FETAL ALCOHOL SPECTRUM DISORDER AND INAPPROPRIATE SEXUAL BEHAVIOUR

By

Holly Louise Graham

A major paper submitted in partial fulfillment
of the requirements for the degree of
Master of Arts in Interdisciplinary Human Development

The School of Graduate Studies
Laurentian University
Sudbury, Ontario, Canada

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Acknowledgments

The completion of my major paper would not have been possible without the support of many individuals in my life. My thesis adviser Dr. Shelley Watson provided immense guidance throughout my studies. She not only gave me constructive and thorough feedback on the working drafts, but she directed me in understanding how to effectively express my thoughts. I was also honoured with a very supportive and insightful committee, Dr. Michel Larivière and Dr. Paul Valliant. Thank you for inspiring new perspectives throughout my research project by asking the difficult and important questions that helped me move forward.

I would also like to acknowledge my friends and family who supported me during my pursuit of education. My mother, father, grandfather and step-father always delivered heart-felt messages acknowledging my hard work. Those messages were often the wind beneath my sails. I also must thank my "Tomini Family" for the love, support, cooked dinners, and hot cups of coffee that carried me through until the end my studies. I must specifically thank my dear friend Anne Bolton for her editing eye. Lastly, I am grateful for the friends who were motivational and patient throughout the completion of my Masters.

Abstract

Previous research on Fetal Alcohol Spectrum Disorder (FASD) has identified common physical and behavioural characteristics associated with children who were prenatally exposed to alcohol. The research suggests that many individuals with FASD have experienced involvement with the law, and engaged in inappropriate sexual behaviour. However, there would appear to be a scarcity of research that identifies the life histories of individuals with FASD who have engaged in inappropriate sexual behaviour. Identifying risk and protective factors towards positive outcomes for people with FASD has both individual and societal importance. In order to better understand individuals with FASD, this research paper explores the common characteristics of FASD which may lead to inappropriate sexual behaviour, such as deficits in social skills, self-regulation, and executive functioning. Another important characteristic that is explored in the research paper is how FASD can present as an invisible disability, and the risk associated with treatment of individuals who may not be identified as having organic brain damage, specifically in the criminal justice system. As the research on FASD is limited, this paper also explores the characteristics associated with the general population of people who have engaged in inappropriate sexual behaviour, and people with disabilities who have displayed challenging sexual behaviour. The comparison of populations of people engaging in inappropriate sexual behaviour highlights the importance of the responsivity of interventions. Despite the diagnostic label of "paraphilia" attributed to those who have been convicted of sexual crimes, each individual is a complex being. Responsivity indicates each individual must be holistically understood in order to design services that encourage individual change.

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The impact of alcohol when consumed during pregnancy has become an area of growing research in Canada and the United States. The effect of prenatal alcohol exposure was first identified by Jones and Smith in 1973. In the 1973 study, the researchers described similar malformation patterns among individuals prenatally exposed to alcohol. Continued research in the area of prenatal alcohol exposure identified that exposure manifests with a range of outcomes that can be displayed through cognitive and behavioural deficits, with or without physical malformations (Rasmussen, 2005). "Fetal Alcohol Spectrum Disorders" (FASD) is a non-diagnostic umbrella term that refers to the vast patterns of symptoms caused by prenatal exposure to alcohol from maternal alcohol consumption.

As observed in human and animal studies (Kelly, Day, & Streissguth, 2000), the impact of prenatal exposure of alcohol on the developing fetus ranges from minimal adverse effects to, in some cases, death (Abel & Hannigan, 1995), as prenatal exposure to alcohol causes organic damage to the central nervous system (Popova, Lange, Burd, & Rehm, 2012). Prenatal exposure to alcohol is cited as the leading cause of intellectual disability in North America (Burd, Klug, Li, Kerbeshian, & Martsolf, 2010; Rasmussen, Zwaigenbaum, & Tough, 2008). Subsequently, FASDs only cause is a result of maternal alcohol consumption throughout pregnancy; therefore, FASD is regarded as one of the most preventable developmental disabilities in Canada (Rasmussen, 2005).

