Examining the Experiences of Justice-Involved Youth with Mental Health and Substance Use Needs

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to the School of Graduate Studies in partial fulfillment of the

requirements for the degree of

Master of Arts, Department of Sociology

Memorial University of Newfoundland and Labrador

Fall, 2022

St. John's, Newfoundland and Labrador

Abstract

Awareness surrounding the impact of psychological/mental health and substance use needs among young people involved in the justice system has increased in recent years. The life trajectories of youth who have justice system involvement are plagued with inequality created by various structural and social factors. Of these, mental health and substance use are among the most commonly reported. Youth who experience potentially traumatic events and are exposed to adverse events early in life, particularly childhood, have been found to experience greater psychological/mental health and substance use needs, and increased justice system involvement (Felitti et al., 1998, 2002; Abram et al, 2004; Baglivio et al., 2014, 2020). The present study relied on data from the case files of 192 youth probationers from Western Canada who were classified as "serious/violent", to explore their mental health and substance use behaviours. Findings are discussed with regard to how justice-involved youth with "high/specialized" mental health and/or substance use needs specifically, have unique experiences of mental health and substance use compared to other justice-involved youth. Results demonstrate the importance of examining how trauma and adverse experiences in early childhood and youth affect specific psychological responses/health-related issues and higher-level substance use.

Keywords: mental health, substance use, adverse childhood experiences, trauma, youth justice

General Summary

While justice-involved youth who have experienced trauma or potentially traumatic events early in life are inequitably affected by mental health and substance use needs, few supports and services are available that adequately meet these individualized needs. This thesis examines the mental health and substance use behaviours of justice-involved youth in Western Canada and emphasizes the importance of taking an individualized approach to mental health and substance use needs. Subsequently, supports and services for youth with these needs should strive to account for the incredibly complex and often unique life occurrences that influence the individual nature of these needs, and how experiences of potentially traumatic or adverse childhood events differentially affect young people. Relying on trauma-informed, harm reduction strategies to understand substance use and mental health is imperative to address the overrepresentation of individuals with these needs in the justice system, as these strategies refrain from criminalizing behaviours associated with these diagnoses/challenges.

Acknowledgements

Firstly, this research was supported in part by funding from the Social Sciences and Humanities Research Council and Memorial University of Newfoundland and Labrador. Dr. Adrienne Peters; where to start! Thank you for your confidence in my abilities and unwavering support throughout the many stages of this project. I would not have finished without your encouragement and I wouldn't be graduating without your guidance. The commitment and passion you extend to your students and work is inspiring and I am so lucky to have an outstanding role model for a supervisor. Adrienne provided me with many opportunities, helping me grow professionally and personally, and I am a better student, researcher, and person because of her.

I would also like to thank Dr. Linda Rohr, who indirectly contributed to my thesis through her absolute certainty in me as a researcher. Linda, your advice and character have shaped my abilities as a researcher, writer and instructor. Next, a special thanks to Susanne Ottenheimer, who cultivated my passion for sociology and inequality as an undergraduate student. Her talent to teach through storytelling, with empathy and humility, has inspired me to pursue teaching in any capacity and become a better sociologist, overall.

Last but not least, big thanks to my soon-to-be husband, Andrew, and my Nan, Elizabeth. Andrew, you were always there to comfort me when I had to redirect, many times, and to vocalize your support in me when I didn't think I could make it through. I am so fortunate to have a partner who provides unconditional love and support in my every endeavour. Nan, you have taught me many invaluable life lessons, but to mention a few, you taught me to never to give up, to always have faith in myself, and that, like everything in life, this too shall pass, so try not to stress about things out of your control. You are my ultimate role model, our family matriarch and the person I always turn to for advice.

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Introduction

In Canada in 2020, approximately 17, 618 youth aged 18 or younger were admitted to correctional services. The over-representation of youth with mental health and substance use needs is well established in the Canadian justice system (Gretton & Clift, 2011; Cesaroni et al., 2018; Galley et al., 2020). Recent scholarly focus in this area of criminology has turned to early exposure to and experiences of trauma and strain among young people as contributors to mental health and substance use needs (Baglivio et al., 2014; Dierkhising et al., 2013; Yampolskaya et al., 2019). Research has shown that exposure to potentially traumatic events/experiences, known in much of the contemporary criminological literature as adverse childhood experiences (ACEs), can affect a young person's mental health/well-being and substance use behaviours (Vingilis et al., 2020), directly and indirectly, potentially leading an increased likelihood of justice system involvement (Baglivio et al., 2020). Few studies examine the factors that contribute to mental "illness,"[1] substance use, and comorbidity among justice-involved youth.

In this traditional thesis-style research, I will examine what forms of early exposure to trauma/ACEs are most impactful on mental health, substance use, and co-occurring mental health and substance use among a sample of justice-involved youth. Specifically, I will examine how mental health, substance use and co-occurring substance use and mental health diagnoses (outcomes) are affected by various traumatic experience factors determined to be impactful in the literature. These include: a) childhood trauma/abuse(s), b) residential mobility, c) familial

[1] The use of mental "illness(es)" is commonly used and accepted in much of the literature and research surrounding mental health, as per the APA's Diagnostic and Statistical Manual-5 (DSM-5) criteria recommendations, and thus, may appear occasionally in this thesis, despite mental health diagnoses being the preferred and recommended language.

vulnerability factors (e.g., mental illness, substance use, justice-system involvement), d) gang involvement, e) counselling, f) age of probation entry, g) gender, and h) race/ethnicity, among a sample of "high needs"[2] justice-involved youth in British Columbia, Canada.

This research is informed by the developmental/life course perspective (DLC) (Moffitt, 1993, 2003 & 2006; Farrington, 2003; Thornberry, 2005), and labelling theory which has become an important framework for understanding young people's complex experiences with and involvement in the justice/legal system. Researchers and professionals can use DLC theories to determine the influence of traumatic events experienced early in life, on the mental health and substance use behaviours of justice-involved individuals, by determining what factors contribute to mental health diagnoses and/or substance use behaviours, and how these are then criminalized. Labelling theory helps explain how and why mental health and substance use are often linked to justice system involvement (Claro et al., 2015; Becker, 1963). This perspective can also be used to inform recommendations regarding how interventions can identify and more appropriately support young people who have been criminalized and have complex mental/psychological health needs (e.g., anxiety, depression, bipolar, or posttraumatic stress), neurodevelopmental needs (e.g., fetal alcohol spectrum disorder [FASD]), and/or high-level/high-frequency substance use.

While many justice-based programs and services address the secondary behaviours that are associated with mental health diagnoses and health-compromising substance use (such as those that may contribute to involvement in behaviours considered illegal), my findings suggest

[2] Youth are considered "high-needs" based on the classification level assigned to them by the justice system. This includes youth with sexual-related or violent charges and gang-affiliated youth. These youth may not be high-needs in actuality, however, the nature of their charges give them such a label.

that interventions should instead work with individuals to understand and support their psychological/mental health and/or substance use needs, which have often been connected to exposure to trauma in childhood and early adolescence. Relying on trauma-informed, harm-reduction strategies that aim to avoid the criminalizing of behaviours associated with these diagnoses/challenges, I will make recommendations based on the findings.

Literature Review

Substance Use and Mental Health Among Justice-Involved Youth

From a review of the literature, the rates of psychological/mental health and more serious substance use/addiction needs among justice-involved youth are significantly higher than among the general youth population (Borschmann et al., 2020; Chitsabesan et al., 2006; Mental Health Commission of Canada, 2020; Sapers & Zinger, 2015, 2016; Beaudette et al., 2015; Teplin et al., 2002). There is very limited data available regarding the prevalence of substance use and mental health diagnoses among justice-involved youth in Canada, but adult data and estimates for youth suggest the prevalence of substance use to be between 50% and 75% (Sapers & Zinger, 2015, 2016; Beaudette et al., 2015; Teplin et al., 2002), while estimates for mental health diagnoses range between 50-100% (Chitsabean & Bailey, 2006). The Canadian Community Health Survey (CCHS) found that almost 20% of youth aged 15 to 24 self-reported having a diagnosed "mental illness" or "substance use disorder" [3]in Canada (Statistics Canada, 2013; Statistics Canada, 2020).

[3] Substance use disorder is the formal diagnostic term used to describe addiction-related behaviours that significantly disrupt a persons life.

The proportion of youth in Canada with co-occurring mental health and substance use needs is nearly double the proportion of adults, and 70% of hospitalizations for drug-related harm among youth in Canada involved a concurrent mental health diagnosis (Canadian Institute for Health Information, 2019). This corresponds with results from the Canadian Community Health Survey for mental health, which found youth under the age of 24 are at a significantly higher likelihood of coming in to contact with the police due to substance use or a mental health diagnosis, compared to every other age category (Boyce, 2015).

From a sociological perspective, the overlap between youth with mental health diagnoses and/or substance use and those who are justice-involved sparks many questions, including those concerning the nature of this relationship and why the two populations are so interconnected. Important to note, is the complex and indirect relationship between mental health and substance use with crime. Various social, cultural, political and economic factors impact the relationship, including the fact that crime and health are shaped by similar social and structural determinants. This is not a simple relationship to explain. Labelling, stigma and criminalization too are relevant, and these will be explored further in the theoretical framework.

Although this has been a growing area of examination in sociology, criminology, and other related disciplines (e.g., psychology), there continues to be a noticeable shortage of empirical research examining what factors influence substance use and mental health among youth, both in the general population and perhaps even more limited in correctional populations affected by the *Youth Criminal Justice Act*, despite evidence showing the overlap between these populations. This research just so happens to utilize a sample of youth who are justice-involved, however, it will focus on the factors that contribute to mental health struggles and substance use among these youth.

Mental Health, Substance Use and the Youth Criminal Justice Act

The *Youth Criminal Justice Act* (YCJA) is the set of regulations that govern and responds to youth crime in Canada and recognizes that youth should be held accountable for their actions while acknowledging the influence the developing brain has on decision-making. As per the YCJA, young people can be charged with an offence from ages 12 to 18, at which point they are then subject to the *Criminal Code of Canada*, the adult equivalent to the YCJA (YCJA, SC 2002, c. 1, s.2(1)). With regards to youth with mental health concerns, the YCJA outlines extrajudicial measures such as cautions, warnings and referrals to community supports, as imperative for correcting "offending behaviour"[4] (YCJA, SC 2002, c. 1, s. 4), and the provision of individual, customized sentencing for youth who have mental health diagnoses (YCJA, SC 2002, c. 1, s.34(1)). Offending behaviours are those that have been labelled as criminal structurally, and not those that are inherently bad or in need of correcting.

Further, the YCJA demands that sentencing is not to be used in place of appropriate mental health treatment (YCJA, SC 2002, c. 1, s.38(2e.1)). Despite these regulations, we are seeing an over-representation of youth with mental health and/or substance use needs among youth correctional populations and an overall lack of responses that aid in upholding these regulations, indicating that these measures may not be fully adopted or are working as intended.

Mental Health

Overall, individuals with complex psychological/mental health needs are disproportionately represented in the justice system (Borschmann et al., 2020; Steinert et al.,

[4] Offending behaviour, as per the YCJA, refers to any behaviour that can result in charges being laid against a youth for illegal activity, such as a violent offence, theft, drug trafficking, etc.

2010; Gretton & Clift, 2011). It is estimated that approximately 20% of Canadian youth are affected by mental health struggles before the age of 18 (Canadian Mental Health Association, 2016; Mental Health Commission of Canada, 2020). In a seminal study examining mental health diagnoses among incarcerated youth, Teplin and colleagues (2002) found that two-thirds of boys and three-quarters of girls met the diagnostic criteria for at least one diagnosis. A further 60% of boys and 66% of girls met the criteria for two or more diagnoses, illustrating that comorbid mental health diagnoses are more common than not (Teplin et al., 2002). A more recent study by Gretton and Clift (2011) found rates to be higher; approximately 92% of boys and 100% of girls incarcerated in their sample met the criteria for at least one mental disorder.

A 2015 review of a mental health and substance use court in Toronto, Ontario determined that 56% of justice-involved youth referred to mandatory court-ordered assessments had at least one mental health diagnosis (Peterson-Badali et al., 2015), with many others fitting the criteria for co-occurring diagnoses. The most common mental health diagnoses identified among these youth included attention-deficit/hyperactivity disorder (ADHD; 35%), substance use disorders (16%), and mood/anxiety disorders (14%)(Peterson-Badali et al., 2015). When looking at the gender differences between these, girls were more likely to be diagnosed with mood/anxiety disorder, but that was the only identified difference (Peterson-Badali, et al., 2015).

A separate Canadian study by Davis and colleagues (2015), found mood and anxiety disorders to be the most frequently diagnosed mental health diagnoses among attendees of mental health court, with 54% of youth presenting with symptoms. ADHD came second, with 28% of participants presenting with symptoms (Davis et al., 2015). Among justice-involved youth, up to 45% are believed to meet the criteria for a diagnosis of ADHD (Young et al., 2010; Retz et al., 2004). Childhood ADHD symptoms have been directly linked to the occurrence of

violent offences and persistent offending behaviours, which have been explained partly by impulsive behaviour and mood instability factors related to the diagnosis (Harpin & Young, 2012).

The same study by Davis and colleagues (2015) found that 18% of youth adjudicated through the mental health courts did not have a formal diagnosis before justice system involvement. Considering that youth have lower rates of diagnoses due to factors like age and agency (McCormick et al., 2015), and because true rates of mental health diagnoses among youth and the general population are said to be grossly under-represented, it is advantageous that youth without pre-existing diagnoses can be adjudicated through mental health courts and can access diagnostic services that may inform how to best address their needs. However, this showcases the issue of underdiagnosis and how mental health can contribute to justice system involvement. Had these youth been diagnosed prior to the offence they are being formally charged with, there may have been opportunities to implement early interventions that may have directed their life course away from the justice system.

Borschmann and colleagues (2020), completed a scoping nearly 40-year review of the literature and determined that youth in detention facilities have significantly higher incidences of mental health diagnoses and suicidal behaviours and that poorer mental health outcomes are associated with higher rates of recidivism and continued justice system involvement. The authors also found that mental health diagnoses and health-compromising behaviours were more likely to be present in justice-involved youth populations compared to youth who have not been justice-involved (Borschmann et al., 2020).

There is a connection between youth mental health and their experiences later in life. Canada's National Longitudinal Survey of Children and Youth conducted between 1994 and

2008, found that youth who self-reported difficulties managing their emotions between ages four to eight were four times as likely to report symptoms or receive a diagnosis of depression later in life (Canadian Institute for Health Information, 2015). The connection between early childhood trauma and mental health difficulties later in life has also been established by William Copeland and colleagues (2018), who found that exposure to traumatic events during childhood has significant effects on the likelihood of experiencing a mental health diagnosis during adulthood and that the cumulation of multiple traumatic experiences further increased that likelihood. Childhood trauma was associated with mental health diagnoses, the potential for justice system involvement, and diminished financial, educational, and social literacy during adulthood, even when controlling for a variety of external and environmental factors (Copeland et al., 2018). These findings suggest that the effects of experiencing childhood trauma persist throughout the life course and contribute to poor mental health outcomes. Experiencing trauma in childhood has been connected to adult substance use disorders (Khoury, 2010).

Experiencing trauma in childhood elicits lasting effects. The connection between childhood trauma, mental health and justice system involvement can be confounded by a variety of other childhood and familial-level factors that being exposed to trauma can provoke. For example, being exposed to trauma as a youth may exacerbate underlying behavioural or emotional symptoms which could impact adult health and decision making (Copeland et al., 2018). These symptoms may be perceived as independent and not directly connected to past potentially traumatic experiences. Exposure to potentially traumatic events as a youth is frequently correlated with a variety of other adverse and familial-level experiences, like instability in the home, family dysfunction and socioeconomic strain (Copeland et al., 2018).

The possibility of these potentially traumatic events affecting behaviour, health-related outcomes and decision-making across the life course, like substance use for example, is often explained by developmental life course theory, which will be explored future in succeeding sections.

Substance Use

Substance use is generally viewed on a continuum from no use to severe/impairing use. Individuals may be at one point on the substance use continuum and remain there, or they may move to a different stage over time, or any combination therein. Individuals may also be at different points on the continuum for different substances. For example, an individual may not have used alcohol for years, but they may misuse crack cocaine daily. The continuum includes and ranges from no use, beneficial use, experimental/occasional use, regular use, abuse/problematic use, and addiction/dependency (SAMHSA, 2016).

Substance use isn't always problematic and in fact, can be beneficial. The further the individual is on the substance use spectrum, the higher the opportunity for it to become problematic, in the sense that it interferes with the ability to carry out daily life and creates other health-related or social consequences. Experimental and occasional use is often not problematic; however, it may lead to regular use, which can lead to abuse/problematic use, and/or addiction/dependency. Further, the conception of what substances are problematic and at what point they become problematic is an important point to consider, as is to what extent the harms and risks produced by the pharmacological effects of drugs or from the drug policies and systems that criminalize and prohibit certain substances.

"Substance use disorders," outlined as a diagnosable mental disorder according to the American Psychological Association's Diagnostic and Statistical Manual of Mental Disorders,

fifth edition (DSM-V; Hasin et al., 2013), is the commonly used/popularized and capitalized upon term referring to a pattern of problematic substance use commonly understood to be experienced over a prolonged period, which is said to significantly affect the individual's ability to live their life as they normally would (Rehm et al., 2013). A "substance use disorder" (SUD), more commonly and accurately known as addiction, is defined as the physical dependence and/or abuse of any substance—opiates, stimulants, inhalants, depressants, hallucinogens, alcohol, marijuana, methamphetamines, or prescription medication, etc.—despite the negative effects (Broner et al., 2004). Youth who present with substance use disorders have a high likelihood of exhibiting other comorbid mental health diagnoses (Kessler et al., 1994).

Roughly 22% of Canadians will experience a substance use disorder at some point in their lives, with those aged 24 or under being the most likely (Pearson et al., 2015). Data from the Canadian Community Health Survey indicates that the general youth population has been found to have higher rates of substance use disorders than any other age bracket (Pearson et al., 2015). Similarly, youth have the highest rates of substance use disorders and/or dependence (Pearson et al., 2015). These figures grow exponentially for justice-involved populations.

In 2002, Teplin and colleagues found that approximately 51% of male and 47% of female youth incarcerated met the criteria for a substance use disorder. In 2019, over half of the youth who entered community supervision in the United States reported substance use experimentation at their time of entry into the justice system (Scott et al., 2019; Dennis et al., 2019), and one-third of justice-involved youth have a diagnosed substance use disorder (Wasserman et al., 2010). A more recent study of incarcerated youth in British Colombia determined 100% of female youth and 86% of male youth have substance abuse disorders or substance dependence (Gretton & Clift, 2011). Of these youth, 63% of males and 84% of females met the criteria for more than one

substance use disorder (Gretton and Clift, 2011). This is a higher incidence compared to McClelland and colleagues (2004), who found among justice-involved youth who had a substance use disorder, just under half had multiple substance use disorders.

