for the purpose of data analysis due to an anticipated small sample size.

The design of the current study sought to answer one exploratory research question and one hypothesis to serve the overall goal of expanding ACE research in relation to Canadian justice-involved people. The subobjective of Research Question I was to determine if there was a relationship between the three ACE categories and four crime classifications. The research question was exploratory due to the

innovative attempt to examine how the three types of ACEs differ as a function of crime classifications for the purpose of integrating the findings into a correctional treatment framework. As mentioned previously, most forensic psychology research regarding trauma has focused primarily on people with a history of sexual offences (DeLisi et al., 2021; Drury et al., 2017; Hanson & Slater, 1988; Jespersen et al., 2009; Levenson & Socia, 2015; Levenson et al., 2015; 2016; Ramirez et al., 2015). While research regarding CSA as well as sexual offending is profoundly important, this left a large gap in studying justice-involved populations which the design of the current study addressed head-on.

*Research Question 1* sought to examine the relationship between ACE categories and crime classifications, and specifically asked how do the different ACE categories (abuse, neglect, and household dysfunction) differ as a function of the different types of crime classifications (violent crimes, sexual crimes, drug crimes, and non-violent crimes). This research question is exploratory considering most forensic ACE research has focused on ACEs or general histories of childhood abuse within populations of people convicted of sexual offences (DeLisi et al., 2021; Drury et al., 2017; Hanson & Slater, 1988; Jespersen et al., 2009; Levenson & Socia, 2015; Levenson et al., 2015; 2016; Ramirez et al., 2015). The type of analysis used was also considered exploratory seeing as it typically had not been used in forensic psychology research. It is important to note that this previous research has consistently established a correlation between experiences of childhood sexual abuse and adult sexual offending. Based on these consistent findings, it was considered reasonable to believe that this relationship would be found across different types of abuse and therefore across the three ACE categories because previous research has demonstrated that abused and neglected children have a higher likelihood of arrests for general adult criminality (English et al., 2002; Widom, 1992; Widom & Maxfield, 2001). This exploratory research question was examined using a Permutational Multivariate Analysis of Variance (PERMANOVA). This exploratory research was necessary to establish an empirical relationship between abuse and crime across all ACEs, not just sexual abuse. Based on previous research leading to the development of this exploratory research question, it was expected that ACE categories would have an empirical relationship

with respective self-reported crime classifications. For example, physical abuse would be associated with violent crimes.

It is important to note that there are alternative ways to analyze the ACE questionnaire or how the ACE questionnaire could be restructured into different categories altogether. Justification for considering ACEs in clusters include critiques regarding how the use of total ACE scores ignores the intricacies of adversity (Bauer et al., 2024; Lacey et al., 2022). For example, Craig and colleagues (2022) used both ACEs and positive childhood experiences (PCE) to determine the potential effects of clustered risk and protective factors to determine the effects on outcomes such as recidivism. While Craig et al. (2022) demonstrated that there were distinct ACE/PCE clusters amongst the sample related to differing likelihoods for future offending, such clustering approaches were not within the objective of the current study. Rather than trying to determine if specific clusters/groups of ACEs could predict recidivism or extent of self-reported criminal history, the aim of the current study was to explore the possible relationship between *all* ACE items and *all* types of crime. It was originally intended to examine each individual ACE item in relation to each crime classification, without using any of the three overarching ACE categories during analysis. However, due to the anticipated small sample size of the current exploratory study and in order to avoid violations of assumptions, a different analytical approach needed to be taken. This led to specifically using the three preexisting ACE categories as captured by the original ACE questionnaire (abuse, neglect and household dysfunction) during data analysis. These three ACE categories have been regarded as three distinct categories based on the original ACE study data (Dong et al., 2003; 2004; Dube et al., 2003; 2004).

The subobjective of Hypothesis I was to determine if there was a possible relationship between ACE scores and number of self-reported previous criminal convictions. *Hypothesis I* stated that ACE score (High versus Low) would be related to number of previous criminal convictions (Low, Medium, High). This hypothesis was specifically meant to examine if High ACE scores (4+) related to more than 10 criminal convictions, compared to Low ACE scores (<4). This hypothesis was meant to examine a new type of dose-response relationship: a higher exposure to ACEs is associated with greater involvement

within the criminal justice system as quantified by the number of self-reported criminal convictions. *Hypothesis 1* was based on the findings of English et al. (2002) as well as the findings of Zara and Farrington (2016) described previously and is also supported by previous research (Dierkhising et al., 2013; Smith & Thornberry, 1995). *Hypothesis 1* was examined using a Pearson Chi-Square test. This Pearson Chi-Square test was completed by categorizing participants based on their total reported ACE scores into two groups: High ACE score (4+) and Low ACE Score (<4). This hypothesis helped to expand on previous forensic psychology research (Zara & Farrington, 2016) by including a systematic account of ACEs experienced in relation to criminal behaviour, specifically chronic offending. Examining this type of relationship could be especially useful when implementing such research findings within treatment programs. For example, treatment groups and level of needs to be addressed could be based on high (10+) versus low (<10) arrest rates in relation to a history of ACEs. As mentioned previously, the research question and hypothesis in the current study were not directly related; they were individual relationships within ACE research that had yet to be explored or needed to be examined further within a current Canadian justice-involved population and were intended to individually serve the overarching goal of expanding ACE research in a Canadian justice-involved population.

### **Method**

The design of the current study examined ACE categories in relation to crime classifications using a non-experimental design. No control groups were used, and statistical comparisons were only made between naturally occurring groups (i.e., participants with a low ACE score and a high ACE score). The three ACE categories included abuse (physical, emotional, and sexual), neglect (physical and emotional), and household dysfunction (mental illness, incarcerated relative, mother treated violently, substance abuse and divorce; Felitti et al., 1998) resulting in a total of ten items. The four crime classifications included violent crimes, sexual crimes, drug crimes, and non-violent crimes. Determining participant inclusion for the four crime classification groups for the purpose of data analysis was based on answers provided by the participants to the first and second questions of the Criminal History

Questionnaire (see Appendix A). Answers submitted by participants were referenced to the Uniform Crime Reporting Manual (UCR; Statistics Canada, 2002). The Canadian Criminal Code (1985) was to be used to verify correct crime classification when the researcher was uncertain which crime classification applied, however this was not necessary based on the answers provided by all participants. It should be noted that only the classification system for crimes within the UCR were utilized within the current study. Considering the possible associated problems with the statistics reported within the Uniform Crime Reporting Manual (Statistics Canada, 2002) only being able to include police-reported crimes within Canada, no statistics from this report were used to interpret any of the results from the current study.

### **Participants and Procedure**

Participants were recruited from community residential facilities (CRFs) and community support groups for people involved with the criminal justice system to ensure representation of Nova-Scotian justice-involved people and a gender-diverse sample. Participants were only recruited from CRFs and community organizations that had previously agreed prior to data collection to support and promote the current research project. Participants were informed about the study through posters or email recruitment from the respective CRFs or community organization. Staff members of the CRFs and community organizations were sent an email template that was approved by the SMU REB with the survey that could be directly forwarded to eligible participants. Paper surveys were also provided to ensure accessibility for all eligible participants.

Before completing any statistical tests, the raw data were examined for any missing data and incomplete surveys. Thirty-six surveys were completed through the Qualtrics link and 12 were completed using paper surveys. Two surveys were conducted through in-person interviews at the request of the participant. Of the initial 48 surveys, six surveys did not have answers submitted past the first four questions and were excluded from analysis, leaving 42 participants for descriptive statistical analysis. Next, the raw data were reviewed to determine which participants had answered all questions necessary to

address both *Research Question I* and *Hypothesis I*. This review of the data resulted in a total of 28 participants in the *Research Question I* analysis, and 37 participants included in *Hypothesis I* analysis.

Forty-two surveys were available for descriptive data analysis. Of the 42 completed surveys, 23 identified as female (54.8%), 14 identified as male (33.3%), two identified as non-binary or third gender (4.8%), two participants chose not to disclose a gender identity (4.8%), and one participant preferred to self-describe (2.4%). Most participants were Caucasian (57.1%,  $n = 24$ ), however there were also Multiracial/Biracial (21.4%,  $n = 9$ ), First Nations (9.5%,  $n = 4$ ), African American (2.4%,  $n = 1$ ), Hispanic or Latinx (2.4%,  $n = 1$ ), and Middle Eastern or North African (2.4%,  $n = 1$ ) participants. There were also two participants (4.8%) who indicated 'Other' for their race/ethnicity. Despite most participants in this study identifying as Caucasian, it is important to remember the disproportionate amount of Indigenous and African Nova Scotian people who have been exposed to the Canadian criminal justice system, especially Indigenous females (Public Safety Canada, 2023), and are over eight times more likely to be incarcerated compared to non-Aboriginal people in Canada (Public Safety Canada, 2022). The mean reported age of participants was 38.6 (range = 20-90,  $n = 42$ ).

Participants first read through the Informed Consent Form and then completed the ACE questionnaire (Felitti et al., 1998), a criminal history and a demographic questionnaire (see Appendix A for full survey). After reading through the Debriefing Form, all participants were given the opportunity to receive a \$20 gift card (see Appendix E). The online Participation Compensation form was accessed through a separate URL so that any personal information provided was stored separately from survey data to ensure confidentiality. Completed paper surveys were kept by the managers of the houses and organizations in a locked drawer. Completed paper Participation Compensation Forms were securely stored separately from completed surveys to ensure confidentiality. Completed paper questionnaires and paper compensation forms were retrieved by the researcher following the conclusion of data collection. Though in-person interviews were not anticipated some surveys were administered through in-person interviews by the researcher at the request of participants. No manipulations or forms of deception were used, and all participants received the same questionnaires in the same order.

Following data collection, self-reported criminal charges were categorized into the respective crime classifications by referencing the Uniform Crime Reporting Manual (Statistics Canada, 2002). The crime classifications included violent crimes, sexual crimes, drug crimes, and non-violent crimes. As mentioned previously, if the researcher was ever unsure of which classification a self-reported crime fits into, the Canadian Criminal Code (1985) was to be used to verify the correct crime classification, however this was not necessary based on the answers provided by all participants. While reviewing the data for the purpose of classifying crimes reported by participants, all items given in the criminal histories from participants aligned with the four pre-determined crime classifications, no additional crime classifications needed to be added.