The impairments caused by prenatal alcohol exposure, specifically the physical and developmental impairments, were first introduced by Jones and Smith (1973). The researchers found that infants born to different mothers who had consumed alcohol throughout pregnancy

had remarkably similar physical characteristics, and exhibited similar behavioural characteristics. Originally, Jones and Smith (1973) described the characteristics resulting from prenatal alcohol exposure as "Fetal Alcohol Syndrome" (FAS). Further research revealed the impact of prenatal exposure to alcohol is not always characterized by specific facial or physical characteristics (Astley & Clarren, 2000), and therefore, the more recently adopted term "FASD" is more inclusive of the spectrum of effects caused by prenatal alcohol exposure (Chudley et al., 2005).

The spectrum of effects caused by gestational alcohol exposure includes behavioural, cognitive, and physical effects. For example, many individuals with FASD present with poor impulse control, have challenges with developing interpersonal relationships, experience problems with the law, and engage in inappropriate sexual behaviour (Clark, Lutke, Minnes, & Ouelette-Kuntz, 2004). One of the most common inappropriate sexual behaviours displayed by males and females with FASD cited in literature is sexual advances towards inappropriate individuals, such as initiating sexual behaviour with a minor or with a non-consenting participant. The most commonly cited inappropriate sexual behaviour displayed by females with FASD is involvement with prostitution (Streissguth, Barr, Kogan, & Bookstein, 2004). However, to this author's knowledge, there are no studies that focus on identifying risk or protective factors identified to help prevent or intervene with inappropriate sexual behaviour being displayed by males and females with FASD.

Research on inappropriate sexual behaviour or sexual offending behaviour displayed by the general population has increased drastically over the past two decades. A great deal of past research identified common characteristics associated with inappropriate sexual behaviour and the general population as a whole (Davis & Leitenberg, 1987; Halter, 2010; Marshall & Barbaree, 1990; Tyler, Hoyt, & Whitbeck, 2000; Van Brunschot & Brannigan, 2002). From the

past research, many theories of sexual offending (Seto & Lalumiere, 2010; Ward & Beech, 2005) and prostitution (Dunlap, Golub, & Johnson, 2003; Wilson & Widom, 2010) have emerged. Recent research continues the endeavor of identifying potential risk and protective factors towards sexual offending (Harris et al., 2010) and prostitution (Wilson & Widom, 2010), as well as exploring accurate assessment tools used to assess an individual's behavioural recidivism risk (Maio & Haddock, 2010; Marshall, Marshall, & Kingston, 2011). Moreover, research on sexually offending behaviours by individuals with disabilities is still a relatively new area of study. In the research studies conducted over the past two decades, inappropriate sexual behaviour being displayed by individuals with disabilities has been theorized to be the result of many factors associated with the life history many individuals with disabilities shared. The theory of challenging sexual behaviours being displayed by people with disabilities is referred to as the "counterfeit deviance hypothesis". The counterfeit deviance hypothesis suggests sexual behaviours may appear to be paraphilia, but, after clinical assessment, can be explained by other hypotheses (Hingsburger, Quinsey, & Griffiths, 1991; Griffiths, Hingsburger, Hoath, & Ioannou, 2013).

To this author's knowledge, no known research study has identified risk or protective factors associated with people with FASD engaging in inappropriate sexual behaviours. Moreover, it would appear no such research study has used the counterfeit deviance hypothesis to explain the inappropriate sexual behaviour displayed by individuals with FASD. However, Streissguth and colleagues (2004) cite inappropriate sexual behaviour as one of the most prevalent problematic behaviours displayed by individuals with FASD; involvement in the criminal justice system and imprisonment being slightly more prevalent (Novick, 1997; Streissguth et al., 1997). This paper is intended to highlight important information in research

over the past few decades regarding inappropriate sexual behaviour being displayed by individuals with FASD, with a primary focus on current assessment procedures, treatment practices, and implications for future research.

Fetal Alcohol Spectrum Disorder

Diagnosis of FASD in Canada is regulated using the 4-digit Diagnostic Code developed by Astley and Clarren (2000). The code is used to assess four main diagnostic features associated with FASD, in relation to growth patterns of the body and head, the characteristic FAS facial features, damage or impairment of the central nervous system, and the level of prenatal alcohol exposure (Astley & Clarren, 2000; Chudley et al., 2005). According to the Canadian guidelines, there are three categories in the spectrum of FASD: Fetal Alcohol Syndrome (FAS), Partial Fetal Alcohol Syndrome (pFAS), and Alcohol Related Neuro-developmental disorder (ARND) (Chudley et al., 2005). Individuals in the past may have been diagnosed with Fetal Alcohol Effects (FAE) and alcohol-related birth defects (ARBD); however, the diagnostic terms are no longer clinically provided, but would have reflected cases in which central nervous damage was present in the absence of the characteristic facial features of FAS (Sokol & Clarren, 1989). The specific physical features associated with FAS include thin upper lip, flattened mid-face, and a smooth philtrum (Chudley et al., 2005).