Substance use has been correlated with a variety of externalized behaviours and justice-system involvement and youth who are justice-involved tend to begin using substances at a younger age than youth who are not justice-involved, potentially leading to a greater duration of drug use and a higher likelihood of developing a substance use disorder (Funk et al., 2020). Multi-substance use among youth is said to be more common than not and is concerning because it can lead to further physical and mental health-compromising behaviours, contributing to justice system involvement (McClelland et al., 2004). Substance use behaviours too are criminalized and often indirectly related to justice system involvement, in that substance use leads to behaviours that are criminalized. For example, dependency or addiction may lead an individual to commit a crime like robbery or fraud as means to fund their addiction. The robbery or fraud is what leads to justice system involvement, and not consuming the drug itself, therefore a mediated and indirect cause.

Justice-involved youth with substance use disorders have been found to experience a higher number of childhood adversities and traumas than youth who do not have substance use disorders (Seker et al., 2021). Impulsive behaviour has been found to contribute to youth substance use (Harpin & Young, 2012; Quinn & Harden, 2011; Eisenberg et al., 2009; Winstanley et al., 2006). Impulsivity is a key symptom of ADHD and mood disorders, which are some of the most common mental health diagnoses among justice-involved youth (Davis et al., 2015; Harpin & Young, 2012). Research suggests that mental “illnesses”/complex psychological health needs may be predictive of “criminality”/criminal justice system involvement, but the evidence is minimal and not widely supported (Ghiasi et al., 2020). The fact is mental health

diagnoses are proliferating justice settings and the connection between substance use and mental health behaviours is imperative to explore.

The Relationship Between Mental Health, Substance Use & Justice System Involvement

As mentioned, mental health diagnoses and substance use disorders are frequently found to co-exist. A substance use disorder in itself is a mental health diagnosis, making them one and the same, however, substance use disorders are often found to exist with other diagnoses (Conway et al., 2016; Teplin et al., 2002). Research has proposed that co-occurring mental health diagnoses and substance use disorders can be explained in many ways, such as the similarities in the pathways/factors/experiences identified that can contribute to challenges related to psychological health and substance use and that having mental health or substance use needs can make one more susceptible to the other (Conway et al., 2016; Swendsen et al., 2010; Substance Abuse and Mental Health Services Administration [SAMHSA], 2016).

The connection between mental health and substance has elicited many explanations; the self-medication hypothesis, maladaptive coping after adverse experiences, and the absence of support for those in need are particularly relevant. The self-medication hypothesis proposes that when youth are struggling emotionally, they may use substances to cope with their feelings, which may help in the short-term, but can lead to "problematic" dependence and/or abuse, and worsen negative feelings in the long run (Stone et al., 2012). "Problematic" substance use can interfere with the developing brain structures, initiating changes in mental health and making youth more likely to have a mental health diagnosis at some point in their life (Squeglia, 2010).

The relationship between mental health and substance use has been described as bi-directional, in that youth with mental health diagnoses may use substances to cope with the symptoms of their diagnosis, and substance use can contribute to the onset of mental health-

compromising behaviours (Conway et al., 2016; Richert et al., 2020). The exact cause-effect relationship between mental health and substance use experimentation is intricate and largely undetermined, however, there is agreement on the correlation between the two, in that having one makes youth more likely to experience the other.

A national survey in the United States found that approximately 50% of individuals who have a mental health diagnosis, or a substance use disorder will experience the other (i.e., comorbidity), at some point (National Institute on Drug Abuse, 2020). Individuals with mental health diagnoses were two times as likely to have a substance use disorder compared to the general population (Rush et al., 2008). Those who exhibit substance use were 3 times as likely to exhibit mental health-compromising behaviours (diagnosed or undiagnosed), compared to individuals who do not exhibit substance use (Rush et al., 2008).

Mental health diagnoses, substance use and experiences of trauma are higher among incarcerated populations when compared to the general population, and there are varying explanations as to why. This relationship is not easily explained, and brings about the "chicken and the egg" question of what comes first and what influences the other. Does trauma bring about substance use and mental health concerns or do mental health and substance use create trauma? I think both are true. And how and why are individuals who experience trauma, substance use and mental health concerns over-represented in justice settings? The structural nature of stigma that comes about concerning mental health and substance use is certainly relevant in this discussion, and will be explored further in coming sections.

Statistics on justice-involved youth with co-occurring mental health diagnoses and substance use disorders are elusive, but youth with existing mental health diagnoses have transitioned to more serious drug use at higher rates than those who do not have mental health

diagnoses (Conway et al., 2016). In an older study, Andrews and colleagues (2006) found that mental health diagnoses can be predictors of criminality, only if substance use and antisocial personality and behaviours are found in combination. Researchers have associated internalizing behaviours and related mental health diagnoses, such as anxiety, depression, trauma and post-traumatic stress disorder (PTSD), with increased likelihood of substance use (Khoury, 2010). Impulsive behaviour and experiencing childhood adversities (e.g., sexual and physical abuse, witnessing violence in the home, etc.), has also been associated with substance use among justice-involved youth (Seker et al., 2021).

Positive and negative reinforcement are relevant here. Impulsive behaviour may be the cause of initially using substances, but positive and negative reinforcement contribute to continued usage (SAMHSA, 2016). Using substances may alleviate negative feelings experienced by youth/adolescence, and the relief felt can increase the likelihood of using again. Similarly, substances can elicit positive feelings, leading to continued use, especially if there are no other supports/interventions in place (SAMHSA, 2016). However, as tolerance builds, the amount of substance needed to recreate these feelings increases (i.e., dependence), and the substance use behaviours may turn compulsive and become problematic.

Environmental factors, like trauma or adverse childhood experiences, and genetics have also been linked to the increased chance of experiencing substance use disorders and mental health concerns at some point during the life course (Khoury, 2010; Abram et al., 2004). Co-occurring mental health diagnoses and substance use has been correlated with exposure to early childhood trauma (Khoury, 2010; Amaro, 2021).

Co-Occurring Mental Health Diagnoses, Substance Use and Violent Offences

Co-occurring mental health diagnoses and substance use have been specifically associated with violent offences (Sacks et al., 2009). A particularly interesting publication by Sacks and colleagues (2009) found that for justice-involved individuals with substance use concerns or diagnosed substance use disorders, increased frequency and/or quantity of the substance(s) used did not produce a greater likelihood of violent offences. Low-level quantity and frequency of substance use were equally likely as high level quantity and frequency of substance use, to elicit violence (Sacks et al., 2009). Sacks and colleagues also found that mental health diagnoses were not associated with violent offence charges either. Despite the findings of Sacks et al., (2009), justice-involved youth with mental health diagnoses and [multi-]substance use concerns do commit violent offences; however, mental health diagnoses and substance use were not found to be directly attributable to violent crimes (Sacks et al., 2009). Although their substance use and mental health are not directly attributed to their violent offence, it is fair to conclude that their substance use and mental health behaviours did contribute to their criminality, even if indirectly. However, only two-point-nine percent of the sample was found to have a diagnosed co-occurring mental illness and substance use disorder. We can assume that the actual figures for co-occurring disorders may be higher, as some individuals may be suspected of comorbidity but not formally diagnosed. In some cases, violent behaviour has been associated with justice-involved individuals who have comorbid mental health and substance use needs (Grann et al., 2008).

Early Trauma/Adverse Childhood Experiences (ACEs) and Factors Associated with Youth Justice System Contact/Involvement

Drawing from an increasingly prevalent concept in the current criminological understanding of early exposure to potentially traumatic experiences, adverse childhood

experiences (ACEs) are traumatic or emotionally jarring events experienced during childhood or adolescence (Felitti et al., 1998; Felitti et al., 2002; Baglivio et al., 2014). There are 10 main ACEs identified in the literature: physical abuse, sexual abuse, emotional abuse, emotional neglect, physical neglect, substance use and/or mental health diagnoses in the household, violence towards maternal figures, parental separation/divorce, and having an incarcerated family member (Felitti et al., 1998). Adversity experienced in childhood has been linked to several negative outcomes (Mersky et al., 2013), but notably, an increased probability of experiencing substance use and mental health diagnoses later in life, an increased likelihood of coming into contact with the justice system (Khoury, 2010; Felitti et al., 1998), and lower levels of wellness in various dimensions (Mersky et al., 2013; SAMHSA, 2014). Furthermore, the effects of trauma appear to be compounded throughout the life course and experiencing trauma as a youth/adolescence can have life-long consequences (Mersky et al., 2013).

Empirical research findings illustrate that ACEs have been correlated with a variety of what are considered negative outcomes in adulthood (Baglivio et al., 2014; Reavis, 2013) —namely, physical, and mental health disorders — and that the accumulation of traumatic experiences in childhood may lead to the increased likelihood of being incarcerated (Levenson, 2015; Wolff & Shi, 2012). Having experienced ACEs in childhood makes youth more likely to experience mental health diagnoses and substance use behaviours during adulthood, contributing to the likelihood of justice system involvement, directly and indirectly, related to their mental health and substance use behaviours (Baglivio et al., 2014, 2015, 2020; van Duin et al., 2019; Huang et al., 2012; Wyrick & Atkinson, 2021).

Youth involved in the justice system have a higher probability of being exposed to various forms of trauma, compared to youth who are not (Wyrick & Atkinson, 2021). Baglivio

and colleagues (2014), found that justice-involved youth had "disturbingly high" rates of ACEs and scored higher on the "risk classification scale" when compared to youth who had not come into contact with the justice system (p. 1). Higher ACE scores among justice-involved youth have been associated with a higher likelihood of substance use and use (Baglivio et al., 2014).

Child maltreatment generally, has been associated with a higher level of substance use (Funk et al., 2020; Sacks et al., 2008; Yoon et al., 2021), multiple substance use (Afiffi et al., 2012; Shin et al., 2009; 2013; Kelly et al., 2015), an earlier age of substance use (Proctor et al., 2017), and being diagnosed with a substance use disorder (Khoury, 2010). Being exposed to multiple traumatic childhood events, as opposed to one or few, was not found to directly increase the likelihood of reoffending (Baglivio et al., 2015)**,** meaning any experience of trauma as a youth may result in increased contact with the justice system. A study by Edwards and colleagues (2003) found that the higher the number of maltreatments as a child, the higher the mental health needs scores. The social outcomes of childhood adversity/trauma, such as criminality and stigmatization, coupled with the negative mental and physical health outcomes significantly impact an individual's life course, meaning identifying and intervening in childhood adversity (i.e., trauma), early is crucial and can disrupt their pattern of criminal behaviour (Levenson, 2015; Reavis et al., 2013).

A particularly interesting publication by Sacks and colleagues (2009) found that for justice-involved individuals with substance use concerns or substance use disorders, an increased frequency and/or quantity of substance(s) used did not produce a greater likelihood of violent offences. Low-level quantity and frequency of drug use were equally likely as high level quantity and frequency of drug use, to elicit violence (Sacks et al., 2009). Sacks and colleagues also found that mental health diagnoses were not directly associated with violent crimes either. This may be

due to the nature of specific mental health needs, in that certain diagnoses are more conducive to violent behaviours (aggravating factors), while others are negating violence (mitigating factors). For example, being diagnosed with depression has been found to be a protective factor against violence (Breton et al., 2015), meanwhile, being diagnosed with ADHD has been found to increase the likelihood of violence (Fletcher & Wolfe, 2009). This can be explained by the symptomology and manifestation of behaviours of different diagnoses, where certain behaviours are more likely to be associated with criminality over others. Depression may cause excessive sleeping and a lack of energy, where the motivation to engage in violence would be lower than someone whose brain is prone to impulsivity, as is the case for someone with ADHD.

Despite the findings of Sacks et al., (2009), justice-involved youth with mental health and substance use needs do commit violent crimes. However, mental health and substance use were not found to be directly attributable to violent crimes (Sacks et al., 2009). Although their substance use and mental health are not directly attributed to their violent offence, it is fair to conclude that their substance use and mental health behaviours did contribute to their criminality, even if indirectly.

Experiencing Abuse

Abuse involves gaining power or control over an individual, and can present in many different forms. Physical abuse is inclusive of any use of force against an individual without their consent. Sexual abuse constitutes any form of sexual contact/intention without consent. Emotional abuse often involves inciting fear in the victim using words or psychological harm. Neglect, intentional or otherwise, occurs when a caregiver fails to provide the basic necessities of life. Witnessing abuse, often called domestic violence, comprises any abusive behaviours between those who are in a relationship, witnessed by a youth. Research indicates that 50-90% of those

who come in contact with the justice system, have been exposed to emotional, physical, and sexual abuse or neglect in childhood (Felitti et al., 2002; Wolff & Shi, 2012; Bodkin et al., 2019). Aarons and colleagues (2008) discovered that having experienced sexual abuse, neglect and physical abuse were all correlated to higher levels of substance use among youth aged 13-18.

Sexual abuse has been correlated with higher rates and duration of substance use (Townsend, 2013). Youth who experience sexual abuse are four times as likely to be diagnosed with a substance use disorder when compared to the general population and experiment with drug use at a younger age (Townsend, 2013). Authors Chen and Lo (2010) found a strong positive correlation between having experienced sexual abuse and drug use behaviours. For youth who have experienced sexual abuse, those who also report symptoms of PTSD were found to have an increased presence of substance use disorders. Ballon and colleagues (2001) found that of the youth they treated for their substance use disorders, 10% of males and 50% of females have experienced sexual abuse and linked that experience to their drug usage.

Experiencing physical abuse is a key factor in the substance use behaviours of justice-involved youth, in that experiencing physical abuse is more likely to increase the odds of substance use behaviours developing (Yampolskaya et al., 2019). A similar study found that youth who experience physical abuse are more likely to use multiple substances when compared to those who have not experienced physical abuse (Snyder & Smith, 2015).

Witnessing abuse in the household can result in mental health and substance use issues beginning in youth and extending throughout the life course (Zinzow et al., 2009). Tucker, Finkelhor, and Turner (2021), found that witnessing the abuse of a sibling can result in mental health diagnoses like depression and anxiety. Violence directed at mothers has been correlated with developing a mental health diagnosis as an adult (Edwards et al., 2003). A similar study

conducted by Zinzow and colleagues (2009) found that witnessing parental violence and/or violence in the community was associated with higher likelihoods of substance use and justice involvement among adolescents.

For youth who experience neglect, mental health diagnoses during adulthood are common, as is the presence of lifelong substance use and abuse (Herrenkohl et al., 2013). Further, neglect has been found to increase the likelihood of coming into contact with the justice system (Moore & Tatman, 2016). Aarons and colleagues determined emotional abuse was not found to be associated with high levels of substance use (Aarons et al., 2008), which contradicts Yoon and colleagues' (2021) findings, that having experienced emotional abuse as a youth was found to increase the number of substances used over time. Experiencing any form of abuse during childhood or adolescence has the potential to elicit mental health diagnoses and/or substance use later in life.

Familial-Level Vulnerability Factors

Familial-level vulnerability factors refer to those not directly perpetrated on the youth but rather witnessed. Household mental health and/or substance use, parental incarceration, parental separation and witnessing violence/abuse perpetrated against maternal figures (discussed above), encompass the familial-level ACE vulnerability factors. Despite not being directly executed on the youth, they have direct effects.

Parental substance use and violence in the home increase the likelihood of youth having a mental health diagnosis (Hanson et al., 2006). Substance use disorders among parents have been reported to result in mental health diagnoses and substance use for their children, as well as educational difficulties, and social and emotional changes (Lander et al., 2013). Youth of parents with mental health diagnoses have poorer outcomes when it comes to treatment plans than youth

whose parents do not (Risser et al., 2013). Further, youth of mothers who have substance use disorders were also found to have poor treatment outcomes, compared to youth whose mothers did not (Risser et al., 2013). However, early interventions were found to counteract these effects (Risser et al., 2013).

An older study found that the effect of mental health diagnoses in mothers and fathers was equally impactful on externalizing behaviour in youth (Connell & Goodman, 2002). The study also identified age as significant, in that paternal diagnoses were more strongly associated with internalizing and externalizing behaviours among older youth, and maternal mental health was more strongly associated with internalizing/externalizing behaviours among younger youth (Connell & Goodman, 2002, p. 762). Regardless, parental mental health had a significant effect on the resultant behaviours of youth during the life course.

Research by Whitaker and colleagues (2006) found that the more vulnerability factors experienced by a mother, such as maternal substance use, maternal mental health and/or domestic/intimate partner violence in the home, the higher the likelihood of the child experiencing behavioural concerns, even when controlling for the same factors among fathers. Maternal mental health, substance use and vulnerability make youth more susceptible to experiencing mental health diagnoses (Hser et al., 2015).

Paternal incarceration has been found to increase the likelihood of youth experiencing mental health diagnoses and substance use (Lee et al., 2013; Kinner et al., 2007). Davis and Shlafer (2017) determined that the incarceration of any parental figure, currently or in their past, was associated with high rates of mental health diagnoses among youth, even when controlling for demographic factors. It was noted that early mental health intervention after the incarceration of a parental figure is pertinent to improving long-term mental health outcomes (Davis &

Schafer, 2017). The literature regarding the effects of parental separation determines that there are no serious, long-term mental health effects directly related to parental separation (D'Onofrio & Emery, 2019). Parental separation does alter the life course and can create feelings of stress or sadness, among others, for youth, affecting their mental wellness (Clark et al., 2013), and substances may be used to cope with these feelings, meaning a dependence may occur (SAMHSA, 2016). Both parental separation and incarceration create changes in family structures, which can create mobility and/or instability in home environments.

Highly Mobile/Unstable Home Environment

Youth who have experienced highly mobile or unstable home environments are youth who may go in and out of the foster care system or justice system, between parents, or other family members, for various reasons, some of which have been mentioned above. Youth who have had repeated involvement in the child welfare or foster care systems are overrepresented in the Canadian youth justice system, and these youth tend to have higher rates of substance use and mental health needs compared to youth who have not been in care (Corrado et al., 2011). Youth in care are more likely to report long-term substance use disorders, compared to the general population and begin using substances at a younger age (Braciszewski & Stout, 2012). Youth that have histories of child welfare placements had more than double the likelihood of reporting substance use when compared with youth who did not have past child welfare placements (Bath et al., 2020). Youth in out-of-home care are found to have the same rates of alcohol and marijuana use as the general population, but their unregulated/street drug use is much higher and likely to extend over their lifetimes (Braciszewski & Stout, 2012).