### **Materials & Measures**

Beyond the three sets of questions described below, additional data to be used in a SMU undergraduate honours thesis was also collected during the current study. This additional data intended to examine the relationship between specific types of ACEs and substance use. While this is an important branch of ACE research, examining this relationship was outside of the scope of the current study. Responses from the questions for this additional data regarding substance use were not included in any of the data analysis for the current study and were therefore not included in consideration of necessary sample size, effect size, or power analysis.

#### *Adverse Childhood Experiences Questionnaire*

The ACE questionnaire is a standardised measure for childhood adversity that consists of ten items. Each question is responded to with yes or no for a total possible score of ten (see Appendix A for the full questionnaire; Felitti et al., 1998). The questionnaire consists of three subscales, namely neglect, abuse, and household dysfunction. These subscales are not usually taken into specific consideration when examining ACE scores, however the current study utilized these as three ACE categories during data analysis (*Research Question 1*): abuse (physical, emotional, and sexual), neglect (physical and emotional), and household dysfunction (mental illness, incarcerated relative, mother treated violently, substance abuse

and divorce). Responses to all ACE items were coded as binary categorical variables for the purpose of *Research Question I*. Research typically categorizes individuals between those who have a high ACE score (4+) and those who have a low ACE score (<4; Baglivio et al., 2015; Moreira et al., 2020). Based on these methods used in previous studies, High and Low ACE score groups will be used in the data analysis of this study based on the total self-reported ACE scores, specifically to test *Hypothesis I*. The ACE questionnaire focuses on specific and objective parental behaviours which has been shown to result in higher levels of reliability and validity. This is due to questions that avoid judgment and further interpretations of experience such as having to reconstruct events to the researcher (Pinto et al., 2014). Dube and colleagues (2004) found that test-retest reliability in the original ACE study conducted by Felitti et al. (1998) was in the good to excellent range (range of Cohen's kappa: .46 - .86). Not only is this standardised measure commonly used in the literature, but the lack of ambiguity in the questions results in high validity and questions are less likely to be misinterpreted by participants.

Research conducted by Pinto et al. (2014) has led to speculation that age may influence retrospective reports. Specifically, younger individuals are less likely to accurately recall events because their life story is not established or fixed. Despite this, Pinto et al. (2014) found significant positive correlations between the total scores for adversity using the ACE questionnaire across multiple evaluation times in both younger and older participants.

### *Criminal History*

A total of five questions were presented to participants regarding their criminal history. These questions were not taken from a standardised measure due to the simplicity of the questions being asked. To avoid possible confounds these questions were modeled after similar studies (Juon et al., 2006; Schulz, 2015). These questions inquired about participants' most recent criminal offence ('What is the most recent criminal offence that you were convicted of?'), all criminal charges they have, and which conviction they considered to be the most serious (see Appendix A). The use of the various questions was meant to provide the current study with a comprehensive criminal history, and the final question



regarding seriousness was included specifically to help prompt participants' memories for previous convictions considering the use of self-reporting crimes and the potential effects of time on episodic memory.

### *Demographic Information*

A total of three questions were used to collect participants basic demographic information. These questions were also not taken from a standardised measure due to the simplicity of the questions being asked. To avoid bias or confounds these demographic questions were modeled after similar studies (Felitti et al., 1998; Lin et al, 2020; see Appendix A).

### **Data Analysis**

All data analysis intended to serve the primary Research Question and Hypothesis of the study:  
*Research Question I:* How do the different categories of ACEs differ as a function of the different types of Crime Classifications?

*Hypothesis I:* ACE score (High versus Low) will be related to number of previous criminal convictions (Low, Medium, High).

*Research Question I* was examined by completing a PERMANOVA, to determine if the three ACE categories (abuse, neglect, and household dysfunction) differ from one another as a function of the four crime classifications (violent, non-violent, sexual, and drug crimes). PERMANOVAs are designed to test univariate or multivariate data, specifically testing two binary categorical variables in the current study: ACE categories and crime classifications. The test statistic calculated for the PERMANOVA is analogous to the conventional ANOVA  $F$ -statistic. PERMANOVAs are seemingly uncommon in forensic psychology research, though this type of analysis has been used in microbiome studies (Kelly et al., 2015). While there was not a specific hypothesis for the PERMANOVA in the current study, the pseudo- $F$  test used to complete the PERMANOVA (Kelly et al., 2015) engages in null hypothesis testing by nature. Therefore, the null hypothesis for the purpose of interpreting the results of *Research Question I* was as follows: ACE categories do not differ as a function of the four crime classifications. For the

purpose of *Research Question I*, an index of over 150 crimes were reviewed and selected for all four crime classifications based on the Uniform Crime Reporting Manual (Statistics Canada, 2002) before data collection began. All self-reported crimes were then classified into these four categories based on this index.

To examine *Hypothesis I*, a Pearson Chi-Square test of independence was conducted. The results of the Pearson Chi-Square test addressed *Hypothesis I* by determining if these two categorical variables were related, specifically if the number of previous criminal convictions (Low, Medium, High) was dependent on High or Low ACE scores. The null hypothesis posited that the number of previous criminal convictions was independent of grouped ACE scores. Testing this hypothesis also explored a dose-response relationship by examining how ACE score (High versus Low) related to self-reported convictions (Low, Medium, High) through group comparisons. The categorization for number of previous criminal convictions was drafted based on the study conducted by Zara and Farrington (2016), however different thresholds for the three categories were used. Zara and Farrington (2016) used One-Timers, Recidivists, and Chronic Offenders for their three categories of number of previous criminal convictions. While One-Timers included a unique set of participants ( $n = 49$ ), the Recidivists Group ( $n = 118$ ) also included participants from the final Chronic Offenders group ( $n = 28$ ) which allowed for overlap between the two latter groups. Chronic offenders in Zara and Farrington's (2016) study included those who had ten or more previous convictions. This distinction of ten or more previous criminal convictions was also used in the current study to describe chronic offending. However, non-overlapping groups of Low (less than 5), Medium (5 to 10), and High (more than 10) previous conviction groups were used to create three *distinct* groups due to the assumption of independence of observations for Pearson Chi-Square analysis and allowed for more meaningful group sizes considering the small sample in the current study.

Due to the binary coding for group membership of high and low ACE scores as well as previous criminal convictions, there were no expected outliers for the purpose of this analysis. In conjunction with the Pearson Chi-Square test completed for *Hypothesis I*, the data was also planned to be analysed using an Odds Ratio. The justification for including an Odds Ratio was originally included for the purpose of

providing a more meaningful interpretation of results that could be translated into the justification for different treatment groups within a Canadian correctional setting. Due to the exploratory nature of the study, all analyses were examined using two-tailed tests.

## Results

### Post-Hoc Power Analysis & Effect Size Calculations

Post-hoc power analyses were completed to determine the effect size (*Research Question I*) and the level of power (*Hypothesis I*) in the current study. An a priori power analysis was originally completed but the data analysis plan for *Research Question I* was revised, therefore a new alpha level and a post-hoc power analysis needed to be completed because the data had already been collected. The Bonferroni correction based on two statistical tests (the PERMANOVA and the Pearson Chi-Square) indicated an  $\alpha$  level of .025 ( $\alpha = .05/2 = .025$ ) for both statistical tests for *Research Question I* and *Hypothesis I*. After completing the Bonferroni correction, post-hoc power analysis was conducted.

PERMANOVAs require effect size to completed post-hoc using Omega squared ( $\omega^2$ ) which provides an effect size measure for analyses that resemble an ANOVA, such as a PERMANOVA (Kelly et al., 2015). The  $\omega^2$  accounts for the mean-squared error within the observed data, therefore providing a less biased measure of effect size. Omega squared ( $\omega^2$ ) is calculated based on the number of participants recruited, therefore a post-hoc test for effect size is suitable for the current study (*Research Question I*). The  $\omega^2$  was completed based on the formula below:

$$\omega^2 = \frac{SS_A - (a - 1) \frac{SS_W}{N - a}}{SS_T + \frac{SS_W}{N - a}}$$

Within this formula,  $(a - 1)$  and  $(N - a)$  are the degrees of freedom between and the degrees of freedom within, respectively, where  $N = 10$  (the number of ACE items), and  $a = 3$  (the number of ACE categories; Kelly et al., 2015). It should be noted that within the Omega-square and the PERMANOVA formulas,  $a$  and  $k$  are analogous with one another, therefore the  $k$ -value from the eventual PERMANOVA

was used in this calculation. The results of the  $\omega^2$  were a negative value (-0.0783), which is interpreted as an effect size of zero.

For *Hypothesis I*, post-hoc power analysis resulted in a critical value level of 7.38 (2,  $n = 37$ ,  $1 - \beta = 0.255$ ). Despite this low level of post-hoc power found for *Hypothesis I* and the  $\omega^2$  effect size result for *Research Question I*, small sample sizes are acceptable within exploratory research (Haile, 2023), such as the current study, thus the PERMANOVA and Pearson Chi-Square were completed.

### Descriptive Statistics

The average total ACE score was 6.00 ( $n = 42$ ,  $SD = 2.84$ ) out of a possible total score of ten. Only two out of the 42 participants indicated that they had experienced zero ACEs, meaning over 95% of the current participants experienced at least one ACE, while five participants (11.9%) reported the maximum score of 10. The most reported ACE item was emotional abuse (83.3%,  $n = 35$ ), and the least reported ACE item was physical neglect (45.2%,  $n = 19$ ), however this was only by a marginal difference from other items with similar frequencies and still constitutes nearly half of the current sample (see Table 1 for all reported ACE frequencies). Average ACE scores in relation to gender were only analysed for male and female participants due to meaningful group sizes. The average ACE score for female participants was 6.6 ( $n = 23$ , 95% confidence interval [CI] = 5.4, 7.7), and the average ACE score for male participants was 5.1 ( $n = 14$ , 95% CI = 3.2, 6.9). In order to test *Hypothesis I*, participants' total ACE scores were also converted into the binary categories of high (4+) versus low (<4) ACE scores which has been used in previous research (English et al., 2002). A majority (76.2%) of the participants in this study reported a high ACE score (4+,  $n = 32$ ), with 56.3% ( $n = 18$ ) of the high ACE scores belonging to female participants.