Despite being a preventable disability, it has been estimated that 9 per 1000 babies are born with FASD in Canada (Bracken, 2008; Chudley et al., 2005; Health Canada, 2006). Health Canada (2006) reported that incidences of FASD are as high as 45 to 190 per 1,000 births in isolated communities in northern-western Canada. The United States and Western European countries have similar prevalence rates when compared to Canada, with as many as 2-5% with FASD being born, and as many as 12.6 per 1000 babies being born with FASD in Alaska

(Baldwin, 2007). Inconsistent diagnostic strategies may be the cause of the discrepancy in prevalence rates (Burd et al., 2010). Further research is necessary to assist in understanding the prevalence of FASD in Canadian populations, as well as across the world.

Over the past decade, there have been a growing number of studies focusing on the variability of features associated with FASD. For example, Chudley and colleagues (2005) highlight the diagnostic processes of FASD. For a diagnosis of Fetal Alcohol Syndrome (FAS), there must be evidence of organic brain damage found through neuro-behavioural assessments, growth deficiency, and facial deformities. Individuals diagnosed with other prenatal alcohol exposure-related disorders, FAE, pFAS, ARND, and ARBD typically do not have the stereotypical facial deformities; however, these individuals still have pronounced damage to the central nervous system (Chudley et al., 2005). The facial deformities associated with FAS are a visible marker therefore making detection easier; in the case of FAS, it is possible to diagnose at birth. Individuals with FASD born without the facial deformities have "invisible disabilities", and therefore diagnoses may be delayed or missed entirely (Sokol, Delaney-Black, & Nordstrom, 2003). Many of the features of FASD without the facial deformities relate to behaviours, and therefore caregivers may not seek services until behavioural patterns develop during school-age (Chudley et al., 2005). Diagnosis of FASD can be especially difficult if the mother denies use of alcohol, or alcohol use cannot be documented accurately because of maternal death, maternal unavailability, or birth records not being attainable (Abel & Hannigan, 1995; Fast & Conry, 2009; Mitten, 2004).

In the case that individuals are suspected of having FASD, a neuro-behavioural assessment could be used to identify features related to prenatal exposure to alcohol, to identify co-morbid disorders, and to rule out other causes (Chudley et al., 2005). A Canadian research

team stated that the recommended domains to be assessed to identify prenatal alcohol exposure include hard, soft, and sensory-motor neurologic signs, brain structure, intelligence quotient, communicative abilities, achievement, memory deficits, executive functions, and attention deficits or hyperactivity (Chudley et al., 2005). While Chudley and colleagues (2005) stress the importance of early diagnosis, individuals working with people suspected of having FASD may identify a number of behavioural characteristics throughout the life, especially when someone with FASD has not been identified. For instance, as a result of the trauma caused to the central nervous system during prenatal development, individuals with FASD may experience primary, secondary, and tertiary disabilities throughout the lifespan (Malbin et al., 2010).

Primary disabilities. Primary disabilities are characteristics directly related to the disability. In the context of FASD, the primary disabilities are associated with the trauma caused to the brain and central nervous system (Streissguth et al., 1997). Primary disabilities associated with FASD may include features such as deficits in cognitive functioning, executive functioning (EF), memory, judgment, sensory processing, behavioural inhibition, attention, language, motor skills and abilities, academic achievement, adaptive behaviour and social skills (Berman & Hannigan, 2000; Bookstein, Streissguth, Sampson, Connor, & Barr, 2002; Streissguth et al., 1997). Primary disabilities are present since birth, and are often assessed by measuring IQ, and abilities relating to language, mathematics, and adaptive functioning (Malbin et al., 2010).