Youth in care have also been found to have higher rates of mental health diagnoses, both internalizing and externalizing, than youth who have not been in care. More specifically, youth

in residential-type care have been found to have higher rates of mental health diagnoses compared to youth in foster care (Tarren-Sweeney, 2008). One study found that nearly 50% of youth in foster care have reported mental health concerns (Larsen et al., 2018), with general rates of youth diagnoses falling around 20% (Statistics Canada, 2013). Regardless of the type of care, all youth have higher rates of mental health diagnoses and substance use compared to youth who have not been in care, and traumatic experiences of abuse during childhood have proved to contribute to an increased incidence of substance use and mental health diagnoses.

Having a highly mobile or unstable home environment can make youth more susceptible to targeting by and involvement with criminal organizations/gangs across the life course (Jaggers et al., 2013; Higginson, 2018). While gang involvement has not been specified as an adverse childhood experience, it has been associated with current substance use behaviours and increased justice system involvement (Wolff et al., 2020). Coid and colleagues (2013), found that gang-involved male youth have higher levels of psychiatric diagnoses and substance use and multi-substance use, than any other justice-involved group. Gang involvement has correlated with higher-level substance use among youth compared to youth who are not gang-involved (Aldridge et al., 2011). Further, gang-involved youth have reported high levels of ACEs and are more likely to be justice-involved throughout their life course (Petering, 2016).

Early adulthood and teenage years are key transitional stages where opportunities for "risk-taking" present, and long-term behaviours are beginning to establish themselves. The earlier an individual begins using substances and the more frequent their use, the greater the likelihood of long-term substance use (Patton et al., 2016), which is why it is so important to address these behaviours as early as possible.

Common Youth Justice Interventions for Substance Use and/or Mental Health

Results on the efficacy of interventions and supports for mental health and substance use among justice-involved youth vary vastly. There are many forms of counselling (e.g., Cognitive Behavioural Therapy, Dialectical Behavioural Therapy, Motivational Interviewing, etc.), medical treatments, services and programs used to target mental health and substance use, with wide-ranging success (Woodhouse et al., 2016). Research has found that programs and services are often not designed specifically to address individual needs (Skeem et al., 2015). The literature on availability and accessibility for substance use and mental health services and support, while incarcerated widely, agrees that current programs/services are lacking and in need of development to better fit the individual needs of youth, to best support the young person (Meyers et al., 2020; Skeem et al., 2015).

To make lasting change and influence in a justice-involved youths life course, intervention/rehabilitation programs/supports/services should target the reasons behind why individuals have mental health diagnoses or multi-substance use, as the literature has found that experiences of trauma as a youth directly contribute to substance use and mental health diagnoses (Felitti et al., 1998; Felitti et al., 2002; Baglivio et al., 2014; Mersky et al., 2013; Khoury, 2010). Further, supports should be implemented early in the life course to best intervene and prevent/limit the likelihood of life-course offending, and/or life-long mental health/substance use concerns.

Although specific risk assessment tools present challenges (Skeem et al., 2015; Viglione, 2018), assessing for ACEs and trauma during childhood can prove to be useful for determining specific interventions. Kim and colleagues (2019), found that mental health and substance use have strong continuity throughout the life course, and that the prevention of these early on can elicit a lifelong impact and assist in disrupting the continuity of these concerns over time. Programs and services need to individually cater to the needs of the youth they are serving, and to best do so,

knowledge of the factors that contributed to their mental health and substance use behaviours, which in turn, contribute directly and indirectly to their justice-involvement.

Theoretical Framework

Developmental/Life Course Theory

The trajectories of youth who have justice system involvement are plagued with inequality. Developmental/life course theories aim to examine changes in human behaviour over time. Developmental life-course criminology (DLC), therefore, focuses on examining how "antisocial/criminal"[5] behaviours or involvement in/contact with the justice system changes across the course of an individual's lifespan, through examining various developmental, societal, environmental, and psychological factors, looking for the onset and occurrence of what are referred to among DLC criminologists as "protective" (e.g., strengths) and "risk" factors (e.g., challenges) (Farrington, 2003; Moffitt, 1993). DLC theories account for and combine a variety of concepts and ideas from leading criminological and sociological perspectives, from social control and self-control theories to labelling, strain, and social learning/differential association theories, to more psychological and biological theories. A guiding principle of DLC is that changes in "criminal/antisocial" behaviours occur with age and in an ordered fashion (Farrington, 2003), meaning these changes can be tracked by looking longitudinally at an individual's life for certain risk factors to determine the onset of criminality and its influences.

DLC theories explore the onset of "criminal/antisocial" behaviour and how involvement in certain behaviours changes through the life course, how life events such as early child/youth

[5] I say "criminal/antisocial" in quotes, because such behaviours are often labelled and socially constructed as such.

exposure to potentially traumatic experiences can affect the onset of criminality, and identify various factors in a person's life at certain age points that may impact or shift their pathway into and out of the legal/justice system (Farrington, 2003). DLC further, suggests that the onset of criminal behaviour is affected by neuropsychological factors experienced during childhood that affect mental health, like abuse and trauma (Farrington, 2003; Moffitt, 1993). By examining how trauma and adverse experiences influence mental health and substance use behaviours and when we can determine how to best assist justice-involved youth.

Moffitt's (1993) developmental theories are prominent in criminological discussions. Moffitt (1993) asserted that there are two typologies of "offenders"[6]—adolescent-limited, and persistent life-course. Adolescent-limited types begin "offending" behaviours during early childhood and cease offending behaviours during adolescence (Moffitt, 1993). This type of behaviour is often seen as "normative" teenage behaviour and is frequently attributed to negative peer/social influences and pressures around identity and sense of belonging (Moffitt, 1993; Farrington, 2003). Adolescent-limited offenders partake in criminal behaviour to fit in and gain status with their peers, which generally ebbs as youth age and develop their own personal identities.

Contrastingly, life-course offenders begin offending early in childhood, much like adolescent-limited but differ in that their offending behaviour persists into early adulthood and beyond (Moffitt, 1993). The onset of offending behaviours during childhood for life-course offenders is generally attributed to neurodevelopmental and environmental factors, like

[6] "Offending" behaviours are those that oppose "normative" behaviours; again, these are social constructs, and what is considered normal or outside of the norm is dependent on culture and society.

experiences of trauma or adverse childhood experiences, or negative peer groups, which influence socialization and child development (Moffitt, 1993; Moffitt et al., 2001; Piquero, 2001). Childhood "risk factors" are said to be especially relevant for life-course offenders, in that the compounding of negative factors or potentially negative/traumatic experiences during childhood can lead to the development of "antisocial"/adverse behaviours that are labelled as criminal in adulthood, further contributing to justice system involvement.

Labelling Theory

Labelling theory posits that a person's behaviour is influenced by the label that society attaches to them. Labelling theory involves the stigmatization of a specific group in society whose existence is seen as unworthy (Retzlaff, 2005). For a group to be labelled as unworthy, they must differ, and be categorized as such, from the dominant group; this process is known as othering (Staszak, 2008). Stemming from a symbolic interactionist standpoint, labelling theory asserts that what we define as normal or deviant, is socially constructed. Those who have power in a society are able to label behaviors/actions/groups/values as inappropriate or acceptable (Retzlaff, 2005). How people refer to themselves, or are referred to by others, shapes not only their perception of themselves, but also their behavior and others views of who they are. Labelling becomes a political act as it categorically includes and excludes. The assignment of labels to a person or group, becomes a self-fulfilling prophecy of sorts, whereby the individual(s) often begin to conform to that label because they are already seen as such. A key factor in labelling theory is the reaction of others to the person labelled and the subsequent beliefs that person creates around the label.

Labelling theory provides a useful framework for explaining and understanding the complex relationship between mental health, substance use and justice system involvement, and how these behaviours have become viewed as deviant or criminal. As is seen in other minority

groups, many individuals who use substances or have mental health diagnoses are affected by stigma and prejudice in society. They likely want to be accepted and feel included, but the stigma felt and associated label of being a "drug user" or "mentally ill" is a barrier to this. These labels are often a deterrent to individuals' well-being, and can lead to poor health-related outcomes (Thoits, 2020). Further, these labels can be internalized and shapes how people perceive themselves, and how others perceive them. The stigma of individuals with mental health and substance use concerns are structural, and influence how the justice system perceives individuals with these needs. This will be explored further in the discussion section.

Developmental life-course theory posits that many persistent, life-course offenders who remain in conflict with the justice/legal system for longer periods begin to engage in behaviours labelled as "deviant or illegal" as a youth, in response to the early experience of adverse or potentially traumatic events (Moffit, 1993 & 2003; Farrington, 2003). Criminologists who adhere to developmental life-course theories believe that experiencing compounding and/or recurrent early trauma can contribute to longer-term/repeated involvement in the justice system.

Piquero and colleagues (2016) found that "life-course type offenders" were more likely than "adolescent-limited" to have poor mental health, and more likely to partake in current and ongoing "antisocial" behaviour, contributing further to poor mental health. Evans-Polce and colleagues (2014) determined that negative early-life experiences were more influential on adult substance use behaviours than any other adult factors tested among a sample of men and women who were Black and incarcerated. This is consistent with Moffitt's (2006) assertion that "life-course-persistent offenders" have poorer physical and mental health outcomes. Adverse experiences during childhood have the potential to influence lifetime mental health and substance use behaviours, contributing directly and indirectly to justice system involvement and

the likelihood of long-term offending over the life course. A weakness of this theory is that it is not overly critical of some of the systems and institutions that control and shape youth, but this will be unpacked further in the discussion. When combining the concept of a "life-course offender" with the fact that mental health and substance use experimentation have a greater negative impact on rates of "re-offending," (i.e., continued justice-system contact), the importance of addressing and intervening in youth mental health and substance use among justice-involved individuals becomes clear.

Research Question/Current Study

Youth with complex psychological/mental health and substance use experimentation are overrepresented among justice-involved populations, and these youth typically have past traumatic experiences that contribute to their substance use/mental health, but which traumatic experiences are most impactful? The focus of this thesis is to examine which experiences of trauma are most impactful on mental health diagnoses, substance use and high-level, combined mental health and substance use, or comorbidity**.** The objective of the study is to determine if individuals who have experienced trauma have higher occurrences of mental health diagnoses and/or substance use experimentation, and which forms of trauma or adverse childhood, or potentially traumatic experiences are most impactful in the development of such behaviours. With this research, I aim to: 1) determine what factors are influential on the presence of substance use experimentation among the sample; 2) determine what factors are influential on the presence of mental health needs among the sample; and 3) understand how these relationships change when mental health and substance use experimentation are present in combination.

I hypothesize that the presence of any experiences of childhood trauma/ACEs will increase the total number of mental health diagnoses, the number of substances used per youth, and the presence of co-occurring mental health diagnoses and substances used. Based on the literature, I believe all experiences of abuse and a high paternal vulnerability will have the greatest impact on the presence of mental health and substance use behaviours. I am looking at what adverse/potentially traumatic factors individually are most likely to affect the presence of mental health diagnoses and substance use experimentation among justice-involved youth, and then what factors affect the presence of both needs co-occurring.

Methodology

In response to my research questions, I drew on quantitative methods to analyze what adverse childhood experiences and potentially traumatic factors, based on the literature, are impactful on substance use experimentation, the number of mental health diagnoses, and co-occurring mental health and substance use experimentation among justice-involved youth. Using data collected from a pre-existing sample of youth probationers in Western Canada, from September 2011 to September 2014, I conducted two multiple linear regression models and one logistic regression model to examine significant factors.

Participants and Youth Probationer Data

The data for this research was selectively gathered from a pre-existing sample of justice-involved young people being supervised in the community in British Columbia; the majority had been sentenced to probation before being involved in the study, and a small proportion were being supervised while on bail awaiting sentencing. For the purposes of this research, all youth are referred to as youth probationers, as all were being supervised by a probation officer at the time the data was collected. The youth were gathered based on their involvement in a specialized youth

probation study and included young people who: were found/pled guilty to a sexual offence; were associated with a criminal organization/gang; had been found/pled quality to an offence defined by the *Youth Criminal Justice Act* as "serious-/violent"; or had been diagnosed with a thought, mood, or pervasive developmental disorder, as per the DSM-IV-TR which was applied and in use at the time. 192 youth were then selected from the pre-existing sample and included in my sample based on their mental health and substance use histories. Where I am concerned with mental health and substance use behaviours, these variables must be present to be tested.

In the grand scheme of quantitative research, 192 cases are on the lower when it comes to examining the statistical power of the results. Testing multivariate models and finding significance among such a small sample can be problematic and result in less statistical power, however, this is often expected for research concerning human behaviour (Falk & Miller, 1992). 192 cases are acceptable, and conclusions have been drawn with fewer cases in the past.

The data collected was from the comprehensive probation case files of each youth probationer. For the purposes of this research, these files contained: all youth pre-sentence/pre-disposition reports (PSRs/PDRs); any social, educational, and/or psychological assessments/reports; any risk assessment tools/ratings, and any notes included by the youth probation officer. All files obtained were coded using a comprehensive research instrument; this included sections that are key domain areas and stages proposed in the developmental literature, i.e., in utero/birth experiences/exposure, childhood, parents/guardians and family/home life and environment, school/educational experiences, experiences of or exposure to abuse/neglect, peers, substance use, health (physical and psychological/mental), child welfare system involvement, and justice system involvement. This instrument also included a section collecting information on the

young people's first criminal justice contact and entry into youth probation and demographic indicators (i.e., age, gender, and race/ethnicity).

PSRs/PDRs present an overall summary of an individual's social background and the experiences in their life that may have contributed to their actions/behaviours and involvement in the justice system, as well as any successes they have had and/or strengths they possess. Included in PSRs/PDRs is information on the person's family and home environment/living background, school/education, employment, peer associations, social/extracurricular activities, substance use, physical and psychological/mental health, any program/service/counselling, any previous criminal justice system involvement, and the current offence and case management/supervision plan(s). All files and information were then collated for each participant and coded using the developed coding instrument.

The selected sample is composed of justice-involved youth probationers who were classified as "serious-/violent" and "high needs". Youth who are assigned this classification by the justice system have been charged with/convicted of more offences across their lifespan, but due to discretionary measures, may not have had formal justice system conditions/sentences, meaning the likelihood of them being charged for a violent offence is higher based on the number of overall interactions with the justice system, compared to a youth who may be a first timer (Piquero et al., 2012). A longitudinal study of youth found that one-sixth of justice-involved youth were classified as serious/violent and that youth in this group had the worst longitudinal trajectories after 12 years, and the highest prevalence of comorbidity and high-level substance use experimentation (Welty et al., 2017). Further, Teplin et al. (2021), determined that after 15 years, youth who presented with a mental health diagnosis upon justice system entry were likely to have worse mental health outcomes than youth who had yet to receive a diagnosis/had no identifiable diagnoses.

The data was anonymized and entered into SPSS by the research team at Simon Fraser University before I received the data set. Multiple coders were responsible for entering the data, and coders were trained on how to/expectations of coding before beginning. I conducted all variable coding/re-coding and my analysis also using SPSS. Ethics approval for this project was initially granted to Dr. Adrienne Peters in 2011 from the Simon Fraser University Research Ethics Board to collect data as described above (project # 2011s0039). Secondary approval was then extended to me by the Simon Fraser University Research Ethics Board. Further information on participants and data collection processes can be found in Peters (2014).

Indicators/Measures

Dependent/Outcome Variables

Model 1) Substance Use Experimentation Scale- Each participant was coded for suspected or confirmed substance use for each individual substance. For each substance, if the youth had ever used it multiple times (as recorded in their pre-sentence report) in the past or currently uses it, they were coded as 1 = confirmed/suspected use, 0 = no confirmed/suspected use. If the youth had only used a substance once, it was not included. Any answer of yes to the individual categories was then recoded into a scale variable, whereby each additional substance used, equates to an increase in the scale. The following substances were included in the scale: alcohol, acid, cocaine, crack, crystal methamphetamine (meth), ecstasy, heroin, cannabis, morphine, mushrooms, opium, prescription pills, and speed. This is indicative of an overall experimentation scale and will help to determine how adverse childhood experiences affect high- or low-level drug use. General or low-level substance use experimentation is considered normative among youth populations. Substances like alcohol, marijuana, and tobacco are among the most commonly used. This was another justification for using the substance use

experimentation scale because substance use experimentation outside of alcohol, marijuana and tobacco is less common among the general population, but more common among justice-involved youth (McClelland et al., 2004). Due to this coding structure, this variable cannot speak directly to the frequency of use or the presence of substance use issues.

Model 2) Complex Mental Health Scale- Each participant was coded for the presence of a suspected/confirmed mental health diagnosis, as made by a medical professional. All mental health variables were then collated into a mental health scale, whereby each additional diagnosis is reflective of a unit increase on the scale. The mental health diagnoses included in the diagnoses scale were as follows; ADHD, anxiety disorder, attachment disorder, ASD, Bipolar, borderline personality disorder, conduct disorder, depression, FASD, learning disability, OCD behaviours, ODD, paranoia, PTSD, psychosis, schizophrenia, and substance use disorder. The scale ranges from 0 to 7+ diagnoses. Being diagnosed with more than 7 mental health diagnoses was not common, so to have an adequate number of cases for analysis and to remove outliers from the data, any number of diagnoses beyond 7 was coded as 7+. Differences between the number of diagnoses at this high level would be minimal and likely not significant.

It is important to note that for both of the above scale variables, the data were coded in such a way that both the presence of a confirmed diagnosis OR a suspected diagnosis were included. Justice-involved youth are less likely to have a formal diagnosis due to their developmental course, in that adults have had more time to be diagnosed, and are therefore, more likely to have a formal diagnosis (McCormick et al., 2015). Only counting confirmed diagnoses would limit the analysis and likely skew the results.

3) Co-occurring High-Level Substance Use Experimentation and Mental Health Diagnoses- Alcohol and marijuana use during adolescence is considered relatively common

behaviour, while illicit substance use is less common (Johnston et al., 2017). Co-occurring high-level substance use among this sample was coded as greater than 3 substances used in the past and/or currently, and mental health diagnoses were coded as greater than 2 diagnoses. Mental health diagnoses can often co-occur, so accounting for the high-needs sample, mental health was considered more than 2 diagnoses. These variables were then combined and computed to produce the binary yes-no variable of high-level MI and SU variable. 30.7% of the sample were classified as having combined high-level mental health diagnoses and substance use experimentation.

Independent/Predictor Variables

Independent/Predictor variables were chosen based on factors identified in the literature to be impactful on mental health and substance use behaviours.

1) Highly Mobile/Unstable Home Environment – Mobility between homes was measured as a binary variable. A highly mobile/unstable environment was coded as 0 = not highly mobile, and 1 = highly mobile/unstable home environment. If the youth was moved between homes multiple times, they were considered to have a highly mobile/unstable home environment. As I used an existing data set, this variable was already created, and I am not able to speak to the exact number of movements quantified "multiple times". Movements could be from the primary caregiver to another family member, from a primary caregiver into foster care, or any combination thereof; any noted changes in their primary caregiver/address was considered mobility between homes.