**Table 1**

*Reported ACE Frequencies (n=42) and proportions*

Emotional Abuse	Physical Abuse	Sexual Abuse	Emotional Neglect	Physical Neglect	Divorce	Mom Treated Violently	Substance Abuse	Family Member with	Incarcerated Relative
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									Mental Illness	
Yes	35 (83%)	25 (60%)	25 (60%)	21 (50%)	19 (45%)	27 (64%)	22 (52%)	28 (67%)	30 (71%)	20 (48%)
No	7 (17%)	17 (40%)	17 (40%)	21 (50%)	23 (55%)	15 (36%)	20 (48%)	14 (33%)	12 (29%)	22 (52%)

*Note.* Reported percentages within this table are rounded to the nearest whole value.

Descriptive statistics regarding self-reported criminal history was also reviewed. A total of 37 participants gave information regarding the number of previous criminal convictions used to analyse *Hypothesis I*. Nineteen participants reported that they had fewer than five criminal convictions (51.4%, 63.2% female), four participants reported five to ten criminal convictions (10.8%, 50% female) and 14 participants reported more than ten criminal convictions (37.8%, 35.7% female).

A total of 28 participants gave information regarding the details of their criminal history used to inform the crime classification in order to analyse *Research Question I*. As mentioned previously, an index of over 150 crimes were reviewed and selected for all four crime classifications based on the Uniform Crime Reporting Manual (Statistics Canada, 2002). All reported crimes from the criminal history portion of the questionnaire were reviewed in reference to this index and placed into each of the four crime classifications accordingly. Following this crime classification process, the frequencies for each crime classification was reviewed (see Table 2). A total of 22 participants reported violent crimes (78.6%, 40.9% female), 15 participants reported non-violent crimes (53.6%, 40.9% female), one participant reported a sexual crime (3.6%, 100% male), and eight participants reported drug crimes (28.6%, 37.5% female).

**Table 2**

*Frequency of all ACE items along all Crime Classifications*

	Emotional Abuse	Physical Abuse	Sexual Abuse	Emotional Neglect	Physical Neglect	Divorce	Mom Treated Violently	Sub. Abuse	Family Member with Mental Illness	Incar- cerated Relative
Violent Crime <i>n</i> = 22	20 (91%)	14 (64%)	14 (64%)	12 (55%)	12 (55%)	14 (64%)	12 (55%)	15 (68%)	18 (82%)	13 (59%)

Non-Violent Crime <i>n</i> = 15	14 (93%)	13 (87%)	9 (60%)	11 (73%)	10 (67%)	11 (73%)	7 (47%)	11 (73%)	9 (60%)	7 (47%)
Sexual Crimes <i>n</i> = 1	0	0	0	0	0	1 (100%)	0	0	0	0
Drug Crimes <i>n</i> = 8	7 (88%)	6 (75%)	6 (75%)	5 (63%)	4 (50%)	6 (75%)	4 (50%)	5 (63%)	4 (50%)	3 (38%)

*Note.* Due to participants who reported multiple types of ACEs and multiple types of Crime

Classifications, the columns and rows do not equal *n*, however the total *n* for each Crime Classification has been included for reference. Reported percentages within this table are rounded to the nearest whole value.

A total of 31 participants gave answers to the final question in the criminal history portion of the questionnaire specifically asking at what age were participants first charged, arrested, or convicted of a criminal offence. In Canada, all people who are at least 12 but under the age of 18 are considered to be a youth under the Youth Criminal Justice Act (2002). By this standard, 41.9% (*n* = 13) of the current sample were youth when they were first charged, arrested, or convicted, while 58.1% (*n* = 13) were over the age of 18 and therefore considered to be adults in Canada. The mean age reported for initial exposure to the Canadian criminal justice system was 21.9 years old (range: 12 – 41 years old, mode = 18). Multiple participants indicated that they could not remember their age at the time regarding this question (*n* = 4) or left this question blank (*n* = 7).

### **Research Question I: PERMANOVA**

While there are three overarching ACE categories (abuse, neglect, and household dysfunction), each ACE item was treated as an individual binary category for analytic purposes, as described previously. To achieve this, binary coding for ACE categories was based on answers provided during the 10-item ACE questionnaire (see Table I). The four crime classifications used for the PERMANOVA included violent crimes, non-violent crimes, sexual crimes, and drug crimes which were classified by the

researcher following data collection. No further crime classifications needed to be added based on the scope of crimes that were reported by participants.

A distance matrix is used to calculate the variance between groups for a PERMANOVA. For the binomial categorical data used in current study, Minkowski's Euclidean Distance (MED) measurement was used to calculate distance between ACE categories and to populate the distance matrix. MED was calculated by examining the frequencies across all ten ACE categories and calculating the distance between all combinations of the ten ACE categories for each crime classification. The results from the MED measurements were then used to populate all the sum of squared differences necessary to calculate the PERMANOVA to determine if the three ACE categories differ from one another as a function of the four crime classifications using the following formula:

$$Pseudo - F = \frac{SS-between(k-1)}{SS-within/(N-k)}$$

One assumption in permutation tests, such as those used in a non-parametric PERMANOVA, is that the observations under the true null hypothesis are interchangeable (Anderson, 2001). In the context of the current study, this means that the crime classifications, meaning that the *labels* of what is being observed, do not matter. Due to variation being calculated from the distance matrix, there is no assumptions of normality and no assumption of homogeneity of variance.

The results of the PERMANOVA testing *Research Question I* was not significant, Pseudo- $F(2,7) = 2.55, p = .637, n = 28$ . The three different categories of ACEs (abuse, neglect, and household dysfunction) were not found to vary as a function of crime classification and the null hypothesis for the purpose of the pseudo- $F$  test failed to be rejected. Due to no significant main effect being detected, no post-hoc tests were conducted for *Research Question I*.

### **Hypothesis I: Pearson Chi-Square & Odds Ratio**

Based on the self-reported number of ACEs, participant responses were analysed based on the binary groups of high ACE scores (4+) and low ACE scores (<4). These groups will be referred to as the High ACE group (4+) and the Low ACE group (<4) during data analysis and subsequent reporting of

results. Based on answers to the fourth question from the criminal history questionnaire ('How many criminal convictions do you have?'), participants were placed into one of three groups (Low Group: Less than 5, Medium Group: 5 to 10, High Group: More than 10). These groups will be referred to as Low, Medium, and High criminal conviction groups during data analysis and subsequent reporting of results.

Limitations of Pearson Chi-Square analysis include that it is sensitive to sample sizes and can increase the likelihood of Type I Error. This potential limitation found with large sample sizes was not an issue within the current study. A smaller sample size was expected for all analyses and because of this fewer crime classifications were included to allow for more meaningful group sizes during data analysis. An important limitation with Pearson Chi-Square analysis is that causal relationships cannot be established. Due to the exploratory nature of the current study, this limitation was suitable for the relationship being examined here. Finally, by nature of data collection and the binary coding of categorical variables, all assumptions have been met for the Pearson Chi-Square including random sampling, mutually exclusive categories, and independence of observations.

The results of the Pearson Chi-Square to test *Hypothesis I* was not significant,  $\chi^2 (2, n = 37) = 4.824, p = .09$ . However, the assumption that cells will contain at least five as the expected value was violated within three cells (50%) of the Pearson Chi-Square test of independence. When this assumption is violated in a 2x3 table, the Likelihood Ratio is then to be used. The results of the Likelihood Ratio were not significant,  $\chi^2 (2, N = 37) = 5.834, p = .054$ , therefore there was not a significant association between ACE score (High versus Low) and the number of previous criminal convictions (Low, Medium, High), and the null hypothesis failed to be rejected. Cramer's V showed a moderate effect size, however the results were not significant ( $V = .361, p = .09$ ).

**Table 3**

*Hypothesis I Chi-Square Frequency Table*

	Low (Less than 5)	Medium (5-10)	High (More than 10)	<b>Total</b>
High ACE Score	11 (40.7%)	4 (14.8%)	12 (44.4%)	<b>27</b>

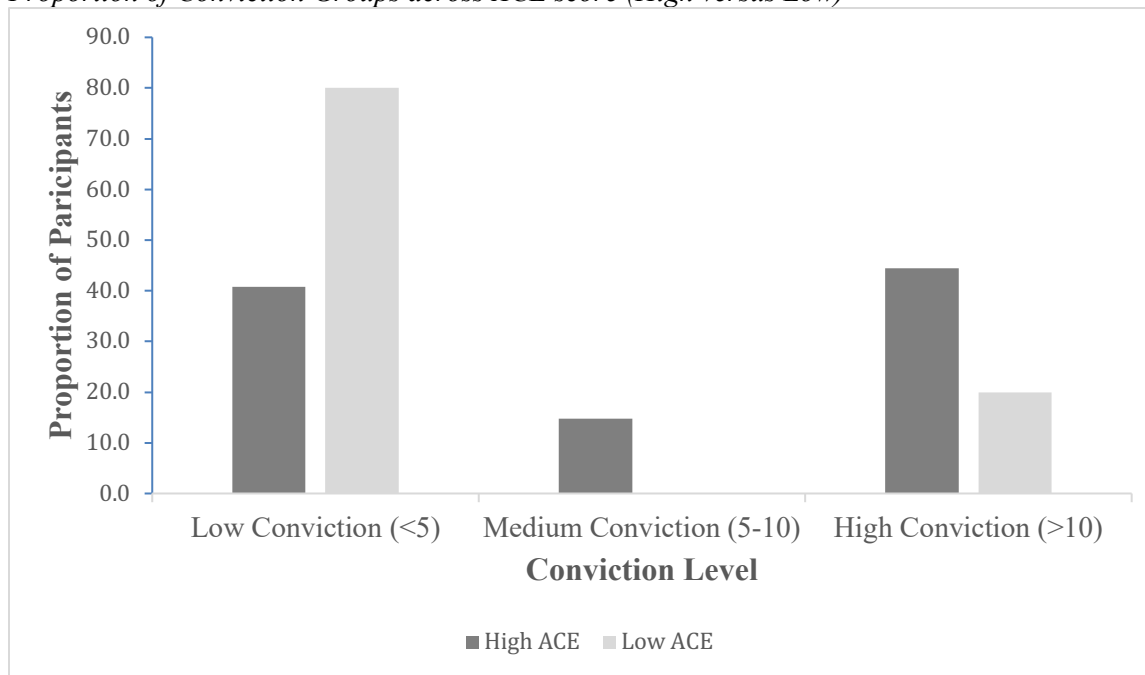


Low ACE Score	8 (80.0%)	0	2 (20.0%)	<b>10</b>
<b>Total</b>	<b>19</b>	<b>4</b>	<b>14</b>	<b>37</b>

*Note.* Proportion of Conviction Groups (Low, Medium, High) across ACE score (High versus Low) in parentheses.