In the study by Streissguth et al. (1997), individuals with FAS had a range of IQ from 29 to 120 ($\mu = 79$, $n = 178$); individuals classified as having FAE had an IQ ranging from 42 to 142 ($\mu = 90$, $n = 295$). As shown in the study by Streissguth et al. (1997), many individuals with FASD have above-average IQ. Individuals with FASD have strengths in other areas of ability, such as in music, or a strong auditory or visual memory (Malbin et al., 2010). Often, individuals

with FASD present with learning strengths, which may mask the severity of symptoms in other areas, and provide challenges in the diagnostic process (Malbin et al., 2010).

As many as 86% of the individuals in the Streissguth et al. (1997) study presented with an IQ in the "normal" range, and therefore would not have qualified to receive most services for developmental disabilities. Even with "normal" IQ, individuals with FASD may present with primary behavioural characteristics that have an impact on the mental functioning. For example, individuals with FASD are described as having social and emotional functioning at a level of half their chronological age (Malbin et al., 2010). Many individuals with FASD may have sensory processing deficits, and may be overwhelmed by stimuli in the environment (Malbin et al., 2010). Furthermore, according to Clark et al. (2004), secondary effects of the primary disabilities can occur when the cognitive and behavioural deficits interact with adverse environments and mental health difficulties. Streissguth and colleagues (1997) describe that the secondary effects are temporary, and can be minimized by implementing preventative strategies during childhood and adolescence.

Secondary disabilities. Secondary disabilities are physical, mental, and social impairments that are not present at birth, but occur as a result of the primary disabilities (Streissguth et al., 1997). Secondary disabilities can be evaluated by presenting Life History Interviews to individuals with disabilities (Streissguth et al., 2004). Secondary disabilities are temporary defensive behaviours that develop over time, often when there is poor fit between the individual and their environment (Malbin et al., 2010). The defensive behaviours develop over time as the demands placed on the developing child are greater than the individual's abilities (Malbin et al., 2010). The secondary disabilities are natural defensive responses to pain and distress, and include factors such as fatigue, anxiety, poor self-esteem, and loneliness. Secondary

disabilities also include behaviours that are self-destructive, feelings of isolation, avoidance, frustration, aggression, anger, depression, suicidal ideation or action, and feeling overwhelmed.

Secondary disabilities are thought to be preventable, as the impairments could be amended through appropriate interventions (Streissguth et al., 2004). Appropriate interventions that have been identified by Clark et al. (2004) to reduce secondary disabilities include features such as providing a stable and nurturing home, minimizing changes to home environment, protecting the individual from violence, receiving developmental disability services, and being diagnosed before the age of six. Clark et al. (2004) cite diagnosis before the age of six being one of the prominent protective factors. An individual having received a diagnosis of FASD would be eligible for resources, and the behaviour would be understood as a feature of the diagnosis, rather than intentional behaviours from the individual with FASD. However, if the identified protective factors are not put in place for individuals with FASD, the person with FASD is at risk of developing tertiary disabilities, cited as being permanent effects of the secondary disabilities.

Tertiary disabilities. "Tertiary disabilities" is a relatively new term, described as being the remaining impact of a chronic discrepancy between the fit of the individual with FASD and their environment, and patterns of secondary defensive symptoms (Malbin et al., 2010). According to Malbin et al. (2010), tertiary disabilities develop over time as protective interventions are not appropriately placed for the individual with FASD, leading to permanent effects of the secondary disabilities. Tertiary disabilities are described as being features such as having a disrupted school experience, mental health problems as shown by DSM diagnoses and failed therapies, involvement in the law, confinement, substance abuse problems, involvement with social services, inability to develop meaningful relationships, criminal behaviours, and inability to maintain employment (Malbin et al., 2010). The life outcome of the individual with

FASD would appear to develop over the early years throughout adolescence, and are dependent on both biological predispositions and environmental influences. In studying intervention strategies that produce positive life outcomes for individuals with FASD, some protective intervention strategies have been identified in order address early signs that an individual may be at risk of developing secondary and tertiary disabilities (Malbin et al., 2010).