2) Abuse- Rather than look at a scale variable of combined abuse experiences, I chose to individually include a) sexual abuse, b) physical abuse, c) neglect and d) witnessing abuse/domestic violence as predictors. This was intentional, to examine the individual effects of

different forms of abuse, as the literature cites differences in their effects on mental health and substance use (Tucker et al., 2021; Yoon et al., 2021; Aarons et al., 2008). Experiences of the different types of abuse were coded as 0 = no abuse, 1 = abuse. Physical and emotional neglect are identified as important ACEs throughout the literature, however, the data set used did not have specific designations between these. Emotional abuse was not included as a predictor in this research, although influential in the literature, because the data set did not contain indicators of emotional abuse. Therefore, emotional abuse and both types of neglect are combined and represented as *neglect* in this study.

3) *Maternal/Paternal/Sibling Vulnerability*- each variable for familial vulnerability was coded as a scale variable. Each additional factor noted corresponds to an increase on the scale. Vulnerability factors that could be present for each family member include a) substance use/substance use experimentation and/or mental health diagnoses b) incarceration, and c) unemployment. Familial/domestic violence is encompassed in the abuse variable "witnessing abuse", and therefore, was not included in this specific familial vulnerability scale, despite being a familial-level vulnerability factor. Each additional factor identified was coded as an increase on the corresponding family members' vulnerability scale.

4) *Gang Involvement*- Gang involvement was coded as 0 = no gang involvement, 1 = gang involvement. If the youth was known to be involved in gang activity, they were coded as having gang involvement, and no mention of any gang affiliations was coded as no gang involvement.

5) Attended Counselling- Attended counselling was coded as a binary variable, where 0 = has not received/attended counselling and 1 = has attended counselling. Any mention of past or

current counselling was coded as having attended counselling. If there was no mention of counselling of any type, it was coded as not having attended counselling.

6) Age of Probation Entry- Guided by life course theory, the age of probation entry was used as a predictor variable. Age of probation entry was coded as a scale variable, with each increase in age (years) corresponding to a 1-unit increase in the scale. The age range was 12 years to 19 years old.

7) Mental Health Diagnoses (Model 1 only)- Mental health diagnoses were used as an independent variable in the substance use (outcome) regression. Each individual mental health diagnosis was used here instead of the total number of mental health diagnoses scale because I wanted to see the differences that specific diagnoses have on substance use. Each mental health diagnosis was coded as 0 = no diagnosis, 1 = diagnosed. The diagnoses included in the analysis are as follows; attention deficit hyperactivity disorder (ADHD), anxiety disorder, attachment disorder, bipolar disorder, borderline personality disorder or personality disorder (BPD/PD), conduct disorder, depression, fetal alcohol spectrum disorder (FASD), learning disability, oppositional defiant disorder (ODD), post-traumatic stress disorder (PTSD), and substance use disorder. Autism spectrum disorder (ASD), adjustment disorders, obsessive-compulsive disorder (OCD), psychosis, schizophrenia, and paranoia, were eliminated from the analysis due to an insufficient number of cases per variable.

8) Substances Used (Model 2 only)- The types of individual substances used are independent variables in the mental health diagnoses (outcome) regression. The individual substances used in the scale variable are alcohol, cocaine, crack, crystal meth, ecstasy, heroin, marijuana, and mushrooms. Each substance included was coded as 0 = no identified use, 1 = identified use. Again, individual substances were instead of the scale of drug use to examine the

individual effects of each substance on mental health. Acid, morphine, prescription pills, and speed were eliminated from the analysis due to an insufficient number of cases per variable.

9) Control Variables- Gender and race/ethnicity were used as controls in the models. Like many other studies, race and ethnicity were combined as indicators and categorized to include those populations most represented among the sample; white, Indigenous, and "other" (composed of 20+ different ethnicities). Any population represented by less than 10% of the sample was included in the other category, to produce the necessary number of cases needed for regression analysis. Gender was coded as a binary male/female variable, as that is how the data was originally collected.

Analytical Strategy

The data was analyzed using two multiple linear regression models, one for number of substances used and one for number of mental health diagnoses, and one logistic regression model, for high-level substance use experimentation and mental health diagnoses. Linear regression has multiple assumptions that must be met to run the models in a means that would produce valuable results. The assumptions are as follows: a) outcome variables are measured at the continuous levels b) linearity; a linear relationship exists between the outcome and predictor variables, c) little to no multicollinearity occurs between variables, d) homoscedasticity, meaning there is equal variance for all the data, which is illustrated in SPSS by the consistency of residuals in predicted and residual scatterplot, e) the data contains no significant outliers, f) there is independence of observations, and g) multivariate normality, in that the residuals are normally distributed. (Williams et al, 2013). Linear regression also recommends that there are more than 20 cases per variable to produce conclusive results. This recommendation was met with every variable chosen to include in the model.

I chose to include each individual mental health diagnosis in the substance use model, and each individual substance in the mental health model, to examine the differences between the effects of specific substances/diagnoses, as the literature reports significant differences in certain internalizing and externalizing behaviours. Further, I am looking at combined high-level mental health diagnoses and substance use experimentation, as such comorbidity tends to have more long-term negative justice and health-related outcomes, and because the relationship between mental health and substance use is bi-directional and it is common to see combined mental health diagnoses and substance use experimentation. Is important to see what factors and traumas contribute to mental health diagnoses and substance use experimentation, as these are directly and indirectly related to increased justice system involvement (Baglivio et al., 2020). Addressing young people's needs in an informed manner, specific to their identified needs, may improve justice and health-related outcomes.

Results

This analysis intended to examine which experiences of early trauma in childhood/youth were most impactful on formal mental health diagnoses, substance use experimentation, and high-level, combined mental health and substance use. I hypothesized that any traumatic or adverse experience would increase the total number of mental health diagnoses, the number of substances used per youth, and the presence of combined, high-level mental health and substance use experimentation. In particular, I asserted that all experiences of abuse and a high paternal vulnerability/need would have the greatest impact on the number of mental health diagnoses, the number of substances used, and the occurrence of high-level mental health diagnoses and substance use experimentation. Before exploring regression models, it is important to contextualize the sample.

The Youth Probationer Sample

Youth in the sample ranged in age from 12 years to 19 years old, with the majority of youth being age 15 and under, and the sample was comprised of 83% boys and 17% girls. This was as expected, based on existing data on youth justice samples from Canada. All youth were under the age of 18 when charged with their most recent offence, however, some were near their 18th birthday, meaning their probation conditions would extend past age 18 while still under the supervision of a youth probation officer. The age of participants is slightly younger than the national average of justice-involved youth, where the majority are aged 16 to 17 years old (Malakieh, 2020). To further divide their ages, approximately 24% of youth were 12 to 13 years old, 45% were 14 to 15 years old, and 31% were aged 16 years or older. Only three percent of the sample was older than 17, meaning the vast majority of the youth in this sample were aged 16 and under. Racially/ethnically, approximately 40% of the sample was White, 25% was identified as Indigenous, and 35% were grouped into a category of "non-White/non-Indigenous", which included 20+ other racial identities. [7]

Over half of the sample (55%) reported using substances before the age of 12, with 87% of the sample using substances for the first time by age 14. This is slightly younger than the general youth population, who report using substances for the first time between the ages of 15 to 17 (Canadian Centre for Substance Abuse, 2007). Most youth in the sample had used substances before, with approximately 66% reporting using two to six substances, and nearly 30% (29.2%)

[7] Due to the small number of youth in each group, these racial identities were combined for statistical purposes. Future research should explore these nuanced differences further.

reporting using more than seven substances. Most of the sample (76%) was found to use unregulated/street drugs, alcohol, and marijuana.

Approximately 22% of the sample had no family vulnerability factors, meaning parental incarceration, parental MI/SU, and unemployment. A further 22% had one vulnerability factor, 20% had two factors and 36% of the sample had three or more factors. Slightly more than three-quarters (78%) of the entire sample had at least one family vulnerability factor mentioned in their pre-sentence report. With regards to experiences of abuse, 33% of the sample experienced no abuse, 33% of the sample experienced one form of abuse, and 34% experienced two or more forms of abuse. When breaking down the experiences of abuse by gender, it is interesting to see that boys reported the highest levels of no abuse or one abuse (36% each, respectively). Having experienced two or more forms of abuse was reported the least among boys (28%). The exact opposite was true for girls in the sample. Having experienced two or more abuses was the most frequent report of abuse (64%), and no abuse (21%) and one abuse (15%) were much lower than the reports of two or more abuses. This may be due to gendered differences in experiencing abuse, and processes of socialization and stigma experienced by boys and young men surrounding the experiences of abuse. This will be unpacked further in the discussion.

Experimental drug use was also high among the sample. Only five percent of the sample reported that they have never used substances in their lifetime. 65.65% reported moderate-high substance use with two to six substances used in their lifetime; 29.2% of the sample reported high levels of substance use over their lives with more than seven substances used. 55.2% of the sample reported using substances before age 12. 32.1% reported that they had begun using substances between ages 13 and 14, while six-point eight percent of the sample were aged 15+ when they began experimentation. 76% of the sample have used unregulated/street drugs; 15.1% reported

Table 1- Sample Characteristics (N=192)

VARIABLES	Percent/Mean (SD)
Age of Probation Entry	14.75
Race/Ethnicity	
White	40.1%
Indigenous	24.5%
Non-White/Non-Indigenous	35.4%
Gender	
Boys	82.8%
Female	17.2%
Vulnerability	
Maternal	(57.3%) 1.81 (.792)
Paternal	(54.2%) 1.75 (.779)
Sibling	(31.8%) 1.41 (.657)
Complex Mental Health Scale	3.93 (2.32)
ADHD	47.9%
Anxiety	18.2%
Bipolar	12.5%
BPD/PD	6.3%
Conduct Disorder	34.4%
Depression	20.3%
FASD	25.5%
Learning Disability	19.8%
PTSD	17.7%
Substances Use Experimentation	5.26 (2.38)
Alcohol	89.1%
Cocaine	42.7%
Crack	25%
Meth	38%
Ecstasy	56.8%
Marijuana	90.1%
Heroin	11.5%
Prescription Pills	5.7%
Co-Occurring, Multi-Substance Use & Complex Mental Health	59.9%
Highly Mobile/Unstable Home	62%
Abuse	
Physical Abuse	39.6%
Sexual Abuse	18.2%
Witnessing Abuse	38.0%
Neglect	28.6%
Attended Counselling	69.3%

Canada, 2020). As this is considered within youth probation to be a “high-needs” sample, the youth are more likely to have access to psychiatric services, and so the barrier to a diagnosis would be

lesser for this population. The most common diagnoses were ADHD (approximately 48%), conduct disorder (3%), and FASD (25 %). The percentage of youth with ADHD in this sample is higher than justice-involved youth adjudicated through the mental health courts in Toronto (Peterson-Badali et al., 2015) and a general sample of Canadian justice-involved youth (28%). Mood and anxiety disorders, which are among the most common for other youth justice samples (Peterson-Badali et al., 2015; Davis et al., 2015), were not as common in this sample. Despite the frequency of multiple diagnoses, only 18% of the sample were medicated for their mental health diagnosis during the time the data was collected. Unfortunately, the age of diagnoses was not available for 97.3% of the sample, which would have been extremely valuable information as it pertains to developmental life-course assertions.

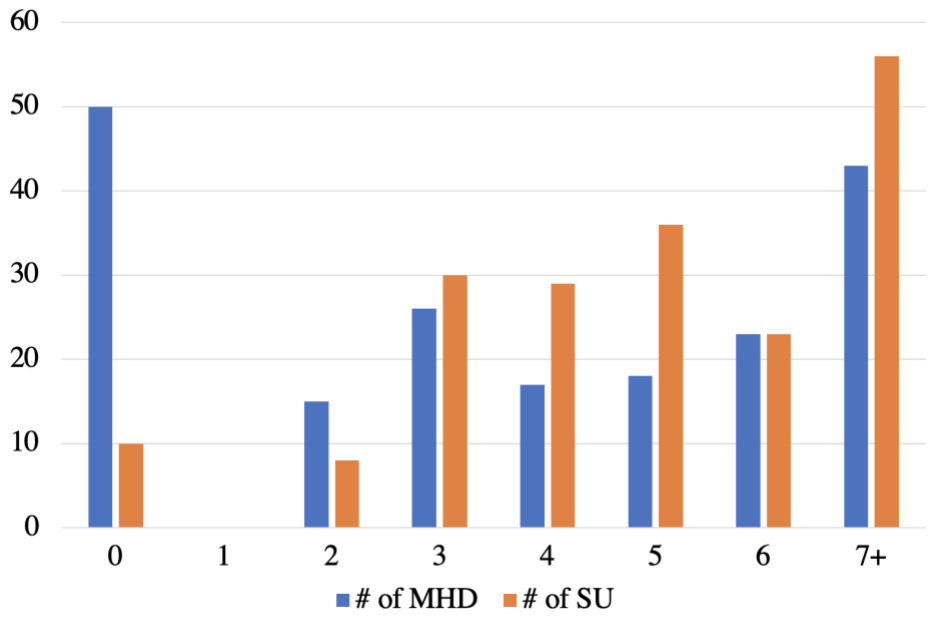

Figure 1- Number of Mental Health Diagnoses and Substances Use Experimentation Scale

Bivariate Relationships

Complex Mental Health Scale

Bivariate analyses were conducted to examine the relationship between complex mental health and predictor variables. Correlational analyses were employed to examine the relationships between complex mental health and a) age of probation entry, b) maternal vulnerability, c) paternal vulnerability, d) sibling vulnerability, e) and the substance use experimentation scale. Results indicated there was a significant negative relationship between complex mental health and age of probation entry, $r(190) = -.265$, $p = .000$; a significant positive relationship between complex mental health and maternal vulnerability, $r(190) = .374$, $p = .000$; a significant positive relationship between complex mental health and paternal vulnerability, $r(190) = .274$, $p = .000$; a significant positive relationship between complex mental health and substance use experimentation, $r(190) = .313$, $p = .000$, and an insignificant relationship between complex mental health and sibling vulnerability, $r(190) = .066$, $p = .361$.

Independent sample t-tests were used to compare complex mental health and a) race/ethnicity, b) gender, c) highly mobile/unstable home, d) physical abuse, e) sexual abuse, f) witnessing abuse, g) neglect, and h) attending counselling. The mean value of complex mental health for Indigenous participants ($M=5.06$, $SD = 2.02$), was significantly different from non-Indigenous participants ($M= 3.57$, $SD=2.30$); $t(87.8) = -4.26$, $p = .000$; significantly different for non-White/non-Indigenous participants ($M=3.04$, $SD=2.28$) compared to White and Indigenous participants ($M=4.42$, $SD=2.21$); $t(190) = 4.08$, $p = .000$; and not significantly different for White participants ($M=4.03$, $SD=2.24$) compared to Indigenous and non-White participants ($M=3.87$, $SD=2.39$); $t(709) = -.456$, $p = .649$. The mean value of complex mental health for boys in the sample ($M=3.81$, $SD=1.33$) was not significantly different from girls in the sample ($M=4.52$, $SD=2.24$), although gender was still included as a control variable in the multivariate analyses; $t(190) = 1.59$, $p = .114$. The mean value of complex mental health for youth coming from a highly

mobile/unstable home (M=4.50, SD=2.19) was significantly different from those who had not (M=3.01, SD=2.26); t(190) = -4.50, p =.000.

Next, the mean value of complex mental health for those who have experienced; physical abuse (M=4.64, SD=2.15) was significantly different from those who have not (M=3.47, SD=2.33);t(190) = -3.54, p = .001; sexual abuse (M=5.23, SD=2.14) was significantly different from those who have not (M=3.64, SD=2.27); t(190) = -3.77, p =.001; neglect (M=4.98, SD=2.20) was significantly different from those who have not (M=3.51, SD=2.25); t(190) = -4.13, p = .000; and witnessing abuse (M=4.08, SD=2.26) was not significantly different from those who have not witnessed abuse (M=3.84, SD=2.37); t(190) = -.699, p =.485, therefore witnessing abuse was not included in the complex mental health multivariate model. Lastly, the mean value of complex mental health for those who have attended counselling (M=4.60, SD=2.11) was significantly different from those who have not (M=2.42, SD=2.07); t(190) = -6.63, p = .000.

Substance Use Experimentation Scale

Further bivariate correlational analyses were conducted to examine the relationships between substance use experimentation and a) age of probation entry, b) maternal vulnerability, c) paternal vulnerability, and d) sibling vulnerability. Results indicated a significant positive relationship between substance use experimentation and maternal vulnerability, r(190) = .195, p = .007; a significant positive relationship between substance use experimentation and paternal risk, r(190) = .246, p = .001; a significant positive relationship between substance use experimentation and sibling vulnerability, r(190) = .167, p = .021; and an insignificant relationship between substance use experimentation and age of probation entry, r(190) = -0.69, p = .343.

Independent sample t-tests were used to compare substance use experimentation and a) race/ethnicity, b) gender, c) highly mobile/unstable home, d) physical abuse, e) sexual abuse, f)

witnessing abuse, g) neglect, and h) attending counselling. The mean value of substance use experimentation for Indigenous participants (M=6.04, SD = 2.37), was significantly different from non-Indigenous participants (M=5.00, SD=2.34); t(190) = -2.65, p = .009; significantly different for non-White/non-Indigenous participants (M=4.18, SD=1.87) compared to White and Indigenous participants (M=5.85, SD=2.43); t(190) = 4.92, p = .000; and significantly different for White participants (M=5.73, SD=2.48) compared to Indigenous and non-White participants (M=4.94, SD=2.27); t(190) = -.2.27, p = .024. The mean value of substance use experimentation for boys in the sample (M=5.06, SD=2.16) was nearly significantly different from girls in the sample (M=6.18, SD=3.13); t(38.6) = 1.96 p = .057. The mean value of substance use experimentation for youth coming from a highly mobile/unstable home (M=5.72, SD=2.48) was significantly different from those who had not (M=4.49, SD=2.01); t(190) = -3.58, p =.000.

Next, an independent samples t-test revealed the mean value of substance use experimentation for those who have experienced; physical abuse (M=6.08, SD=2.39) was significantly different from those who have not (M=4.72, SD=2.23); t(190) = -4.03, p = .000; sexual abuse (M=6.94, SD=2.72) was significantly different from those who have not (M=4.88, SD=2.13); t(190) = -4.91, p =.000; neglect (M=5.89, SD=2.49) was significantly different from those who have not (M=5.00, SD=2.30); t(190) = -2.37, p = .019); and witnessing abuse (M=5.93, SD=2.30) was significantly different from those who have not witnessed abuse (M=4.84, SD=2.30); t(190) = -3.15, p =.002. Lastly, the mean value of substance use experimentation for those who have attended counselling (M=5.74, SD=2.38) was significantly different from those who have not (M=4.15, SD=2.00); t(190) = -4.48, p = .000.