**Figure 1**

*Proportion of Conviction Groups across ACE score (High versus Low)*



After reviewing exploratory descriptive statistics at the beginning of analysing the data, it was discovered that an Odds Ratio could not be completed as previously planned. This was because the frequency table for completing the Odds Ratio included a cell with zero observed frequencies, specifically in the Low ACE x Medium (5-10) convictions cell. Due to the Odds Ratio not being applicable, the Bonferroni correction was only based on the completion of two statistical tests in the current study. All results discussed further will only be based on the findings of the PERMANOVA and the Pearson Chi-Square.

## Discussion

The purpose of the current study was to explore the relationship between adverse childhood experiences (ACEs) and crime classifications using an exploratory research question and a hypothesis to determine how the three different ACE categories may differ as a function of four crime classifications (*Research Question 1*), as well as how the number of ACEs experienced relates to chronic offending (*Hypothesis 1*). This relationship was examined using a Canadian justice-involved population recruited from various community residential facilities as well as community support groups for people with lived experience with the Canadian criminal justice system. The design of the current study added to the ACE literature, specifically ACE literature in relation to forensic populations, by exploring the relationship amongst all types of abuse (physical, emotional, sexual), neglect (physical, emotional) and household dysfunction (mental illness, incarcerated relative, mother treated violently, substance abuse and divorce; Felitti et al., 1998), in relation to *all* self-reported criminal convictions. This study also adds to the literature by having a sample that consisted mostly of Canadian women (54.8%) with lived experience with the criminal justice system.

### **Quantitative Results Discussion**

The majority (54.8%) of the participants in the current study was composed of females with lived experience of the Canadian criminal justice system. The findings of the current study, even at the descriptive level, give valuable insight to the experiences of women in the Canadian criminal justice system considering the severe increase in incarcerated women in Canada (Government of Canada, 2018). The findings of the current study also included only two participants who had reported zero ACEs, while five participants reported the highest possible ACE score of ten. The current study was nearly eight times less likely to report participants with an ACE score of zero in comparison to a normative sample (4.8% versus 38.0%; Reavis et al., 2013). This finding is consistent with previous research that compared the rates of ACEs among youth involved in the criminal justice system to the normative sample statistics published in the original ACE study (Baglivio et al., 2014). Over 95% of the current participants experienced at least one ACE, which is notably higher than previous findings of incarcerated Federal Canadian populations finding that an average of 83% of participants experienced at least one ACE

(Government of Canada, 2023b). A possibility for this may be because the nature of data used by the Government of Canada (2023b) could not identify all ten ACE items, rather only eight were identified, while the design of the current study included all ten ACE items.

Another notable finding supported by previous research was the average total ACE score, which was 6.00 out of a possible total score of ten ( $N = 42$ ). An average ACE score of 6.00 indicates a high average which is supported by previous research with justice-involved people (Baglivio et al., 2014; 2015, De Ravello et al., 2008). More specifically, the female participants in this study were found to have a higher average ACE score in comparison to male participants (6.6 versus 5.1). Previous research has consistently found that female participants were more likely to report higher ACE scores in comparison to men in both justice-involved populations (Baglivio et al., 2014; Bodkin et al., 2019; De Ravello et al., 2008) and non-justice-involved populations (Felitti et al., 1998; Lin et al., 2020).

The High versus Low ACE score groups used for *Hypothesis I* revealed that most participants (76.2%,  $n = 32$ ) reported High ACE scores of at least four or more items out of a possible score of ten. Of the 76.2% of participants with High ACE scores, 56.3% were female participants. This current finding is supported by previous research that has indicated justice-involved populations were more likely to have higher ACE scores rather than lower ACE scores (Baglivio et al., 2014; 2015, De Ravello et al., 2008).

The findings of the current study also demonstrated that High ACE scores (76.2%,  $n = 32$ ) were three to six times as likely to be found in comparison to a normative sample (Merrick et al., 2018; Reavis et al., 2013). It should be noted that the rate of High ACE score found in the current study was considerably higher compared to previous research which found that only 45-48% of their all-male justice-involved samples had High ACE scores (Levenson et al., 2014; Reavis et al., 2013). A possible explanation for this discrepancy in High ACE scores between the current studies and the findings from Levenson et al. (2016) and Reavis et al. (2013) could be due to the sample itself. Seeing as the sample within the current study constituted both men and women, a slight majority of the participants were women (54.8%), including those with a high ACE score (56.25%). These findings within the current study are consistent with previous research which demonstrated that women were more likely to have

higher ACE scores than men (Baglivio et al., 2014; Bodkin et al., 2019; De Ravello et al., 2008; Felitti et al., 1998; Lin et al., 2020). These previous findings in conjunction help to explain the overall increased rate of High ACE score found in the current sample of Canadian justice-involved people. While both men and women, especially those who are exposed to the criminal justice system are more likely to experience more ACEs, the current and previous supportive findings show that women involved in the criminal justice system experience more trauma than men.

The previous conviction groups (Low, Medium, High) used for *Hypothesis I* resulted in disproportionate rates of inclusion compared to the groups used by Zara and Farrington (2016) which were detailed previously. More specifically, there were more participants in the Low (less than 5) conviction category in the current study compared to the analogous One-Timer category (51% versus 29%; Zara & Farrington, 2016), significantly fewer participants in the Medium (5 to 10) conviction category compared to the Recidivist category (10% versus 70%), and over twice as many Large (more than 10) conviction group participants in comparison to Zara and Farrington's (2016) Chronic Offender category (37% versus 16%). The differences in the dispersion of participants among the three different groups is likely due to the purposeful change in how number of convictions were categorized in the current study, particularly the potential difference between the original lowest group only containing a single offence versus the current study's lowest group consisted of up to five previous criminal convictions.

Due to the insignificant findings for *Research Question I*, no support was found for the cycle of violence hypothesis. However, these insignificant findings should not be used as evidence against the cycle of violence hypothesis considering the significant research that has substantiated this theory (Dutton & Hart, 1992; Widom, 1992, Widom & Maxfield, 2001). Rather, it is believed that with a more suitable sample size, a study with similar methodology would be more likely to reach statistical significance and therefore provide further support for the cycle of violence hypothesis in relation to all types of ACEs within a Canadian criminal justice population. This is considered likely in light of numerous studies finding a consistent relationship between adversity and crime in both specific and general relationships (Dierkhising et al., 2013;

English et al., 2002; Moreira et al., 2020; Smith & Thornberry, 1995; Widom, 1992; Widom & Maxfield, 2001; Zara & Farrington, 2016)

Due to the insignificant results of the Pearson Chi-Square for *Hypothesis I*, evidence of a dose-response relationship between the level of ACEs experienced and number of previous criminal convictions was not supported in the current study. Therefore, no support was found for the Diathesis-Stress Model in the current study regarding the relationship between ACEs and chronic offending. However, results from both the Likelihood Ratio and Cramer's V held  $p$ -values that were approaching significance ( $p = .054$  &  $p = .09$  respectively). These results give credence to the notion that a larger sample size resulting in greater statistical power may lead to significant results using the same methodology. Examining this relationship further could lead to more pragmatic applications of correctional treatments considering the elevated number of justice-involved people who have been demonstrated in the current study and in previous research to have experienced elevated rates of childhood adversity (Baglivio et al., 2014; 2015, De Ravello et al., 2008).

### **Qualitative Findings: Accidentally on Purpose**

Upon reviewing participant responses of the current study, specifically the responses used to code crime classifications for *Research Question I*, it was found that multiple participants included meaningful qualitative data as part of their answers to their criminal history. The most notable response was a participant who, when responding to what they considered to be the most serious crime they have ever been convicted of, they responded with both the conviction and elaboration on why they considered it to be the most serious: "Drunk driving. What If I hit a insint [*sic*] person?" This response also captures another notable occurrence throughout the current data set, which is misspelling of words. The qualitative findings speak to results from Public Safety Canada (2022) reporting average education levels of people with lived experience of the Canadian criminal justice system typically consisting of an education of grade nine or less. Although highest level of education was not gathered as part of the demographic information, this tertiary qualitative data echoes the possibility of supporting previous statistics regarding

the education levels of people with lived experience (*Literacy in Canadian Prisons*, 2023; Public Safety Canada, 2022). Another participant when asked to list all other previous criminal convictions excluding the most recent one that had already been asked for, the participant indicated that there were too many to list because “There was a file bigger than a bible [*sic*].” This response alludes to the problems associated with self-reported criminal histories, to be discussed in a later section.