Risk and protective factors. The cognitive, behavioural, and physical characteristics associated with FASD have been well identified in past studies, but few focused on protective strategies for individuals with FASD. Clark et al. (2004) provided Life History Interviews to families of individuals with FASD. The survey outlined questions regarding demographic information, and the presence of secondary disabilities. The interview also included a functional assessment to assess the adaptive functioning of the person with FASD being cared for. From the data provided by 113 participants, the researchers identified possible risk and protective factors that decrease the likelihood of developing secondary and tertiary disabilities. The identified protective and risk factors include: (1) living in a stable environment, (2) infrequent changes in living environments, (3) receiving a diagnosis before the age of 6, (4) receiving disability services, and (5) not experiencing violence during childhood. Residential stability may be difficult for some individuals with FASD, as researchers have found that only 20% of children with FASD reside with biological parents, often residing with relatives, with adoptive caregivers, or in foster care or group home settings (Astley, Bailey, Talbot, & Clarren, 2000; Streissguth et al., 2004). Burd, Matsolf and Juelson (2004) suggest a child with FASD may remain in one environment for a period of 2.8 years at most. A diagnosis of FASD would allow for caregivers to seek the resources necessary. Acknowledgement of the diagnosis of FASD along with familial

structure and support for the individual with FASD will likely reduce the development of secondary and tertiary disabilities.

Individuals without observable facial deformities appear to be at a greatest risk for psychosocial failure, likely because the behavioural characteristics associated with FASD appear to be intentional behaviour, rather than symptoms of FASD (Clark et al., 2004). Fagerlund and colleagues (2011) similarly found individuals with FASD to be at greater risk for behavioural difficulties later in life if they were visually perceived to be less affected by prenatal alcohol exposure, and if they spent prolonged periods living in residential care. Placement in residential care is common if the previous home has been deemed unsafe for children, or when the child is identified as putting others in the home at risk with their challenging behaviour (Fagerlund et al., 2011). According to Clark et al. (2004), higher rates of developing secondary disabilities were found in those diagnosed with Fetal Alcohol Effects (FAE) compared to Fetal Alcohol Syndrome (FAS). Additionally, higher rates of secondary disabilities were also found in those who had an IQ above 70 and those who received a diagnosis later in life (Streissguth et al., 2004). The higher risk of secondary disabilities found in individuals with FAE compared to FAS likely is the result of those with FAE receiving fewer services than those diagnosed with FAS, as the facial deformities are clear markers leading to a higher rate of diagnosis (Rasmussen et al., 2008).

Individual life factors have an impact on the outcomes of all people, including individuals with FASD. For example, within Clark et al.'s (2004) Canadian sample, 77% of individuals with FASD had experienced physical or sexual abuse, and 87% had been a victim of violence. The high prevalence of abuse identified in researching the life histories of individuals with FASD further highlights the vulnerability individuals with FASD are faced with. In furthering the susceptibility of people with FASD, Clark et al. (2004) found that 92% of individuals with

FASD were rated by their caregiver as being easily manipulated, which has implications for those with FASD in the criminal justice system, as they may be more inclined to provide a false confession or have difficulty understanding the consent process (Moore & Green, 2004).

FASD in the Criminal Justice System

Streissguth and colleagues (2004) cite trouble with the law as being the most common and problematic life outcome of individuals with FASD. It is estimated that approximately 60% of individuals with FASD will have some involvement with the law (Streissguth et al., 2004) during their lifespan, and 50% may experience confinement (Streissguth et al., 1997). Burd and colleagues (2003) state that of the Canadian incarcerated population, .087 per 1000 have FASD. The Yukon Territory reported the rate of FASD in their offender population to be as high as 2.6% per 1000. Popova et al. (2011) identified that between 2008 and 2009, there were between 207 and 423 youth with FASD, and roughly 3,686 adults with FASD in Canada's criminal justice system. In fact, the reported rates of individuals with FASD in the Canadian corrections system appear to be 10 to 40 times greater than the worldwide prevalence rates (Fast, Conry, & Loock, 1999). Morever, Popova and colleagues (2011) state the likelihood of individuals with FASD being incarcerated in Canada is as much as 19 more likely than the general population.

Fast et al. (1999) examined the frequency of FASD within a population of incarcerated youth living in British Columbia, Canada. The study evaluated all youth offenders (i.e., 287 participants) required to have a psychiatric or psychological assessment in a 1-year period. Of the participants assessed, 23.3% of the youth met the criteria for FASD. Of the 23.3% diagnosed with FASD, 1% met the criteria for FAS, and the remainder were diagnosed with ARND. The study by Fast and colleagues (1999) did not include individuals who had faced legal problems,

but did not endure incarceration. Therefore, it is possible that the estimate of individuals with FASD involved in the legal system is higher.