Co-occurring Multi-Substance Use and Complex Mental Health

Bivariate chi-square goodness of fit tests were executed to determine whether the proportion of youth with co-occurring multi-substance use and complex mental health was different between a) race/ethnicity, b) gender, c) highly mobile/unstable home environment, d) physical abuse, e) sexual abuse, f) neglect, g) witnessing abuse, and h) attending counselling. The proportions between co-occurring multi-substance use and complex mental health were statistically different for: white youth, $x^2(2, N=192) = 5.61$, $p = .018$; Indigenous youth, $x^2(2, N=192) = 9.18$, $p = .002$; non- white/non-Indigenous, $x^2(2, N=192) = 26.5$, $p = .000$; youth who experience a highly mobile/unstable home, $x^2(2, N=192) = 14.9$, $p = .000$; youth who experienced sexual abuse, $x^2(2, N=192) = 7.20$, $p = .007$; physically abuse, $x^2(2, N=192) = 14.1$, $p = .000$; neglect, $x^2(2, N=192) = 3.89$, $p = .049$; and for those who witnessed abuse, $x^2(2, N=192) = 6.30$, $p = .012$. The proportions between co-occurring multi-substance use and complex mental health were not statistically different for boys and girls in the sample, $x^2(2, N=192) = 2.73$, $p = .098$, but gender was included in the multivariate model as a control.

Independent sample t-tests were used to compare co-occurring multi-substance use and complex mental health between a) age of probation entry, b) maternal vulnerability, c) paternal vulnerability, and d) sibling vulnerability. The mean value of maternal vulnerability for those experiencing co-occurring multi-substance use and complex mental health (M=2.00, SD=.795) was significantly different from those who did not (M=1.52, SD=.700); $t(190) = -4.30$, $p = .000$; the mean value of paternal vulnerability for those experiencing co-occurring multi-substance use and complex mental health (M=1.94 SD=.787) was significantly different from those who did not (M=1.47, SD=.680); $t(190) = -4.29$, $p = .000$; the mean value of sibling vulnerability for those experiencing co-occurring multi-substance use and complex mental health (M=1.48, SD=.730) was not significantly different from those who did not (M=1.31, SD=.520); $t(189) = -1.85$, $p =$

.066, but was approaching significance. The mean value of the age of probation entry for those experiencing co-occurring multi-substance use and complex mental health (14.55, SD=1.41) was statistically significant from those who are not (M=15.05, SD=1.79); t(136) = 2.08, p = .040.

Complex Mental Health

To test my measure of complex mental health needs as the outcome variable, all assumptions for linear regression were met. The outcome variable (total number of formal mental health diagnoses), was measured at the continuous level, in that each new diagnosis corresponds to an increase in the scale. To control for outliers in the data and to ensure the number of cases was sufficient for linear regression, all diagnoses beyond seven individual diagnoses were grouped to represent the category of seven or greater mental health diagnoses. Seven or greater diagnoses represent severe mental health concerns, and differentiating between anything beyond this level is not likely to reveal meaningful differences. Linear relationships were found between the outcome and some predictor variables.

The results of the Pearson correlation tests indicated significant positive correlations between experiencing challenges/needs related to youth's mental health and the following predictor variables; mobility between homes (r = .310***), maternal vulnerability (r = .374***), paternal vulnerability (r = .274***), experienced physical abuse (r = .249***), attended counselling (r = .433***), and having experimented with/used >4 substances (r = .347***). The correlation between witnessing abuse and mental health needs was not significant at the bivariate level, but became significant in the regression model, and was therefore included in the final model.

Although significant at the bivariate level, once placed in the regression model, age of probation entry, having experienced neglect or sexual abuse, race/ethnicity, and gender were not

significant or approaching significance at the multivariate level, so they were removed from the model. Further, no individual substances were found to be significant for mental health

Table 2: The Relationships between Youth Probationer Characteristics and Dependent Variables (N=192)

VARIABLES	Complex Mental Health Scale	x^2/t	Substance Use Experimentation Scale	x^2/t	Co-occurring Multi-Substance Use and Complex Mental Health (n=115)	x^2/t
Age of Probation Entry	14.75 (1.59)	-.27**	14.75 (1.59)	-.069	14.55 (1.41)	2.18*
Race/Ethnicity	-	-	-	-	-	-
White	4.02 (2.24)	-.456	5.73 (2.48)	-2.27*	28.1%	5.60*
Indigenous	5.06 (2.03)	-4.26***	6.04 (2.37)	-2.65**	19.3%	9.18**
Non-White/Non-Indigenous	3.04 (2.28)	4.08***	4.18 (1.87)	4.92***	20.9%	26.5%***
Gender – Boys	3.81 (2.33)	-1.59	5.06 (2.16)	-2.48**	47.4%	2.71
Gender – Female	4.51 (2.24)	-1.59	6.18 (3.13)	-2.48**	12.5%	2.71
Maternal Vulnerability	1.81 (.79)	.374**	1.81 (.79)	.195**	2.00 (.795)	-.430***
Paternal Vulnerability	1.75 (.78)	.274**	1.75 (.78)	.246**	1.94 (.787)	-4.29***
Sibling Vulnerability	1.41 (.66)	.066	1.41 (.66)	.167*	1.48 (.730)	-1.73†
Mental Health Diagnoses	-	-	3.93 (2.32)	.313**	5.04 (1.81)	
Substances Used	5.26 (2.38)	.313**	-	-	6.50 (1.98)	
Highly Mobile/Unstable Home	3.93 (2.32)	.310**	5.72 (2.48)	-3.58***	73%	14.9***
Physical Abuse	4.64 (2.15)	-3.54**	6.08 (2.39)	-4.03***	39.6%	14.1***
Sexual Abuse	5.23 (2.14)	-3.77***	6.94 (2.72)	-4.91***	14.6%	7.20**
Witnessing Abuse	4.08 (2.26)	-.699	5.93 (2.30)	-3.15**	27.1%	6.30*
Neglect	4.98 (2.20)	-4.13***	5.89 (2.49)	-2.37*	20.3%	3.89*
Attended Counselling	4.60 (2.11)	-6.63***	5.74 (2.38)	-4.48***	52.6%	46.4***

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

independently, and were therefore removed from the model. However, high-level or multi-substance use (more than four substances used) was significant at the bivariate level (F(6, 185) =

6.10***), and was added to the main regression model in place of individual substances. This suggests that more serious substance use concerns or the use of multiple substances, is more predictive of mental health diagnoses, than the use of individual substances, with some individual substances being more directly attributed to mental health diagnoses, in some cases.

Table 3: Linear Regression Results for Complex Mental Health Scale and All Indicators (N=192)

		Unstandardized Coefficients		Standardized Coefficients		
	VARIABLES	**B**	**Std. Error**	**ß**	**t**	**Sig.**
1	(Constant)	0.421	0.430		0.978	0.329
	Highly Mobile/Unstable Home Environment	0.936	0.299	0.196	3.129	0.002**
	Maternal Risk	0.475	0.194	0.162	2.442	0.016*
	Paternal Risk	0.370	0.190	0.124	1.948	0.053
	Witnessed Abuse	-0.631	0.308	-0.132	-2.046	0.042*
	Physical Abuse	0.575	0.307	0.121	1.870	0.063
	Attended Counselling?	1.471	0.321	0.293	4.586	0.000***
	>4 Substances Used	0.700	0.314	0.148	2.228	0.027*

a. Dependent Variable: MH-Scale-1-7+. R^2=.357, N=192, (F (7, 184) = 14.594), p = .000
*-p≤0.05, **-p≤0.01, ***-p≤0.001

A multiple linear regression model was used to predict mental health based on mobility between homes, maternal risk, paternal risk, witnessing abuse, physical abuse, attending counselling and the use of more than four substances. A significant regression equation was found (F (7, 184= 14.59, p = .000), with a model fit of .60, and an R^2 of .36. Examining the individual predictors revealed significant relationships between mental health and mobility between homes (t = 3.13**), maternal risk (t = 2.44*), witnessing abuse (t = -2.05*) attending counselling (t = 4.59***) and more than four substances used (t = 2.3*). Paternal risk was not significant, but only just (t = 1.95, p= .05), as was physical abuse (t = 1.87, p= .06).

An analysis of the standard residuals was conducted to identify potential outliers in the data set, which illustrated that the data contained no outliers (Std. Residual Min = -2.441, Std. Residual Max = 2.33). Collinearity tests indicated that multicollinearity did not exist in this model (lowest tolerance = .79 and highest VIF = 1.26). The model also met the assumption of independent errors (Durbin-Watson value = 1.61). The histogram of standardized residuals illustrated that the data contained normally distributed errors, as did the normal P-P plot of standardized residuals, in which most data points were concentrated around the line of best fit. The scatterplot of standardized residual and predicted values showed the data met the assumptions of linearity and homogeneity of variance. The data also met the assumption of non-zero variances, in that all variables have variances above 0.

Participants' predicted mental health is equal to 0.42 + .48 (MOMRISK) + .94 (MOBILITY) + .37 (DADRISK) -.63 (WITNESSED_ABUSE) +.58 (PHYSICAL_ABUSE) +1.47 (COUNSELLING) + .70 (>4DRUGS). Mobility between homes is coded as 0 = not highly mobile/unstable home environment and 1 = highly mobile/unstable home environment; attending counselling is coded as 0 = no and 1 = yes; witnessing abuse is coded as 0 = no abuse witnessed and 1 = suspected/confirmed abuse witnessed; physical abuse is coded as 0 = no physical abuse and 1 = suspected/confirmed physical abuse; more than four substances used is coded as 0 = four or fewer substances used, 1 = more than four substances used; paternal risk and maternal risk, are coded as scale variables, whereby each additional risk factor (like parental substance use/mental health diagnoses, incarceration, etc.) found corresponds to an increase in the scale. Participant's mental health diagnoses increased by 0.94 diagnoses if they had an unstable/highly mobile home environment, by 0.48 diagnoses if they experienced maternal risk, by 0.37 substances if they experience paternal risk, by 0.58 diagnoses if experienced physical abuse, by 1.47 diagnoses

if they have attended counselling, by 0.70 diagnoses if they have used more than four substances and decreases 0.63 diagnoses if they have witnessed abuse. A highly mobile/unstable home environment, maternal vulnerability, having witnessed abuse, having attended counselling, and using more than four substances were significant predictors of mental health diagnoses in this model. Paternal vulnerability and physical abuse were approaching significance but were not considered statistically significant predictors of mental health diagnoses in this model.

Substance Use Experimentation Scale

First, testing substance use experimentation as the outcome variable, all assumptions for linear regression were met. The outcome variable (substance use experimentation scale), was measured at the continuous level, in that for each new substance used corresponds to an increase in the scale. The results of Pearson correlation tests indicated significant positive associations between substance use and the following variables: high mobility between homes (r = .25**), maternal vulnerability (r = .20**), paternal vulnerability (r = .25**), sibling vulnerability (r = .17*), boy/young man (r = -.18*), being racially White (r = .16*), having suspected/diagnosed FASD (r = .22**), ADHD (r = .36***), conduct disorder (r = .21**), PTSD (r = .23**), having attended counselling (r = .31***), having experienced sexual abuse (r = .34***), experienced neglect (r = .17*), having experienced physical abuse (r = .28***) and having witnessed abuse (r = .22**). The correlation between substance use and age of probation entry was negative, and approaching significance (r = -.07), and was therefore included in the model as a control.

The one sample *t*-test results indicated significant differences in substance use and attending counselling (t(191) = 20.75, p = < .001), gang involvement (t(191) = 10, p = < .001), sexual abuse (t(191) = 6.5 p = < .001), neglect (t(191) = 8.76, p = < .001), physical abuse (t(191) = 11.19, p = < .001), witnessing abuse (t(191) = 10.82, p = < .001), bipolar (t(191) = 5.22, p = <

.001), BPD/PD (t(191) = 3.57, p = < .001), borderline low intelligence (t(191) = 5.59, p = < .001), FASD (t(191) = 8.09, p = < .001), ADHD (t(191) = 13.26, p = < .001), adjustment disorder (t(191) = 3.24, p = .001), anxiety (t(191) = 6.53, p = < .001), autism (t(191) = 4.31, p = < .001), conduct (t(191) = 10, p = < .001), depression (t(191) = 6.98, p = < .001), learning disabilities (t(191) = 6.87, p = .002), OCD (t(191) = 3.07, p = < .001), PTSD (t(191) = 6.41, p = < .001), psychosis (t(191) = 3.41, p = .001), schizophrenia (t(191) = 2.48, p = .014) and paranoia (t(191) = 2.69, p =.008). One sample t-test results also revealed significant differences between males (t(191) = 30.3, p = <.001) and females (t(191) = 6.3, p = < .001), and between white (t(191) = 11.31, p = < .001), Indigenous (t(191) = 7.87, p = < .001), and "Other" race (t(191) = 10.2, p = < .001) participants.

The Pearson correlation tests also revealed that a diagnosis of bipolar, borderline low intelligence, adjustment disorder, anxiety, autism, learning disability, depression, OCD, psychosis, schizophrenia, or paranoia and gang involvement, were not significantly correlated with the number of substances used (p = >0.05), or approaching significance. Although suggested in the literature, and found to be significant at the bivariate level, experiencing neglect, witnessing abuse, maternal vulnerability, sibling vulnerability, and diagnoses of FASD, conduct disorder, and PTSD were not significant or approaching significance in the main regression model, so they were removed. A multiple linear regression model was used to predict substance use based on the age of probation entry, attending counselling, gang involvement, experiences of sexual abuse, physical abuse, paternal vulnerability factors, mobility between homes, diagnoses of ADHD and BPD/PD, race/ethnicity, and gender.

A significant regression equation was found (F (11, 180) = 9.073, p = .000), with a model fit of .597 and an R^2 of .317, meaning we can reject the null hypothesis. The individual predictors

were further examined and age of probation entry (t = 2.46, p = .015), attending counselling (t = 3.11, p = .002), experiencing sexual abuse (t = 3.02, p = .003), experiencing physical abuse (t = 2.084, p = .039), mobility between homes (t = 2.016, p = 0.45), diagnoses of BPD/PD (t = -2.909,

Table 4: Linear Regression Results for Substances Use Experimentation Scale and All Indicators (N=192)

		Unstandardized Coefficients		Standardized Coefficients		
VARIABLES		**B**	**Std. Error**	**ß**	**t**	**Sig.**
1	(Constant)	-1.080	1.695		-0.637	0.525
	Age of Probation Entry	0.250	0.102	0.167	2.460	0.015*
	Highly Mobile/Unstable Home Environment	0.646	0.321	0.132	2.016	0.045*
	Paternal Risk	0.412	0.193	0.135	2.130	0.034*
	Physical Abuse	0.643	0.309	0.132	2.084	0.039*
	Sexual Abuse	1.316	0.436	0.214	3.020	0.003**
	Attended Counselling	1.126	0.362	0.219	3.110	0.002**
	Gang Involvement	0.586	0.315	0.117	1.858	0.065
	ADHD	1.076	0.321	0.226	3.352	0.001**
	BPD/PD	-1.917	0.659	-0.195	-2.909	0.004**
	Dummy White	0.818	0.300	0.169	2.724	0.007**
	Dummy Male	-0.814	0.449	-0.129	-1.811	0.072

a. Dependent Variable: # of Substances Used. R2 = .357, N=192, (F (11, 180) = 9.073), p = .000
*-p≤0.05, **-p≤0.01, ***-p≤0.001

p = .004) and ADHD (t = 3.352, p = .001), and being white (t = 2.724, p = .007) were determined to be significant predictors in the model. Gang involvement (t = 1.858, p = .065), and being male (t = -1.811, p = .072) were approaching significance, but not significant in the model.

An analysis of standard residuals was executed to identify potential outliers in the data, which showed that the data contained no outliers (Std. Residual Min = -2.274, Std. Residual Max = 2.621). Tests to determine if the data met collinearity standards indicated that multicollinearity was not a concern for this model (lowest tolerance = 0.702 and highest VIF = 1.424). Upon

examination of the correlation matrix, the highest value was .65, which falls below the general maximum accepted value of .70. The data also met the assumption of independent errors (Durbin-Watson value = 1.703).

The histogram of standardized residuals indicated that the data contained normally distributed errors (Std. Deviation=0.971), approximately, as did the normal plot of standardized residuals, which illustrated that most cases were concentrated near or on the line. The scatterplot of standardized predicted and residual values indicated that the data met the assumptions of homogeneity of variance and linearity. The data also met the assumption of non-zero variances, in that all variables have variances above 0.

Participants predicted substance use is equal to -1.08 +.25 (AGE_PO_ENTRY) + 1.126 (COUNSELLING) + .586 (GANG) + 1.316 (SEX_ABUSE) + .643 (PHYSICAL) -. 814 (MALE) + .818 (WHITE) + .412 (DAD_RISK) + .646 (MOBILITY) – 1.917 (BPD/PD) + 1.076 (ADHD). With regards to coding, age of probation entry is measured continuously in years; attended counselling is coded as 0 = has never attended counselling, and 1 = has attended counselling; gang involvement is coded as 0 = no known involvement, 1 = gang involved; sexual abuse is coded as 0 = no sexual abuse history, and 1 = suspected/confirmed sexual abuse; physical abuse is coded as 0 = no physical abuse history, and 1 = suspected/confirmed physical abuse; gender is coded as 0 = male, and 1 = female; paternal vulnerability is coded as a scale variable, whereby each additional risk factor identified (like substance use, mental health diagnoses, or incarceration,), corresponds to an increase in the scale; mobility between homes is coded as a binary variable, where 0 = no mobility noted, 1 = mobility between homes noted; all diagnoses are coded as 0 = no (suspected) diagnosis, and 1 = suspected or diagnosed.

Race/ethnicity are coded as dummy variables, and include categories to represent white, Indigenous, and non-white/non-Indigenous.

Based on the results of the multivariate analyses, participant's substance use increased by 0.25 substances for each year older they were upon probation entry, by 0.65 substances if they had an unstable/highly mobile home environment, by 0.41 substances if they experienced higher paternal vulnerability, by 0.64 substances if they had been physically abused, by 1.32 substances if they had been sexually abused, by 1.13 substances if they had attended counselling, by 0.59 if they had noted gang involvement, by 1.08 if they had been diagnosed with ADHD, and by 0.82 if they were racially White. Substance use was found to decrease by 1.92 if the youth had been diagnosed with BPD/PD and decreased by 0.85 if they were a boy/young man.