### **Ethical Considerations**

Due to the nature of some questionnaires, negative memories and adverse feelings could have occurred. People have reported that after taking the ACE questionnaire, having realized that it has linked with a variety of ailments such as obesity, smoking and mental health issues, they could become very concerned about the kind of implications it may or may not have on their general health (“Got Your Ace Score?”, 2019; Trossman et al., 2020; Wiss & Brewerton, 2020). Asking questions about participants’ criminal history could have also brought up negative feelings and may have been perceived as invasive. Despite this assumption made by the researcher, multiple participants specifically requested completing the questionnaire through an in-person interview because they described that this would be more comfortable for them. Arrangements were made for these participants to complete the questionnaire in-person and confidentiality was still maintained for the participants who asked to complete the questionnaire in-person. Conducting the study online was considered a strength of the current study as it held several advantages such as ensuring confidentiality. It is believed that participants were more likely to answer honestly in consideration of the sensitive nature of the survey, namely the ACE questionnaire and the criminal history, because of the online setting. Online sampling also allowed for easier accessibility to participants, making the current findings more representative of Nova Scotians and Canadian forensic research. Participants were also given access to multiple toll-free Canadian mental health resources in case any negative memories or emotions arose as a result of taking the survey. While completing the survey remotely online meant participants could not immediately ask questions or voice any concerns, at the time of writing this, no participants have contacted the researcher regarding any concerns, ethical or otherwise, in regard to the current study.

Due to the recruitment methods used in the current study, these findings provide a representation of Canadian (Nova Scotian) people who have been involved in the criminal justice system. This data likely included participants who did not reside in Nova Scotia at the time of their offence, but currently reside within Nova Scotia. Data was also collected from a community organization that exists across multiple provinces in Canada and Online recruitment materials were provided to all members through email, therefore the current study likely included participants from all across Canada. Though no data was specifically collected regarding participants' current place of residence nor the place of residence at the time of any previous criminal convictions, these recruitment efforts helped in broadening the scope and importance of the current findings within Canadian forensic psychology research.

### **Limitations**

A potential limitation of this study relates to social desirability bias which pertains to the desire to be viewed favorably by others. This was of specific concern for the criminal history portion of the survey. It was believed that completing the paper survey alone or remotely online helped to placate this concern. However, there were two participants who requested to complete the questionnaires in-person despite knowing the subject matter of the current study. To acknowledge this potential limitation, the total number of reported crimes were compared to the most recent crime census report (Statistics Canada, 2023). This was done to examine if the rate of crimes being reported during the current study were reflective of the most recent Canadian reports of crime frequency; if they were, this would suggest accurate reporting. In the census of police-reported crime in Canada, rates of violent crime and non-violent crime can contain sexual crimes and drug crimes, respectively, unless otherwise specified (Statistics Canada, 2023). The report presented by Statistics Canada (2023) is based on the Crime Severity Index (CSI) when analysing police-reported crime. The CSI measures the volume of crime per 100,000 and uses a base index value of 100 in reference to 2006 (Statistics Canada, 2023). Based on the most recent report available, the total rate of crime in 2022 had risen to 78.1%, with a rate of violent crime sitting at 97.7% and non-violent crime at 70.9%. In order to make a comparison regarding this potential limitation, the four crime classifications used in the current study were

collapsed in the same way to become these two classifications, making the rates found in the current study to be 50% for violent crime and 50% for non-violent crime. Among the two collapsed categories, there were 23 reported instances of both violent and non-violent crime in the self-reported criminal history used to inform the crime classifications. Though the rate found in the current study are at least 20% lower than those found in the census report (Statistics Canada, 2023), it should be noted that the rates reported for the collapsed categories resulted in an equal distribution of violent and non-violent crime reported in the current study.

It is likely that regardless of social desirability bias, issues of memory may have contributed to the self-reported criminal history within the current study seeing as multiple participants indicated that they could not remember when they first experienced being arrested. Statistics Canada (2023) is upfront with the issues associated with self-reported crime, noting that under one-third (29%) of violent and non-violent incidents had actually been reported to police in 2019. This is important to highlight because the problems associated with self-reported criminal history are present in many research projects and this is not an issue that was novel to the current study.

A notable limitation is the scope of the ACE items captured within the current study. Items from the ACE questionnaire only capture adversity related to family and household dysfunction (SmithBattle et al., 2022). Other potential ACE items not captured by the ACE questionnaire or therefore within the current study include items such as exposure to community violence, bullying, and discrimination (SmithBattle et al., 2022). ACEs can be considered as part of family risk factors, though they do not capture all potential family risk factors (U.S. Centers for Disease Control and Prevention, 2024). Previous research provides a detailed example of how various different types of risk factors relate to ACEs in a sample of youth with experience of the criminal justice system (Baglivio et al., 2015). As mentioned previously, there was methodological justification for using the three preexisting ACE categories within the current study, as they have been regarded as three distinct categories based on the original ACE study data (Dong et al., 2003; 2004; Dube et al., 2003; 2004). It was believed that using these original three categories during data analysis was the logical first step in exploring the relationship across all original ten ACE items in relation to all possible self-reported crimes.



Despite this justification, there is notable research regarding the correlation and clustering amongst ACE items (Craig et al., 2022; Levenson et al., 2014). Other research has also found support for making distinct considerations between items of maltreatment versus household dysfunction (Clemens et al., 2019; Garnsey et al., 2023; Narayan et al., 2017; Negriff, 2020). For example, Negriff (2020) argued that a majority of ACE items from the household dysfunction category should be considered less salient than the remaining ACE items because of their decreased rates of associated mental health symptoms (Negriff, 2020). It should be noted that this evidence is being used to support a valid argument against only considering the totality of ACE scores rather than the graded relationship among each item in relation to future negative health effects (Negriff, 2020). This is similar to other researchers arguing that the use of total ACE scores ignores the intricacies of adversity (Bauer et al., 2024; Lacey et al., 2022).

The ACE questionnaire, nor does the current study, purport to be exhaustively measuring all types of childhood adversity or all types of family risk factors. The ACE items captured within the current study were used as a first step in exploring the potential relationship between the original ten ACE items, within their respective categories, in relation to all types of crime. By using the original ten ACE items, representative of the three respective ACE categories (abuse, neglect, and household dysfunction), there is considerable limitation to the generalizability of the current results. The scope of the findings cannot go beyond these ten ACE items and their three respective categories and should not be considered an exhaustive list of what are considered to be adverse childhood experiences or closely related family dynamic risk factors. It was believed that through the use of some of the most overarching ACE categories, broader relationships would be substantiated within the current study. A potential reason for the null findings within the current study was the use of such a simple measurement of ACEs when attempting to understand what is a considerably complex relationship.

Future research is encouraged to explore the relationship between ACEs and crime classifications specifically using different clustering or additional ACE items (Craig et al., 2022; SmithBattle et al., 2022). It is believed that this exploratory relationship could be better addressed with a more substantial sample size and resources and more rigorous analytical approaches, such as different clustering of ACE items. Previous

research details how various types of risk factors relate to ACEs in a sample of youth with experience of the criminal justice system, demonstrating the importance of considering different types of risk factors when exploring the relationship between trauma and crime (Baglivio et al., 2015). Considering the level of protection against risk factors that positive child experiences have demonstrated in previous research (Craig et al., 2022), future research is also strongly encouraged to consider the measurement of protective factors in research amongst justice-involved populations.

There is also a theoretical issue regarding how to analyse the relationship between ACE categories and crime classifications. More specifically, the current study asked participants to report their entire criminal history, prompted by various questions within the survey (see Appendix A). In order to examine *Research Question 1*, answers provided by participants were categorized into the four separate crime classifications, meaning that their answers could have included them in one, or even all four of the crime classifications. By allowing for inclusion of participants across all crime classifications, there is the potential that these increased frequencies could have negatively influenced the results and limited the potential effects found within the current study.

The theoretical issue of how to approach crime classification becomes more complicated when trying to determine how one participant's self-reported criminal history could be examined within only one crime classification if that participant has actually reported crimes across multiple crime classifications. There are many potential ways to approach a simpler coding scheme and quantifiable relationship between ACEs and crime classifications such as crimes with the longest sentence, most serious crimes, or most recent crimes. While all of these are valid options with arguments to support their individual importance for consideration, each comes with the overarching flaw with taking an oversimplistic view towards a very complicated empirical relationship. Although increasingly difficult to approach, as the current study has captured, the accumulation of a person's criminal history should be considered important in ways that are analogous to the compounding effects of experiencing multiple ACEs (Anda et al., 2006; Bomysoad & Francis, 2020; Wilson & Scarpa, 2015).

A final notable limitation of the current study was not reaching an adequate sample size and finding no effect size ( $\omega^2$ ; *Research Question 1*) and a low level of power (*Hypothesis 1*) in accordance with the adjusted alpha level. Despite this, best efforts were made to include Correctional Service Canada for sampling, as well as actively recruiting from numerous CRFs and community organizations that service people who have lived experience with the criminal justice system to achieve the necessary power to infer sound results. Within exploratory research, a hypothesis is not typically included and therefore power analysis may not be deemed necessary (Haile, 2023) or relieve researchers from having to perform power analyses altogether (Ko & Lim, 2021). Some research even posits that null hypothesis testing should not be completed as part of exploratory research (Wagenmakers et al., 2012). Despite these recommendations, the researcher of the current study deemed it necessary to perform an effect size calculation and a power analysis for the Research Question and a Hypothesis, respectively.

The findings for both analyses support the notion as to why power analysis and effect size calculations for exploratory research is problematic. While small sample sizes are acceptable within exploratory research (Haile, 2023), it is acknowledged that restricted sample sizes like that observed in the current study cannot allow for generalizations and thus have limited value. Even with this in mind, it is imperative that research be conducted in empirically sound ways. In conjunction with this imperative is the reality that many graduate and undergraduate thesis research projects simply do not possess the means necessary to capture a more meaningful sample size, however this is not reason in and of itself to not try. The influence of resources on the ability to collect larger sample sizes is an established factor amongst exploratory research (Haile, 2023). The design of the current study has purported to be exploratory from its initial conception and encourages future research to attempt similar, if not the same, research questions and hypotheses with more meaningful sample sizes. The results from the Likelihood Ratio in relation to *Hypothesis 1* ( $\chi^2 = [2, N = 37] = 5.834, p = .054$ ) and Cramer's V ( $V = .361, p = .09$ ) specifically hold hope for future research finding potentially significant values with a larger sample size.