In relation to the correctional system, a large proportion of the research previously presented identified the prevalence of FASD by administering screening tools. Burd and colleagues (2004) identified that only one incarcerated individual out of over 3 million offenders in their study had already been diagnosed with FASD in the United States. In the 2004 study, the previously identified individual had a diagnosis of FAS, indicating a person with the physical characteristics. Burd et al. (2003) conducted a similar Canadian study, and found that of the 148,979 incarcerated offenders only 13 had a prior diagnosis. Similarly, the 13 had a prior diagnosis of FAS. While research on FASD in the criminal justice system is an area of limited research, it would appear that individuals who had FASD were only diagnosed prior to incarceration if they presented with physical characteristics. Therefore, it is possible that many individuals who are currently incarcerated who present with the cognitive and behavioural characteristics, such as the characteristics associated with FASD, may have experienced prenatal exposure to alcohol. Furthermore, Burd and colleagues (2004) suggest it would be far more common to find individuals with FASD in the corrections system than within the general population. Burd and colleagues (2004) recognize that screening practices for FASD in the criminal justice system is an area that is virtually non-existent, and is a region needing immediate improvement.

Burd et al. (2003; 2004; 2010) identify that the criminal justice system typically does not have screening processes in place, and therefore the diagnoses would only be known if the individual suspected of having FASD had previously been assessed. In fact, Burd and colleagues (2003) found that only 23.1% of Canadian corrections systems have access to diagnostic

services. Furthermore, employees in correction systems in Canada have reportedly not been adequately trained to identify and manage individuals with or suspected of having FASD (Burd et al., 2003). Given that FASD can be displayed by behavioural and cognitive features without the facial characteristics suggests that many individuals in the offender population who were prenatally exposed to alcohol may have an "invisible disability". In fact, higher risk of engaging in criminal behaviour has been identified in people with FASD who present without the facial characteristics (Clarke et al., 2004), and in people with FASD who have an IQ greater than 70 (Streissguth et al., 2004).

It is clear the limited systematic screening tools implemented in the criminal justice system leave possible incarcerated individuals with FASD who are not diagnosed at great risk. As described by Fast et al. (1999), when the impairments associated with FASD are not recognized, the needs of the individual with FASD are not considered during sentencing and treatment planning. Due to the learning challenges accompanying the cognitive deficits associated with prenatal alcohol exposure, confined people with FASD require specialized interventions during the course of their incarceration. Without modified treatment programs, the offender with FASD may repeat past crimes or appear to make no progress in treatment programs, and remain incarcerated for extended periods (Burd et al., 2003).

A limited number of studies focus on the types of criminal behaviours engaged in by individuals with FASD. In one study by Streissguth and colleagues (2004), the most frequent incidence relating to involvement with the law was crimes against persons, with as many as 45% of participants with FASD displaying this behaviour at some point in their life. In the 2004 study, crimes against persons included behaviours such as theft (36%), assault (17%), burglary (15%), and domestic violence (15%) . These are the most common behaviours displayed by individuals

with FASD involved in the criminal justice system. Conry and colleagues (1997) similarly found common offenses relating to theft, assault, breach or failure to comply, and vandalism displayed by individuals with FASD involved in the criminal justice system. However, the identified offenders with FASD who do engage in repeat offenses tend to engage in non-violent crimes (Chudley, Kilgour, Cranston, & Edwards, 2007).

Recidivism rates of offending behaviours by individuals with FASD have been identified as a limited area of research (Burd et al., 2003). Research studies have identified that recidivism rates for individuals with FASD may be a result of the neurological deficits associated with FASD (Mela & Luther, 2013). Individuals with FASD may face challenges when enduring the conditions of the correctional system, such as abiding by court orders, managing court dates and scheduled appointments, and abiding parole conditions such as arriving at appointments in a timely fashion. As a result of the prenatal exposure to alcohol, individuals with FASD tend to have difficulty learning from past behaviour, generalizing and retaining information, planning, and reasoning (Mela & Luther, 2013). The deficits associated with FASD have the potential to leave the individual with FASD at great risk of providing false confessions, repeating past offences, and violating the court mandated terms (Mela & Luther, 2013). In cases when prenatal exposure to alcohol has not been identified, behaviours such as providing false confessions, recidivism, and violating court mandated terms would appear as intentional behaviours, rather than behavioural features associated with FASD.