Age of probation entry, having attended counselling, experiencing sexual abuse and physical abuse, experiencing high mobility between homes, exposure to paternal vulnerability, having a diagnosis of ADHD or BPD/PD and being White, were significant predictors of substance use in this model. Gang involvement and being a boy/young man were approaching significance, but not significant predictors of substance use in this model.

Co-occurring Multi-Substance Use and Complex Mental Health

When testing for the outcome of co-occurring, multi-substance use and complex mental health (meaning youth who use more than three substances and have more than two mental health diagnoses), logistic regression was performed to determine the effects of age; attending counselling; gang involvement; experiencing sexual abuse, neglect, and/or physical abuse and witnessing abuse; exposure to maternal, paternal and sibling vulnerability; experiencing high mobility between homes/living arrangements; gender, and race/ethnicity have on high-level substance experimentation and use.

Youth with co-occurring, multi-substance use and complex mental health were significantly predicted among the sample by: age of probation entry (β = 0.29, p =.039); highly mobile/unstable home environment (β = 1.34, p=.002); paternal vulnerability (β = .070, p=.009); attending counselling (β = -2.85, p=.000); experiencing physical abuse (β = 1.09, p=.010);

Table 5: Logistic Regression Results for Co-Occurring Multi-Substance Use and Complex Mental Health on All Indicators (N=115)

VARIABLES	B	S.E.	WALD	SIG.	EXP(B)
Age of Probation Entry	0.292	0.141	4.273	0.039*	1.339
Highly Mobile/Unstable Home Environment	1.343	0.430	9.730	0.002**	3.829
Paternal Vulnerability	0.701	0.269	6.771	0.009**	2.016
Attended counselling?	-2.846	0.522	29.700	0.000***	17.21
Neglect	-0.734	0.514	2.036	0.154	.480
Physical Abuse	1.090	0.421	6.696	0.010*	2.973
White	1.440	0.448	10.338	0.001***	4.223
Indigenous	2.074	0.619	11.237	0.001***	7.958
Constant	-9.082	2.494	13.263	0.000	0.000

a. Dependent Variable: Co-Occurring Multi-Substance Use and Complex Mental Health
NR^2=.528, N=192, p = .000***
*-p≤0.05, **-p≤0.01, ***-p≤0.001

identifying as white (β = 1.44, p=.001), and; identifying as Indigenous (β = 2.07, p=.001). Experiencing neglect was the only predictor included in the final model that became insignificant at the multi-variate level. Although suggested in the literature, after running many models, maternal vulnerability, sibling vulnerability, gang involvement, experiencing sexual abuse, witnessing abuse, and gender were not significant or approaching significance at the multi-variate level, so they were removed from the final model.

It was found that holding all other predictor variables constant, the odds of high-level mental health and substance use occurring was 3.8 times greater for those who had experienced high mobility between homes, 2.0 times more likely for youth who had experienced paternal

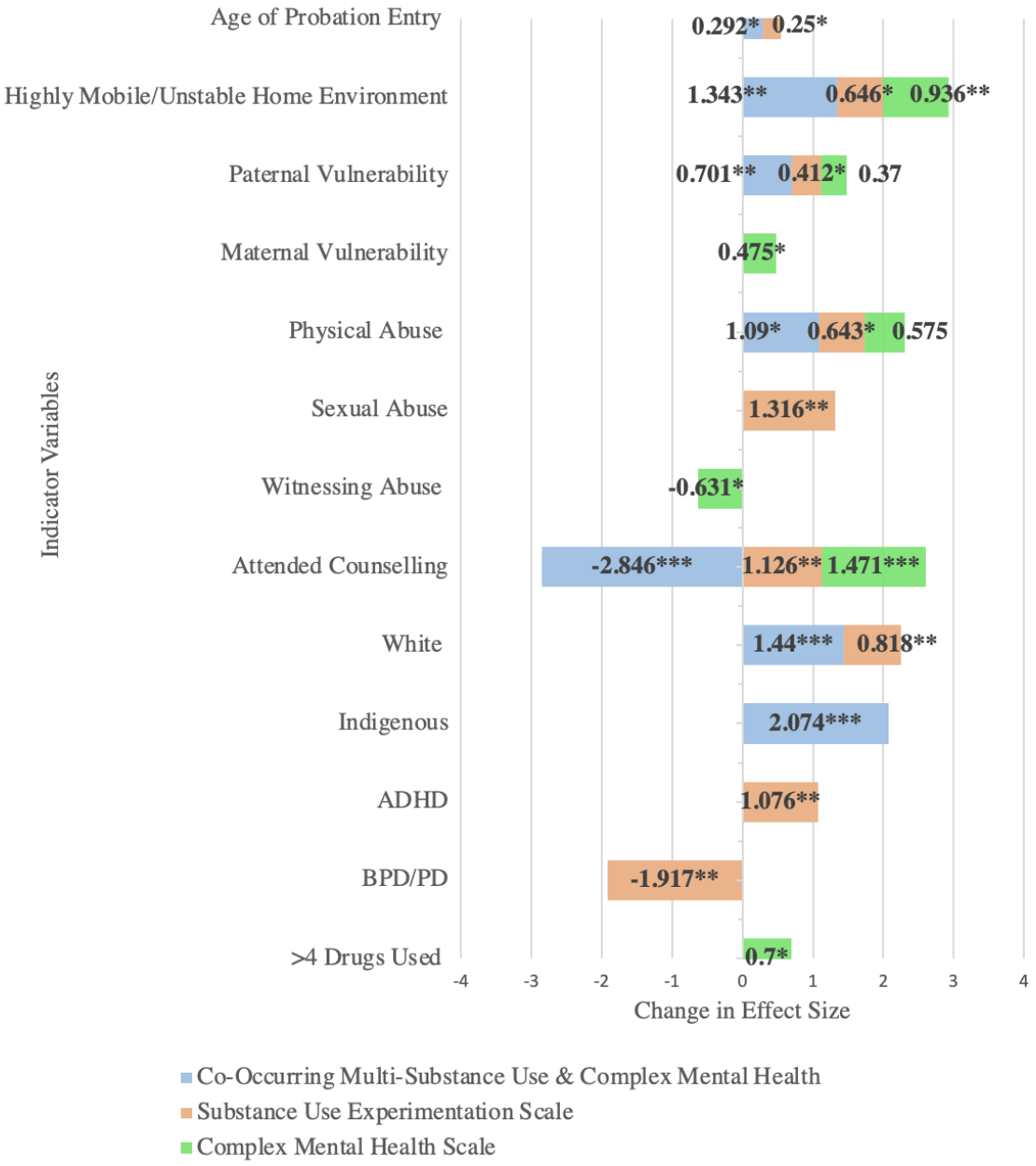

Figure 2- Significant Predictors of Substance Use Experimentation, Mental Health Diagnosis and Co-Occurring High-Level Mental Health Diagnoses and Substance Use Experimentation

vulnerability factors, 17.2 times more likely for youth who had attended counselling, 1.3 times more likely for each year older a youth was when they entered youth probation, 3.0 times more likely for youth who had experienced physical abuse, 4.2 times more likely for youth who identified as white, and 8.0 times more likely for youth who had an Indigenous identity.

The overall regression model was determined to be statistically significant ($p = .000$) with a Cox and Snell R squared of .39 and a Nagelkerke R squared of .53. The Hosmer and Lemeshow test of the null hypothesis was not significant ($p = .15$), and Wald values were all non-zero, therefore, all predictors should be included in the model. 88.7% of youth who had co-occurring mental health and substance use experimentation were correctly predicted by the model, and the model correctly predicted 80.7% of the expected values.

Discussion

The current research examined the relationship between early exposure to potentially traumatic experiences, such as abuse, and later adolescent mental health and substance use experimentation among a sample of justice-involved youth. Specifically, it reported on what potentially traumatic or adverse childhood experiences led to the presence of mental "illness(es)," substance use, and co-occurring mental "illness" and substance use among a sample of young people (12 to 19 years old) on probation who were classified as "high needs" youth. Data from 192 youth probationers' pre-sentence reports were explored, coded, analyzed, and interpreted. Results indicated that having a highly mobile/unstable home environment, experiencing maternal vulnerability, witnessing abuse, having attended counselling, and having used more than four substances significantly increased the number of mental health diagnoses. Age of probation entry, attending counselling, experiencing sexual abuse and physical abuse, having a highly mobile/unstable home environment, having diagnoses of ADHD or BPD/PD, and being racially

White significantly increased the number of substances used. The odds of having high-level co-occurring mental health diagnoses and substance use increased for those youth who were older, who experienced paternal vulnerability, attended counselling, experienced physical abuse, and were racially/ethnically White or Indigenous. These results will be discussed with special regard to developmentally-, culturally-, and trauma-informed interventions.

Sample Characteristics

As expected with purposeful sampling, substance use and mental health diagnoses were pervasive throughout this high-needs sample. Over half of all youth (55%) began experimenting with substances before age 12, which jumped to nearly 90% by age 14. The average age of onset for drug use for youth in Canada is generally between 15 to 17 years old (Canadian Centre for Substance Abuse, 2007), meaning the age of first drug use among this sample is younger than the national average. This can be problematic when accounting for the influence of developmental life-course theory, in that early substance use can negatively affect the developing brain, creating a higher likelihood of long-term physical and mental health complications, including continued/long-term substance use and developing a substance use disorder (Castellanos-Ryan et al., 2013). Further, early substance use and the use of multiple substances have been found to contribute to the onset of mental health needs as well as justice system involvement, although causality is not always directly attributed to one factor over another (McClelland et al., 2004).

For the youth who used substances, the majority (approximately 66%) used between two to six substances, with the remaining 29% using more than 7 different substances in their short lifetime, meaning a combined 95% of youth in my sample have engaged in the use of multiple substances. Just over three-quarters of these youth were found to use a combination of alcohol, marijuana, and unregulated/street drugs. 23% of the sample had been diagnosed with a formal

substance use disorder. This number is slightly below estimates of justice-involved youth with substance use disorders, which fall between one-third (Wasserman et al, 2010) and just over 50% (Scott et al., 2019). Again, like the majority of mental health diagnoses and substance use behaviours, rates are likely to be higher due to barriers to diagnosis and the stigma that is often associated with having a mental health diagnosis or substance use disorder (Livingston, 2020). I will discuss stigma later in the discussion.

It is so important to identify young people who experiment early with substances and support them in ways that reduce/prevent serious/continued substance use, and/or the factors that contribute to young person's use of substances as a self-coping mechanism before it becomes problematic (i.e., meeting the definition of a "substance use disorder" or addiction-like behaviours). As experimental substance use during adolescence is frequently considered to be normative behaviour, identifying these factors and patterns is likely to be challenging, yet doing so can also reduce the adverse impacts that substance use has on the developing brain and the mental health of the developing young person.

With regards to the prevalence of mental health diagnoses among the sample, 74% had at least one formal mental health diagnosis, with the average number of total diagnoses being around four. Over half of the sample had between two to six diagnoses, with a further 22% being diagnosed with seven or more mental health diagnoses, which represents a notably high level of complex mental health needs, in comparison to national incidences and prevalence among this sample. With the national prevalence rates of youth mental health diagnosis in Canada falling between 10 to 20% (Statistics Canada, 2020), young people in this youth probation sample are together experiencing challenges associated with their psychological/mental health and well-being and the use of many illicit and harmful substances; still, this is more consistent with the incidence

of mental health diagnoses among justice-involved youth which are typically higher (Borschmann et al., 2020; Gretton & Clift, 2011; Teplin et al., 2002).

In addition, concerns associated with under- and misdiagnosis, as raised in the earlier-presented literature may likely play a role in the disparity between youth who are justice-involved and youth who are not, but this does not entirely explain the discrepancy. My reasoning leads me to believe most youth in the justice system would be underdiagnosed due to several systemic barriers to accessing assessment, diagnosis, support, and care. However, perhaps it is the opposite, that youth in the justice system are over-diagnosed, or accurately diagnosed and the figures we see are representative of that. Many of these youth in this "high needs" sample may, in fact, be diagnosed because they experienced challenges and were exposed to traumatic experiences very early in life, thus were identified early in school (and some in their home/families) for various behaviours defined as "problematic", which has resulted in them receiving many/multiple diagnoses and undergoing a variety of assessments over their early years, thus potentially leading to an over-pathologizing of young people's behavioural responses to early trauma/abuse exposure. Justice-involved youth, such as those in this sample, have higher psychological/mental health and substance use needs than the general population, and their access to diagnostic services is likely greater, as is their level of observation (and supervision), meaning obtaining a diagnosis may be easier for these youth than among the general population. Thus, this results in, as an indirect and perhaps unintentional and unconscious practice of [over-]criminalizing youth who have been exposed early to complex trauma and abuse in their lives which has later, in adolescence, and after insufficient and/or ineffective supports, manifested as complex mental health and substance use/addiction-related needs. Despite this, having a "mental illness" or a "substance use disorder" often leads to these youth coming into contact with the justice system at higher rates, due to the

behaviours associated with mental health diagnoses and substance use, which often are labelled and criminalized by society, as well as the potential over-supervision of these young people. This will be discussed in connection to the multivariate findings later in this section.

With regards to the breakdown of abuses experienced by gender, males were most likely to experience 1 or fewer abuses (71.6%) and females were most likely to experience 2+ abuses (63.6%). It is important to remember that this is official pre-sentence report data, not self-reported data, meaning the incidence of confabulation is likely less. That being said, males very well may experience the same level of abuse but be less willing to report it officially. This may be due to perceptions of abuse and stigma around males experiencing abuse, and general perceptions around masculinity in Western culture. It is well established in the literature that gender significantly affects experiences of abuse (Asscher, van der Put & Stams, 2015), but again, stigma may be affecting the results here and in past literature. This is a reason why it is so important to study and apply Developmental Life Course (DLC) theory using a gendered and/or feminist-informed lens on ideas related to mental health and substance use, taking trauma and cultural factors into account in determining how to best support youth, by providing safe spaces that are as free from potential triggers as possible. DLC allows the researcher or the service provider an in-depth look into a person's life, accounting for and examining a multitude of factors that may affect the path or course, an individual takes in their life; outside influences like culture and perceptions, as well as individual experiences like socialization.

When looking specifically at what diagnoses are most common among this sample, ADHD (47.9%), conduct disorder (34.4%) and FASD (25.5%) were the most prevalent. The incidence of ADHD falls in line with general estimates for incarcerated youth (Young et al., 2010; Retz et al., 2004). ADHD, in particular, has been linked with persistent offending behaviours throughout the

life course, much in part to the patterns of moods and behaviours associated with ADHD, which contribute to an increased probability of coming into contact with the justice system (Young et al., 2010; Retz et al., 2004; Peterson-Badali et al., 2015). Much of the research surrounding mental health among justice-involved populations suggests that mental health is indirectly related to offending, in that mental health behaviours do not directly contribute to justice involvement, but that they lead to secondary behaviours that are classified and seen/labelled as society as criminal (Davis et al., 2015; Ghiasi et al., 2020; Underwood & Washington, 2016). The indirect nature of the relationship between mental health and justice involvement indicates that targeting just mental health in rehabilitation is not likely to elicit the best results with regard to decreasing recidivism (Davis et al., 2015).

Such discussion raises the "chicken or egg question" in terms of youth probationers' experiences and the temporal order in which these two occurred – do mental health and substance use behaviours lead to justice system involvement, or does justice-system involvement lead to mental health concerns and substance use behaviours? I think both can be true, depending on the individual, and this relationship requires further exploration. Mental health and substance use behaviours are labelled in society as "undesirable" and sometimes a "choice", leading individuals with these needs to be seen as "others" or existing outside of accepted social norms, maybe by choice or not, creating and perpetuating the stigma associated with these needs, that these individuals need to be "removed" from society.

Stigma has been mentioned multiple times throughout, thus far, and is a major factor influencing the perceptions of individuals with mental health concerns and substance use, and therefore, the responses designed for individuals with such needs. Addiction and mental health diagnoses are often seen as a character flaw or a moral failing, as opposed to a public health

issue. Fear, misunderstanding, the media, and beliefs surrounding social norms can contribute to the negative perceptions of individuals with mental health concerns and substance use needs, contributing to the idea that such needs are of lesser importance than physical health needs. Such perceptions can lead to mistreatment, discrimination and prejudice which can be internalized by individuals with these concerns, potentially leading to self-devaluation and the heightening of such needs, while additionally creating a barrier between receiving support and/or accessing services (Knaak, Mantler & Szeto, 2017; Livingston, 2020). Pathologizing and/or medicalizing mental health and substance use needs, and the subsequent criminalization of complex early life trauma which contributed to these mental health and substance use needs, only furthers the stigma associated with these needs.

Labelling theory is relevant here, and strongly contributes to stigma, in that the identity and behaviour of individuals can be influenced by how others perceive, and subsequently label/identify them (Mead, 1934; Becker, 1963; Townsend, 2001). A self-fulfilling prophecy of sorts unfolds, whereby individuals are labelled as "mentally ill" or an "addict", and then they begin to exhibit behaviours in line with what these labels perpetuate (Scheff, 1974; Willis, 2017). Stigma affects the well-being of those who are affected by it and changes how people feel about and view themselves. Shame and embarrassment surrounding stigma over mental health and substance use experimentation are often prominent by those who experience such needs, which can prevent them from seeking out the support and services they so need (SAMHSA, 2020; Willis, 2017), lead to inequitable access to health care or poor-quality health care, further stigmatizing individuals while preventing them from receiving adequate health care (Livingston, 2020).

Labelling theory is developmental in nature, as it examines the process of labelling and subsequent internalization over time (Loeber & LeBlanc, 1990), and is especially relevant to criminological discussions because of the influence the negative consequences that result from being labelled have on an individual's behaviour (Sampson & Laub, 1997). These negative consequences have often been referred to as "secondary deviance", in that justice system involvement develops as a result of being labelled and stigmatized as such by society. This also extends to mental health and substance use, whereby these behaviours are viewed as violating social norms and typical expectations, resulting in stigma from society and the resultant adoption of these views as personal failings. As Howard Becker (1963) explained, the label of a "deviant" or "criminal" becomes a master status of sorts as the negative label becomes the controlling narrative. The label of a "drug addict", "drug user", "mentally ill" or a "psychiatric patient "carries with it negative connotations that often override all other identities, positive or negative, and labels sustained by that individual, much like race is often the controlling label that precedes all others. This is especially problematic for adolescent/youth because it is a critical stage developmentally; psychologically and socially, youth are developing their sense of self and who they are, and their frontal lobes are not yet attuned to rational thought and complex behavioural processes, creating a heightened risk for impulsivity and risk-taking behaviours, like substance use and other associated consequences. The earlier an individual begins using substances and the more frequent their use, the greater the likelihood of substance use across the life course (Patton et al., 2016),

The youth in this sample have already been labelled as "deviant" by the criminal justice system, and the compounding effects of also being labelled as a "substance abuser" or "mentally ill", can significantly hinder the development of these youth and the recovery, reintegration,

desistance efforts of these youth, potentially contributing to the likelihood of persisting into life-course offenders, especially if appropriate interventions are not implemented.