As noted throughout the methodology section, the original design of the current study intended to complete an Odds Ratio in addition to the Pearson Chi-Square being performed to test *Hypothesis 1*. Due

to the modest sample size, one of the cells in the frequency table contained zero, specifically the Low ACE (<4) x Medium (5-10) convictions cell, and therefore the Odds Ratio could not be computed. This analysis should be revisited in future studies when more considerable sample sizes may be obtained. Once a more reasonable sample size is obtained and all cells contain at least one observed frequency, findings from an Odds Ratio, especially in combination with findings from a Pearson Chi-Square analysis would be particularly beneficial for the interpretation of such research findings for the purpose of potential treatment plan implications within Canadian correctional treatment programs.

The limitations observed within the current study highlight an overarching issue of generalizability, to which many research projects are not immune. It is only through future research that different approaches to understanding the complex relationship between adverse childhood experiences and crime classifications can be more accurately quantified, qualified, and interpreted. These include exploring a more robust methodology, especially while using a more considerable sample size in order to accurately capture these empirical relationships.

### **Research Suppositions & Implications**

To the knowledge of the researcher, no other study has examined the relationship between all ACEs and all types of crime classifications. There is an untapped potential regarding ACE research within forensic psychology. Most of the research examining ACEs in relation to criminal behaviours focus on sexual offences (DeLisi et al., 2021; Drury et al., 2017; Hanson & Slater, 1988; Jespersen et al., 2009; Leach et al., 2016; Levenson & Socia, 2015; Levenson et al., 2015; 2016; Ramirez et al., 2015) and ignore other important criminal behaviours. While fantastic progress has been made previously, the design of the current study attempted to establish this empirical relationship across all types of abuse and criminal behaviour. The design of the current study attempted to generalize the relationship between ACEs and crime classifications, making ACE research even more pragmatic and applicable within correctional settings. Unfortunately, due to the exploratory nature of the current research project, this relationship was not substantiated. The difficulty in substantiating this relationship should not be mistaken for a white flag towards this worthy area of research.

There are very positive implications to this type of research, specifically that practical interventions could be implemented across Canada for all types of justice-involved people.

The design of the current study also gathered data that is complimentary to previous research capable of exploring the relationship between the onset of criminal behaviour (Baglivio et al., 2015). Exploratory researchers may be interested in examining this data in relation to other concepts covered in the current study in future research. This research within the context of a Canadian criminal justice population may be particularly useful with helping to determine critical intervention points for justice-involved Canadian youth who have experienced ACEs.

### **Future Directions**

Even without significance, the design of the current study aims to inform directions of future research and treatment for justice-involved individuals, especially those who are kept in the care of Nova Scotia Health facilities to decrease recidivism throughout Nova Scotia correctional populations. Through ACE research, different approaches and considerations can be made for treatment programming currently available within the CSC. This will not only benefit justice-involved individuals, but society as a whole by decreasing recidivism rates through more effective treatment interventions across all types of crime. As mentioned in a previous section, a potential reason for the null findings within the current study was a more simplistic approach to quantifying adverse childhood experiences in a Canadian justice-involved population. Future research may be interested to use a more complex approach to measuring and qualifying ACEs, specifically ones that may give a more holistic understanding to family risk factors in relation to justice-involved populations, or a more detailed approach to capturing adverse childhood experiences.

If future research finds support for research questions or hypotheses like those posed in the current study, the findings can be implemented into the framework of the RNR model that is currently the basis of many successful correctional treatment programs (Andrews & Bonta, 2010). Specific risk factors and individual needs being targeted within correctional programs yield the most effective results because the program can be tailored in a way that best engages with the client (Andrews & Bonta, 2010). Researchers have argued that trauma is relevant to all three frameworks of the RNR model (Fritzon et al., 2021; Holloway

et al., 2018). The design of the current study attempted to establish a more detailed relationship between the three principal concepts of the RNR model in relation to trauma. Trauma has been regarded as fitting into the 'Risk' framework of the RNR model because of the continuously substantiated link between trauma and offending (Fritzon et al., 2021; Levenson et al., 2014).

Understanding that a person may have experienced one or multiple ACEs would fit into the 'Need' framework of the RNR model. During treatment, the Need Principle helps to identify what criminogenic needs should be targeted during treatment. Criminogenic needs are factors that are directly related to recidivism for justice-involved people (e.g., educational difficulties, unstructured leisure time; Holloway et al., 2018). Future research should examine the intricate relationships between trauma experienced during childhood and how this should be considered a criminogenic need. This is especially true regarding the findings in both the current and previous studies demonstrating consistently higher ACE scores in women exposed to the criminal justice system in comparison to men. Due to these consistent findings, future research should examine how this may influence the specific needs of women in accordance with the RNR model. If childhood adversity is linked with later adult criminal behaviour this directional relationship needs to be acknowledged during treatment to enhance rehabilitation and therefore decrease recidivism. Trauma is also relevant to the 'Responsivity' principle of the RNR model because it impacts the way in which people with statistically inflated rates of ACEs compared to the general population (Baglivio et al., 2014; De Ravello et al., 2008; Matheson, 2012), have the capacity to engage in treatment (Holloway et al., 2018). Overall, the RNR model stands to benefit from taking on a broader perspective by including trauma. Future research should also seek to examine how the experience of ACEs may influence treatment outcomes such as treatment planning attrition and recidivism.

Accounting for ACEs in the context of treatment, especially within correctional settings, establishes the need for trauma-informed care (TIC). TIC is mainly concerned with incorporating knowledge regarding the neurobiological, social, and psychological effects of trauma into policies and practices to guide safe, compassionate, and respectful service delivery (Levenson & Willis, 2019). Due to the correctional environment containing inherent stressors, deprivation of agency, and lack of privacy, it poses many

challenges to striving for such a therapeutic and trauma-informed environment, however it is a very worthwhile task. It would be of interest to the CSC to invest in TIC because of research showing that within female populations, trauma-informed programming helps to improve treatment participation as well as reduces disciplinary issues and conflict within correctional institutions (Benedict, 2014).

It should also be noted that attention to this type of care would be most suitable for individualized treatment. While some correctional interventions are suitable or permissible in group settings, the sensitive nature of TIC is best left for individualized sessions. Fritzon et al. (2021) highlight that individual considerations of trauma are rarely made in correctional treatment settings. TIC is considered to be particularly compatible with the Responsivity principle of the RNR model, which is said to be the most overlooked of the three RNR principles (Levenson & Willis, 2019). Considering that more importance is being placed on individualized treatment planning (Andrews & Bonta, 2010), the principles of RNR and basis of TIC together offer a platform to best cater both the design and delivery of correctional treatment services. The Government of Canada (2023a) has acknowledged that it is within the capacity of the Correctional Service of Canada to mitigate the effects of ACEs experienced by the majority of people in their care by using interventions that use trauma-informed care, specifically through the use of a broader trauma-informed approach to the correctional program models.

When the survey was being created for the current study, specifically the criminal history portion of the survey, a question was included asking participants “At what age were you first charged, arrested or convicted of a criminal offence?” (see Appendix A) to potentially explore the relationship between a person’s history with ACEs and when their criminal behaviour began. While data was collected for this item, this question within the survey was not used to inform any research questions or hypotheses in the current study nor has this item been analyzed except for basic descriptive statistics provided above. Previous research has established the relationship between ACEs and onset of criminal behaviour (Baglivio et al., 2015), but should be explored further within a Canadian population. This type of research would be useful in helping to inform intervention programs for at-risk youth regarding the critical period for interventions before ACE exposure and other environmental factors may lead to criminal behaviour.

As stated previously, data relevant to such research interests was collected within the current study and is available to researchers wishing to complete a secondary data analysis on the subject. Considering the difficulty in accessing justice-involved populations, the researcher believed that the collection of this data would be of interest to acknowledging such gaps within future ACE research. Research data on duration of criminal career and number of offences committed would be useful in making better distinction between life-course persistent offending and chronic offending (Farrington, 2020). This type of research could also examine the potential intersection regarding criminal careers in relation to when an ACE is first experienced.

### **Conclusion**

The World Health Organization now recognizes child abuse to be a significant contributor to our global burden of disease (Wilson & Scarpa, 2015), arguably making ACEs and incurred trauma considerable threats to people's wellbeing. The links between childhood adversity and negative health effects (Public Health Ontario, 2020; Wilson & Scarpa, 2015) demonstrate that ACEs are one of the most preventable causes of mental health and substance use issues (Van der Kolk, 2014). This highlights the need for preventative and restorative measures when it comes to childhood abuse and crime. The current research intended to further substantiate the link between childhood adversity and adult criminal behaviour, and supplement previous findings by demonstrating a specified link between ACE categories and all types of crime classifications. Cumulatively, these findings cannot be ignored when advocating for trauma-informed practices and greater investment towards the care and treatment for our Canadian correctional populations to help justice-involved people deal with the negative effects of abuse and neglect they were unwillingly subjected to as children. Papalia and colleagues (2018) appropriately highlight the importance and urgency that the knowledge of ACEs presents when stating that "children who come to official attention for sexual victimization should be viewed as potential candidates for immediate support, monitoring, and/or intervention to reduce their risks of subsequent victimization, psychopathology, and criminality and to foster resilience" (p. 411). This level of urgency and importance can and should be echoed by the treatment efforts made by the CSC. Like the current



study, previous research also citing elevated levels of trauma in Canadian justice-involved populations has called to action the need for more trauma-informed approaches to mitigate the high rates of trauma noted in Canadian prison populations (Bodkin et al., 2019). The findings of the current study contribute to an area of ACE research within forensic psychology that has been largely ignored, and attempted to provide a greater understanding regarding what type of ACEs are associated with criminal activity beyond previous research, within the scope of the original ACE questionnaire. Despite not finding any significant results, the researcher of the current study emphasizes its exploratory nature and encourages future researchers with potentially greater access and resources to the Canadian criminal justice system to explore similar relationships between ACEs and crime classifications for the benefit of future trauma-informed correctional program models.

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**APPENDIX A.****Survey Questions****Adverse Childhood Experience (ACE) Questionnaire**

**Instructions:** Please answer yes or no (circle one) to the following questions in regards to while you were growing up, during your first 18 years of life. If you do not wish to respond to any of the questions, please simply leave the space blank and move on to the next question.