Mela and Luther (2013) similarly report the criminal justice system is in need of a reform in order to serve as a protective measure for individuals with neurocognitive deficits such as people FASD. Naturally, the economic burden of the reformations, including training and time, may be a barrier to restructuring the system (Conry et al., 1997). However, the high estimated

rate of individuals with FASD in the criminal justice system is also cited as being an economic burden. According to Stade and colleagues (2006), the incremental cost of FASD annually to Canada of people between the ages of 1 to 21 years old was estimated to be greater than $344 million, not accounting for productivity losses or incarcerations. Stade et al. (2006) found the financial burden to be even greater for individuals with FASD who exhibit more severe deficits. The limitation of the 2006 study was an exclusion of data relating to the cost of raising an infant to age 1, and the cost of institutionalizations (hospitals, residential programs, and incarcerations). Stade and colleagues (2009) overcame the limitations of the past study, and found that the estimated annual cost rose to nearly $5.3 billion for individuals 0 to 53 years of age.

Furthermore, Popova and colleagues (2012) approximated the financial burden of FAS specifically on the health care system (including acute care, psychiatric care, surgery, and emergency-based services) to be greater than $6 million. Moreover, the economic rates referenced are likely to be underestimated because of speculation of underreported FASD rates in Canada (Popova et al., 2012). When looking directly at the cost of raising a child with FASD, Fuchs and colleagues (2008) reported that the annual cost of families raising a child with FASD is as great as $9.5 million annually, stating it would cost the welfare system roughly $65 a day to care for a child with FASD. Based on the limited research on the financial costs of FASD, it would appear that FASD presents as a significant public health challenge.

Many of the available studies acknowledge the challenges people with FASD and those raising individuals with FASD face, and support further research on cost-effective assessment procedures and treatment for those in the criminal justice system and in the educational system. There appear to be limited studies on identifying the features that could serve as protective factors for individuals with FASD specifically to decrease the likelihood of involvement with the

criminal justice system. Presently in the research, there are few theories that attempt to explain the high occurrence of criminal behaviour displayed by individuals with FASD. One theory that various studies suggest may increase the likelihood of delinquent behaviours is impairment in executive functioning (EF), and deficits in social and adaptive living skills (Fast et al., 1999; Kupersmidt, Colee & Dodge, 1990; McMurtrie, 2011; Schonfeld, Paley, Frankel, & O'Connor, 2006; Streissguth, Aase, Kogan, & Bookstein, 1991).

Executive functioning. EF is associated with the functions of the frontal and prefrontal lobes of the brain, and encompasses a range of abilities, such as organizing, planning, cognitive flexibility including visual-spatial abilities, processing speed, language, and controlling of impulses (Gioia, Isguith, Guy, & Kenworthy, 2000). Brown and colleagues (2012) state social and adaptive functioning is moderated by EF, and therefore deficits in EF have an impact on self-regulation. According to Gioia et al. (2000), EF skills play a role in adaptive and social functioning, and are crucial to successful functioning in schools and in society. Deficits in EF have an impact on an individual's ability to self-regulate their emotions and behaviour, to generalize information from one setting and to apply it to another (i.e., using skills learned in a court-mandated treatment program in future situations), and to adapt socially (Moore & Green, 2004).

There are various instruments developed to measure one's executive functions. In tests of executive functions, it is typically required of test-takers to have periods of sustained attention, use of visual memory, language and verbal fluency, cognitive flexibility, planning, visual scanning ability, and logic. As previously stated, individuals with FASD typically have deficits associated with attention, memory, language, cognitive flexibility, and planning. Professionals assessing for executive functions may use thorough measures such as the Wisconsin Card

Sorting Test (WCST; Milner, 1963). The WCST is a test that evaluates individuals on their ability to plan, use abstract thinking, and inhibit responses. The WCST requires participants to match cards, and correctly identify the way in which cards are being sorted. The Wechsler Adult Intelligence Scale (WAIS-4; Wechsler, 2008) also includes a subtest of working memory and executive functioning. However, many of the previously mentioned tests of executive functions were developed to be used in adult populations, and have had to be adapted to be used with youth populations (Gioia et al., 2002).