Complex Mental Health Needs

When looking specifically at what adverse experiences contribute to the presence of mental health diagnoses, the linear regression predicting mental health diagnoses as an outcome revealed that having a highly mobile/unstable home environment, experiencing maternal vulnerability, witnessing abuse, having attended counselling, and using more than four substances, significantly increased the number of mental health diagnoses. Paternal vulnerability and experiencing physical abuse were approaching significance in the model but did not reach acceptable statistical significance.

Copeland and colleagues (2018) found that experiencing traumatic events during childhood significantly increases the likelihood that an individual will have a mental health diagnosis and engage in behaviours that are favourable to justice system involvement. Among this sample, witnessing abuse significantly increased the number of mental health diagnoses a youth presented with. Witnessing abuse has been found to increase the likelihood of a mental health diagnosis throughout the life course (Felitti et al., 1998; Zinzow et al., 2009), more specifically anxiety and depression (Finkelhor & Turner, 2021). While I did not look at the effects of trauma and ACEs on individual mental health diagnoses, witnessing abuse in the household did increase the overall number of diagnoses in general, over all other forms of abuse tested (physical, sexual, witnessing and neglect).

Parental vulnerabilities have been found to increase the number of mental health diagnoses among youth (Hanson et al., 2006; Lander et al., 2013). Examining parental vulnerability, maternal vulnerability factors were significantly associated with an increased number of mental health

diagnoses. Maternal vulnerability, more so than paternal vulnerability, has been found to result in poorer mental health outcomes for youth (Whitaker et al., 2006; Hser et al., 2015); however, differences in the gendered effects of parental vulnerability are widely varied and seemingly population dependent (Kamis, 2020). Traditionally, mothers often assume the caregiver role more actively than fathers, and therefore, youth may have more exposure to maternal vulnerabilities, with them than having a greater effect on behaviour. I believe a better explanation may be processes of socialization and the transmission of intergenerational trauma that leads parental vulnerability to elicit compromising effects on mental health. Further exploration is needed to determine why only maternal vulnerability is significantly associated with increased mental health diagnoses among this sample.

Having a highly mobile/unstable home environment is one of the most significant predictor variables across all tested outcomes. A youth's predicted number of mental health diagnoses increased by .94, nearly 1 diagnosis if they had experienced a highly mobile/unstable home environment. Youth from a highly mobile/unstable home environment have consistently been found to have poorer mental health outcomes (Tarren-Sweeney, 2008; Larsen et al., 2018), greater substance use experimentation (Braciszewski & Stout, 2012; Bath et al., 2020), and more frequent justice system involvement throughout the life-course than youth who have not (Corrado et al., 2011). Over half of youth in residential-based care settings have been identified as having mental health needs (met or unmet) and youth in care of any kind have consistently been found to have a higher number of mental health diagnoses (Larsen et al., 2018), which is supported by my results.

Mobility between homes can occur for a variety of reasons and can be related to parental vulnerability by means of substance use, mental health, or incarceration which may hinder caregiving responsibilities, and/or experiences of trauma or abuse which contribute to the mobility.

Mobility between homes is explicitly linked to other forms of trauma and potentially traumatic childhood experiences and has been present in combination with other ACE variables in all my models. Looking further into variables that contribute to a highly mobile/unstable home environment to determine if they overlap with the significant predictors for mental health diagnoses would be a valuable addition, and is the next step in my research.

A particularly surprising and important finding regarding mental health diagnoses is that no individual substance significantly contributed to or increased the number of mental health diagnoses a youth probationer had received. This is surprising given the intricate relationship between mental health and substance use, in that substances are commonly used to manage symptoms of mental health diagnoses, and it is believed that the use of substances can contribute to the onset of mental health-compromising behaviours (Conway et al., 2016; Richert et al., 2020). However, when substituting what I have called high-level experimentation, or multi-substance use, meaning they have used more than four substances currently or in the past, did become significantly predictive of a higher number of mental health diagnoses. This suggests that more serious substance use or the use/experimentation of multiple substances, is more strongly contributed to the occurrence of mental health diagnoses than the use of individual substances, even if the use of individual substances is in excess. A similar finding was demonstrated by Khoury and colleagues (2018), who determined that the higher the level of multi-substance use, the more likely a diagnosis of PTSD was present. Khoury et al. (2018), although limited in their examination of diagnoses, found that the experience of abuse in childhood/adolescence was a strong contributor to multi-substance use, and the higher/continued experiences of abuse, the higher the use of substances throughout the life course. Multi-substance use has been found to compromise physical and mental health outcomes and contributes to justice-system involvement, and is more common

than the use of a single substance among justice-involved youth (McClelland et al., 2004), which is why this is so concerning.

My results and the literature have shown that justice-involved youth tend to begin using substances at a younger age than those who are not justice-involved (Funk et al., 2020), meaning they have more opportunities and time to use/experiment with multiple substances. Duration of use is an important factor here, as continued use over time can lead to dependence or abuse, which is when mental health is most compromised. A developmental life course perspective is so important here because it considers factors that influence substance use experimentation and mental health across an individual's life span, which provides a comprehensive view of how certain experiences affect current/past behaviours (Hser et al., 2007). Because the factors that contribute to mental health and substance use experimentation are so individual and dependent on the population/person and their experiences, this snapshot can be used to inform treatment and service options that are directly catered to the individual's specific needs, which is what is said to be the most effective treatment path (Gray & Squeglia, 2017). A multidisciplinary approach, where co-occurring mental health and substance use experimentation can be addressed concurrently, is said to be the most effective treatment route for youth/adolescents with these needs. Significant predictors of substance use will be discussed below.

Substance Use Experimentation

The linear regression predicting substance use as an outcome revealed that experiencing sexual abuse and/or physical abuse, having a highly mobile/unstable home environment, having a vulnerable paternal figure, being diagnosed with ADHD, and having attended counselling were significant predictors of increased substance use experimentation. Being diagnosed with a

personality disorder was negatively associated with substance use experimentation, where youth were found to use fewer substances than youth without such a diagnosis

Experiencing sexual abuse and physical abuse as a youth were both found to be significantly correlated with the number of substances used. If a youth experienced sexual abuse, they were found to use a greater number of substances. This is in line with past research that overwhelmingly suggests experiencing sexual abuse is predictive of using more substances, and typically for a longer duration (Ballon et al., 2001; Townsend, 2013; Chen & Lo, 2010). Physical abuse was also significantly predictive of a higher number of substances used. Physical abuse has been found to increase the substance use behaviours of youth (Yampolskaya et al., 2019; Snyder & Smith, 2015), which was confirmed by my results.

The use of substances following abuse is likely to be a coping mechanism and/or means to manage or eliminate the feelings and thoughts associated with such experiences of abuse. Exposure to abuse or potentially traumatic experiences in childhood/adolescence have been linked to increased substance use when compared to youth without these experiences (Khoury et al., 2010; Mandavia et al., 2016). Stone and colleagues (2012) determined that using substances to cope with negative feelings is especially concerning, as it may work in the short-term, until tolerance and dependence may escalate/contribute to increased use. An understanding of how these experiences affect substance use and health outcomes later in life, and potentially lead to further traumatization/health-compromising behaviours could be used to inform responses and may lead to better outcomes.

With sexual abuse and physical abuse being predictors of increased substance use among this sample, the importance of identifying and addressing experiences of abuse among justice-

involved youth/adolescence is important to acknowledge, as is their impact on substance use behaviours, which may contribute to justice system involvement.

Again, having a highly mobile/unstable home environment was positively associated with an increased number of substances used. Youth coming from an unstable/highly mobile home background begin using substances at a younger age and have higher rates of substance use experimentation overall when compare to youth who do not (Braciszewski & Stout, 2012). Being placed in child welfare can more than double the likelihood of substance use among youth (Bath et al., 2020). In this case, coming from a highly mobile/unstable home environment increased the number of substances used by .643 substances. Similar to the home environment is the effect of parental vulnerabilities. Paternal vulnerability was found to significantly increase the number of substances used by .412. Paternal substance use and incarceration in the past has been found to result in increased substance use among their children (Lander et al., 2013), which was confirmed in this model, but the literature suggests maternal vulnerability to be more influential on youth substance use and mental health (Whitaker et al., 2006; Hser et al., 2015). Breaking down the parental vulnerabilities into individual variables like maternal substance use or paternal incarceration, would help to further explain this relationship.

Being diagnosed with ADHD was the most significant predictor of increased substance use in this model, and ADHD was also the most common mental health diagnosis among the sample, with almost half of the participants being diagnosed. ADHD was the most common diagnosis among youth adjudicated through a mental health court in Toronto, Ontario (Peterson-Badali et al., 2015), and is believed to be one of the most prevalent mental health diagnoses among justice-involved youth in general (Young et al., 2010; Retz et al., 2004). Youth with ADHD may engage in substance use behaviours to make up for the lower amounts of dopamine in their brains, or to

cope with the symptoms of ADHD. External manifestations of ADHD, like mood instability and impulsive behaviour, have been linked to persistent offending (Harpin & Young, 2012), although mental health diagnoses are generally believed to be indirectly related to justice system involvement (Davis et al., 2015). Mental health diagnoses lead to secondary behaviours, like mood instability and impulsive behaviour, which are often associated with criminality and repeated justice system involvement (Davis et al., 2015; Ghiasi et al., 2020; Underwood & Washington, 2016).

A diagnosis of BPD/PD decreased the number of substances used by youth, which was unexpected, as BPD/PD is characterized by impulsivity and mood instability and has typically been associated with an increased incidence of substance use (Trull et al., 2000, 2018). Further exploration is needed here to determine why a diagnosis of BPD/PD decreased the number of substances used, as multicollinearity was not determined to be an issue. It could be that youth on probation who were diagnosed with BPD/PD were receiving treatments including medication and/or excellent support and/or counselling, especially in consideration of the "specialized/specialist" nature of these caseloads. Having attended counselling significantly increased the number of substances used. This may be because youth are attending counselling due to their substance use but may also be because youth have attended programs/services that are not appropriate or suited to their individual needs, which may increase feelings of helplessness/hopelessness, and in turn, increased substance use to cope with these feelings. Understanding the social, biological, psychological and environmental factors that contribute to or protect against substance use among youth/adolescence is critical in developing needs-based interventions, to protect against substance use/experimentation throughout the life course.

Experiences and responsivity of counselling for justice-involved populations are something I hope to explore in the future.

Co-occurring Multi-Substance Use and Mental Health Diagnoses

The logistic regression model predicting the likelihood of youth having co-occurring multi-substance use and mental health diagnoses determined that having a highly mobile/unstable home environment, experiencing paternal vulnerability, experiencing physical abuse, attending counselling, age of probation entry and race were significantly predictive of co-occurring multi-substance use and mental health diagnoses (>3 substances and >2 mental health diagnoses). While only 2.1 percent of the sample were formally diagnosed with a co-occurring substance use disorder and mental health diagnosis, the percentage of individuals who actually may have comorbidity, yet undiagnosed, is likely to be higher based on my results.

With regards to the likelihood of having co-occurring multi-substance use and mental health diagnoses, the odds were 3.8 times greater for those who had experienced high mobility between homes, 2.0 times more likely for youth who had experienced paternal vulnerability factors, 17.2 times more likely for youth who had attended counselling, 1.3 times more likely for each year older a youth was when they entered youth probation, 3.0 times more likely for youth who had experienced physical abuse, 4.2 times more likely for youth who identified as white, and 8.0 times more likely for youth who had an Indigenous identity. This is the only model in which race held any significance, with the odds nearly doubling for individuals identifying as Indigenous compared to individuals identifying as white. Interestingly, race is only significant for youth who fall in this high-needs sample, which may illustrate a need for more culturally informed responses and measures.

Having a highly mobile/unstable home environment was significant in all 3 models and is an important factor associated with substance use and mental health. Being placed, in-home or out-of-home, has been found to increase the likelihood of having a mental health diagnosis (Corrado et al., 2011; Tarren-Sweeney, 2008; Larsen et al., 2018), using substances (Braciszewski & Stout, 2012; Corrado et al., 2011; Bath et al., 2020), and being incarcerated (Corrado et al., 2011). Within this sample, it increased substance use experimentation, the number of mental health diagnoses and the likelihood of having co-occurring multi-substance use and mental health diagnoses. I was not expecting this variable to be as significant as it was, however, it makes sense when it comes to what mobility between homes can expose a youth to. Instability is inherent, as well as the potential for abuses, lack of or lower or inconsistent supervision levels, feeling the loss of control and more, which may encourage youth to use substances as a coping mechanism or incite experiences that are compromising their mental health, on top of what they are already feeling/experiencing with mobility between homes. Being placed in care can significantly impact a youth's life course and lead to challenges related to their psychological/mental health and well-being and the dangerous use/experimentation of substances. This highlights the necessity to find alternatives to care/out-of-home placements that support young people based on their individual independent needs.

Having attended counselling significantly heightened mental health and substance use need-related outcomes for justice-involved youth in all three models. There is no consensus across the literature about which types of counselling programs are best or most effective, however, outcomes should not be worse after having attended counselling. There is a general consensus that the programs that exist may not be effective in targeting youth's substance and mental health-related needs, and I think that this is likely what is at play in our sample. Further, it could stipulate

that these youth have high needs and because they are being surveilled by the justice system, they are getting more access to counselling due to their needs. My data cannot speak to cause-and-effect relationships, however, it is very curious to see that having attended counselling increases the likelihood of having co-occurring and independent mental health and substance use needs.

Trauma/Adverse Childhood Experiences, Mental Health, Substance Use and Justice System Involvement

Experiencing trauma and/or adverse childhood experiences in the home evokes environmental and structural changes that can influence the life course. Experiencing potentially traumatic events, such as abuse and/or parental vulnerabilities, etc., in early childhood/youth has been found to lead to mental health and substance use needs among justice-involved populations (Yampolskaya et al., 2019). Past trauma and adverse childhood experiences are continually associated with and contribute to the development of mental health and substance use needs (Felitti et al., 2002; Wolff & Shi, 2012; Bodkin et al., 2019). The effects of potentially traumatic events in childhood/adolescence can affect our development biologically and lead to lifelong physical and mental health needs (Briere & Spinazzola, 2005). Such traumatic experiences are associated with developmental concerns across multiple domains, such as emotional responses, cognition, and behaviour, however, they affect youth differentially depending on the vulnerability and protective factors present in their own lives (Briere & Spinazzola, 2005; Courtois, 2008; van der Kolk et al., 2005). Addressing how such experiences affect mental health and substance use behaviours individually, but also population-wise, is necessary before we address the secondary effects of such behaviours, namely challenges associated with psychological/mental health and well-being and substance use.

This raises the issue of pathologizing and/or medicalizing behaviours, as well as the criminalization of complex early life trauma and resultant mental health and/or substance use needs. The concept of pathology as contradictory to "normal" has plagued the health care system and dictated its operation and has influenced how behaviours are perceived by labelling such as differing from the norm and that need correction. What may be more "normative" or "typical" behaviour or responses to adversity/potentially traumatic experiences, or even on the spectrum of what is expected from the developing brain of a youth/adolescent, may be classified as those that are problematic, indicative of a diagnosis, or in need of correction. Stigma too, plays a role here in societal beliefs and norms around how experiences and behaviours and perceived, such as mental health and substance use-specific behaviours, and those that are or should be criminalized. Based on the background and experiences of the youth in this sample, it is understandable why they may have turned to substance use or developed mental health-compromising behaviours as a response to the trauma experienced. I think it would be more surprising if these youth did not have any mental health or substance use needs, particularly as we are learning that many people experience mental health or substance use needs at some point in their lives and it appears this age of young persons impacted is growing as our lives and society changes and becomes more complex (e.g., since the COVID-19 Pandemic; Canadian Centre on Substance Abuse, 2013; Mental Health Commission of Canada and the Canadian Centre on Substance Use and Addiction, 2021).

Although some factors were shown to be more impactful on the mental health and substance use outcomes among this sample (like mobility between homes and sexual abuse), any experience of trauma has the potential to affect youth negatively and may impact the lives of adolescents and young adults and experiences throughout the life course in many ways beyond even the secondary effects of trauma, including in the case of the present research on mental health

and substance use or contact with/ involvement in the legal/justice system, as a result of trauma. Ideally, someday we may see long-term social and health-related outcomes for everyone be more equitably prioritized at birth and throughout childhood and even into early adolescence, to prevent the development/onset of more difficult, long-term, commonly occurring challenges, including substance use (Khoury, 2010; Funk et al., 2020; McClelland et al., 2004), contact with the justice system, and repeated challenges that also are associated with/occur as a result of substance use, including precarious/unstable/no housing, under-/un-employment, relationship challenges and conflict, and other financial and social impacts (Copeland et al., 2018; Seker et al., 2021; Ghiasi et al., 2020; Baglivio et al., 2014; Mersky et al., 2013; Levenson, 2015).

Intervention programming and supportive services should not only address the secondary effects of the early exposure to potentially traumatic experiences (e.g., health and substance use needs) but should also address the underlying factors that have impacted and contributed to the individual's psychological/mental health and substance use behaviours. If certain actions/behaviours, including using/using substances, are being used as means to escape (e.g., forget/not think about) the trauma they have experienced as a youth, correctional and community-based justice program service providers and practitioners should understand and be adequately and appropriately trained in trauma-informed communication and approaches, and also how to begin to address and/or refer persons' to appropriate supports to work on the underlying early experiences and not just the resultant behaviour that appears currently, not only in line with their mental health and substance use needs but also in line with their needs depending on their chronological, biological, psychological, emotional, spiritual, social, etc. needs.

Classification of Youth as "Serious/Violent"

A potential concern in society and a reason why the justice system imposes sentences is often to protect public safety, i.e., the fear of (increasing) violence and violent "crime," which from a prevention lens, could optimistically someday (under more liberal/progressive leadership) help support an increased focus on society's mental health and well-being, and importantly, as early as possible. Referring back to the work of Sacks et al. (2009), justice-involved individuals with substance use needs were not more likely to be charged with violent offences. Low-level quantity and frequency of drug use were equally likely as high level quantity and frequency of drug use, to elicit violence (Sacks et al., 2009). Sacks and colleagues (2009) also found that mental health diagnoses were not directly associated with violent crimes either.