1. Did a parent or other adult in the household often swear at you, insult you, put you down, or humiliate you? Or did a parent or other adult in the household often act in a way that made you afraid that you might be physically hurt?

Yes

No

2. Did a parent or other adult in the household often push, grab, slap, or throw something at you? Or did a parent or other adult in the household ever hit you so hard that you had marks or were injured?

Yes

No

3. Did an adult or person at least 5 years older than you ever touch or fondle you or have you touch their body in a sexual way? Or did an adult or person at least 5 years older than you ever try to or actually have oral, anal, or vaginal sex with you?

Yes

No

4. Did you often feel that no one in your family loved you or thought you were important or special? Or did you often feel that your family didn't look out for each other, feel close to each other, or support each other?

Yes

No

5. Did you often feel that you didn't have enough to eat, had to wear dirty clothes, and had no one to protect you? Or did you often feel that your parents were too drunk or high to take care of you or take you to the doctor if you needed it?

Yes

No

6. Were your parents ever separated or divorced?

Yes

No

7. Was your mother or stepmother: Often pushed, grabbed, slapped, or had something thrown at her? Or sometimes or often kicked, bitten, hit with a fist, or hit with something hard? Or ever repeatedly hit over at least a few minutes or threatened with a gun or knife?

Yes

No

8. Did you live with anyone who was a problem drinker or alcoholic or who used street drugs?

Yes

No

9. Was a household member depressed or mentally ill or did a household member attempt suicide?

Yes

No

10. Did a household member go to prison?

Yes

No

**Criminal History**

1. What is the most recent criminal offence that you were convicted of?

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2. Please list all charges you were previously convicted of (excluding the most recent):

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3. What do you consider to be the most serious offence that you have been convicted of?

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4. How many criminal convictions do you have?

- A. Less than 5                      B. 5 to 10                      C. More than 10

5. At what age were you first charged, arrested or convicted of a criminal offence?

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### **Demographic Information**

The information provided in this document is only for the purposes of the study and thus all information provided will remain confidential. If there are any questions you do not wish to answer, please simply leave blank.

**Age (years):** \_\_\_\_\_

**Gender – please tick the box that applies to you:**

- Female
- Male
- Non-binary/ third gender
- Prefer to self-describe \_\_\_\_\_
- Prefer not to say

**Which of the following best describes you:**

- Asian
- African American
- Caucasian
- Indigenous
- Hispanic or Latinx
- Middle Eastern or North African

Multiracial or Biracial

Other \_\_\_\_\_

Prefer not to say

**APPENDIX B.**  
**INFORMED CONSENT FORM (Paper Survey)**

**Title of Study: Adverse Childhood Experiences & Crime Classifications**

**Purpose/Objectives of the Study**

This study is being carried out by Emily Rybak who is an Applied Psychology student at Saint Mary's University who is being supervised by Dr. Marc Patry. The purpose of this study is to identify the relationship between adverse childhood experiences and crime classifications. Adverse childhood experiences (ACEs) have been defined as stressful life events that occur during development (Trossman et al., 2020). The objective of this study is to further examine ACEs in relation to different crime classifications based on self-reported criminal histories.

**Procedures involved in the Research**

If you agree to participate in this study, you will be asked to complete this survey. The survey consists of a series of questions taken directly from a series of standardised and unstandardized measures: a childhood experience questionnaire and an criminal history questionnaire.

The survey will also ask you to complete some background questions including your age, gender, and a brief criminal history, which we should note is all optional in terms of whether you complete or not. Personalised or identifiable data will not be collected as part of this survey. Completion of the survey will take approximately 15 minutes of your time. If there are any questions or statements that you do not wish to respond to please feel free to skip those items and move on to the next item. Upon completion of the study, you will be provided with a debriefing form that will detail the purpose of the study. Upon reading the debriefing form, if you have any questions or concerns please do not hesitate to contact Emily Rybak or Dr. Marc Patry.

**Potential Benefits**

Due to the prevalence of adverse childhood experiences in the general population (Ontario Agency for Health Protection and Promotion, 2020), it has become increasingly important to determine how these

experiences can impact adult criminal behaviour. This research bears both theoretical and real-world implications. We hope to inform future directions on the research and treatment for individuals who are placed in the care of the Nova Scotia Health in order to decrease recidivism and increase positive community involvement. You also have the opportunity to be compensated for your participation with a \$20 gift card. If you would like to receive the \$20 gift card you will be asked to provide your first name, email and telephone number on the last page of the survey. If you choose to receive compensation by filling out the Participation Compensation Form you will be instructed to detach the form from the rest of the survey so that it may be stored separately from your completed survey to ensure confidentiality. Paper copies of the completed surveys and Participation Compensation Forms will be kept in separate locked drawers that can only be accessed by authorised social workers. Authorised social workers have been contacted and instructed ahead of time to ensure that these forms are kept separate from the completed surveys. If you complete the survey online, you will be instructed to click on a link that takes you to a separate Qualtrics survey to fill out the Participation Compensation Form so that this information can be kept separate from the rest of the survey. None of the information given on the Participation Compensation Form will be linked to your survey responses in any way.

### **Potential Harms, Risks or Discomforts to Participants**

We do not foresee any risks or conflicts of interest to you participating in this study. Some questions in this study could result in feelings of discomfort or emotional distress. If any of the questions make you feel uncomfortable or emotionally distressed, please leave the space blank and move on to the next question. If you are in need of support due to feelings of discomfort, please contact the following support services: Halifax mental health crisis support at 902-429-8167 or 1-888-429-8167 (toll free) at any time if you feel that you need help. The Halifax mental health crisis support is available 24 hours a day, 7 days a week.

### **Confidentiality**

All of the information that you provide will be subject to confidentiality. Online data will be collected via Qualtrics and will be stored on Canadian servers. Once data collection is complete the data will be

downloaded and removed from the server. The data will be downloaded and stored on personal, password protected, computers belonging to the researchers. None of the data will be connected to any personal identifiers such as names. All anonymous downloaded data will be stored in perpetuity following the completion of the project. Paper copies of completed surveys will be entered and stored on personal, password protected, computers belonging to the researchers as well. All anonymous paper surveys will be stored in perpetuity following the completion of the project.

### **Participation**

Participation in this study is voluntary. If at any time you wish to withdraw from the study, please simply close your browser. However, if you chose to withdraw after starting the survey, any data you have submitted up to that point will be kept. If you are completing a paper survey simply return the incomplete survey and write 'withdrawal' on the front of the survey. You cannot withdraw from the study after your survey has been submitted as all data are confidential and will only be available to the researcher. The survey data will not be used to identify individuals from the data pool. All incomplete survey data will be securely deleted and will not be included in data analysis.

### **Study Results**

On completion of the study the researchers will create a summary report. It is anticipated that this will be available by August 2024. If you are interested in the study's findings, please contact the researchers following the completion of the survey. If you contact the researchers indicating that you are interested in the study's findings, your contact information will be confidentially saved and stored on personal, password protected, computers belonging to the researchers and you will be contacted with the disseminated results when the study is complete. The researchers will also be disseminating the findings amongst the facilities that assisted in the recruitment of participants. Please note that as all of the data are confidential, we cannot provide individualised results.

### **Questions**

Should you have any further questions about this study, please feel free to contact Emily Rybak

(Emily.Rybak@smu.ca ) or Dr. Marc Patry (Marc.Patry@smu.ca )

### **CONTACT FOR CONCERNS**

If you have any concerns regarding your rights or welfare as a participant in this research study, please contact Dr. Marc Patry (marc.patry@smu.ca) or the SMU Office of Research Ethics at 902-420-5728 or ethics@smu.ca; Halifax mental health crisis support at 902-429-8167 or 1-888-429-8167 (toll free) at any time if you feel that you need help. The Halifax mental health crisis support is available 24 hours a day, 7 days a week.

This research has been reviewed and cleared by the Saint Mary's University Research Ethics Board. If you have any questions or concerns about ethical matters, you may contact the Saint Mary's University Research Ethics board at ethics@smu.ca or (902) 420-5728"; REB File# 23-018).

### **Consent**

Please know that by participating in this research, you are not giving up any legal rights in the event that you are harmed during the research. By beginning the survey, I confirm that I have read this form and decided that I will participate in the project described above, titled *Adverse Childhood Experiences & Crime Classifications*. Its general purposes, the particulars of involvement, and possible risks and inconveniences have been explained to my satisfaction. I understand that I can discontinue participation at any time.

**APPENDIX C.**  
**PARTICIPANT DEBRIEFING FORM (Paper Survey)**

**Title of Research: Adverse Childhood Experiences & Crime Classifications**

The purpose of this study was to identify the roles that adverse childhood experiences may play in adult crime classifications. There is a plethora of research on adverse childhood experiences, but what we know less about is the impact these experiences have on general adult crime classifications. It is important to note that the negative outcomes of childhood experiences are found predominantly in the most extreme cases. Further, not all negative early life experiences transcend across the lifespan. Your participation in our research has therefore been invaluable and we wish to thank you for taking part.

All participants can obtain a summary of the findings by contacting one of the researchers after completing the survey. If you would like to know more about the overall findings, please do not hesitate to contact Emily Rybak or Dr. Marc Patry. If you have any concerns regarding your rights or welfare as a participant in this research study, please contact the Office of Research Ethics at 902-420-5728 or [ethics@smu.ca](mailto:ethics@smu.ca). The ethics of this research project have been reviewed and approved by the SMU Human Research Ethics Board [HREB Protocol Number: #100478].

If you choose to receive compensation by filling out the Participation Compensation Form you will be instructed to detach the form from the rest of the survey so that it may be stored separately from your completed survey to ensure confidentiality. Paper copies of the completed surveys and Participation Compensation Forms will be kept in separate locked drawers that can only be accessed by authorised social workers. Authorised social workers have been contacted and instructed ahead of time to ensure that these forms are kept separate from the completed surveys. None of the information given on the Participation Compensation Form will be linked to your survey responses in any way.

If any of the questions in the study result in any emotional distress, please contact any of the following support services: Halifax mental health crisis support at 902-429-8167 or 1-888-429-8167 (toll free) at any time if you feel that you need help. The Halifax mental health crisis support is available 24 hours a day, 7 days a week.

**APPENDIX D.**  
**RECRUITMENT EMAIL TEMPLATE AND POSTING INSTRUCTIONS**

Dear .....

I am contacting you to ask if you would consider posting an announcement poster for my thesis study for your current residents. As you will notice in the poster, participants will be instructed to contact their social workers if they are interested in participating in the study. The survey is available in paper copies as well as through a digital online format. My study is titled Adverse Childhood Experiences & Crime Classifications and is an examination of the roles that adverse childhood experiences may play in adult crime classifications. The ethics of this research project have been reviewed and approved by the SMU Human Research Ethics Board [HREB Protocol Number: #100478].

If you are able to display the poster for my study, I would be most grateful if you could provide the following information to residents who express interest in participating. For those who wish to participate, please provide them with the survey link or with a paper copy of the survey when appropriate. I will personally come to retrieve any paper copies of the surveys at the end of the data collection period. Participants who wish to be compensated for their time will have the opportunity to complete the Participation Compensation Form at the end of the survey. If participants choose to receive compensation by filling out the Participation Compensation Form at the end of the survey, they will be asked to provide personal contact information on this form and instructed to detach this form from the rest of the survey so that it can be stored separately to ensure confidentiality. Paper copies of the completed surveys and Participation Compensation Forms need to be kept in separate locked drawers that only authorised social workers can access. Many thanks for your time and please do not hesitate to contact myself or my supervisor if you have any questions.

Kind regards,

Emily

**Adverse Childhood Experiences & Crime Classifications**



Emily Rybak is carrying out a master's thesis study under the supervision of Dr. Marc Patry looking at the roles that adverse childhood experiences may play in adult criminal behaviour. Your input in this study would be very much appreciated! If you are interested in participating in this research, please click on the link below to learn more or ask your social worker for a copy of the informed consent form and survey.

This study is intended only for adults age 19 or older. Participation in this study is completely voluntary and your participation in the study will be confidential. It is entirely at your own discretion whether you participate or not. Participation will have no impact on parole decisions or any other institutional decisions.

**Please click on the link below to be taken directly to the survey. Alternatively, simply copy and paste the link into your browser:**

<https://www.survey.ca/xxxxx>

**APPENDIX E.  
PARTICIPATION COMPENSATION INSTRUCTIONS**

If you would like to be compensated with a \$20.00 gift card for participating in this survey, please complete your details below:

First Name: \_\_\_\_\_

Email: \_\_\_\_\_

Preferred telephone number: \_\_\_\_\_

Preferred Gift Card (select one): AVAILABLE OPTIONS FOR GIFT CARDS STILL PENDING

*If you choose to participate in the \$20 participation compensation, your name and contact information will not be linked to your survey responses in any way.*

***Please detach this page from the rest of the survey and hand it back to the appropriate social worker so that it may be stored separately from your completed survey.***

**APPENDIX F.  
PARTICIPANT DEBRIEFING FORM (Online Survey)**

**Title of Research: Adverse Childhood Experiences & Crime Classifications**

The purpose of this study was to identify the roles that adverse childhood experiences may play in adult crime classifications. There is a plethora of research on adverse childhood experiences, but what we know less about is the impact these experiences have on general adult crime classifications. It is important to note that the negative outcomes of childhood experiences are found predominantly in the most extreme cases. Further, not all negative early life experiences transcend across the lifespan. Your participation in our research has therefore been invaluable and we wish to thank you for taking part.

All participants can obtain a summary of the findings by contacting one of the researchers after completing the survey. If you would like to know more about the overall findings, please do not hesitate to contact Emily Rybak or Dr. Marc Patry. If you have any concerns regarding your rights or welfare as a participant in this research study, please contact the Office of Research Ethics at 902-420-5728 or [ethics@smu.ca](mailto:ethics@smu.ca). The ethics of this research project have been reviewed and approved by the SMU Human Research Ethics Board [HREB Protocol Number: #100478].

If you choose to receive compensation by filling out the Participation Compensation Form, this information is separate from the rest of the survey so that the information may be stored separately from your completed survey to ensure confidentiality. None of the information given on the Participation Compensation Form will be linked to your survey responses in any way.

If any of the questions in the study result in any emotional distress, please contact any of the following support services: Halifax mental health crisis support at 902-429-8167 or 1-888-429-8167 (toll free) at any time if you feel that you need help. The Halifax mental health crisis support is available 24 hours a day, 7 days a week.

**APPENDIX G.**  
**INFORMED CONSENT FORM (Online Survey)**

**Title of Study: Adverse Childhood Experiences & Crime Classifications**

**Purpose/Objectives of the Study**

This study is being carried out by Emily Rybak who is an Applied Psychology student at Saint Mary's University who is being supervised by Dr. Marc Patry. The purpose of this study is to identify the relationship between adverse childhood experiences and crime classifications. Adverse childhood experiences (ACEs) have been defined as stressful life events that occur during development (Trossman et al., 2020). The objective of this study is to further examine ACEs in relation to different crime classifications based on self-reported criminal histories.

**Procedures involved in the Research**

If you agree to participate in this study, you will be asked to complete this survey. The survey consists of a series of questions taken directly from a series of standardised measures and unstandardized measures: a childhood experience questionnaire and an criminal history questionnaire.

The survey will also ask you to complete some background questions including your age, gender, and a brief criminal history, which we should note is all optional in terms of whether you complete or not. Personalised or identifiable data will not be collected as part of this survey. Completion of the survey will take approximately 15 minutes of your time. If there are any questions or statements that you do not wish to respond to please feel free to skip those items and move on to the next item. Upon completion of the study, you will be provided with a debriefing form that will detail the purpose of the study. Upon reading the debriefing form, if you have any questions or concerns please do not hesitate to contact Emily Rybak or Dr. Marc Patry.

**Potential Benefits**

Due to the prevalence of adverse childhood experiences in the general population (Ontario Agency for Health Protection and Promotion, 2020), it has become increasingly important to determine how these

experiences can impact adult criminal behaviour. This research bears both theoretical and real-world implications. We hope to inform future directions on the research and treatment for individuals who are placed in the care of the Nova Scotia Health in order to decrease recidivism and increase positive community involvement. You also have the opportunity to be compensated for your participation with a \$20 gift card. If you would like to receive the \$20 gift card you will be asked to provide your first name, email and telephone number on the last page of the survey. If you choose to receive compensation by filling out the Participation Compensation Form you will be instructed to detach the form from the rest of the survey so that it may be stored separately from your completed survey to ensure confidentiality. Paper copies of the completed surveys and Participation Compensation Forms will be kept in separate locked drawers that can only be accessed by authorised social workers. Authorised social workers have been contacted and instructed ahead of time to ensure that these forms are kept separate from the completed surveys. If you complete the survey online, you will be instructed to click on a link that takes you to a separate Qualtrics survey to fill out the Participation Compensation Form so that this information can be kept separate from the rest of the survey. None of the information given on the Participation Compensation Form will be linked to your survey responses in any way.

### **Potential Harms, Risks or Discomforts to Participants**

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### **Confidentiality**

All of the information that you provide will be subject to confidentiality. Online data will be collected via Qualtrics and will be stored on Canadian servers. Once data collection is complete the data will be

downloaded and removed from the server. The data will be downloaded and stored on personal, password protected, computers belonging to the researchers. None of the data will be connected to any personal identifiers such as names. All anonymous downloaded data will be stored in perpetuity following the completion of the project. Paper copies of completed surveys will be entered and stored on personal, password protected, computers belonging to the researchers as well. All anonymous paper surveys will be stored in perpetuity following the completion of the project.

### **Participation**

Participation in this study is voluntary. If at any time you wish to withdraw from the study, please simply close your browser. However, if you chose to withdraw after starting the survey, any data you have submitted up to that point will be kept. If you are completing a paper survey simply return the incomplete survey and write 'withdrawal' on the front of the survey. You cannot withdraw from the study after your survey has been submitted as all data are confidential and will only be available to the researcher. The survey data will not be used to identify individuals from the data pool. All incomplete survey data will be securely deleted and will not be included in data analysis.

### **Study Results**

On completion of the study the researchers will create a summary report. It is anticipated that this will be available by August 2024. If you are interested in the study's findings, please contact the researchers following the completion of the survey. If you contact the researchers indicating that you are interested in the study's findings, your contact information will be confidentially saved and stored on personal, password protected, computers belonging to the researchers and you will be contacted with the disseminated results when the study is complete. The researchers will also be disseminating the findings amongst the facilities that assisted in the recruitment of participants. Please note that as all of the data are confidential, we cannot provide individualised results.

### **Questions**

Should you have any further questions about this study, please feel free to contact Emily Rybak

(Emily.Rybak@smu.ca ) or Dr. Marc Patry (Marc.Patry@smu.ca )

### **CONTACT FOR CONCERNS**

If you have any concerns regarding your rights or welfare as a participant in this research study, please contact Dr. Marc Patry (marc.patry@smu.ca) or the SMU Office of Research Ethics at 902-420-5728 or ethics@smu.ca; Halifax mental health crisis support at 902-429-8167 or 1-888-429-8167 (toll free) at any time if you feel that you need help. The Halifax mental health crisis support is available 24 hours a day, 7 days a week.

This research has been reviewed and cleared by the Saint Mary's University Research Ethics Board. If you have any questions or concerns about ethical matters, you may contact the Saint Mary's University Research Ethics board at ethics@smu.ca or (902) 420-5728"; REB File# 23-018).

### **Consent**

Please know that by participating in this research, you are not giving up any legal rights in the event that you are harmed during the research. By clicking "Yes, I wish to proceed," I confirm that I have read this form and decided that I will participate in the project described above, titled *Adverse Childhood Experiences & Crime Classifications*. Its general purposes, the particulars of involvement, and possible risks and inconveniences have been explained to my satisfaction. I understand that I can discontinue participation at any time.