Regardless of these findings, and building on the concept and influence of stigma, there is still a common perception that violent crimes are committed by those under the influence of substances or by those with mental health diagnoses. I believe the media have a strong influence in this perception, with the most "newsworthy" or serious events, which are typically those that happen least often, being over-reported, or certain crimes/typologies of "offenders" that are generalized and sensationalized across pop culture media images. Even when early experiences of potentially traumatic events and challenges related to psychological/mental health and substance use do not correlate, or perhaps more seriously, youth charged with violent offences and/or justice-system contact/involvement, the individuals and social/societal consequences of each of these, and especially experiencing two or all three combined, should be brought to the attention of all levels of our governments and be made a greater priority and area for further research and investment.

Taken together with the results of this present research, it is thus imperative to consider the direct and indirect nature of mental health and substance use behaviours when planning

intervention strategies for youth involved in the justice system. Because youth classified as "serious/violent" are more likely to be involved with the police and in the justice system across the life course compared to youth who are not, it is of the utmost importance to better target the unique needs of this population to ensure that the appropriate assessments/responses/services/programs are employed to interrupt patterns of behaviour that may contribute to interactions with/responses from the police and a more formal criminalization of young people who are among a very vulnerable group in our society.

Strengths-Based Interventions

As mentioned, there is a bi-directional relationship between mental health and substance use, in that individuals who have mental health diagnoses are likely to use substances, and individuals who use substances may develop a mental health diagnosis. Therefore, it is so important to treat mental health diagnoses and substance use together and not independently, like many programs and services are currently doing. Treating one without the other is not likely to produce lasting change. Mental health and substance use needs are criminalized in our society, which is a likely contributor to the overrepresentation of individuals with these concerns in our justice system. Compounding this is a lack of adequate interventions. While correctional and justice-/community-based intervention/rehabilitation programs and services address behaviours that result from substance use and mental health, my findings suggest that programs should instead address the factors and/or possible contributors of psychological/mental health and substance use needs, which have been affected by exposure to/experiences of trauma in childhood and early adolescence. Relying on harm reduction strategies that are trauma-informed and do not criminalize behaviours associated with these needs, but those that also meet the individual needs of the youth

to disrupt their trajectory towards substance use/mental health-compromising behaviours is of the utmost importance.

When looking at justice-involved populations, and specifically those with complex psychological/mental health and substance use needs, we cannot take universal or generalized approaches to programming and service provision, because these specific needs are not general or universal. Government, healthcare systems, community agencies and formalized institutions should focus on trauma-informed communication founded in models of harm reduction and empathetic support/service delivery models that account for individuals' developmental life stages and the social, cultural and environmental factors that contribute to psychological health challenges, as well as all of the previously stated and also motivations for substance use, which are going to be different depending on the individual.

Many different reasons and factors may protect against or contribute to individuals using substances or developing mental health-compromising behaviours. Early, appropriate and needs-based interventions for justice-involved youth that have shown promising results include those that draw from/are informed by trauma-informed care, harm reduction strategies, and strengths-based supports that are also gender- and culturally-informed (Zettler, 2020). Traditional standardized programming for justice-involved youth has some of the lowest "success rates" (as defined as recidivism), and some of the highest expenditures (Lipsey et al., 2010). It is critical that strengths-based approaches and ideas are prevalent in these contexts and used to inform the existing models of programming and service needs, implementation, delivery, and development and growth. For example, strengths-based case management models have shown promising results when it comes to addressing substance use (Redko et al., 2011) and mental health needs (Xie, 2013), with reasons being attributed to a client-centred, individual approach that is personal to individual needs and a

move away from a structured program that may not be an appropriate response to needs. Strengths-based models place the individual at the center of analysis and work in a developmental life course manner to examine how and why an individual's life course led them to where they are and to decide on the best responses to proceed with.

Additional Considerations

Developmental Life-Course (DLC) Theory

A main concentration of developmental life course theory is understanding how the trajectories of individuals' lives are shaped by and reflect their environment, which is constantly fluctuating and shaped by external and internal forces. DLC is especially relevant when it comes to youth/adolescent substance use and mental health, because the longer these needs go unchecked/unaddressed, the more impactful they become on overall health and wellness and the more compromising to trajectories of individuals' lives (Baglivio et al., 2020; Copeland et al., 2018; Hser et al., 2007; Funk et al., 2020; Townsend, 2013; Vingilis et al., 2020).

A big limitation of DLC however, is that, sociologically, it is not overly critical of some of the systems and institutions that control and shape youth, such as cultural sensitivity, class/socioeconomic status, gender, sexuality, etc. In my opinion, applying one theory to a complex discussion is never going to fully explain the situation. Drawing on other theories and influences/explanations is necessary to gain perspective and provide further context to strengthen the weak points of DLC, or any other theory. In doing so, I have referred to labelling theory, mechanisms of socialization, and stigma, among others, to add to the limitations DLC presents, while further contextualizing and explaining the intricacies of human life and social behaviour.

Methodological Challenges

There are certainly challenges associated with quantitative social science research when it comes to measuring young people's or in general, human behaviour, which is inherently difficult to predict. The R-squared values of my linear regression models for complex mental health and substance use experimentation were 0.36 and 0.38, respectively. An R-squared value of less than 50% is often found in studies that examine human behaviour, and values as low as 0.10 are acceptable in the social sciences (Falk & Miller, 1992). In 1985, Robert Abelson determined that a small R-squared value or percent variance can be significant, and typical R-squared indications are misleading when it comes to determining meaningful outcomes. This explanation is known as the "Abelson Paradox", and applies to situations in which processes are influenced by smaller, individual characteristics that build on one another to generate significant outcomes. Mathematically, they may not generate large effect sizes, but qualitatively, these small effects are meaningful, especially to an individual compared to a group of people.

I think my results, in fact, showcase the incredibly complex and often individualized nature of mental health and substance use behaviours, and how experiences of potentially traumatic or adverse childhood events differentially affect young people. What leads someone to use or experiment with substances may not lead another to, and similarly, the factors that contribute to mental health needs too, will likely vary between individuals. This highlights the importance of examining individual mental health and substance use needs and experiences of trauma and/or adverse events for justice-involved youth, to determine the underlying reasons why the individual is exhibiting mental health and or substance use needs, which should then inform appropriate responses.

Limitations

There are expected limitations within this research. The first is the small sample size composed of 192 youth on probation. Testing multivariate models and finding statistical significance among a smaller sample can be difficult and result in less statistical power, although this is often expected for research concerning human behaviour (Falk & Miller, 1992). With regards to sampling, participants for this research were not randomized, and selective sampling was employed due to the nature of the research specifically examining justice-involved youth based on their mental health and/or substance use needs. To test those variables, I had to be sure they were present in the population. This means the results are not generalizable, as is the case with most selective population-based results, and similar studies are likely to elicit varying results. However, this does highlight the importance of discovering the specific needs for specific populations in question, to be informed and provide the best outcomes for success.

Next, it is widely agreed that incidence rates of mental health diagnoses among youth and adults are higher than formal incidences, with barriers to diagnosis and stigma often attributed to factors influencing rates. Many justice-involved youth with mental health diagnoses are not serious enough to require intensive psychiatric services and may go undiagnosed, with their behaviour attributed to criminality instead (Beaudette et al., 2015). While I did record "suspected diagnoses" on the complex mental health scale, suspicions may not have been translated into the formal record. Further, the initial data was in the form of official pre-sentence reports, in which behaviours were observed, interpreted and recorded by someone other than the youth. Formal documents only tell a part of the story, despite being comprehensive in many areas. There is also potential for the stigma/beliefs/biases of the recorder to be transmitted into my data. Given the nature of the data, identifying and controlling for these factors is nearly impossible, but it is necessary to note and account for such complexities.

When it comes to variables, measuring maternal, paternal, and sibling vulnerability on a scale was intended to determine whether the more of these potential influences that were experienced, the higher the mental health or substance use needs of youth. However, it would be helpful to also see the differences across vulnerability factors and their influence individually, like if parental/sibling substance use, mental health or incarceration were more influential. Experiencing familial incarceration, substance use or mental health diagnoses are likely to have different effects on a youth's mental health and substance use needs, and those differences would be valuable to explore. As well, a gendered analysis would be an important addition, as boys and girls are noted in the literature to have different experiences with mental health, substance use and potentially traumatic events, which is likely to affect their needs.

Further analysis of the data will carry on in the future to explore these limitations.

Conclusion

I undertook this research to explore how different forms of potentially traumatic or adverse childhood experiences are most influential on the mental health and substance use needs of justice-involved youth. Specifically, I examined how mental health, substance use, and co-occurring mental health and substance use needs were affected by various factors determined to be impactful in the literature. While awareness in these areas has increased in recent years, further exploration is needed to determine how various structural and social factors impact the life trajectories of these youth, and youth in general. Youth who experience potentially traumatic events and are exposed to adverse events early in life, particularly childhood, have been found to experience higher psychological/mental health and substance use needs, and increased justice system involvement (Felitti et al., 1998, 2002; Abram et al, 2004; Teplin et al., 2002; Baglivio et al., 2014, 2020). The present research confirmed such findings and revealed the importance of

accounting for how trauma and adverse experiences in early childhood and adolescence affect specific psychological responses/health-related issues and higher-level substance use.

Strengths-based, trauma-informed, harm reduction strategies that refrain from criminalizing behaviours associated with these diagnoses/challenges are the way forward, as is addressing the stigma associated with these needs, and justice-involved populations. Most importantly, placing the youth at the center and expert of their own life, we should determine individual needs specific to the youth, to understand how their life course has influenced their current societal positioning, behaviours and ways of life, and how to best accommodate the youth in meeting their needs. This is no small task, but one that is necessary, equity-based and rooted in developmental ideologies.

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Appendices

Appendix A- Table 1- Sample Characteristics (N=192)

VARIABLES	Percent/Mean (SD)
Age of Probation Entry	14.75
Race/Ethnicity	
White	40.1%
Indigenous	24.5%
Non-White/Non-Indigenous	35.4%
Gender	
Boys	82.8%
Female	17.2%
Vulnerability	
Maternal	(57.3%) 1.81 (.792)
Paternal	(54.2%) 1.75 (.779)
Sibling	(31.8%) 1.41 (.657)
Complex Mental Health Scale	3.93 (2.32)
ADHD	47.9%
Anxiety	18.2%
Bipolar	12.5%
BPD/PD	6.3%
Conduct Disorder	34.4%
Depression	20.3%
FASD	25.5%
Learning Disability	19.8%
PTSD	17.7%
Substances Use Experimentation	5.26 (2.38)
Alcohol	89.1%
Cocaine	42.7%
Crack	25%
Meth	38%
Ecstasy	56.8%
Marijuana	90.1%
Heroin	11.5%
Prescription Pills	5.7%
Co-Occurring, Multi-Substance Use & Complex Mental Health	59.9%
Highly Mobile/Unstable Home	62%
Abuse	
Physical Abuse	39.6%
Sexual Abuse	18.2%
Witnessing Abuse	38.0%
Neglect	28.6%
Attended Counselling	69.3%

Appendix B- Table 2: The Relationships between Youth Probationer Characteristics and Dependent Variables (N=192)

VARIABLES	Complex Mental Health Scale	x^2/t	Substance Use Experimentation Scale	x^2/t	Co-occurring Multi-Substance Use and Complex Mental Health (n=115)	x^2/t
Age of Probation Entry	14.75 (1.59)	-.27**	14.75 (1.59)	-.069	14.55 (1.41)	2.18*
Race/Ethnicity	-	-	-	-	-	-
White	4.02 (2.24)	-.456	5.73 (2.48)	-2.27*	28.1%	5.60*
Indigenous	5.06 (2.03)	-4.26***	6.04 (2.37)	-2.65**	19.3%	9.18**
Non-White/Non-Indigenous	3.04 (2.28)	4.08***	4.18 (1.87)	4.92***	20.9%	26.5%***
Gender – Boys	3.81 (2.33)	-1.59	5.06 (2.16)	-2.48**	47.4%	2.71
Gender – Female	4.51 (2.24)	-1.59	6.18 (3.13)	-2.48**	12.5%	2.71
Maternal Vulnerability	1.81 (.79)	.374**	1.81 (.79)	.195**	2.00 (.795)	-.430***
Paternal Vulnerability	1.75 (.78)	.274**	1.75 (.78)	.246**	1.94 (.787)	-4.29***
Sibling Vulnerability	1.41 (.66)	.066	1.41 (.66)	.167*	1.48 (.730)	-1.73†
Mental Health Diagnoses	-	-	3.93 (2.32)	.313**	5.04 (1.81)	
Substances Used	5.26 (2.38)	.313**	-	-	6.50 (1.98)	
Highly Mobile/Unstable Home	3.93 (2.32)	.310**	5.72 (2.48)	-3.58***	73%	14.9***
Physical Abuse	4.64 (2.15)	-3.54**	6.08 (2.39)	-4.03***	39.6%	14.1***
Sexual Abuse	5.23 (2.14)	-3.77***	6.94 (2.72)	-4.91***	14.6%	7.20**
Witnessing Abuse	4.08 (2.26)	-.699	5.93 (2.30)	-3.15**	27.1%	6.30*
Neglect	4.98 (2.20)	-4.13***	5.89 (2.49)	-2.37*	20.3%	3.89*
Attended Counselling	4.60 (2.11)	-6.63***	5.74 (2.38)	-4.48***	52.6%	46.4***

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

Appendix C- Table 3: Linear Regression Results for Complex Mental Health Scale and All Indicators (N=192)

		Unstandardized Coefficients		Standardized Coefficients		
VARIABLES		**B**	**Std. Error**	**ß**	**t**	**Sig.**
1	(Constant)	0.421	0.430		0.978	0.329
	Highly Mobile/Unstable Home Environment	0.936	0.299	0.196	3.129	0.002**
	Maternal Risk	0.475	0.194	0.162	2.442	0.016*
	Paternal Risk	0.370	0.190	0.124	1.948	0.053
	Witnessed Abuse	-0.631	0.308	-0.132	-2.046	0.042*
	Physical Abuse	0.575	0.307	0.121	1.870	0.063
	Attended Counselling?	1.471	0.321	0.293	4.586	0.000***
	>4 Substances Used	0.700	0.314	0.148	2.228	0.027*

a. Dependent Variable: MH-Scale-1-7+. R^2=.357, N=192, (F (7, 184) = 14.594), p = .000
*-p≤0.05, **-p≤0.01, ***-p≤0.001

Appendix D- Table 4: Linear Regression Results for Substances Use Experimentation Scale and All Indicators (N=192)

		Unstandardized Coefficients		Standardized Coefficients		
VARIABLES		**B**	**Std. Error**	**ß**	**t**	**Sig.**
1	(Constant)	-1.080	1.695		-0.637	0.525
	Age of Probation Entry	0.250	0.102	0.167	2.460	0.015*
	Highly Mobile/Unstable Home Environment	0.646	0.321	0.132	2.016	0.045*
	Paternal Risk	0.412	0.193	0.135	2.130	0.034*
	Physical Abuse	0.643	0.309	0.132	2.084	0.039*
	Sexual Abuse	1.316	0.436	0.214	3.020	0.003**
	Attended Counselling	1.126	0.362	0.219	3.110	0.002**
	Gang Involvement	0.586	0.315	0.117	1.858	0.065
	ADHD	1.076	0.321	0.226	3.352	0.001**
	BPD/PD	-1.917	0.659	-0.195	-2.909	0.004**
	Dummy White	0.818	0.300	0.169	2.724	0.007**
	Dummy Male	-0.814	0.449	-0.129	-1.811	0.072

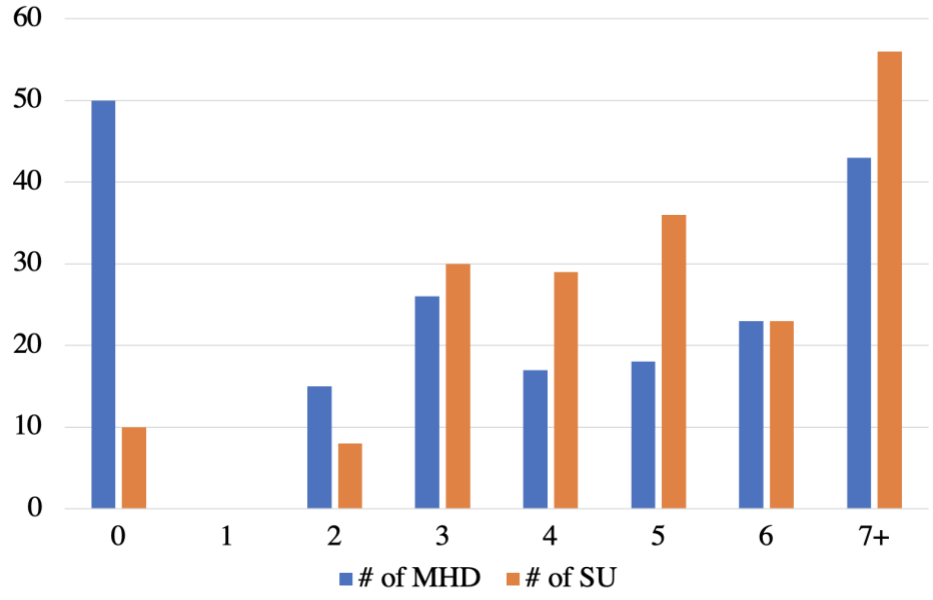
a. Dependent Variable: # of Substances Used. R2 = .357, N=192, (F (11, 180) = 9.073), p = .000
*-p≤0.05, **-p≤0.01, ***-p≤0.001

Appendix E- Table 5: Logistic Regression Results for Co-Occurring Multi-Substance Use and Complex Mental Health on All Indicators (N=192)

VARIABLES	B	S.E.	WALD	SIG.	EXP(B)
Age of Probation Entry	0.292	0.141	4.273	0.039*	1.339
Highly Mobile/Unstable Home Environment	1.343	0.430	9.730	0.002**	3.829
Paternal Vulnerability	0.701	0.269	6.771	0.009**	2.016
Attended counselling?	-2.846	0.522	29.700	0.000***	17.21
Neglect	-0.734	0.514	2.036	0.154	.480
Physical Abuse	1.090	0.421	6.696	0.010*	2.973
White	1.440	0.448	10.338	0.001***	4.223
Indigenous	2.074	0.619	11.237	0.001***	7.958
Constant	-9.082	2.494	13.263	0.000	0.000

a. Dependent Variable: Co-Occurring Multi-Substance Use and Complex Mental Health
NR^2=.528, N=192, p = .000***
*-p≤0.05, **-p≤0.01, ***-p≤0.001

Appendix F- Figure 1- Number of Mental Health Diagnoses and Substances Use Experimentation Scale



Appendix G- Figure 2- Significant Predictors of Substance Use Experimentation, Mental Health Diagnosis and Co-Occurring High-Level Mental Health Diagnoses and Substance Use Experimentation