To address concerns of having an evaluative tool of executive function geared specifically with children in mind, the Behavior Rating Inventory of Executive Function (BRIEF, Gioia et al., 2000) was developed. The BRIEF includes skills that are part of children's every day executive functioning, and can be administered by parents or teachers, and therefore the results are not produced in a laboratory setting (Gioia et al., 2000). The BRIEF is cited to provide insight into the daily functioning of children and adolescents, specifically evaluating behavioural, social, and emotional factors relating to executive functioning (Gioia et al., 2000). The tool includes 86 items that measure factors relating to self-regulation of emotions and behaviours, initiation, working memory, organization, planning, and monitoring. Specific skills being measured include (1) inhibition: being able to resist impulses, and considering consequences before acting; (2) shifting: making transitions, tolerating change, flexibility, and switching from one task to another without difficulty; (3) emotional control: expression and self-regulation of emotions at an age-appropriate level; (4) initiation: starting a task without prompts, generation of ideas, and problem-solving strategies at an age-appropriate level; (5) working memory: capacity to hold information in mind to complete a task at hand, storing and retrieving important information, and generating/achieving goals; (6) planning and organization: time

management, finding necessary materials, and remaining orderly; and (7) monitoring: awareness of own performance, monitoring and achieving goals, and understanding how one's own behaviour has an impact on others.

As indicated in past research, people with FASD are commonly cited as having deficits in working memory, emotion regulation, cognition, planning, verbal reasoning, behavioural inhibition/impulsivity, mental set shifting, and verbal fluency (Connor et al., 2000; Edwards & Greenspan, 2011; Rasmussen, 2005; Rasmussen et al. 2008; Schonfeld et al., 2006). Some research studies have focused on finding strengths and weaknesses of people with FASD in regard to executive function, and how the impairment of executive function compares to other diagnostic groups in order to understand the level of impairment in this population (Connor et al., 2000; Kodituwakku et al., 1995; Rasmussen et al., 2008). Rasmussen et al. (2008) conducted a study on children and adolescents and executive functioning. The researchers identified that many of their adolescent participants with FASD had profound weaknesses in relation to inhibition, working memory, and initiate, yet had strengths in organization of materials when being measured by the BRIEF. In the 2008 study, females with FASD had the greatest difficulty when compared to males on the Inhibit Scale. When comparing younger children with FASD to older children with FASD, older children showed more difficulty on all scales of the BRIEF, with a significant difference on scales measuring independent initiation of ideas or tasks, and ability to retain or encode information using working memory. The 2008 study was designed in order to understand executive functioning across development of individuals with FASD. However, the participants of the study were not followed longitudinally, and therefore the changes in executive functioning comparison across ages must be interpreted with caution. The researchers did not identify when the adolescents received the diagnosis of FASD, and therefore

the children in the study may have been diagnosed earlier in the lifespan in comparison to the adolescents. The age at which one receives a diagnosis has been identified as having a large impact on the secondary effects of an individual with FASD. Longitudinal research on executive functioning would be needed to draw significant conclusions regarding increased measure of executive functioning impairment throughout the lifespan.

When comparing the impairment of executive functions to a normative mean and to other diagnostic groups (e.g., Autism Spectrum Disorder, Attention Deficit Hyperactivity Disorder or "ADHD", and those with frontal focal lesions), Rasmussen and colleagues (2008) found that adolescents with FASD had significantly more severe impairments in executive functions on almost all scales of the BRIEF (Anderson, Anderson, Northam, Jacobs, & Mikiewicz, 2002; Gioia, Isquith, Kenworthy, & Barton, 2002). In a study by Kodituwakku et al. (1995), individuals diagnosed with FAS and FAE were administered the WCST, and the results were compared to the general population. Regardless of a diagnosis of FAS or FAE, the participants performed significantly poorer than the control participants. A similar study using the WCST revealed that participants diagnosed with FAS or FAE completed significantly fewer categories when compared to children with ADHD and controls (Coles, et al., 1997). Furthermore, Kodituwakku and colleagues (2001) identified that measures of EF could accurately predict behavioural problems in children with FASD, as compared to children who were not prenatally exposed to alcohol. When measuring executive functioning, people with FASD responded most similarly (but with less severity) to individuals with frontal lobe lesions (Connor et al., 2000; Rasmussen et al., 2008). Frontal lobe injuries and FASD symptoms would appear to share similarities, such as inflexible thinking, inability to plan or organize information, and poor impulse control, such as the inability to inhibit behaviour (Connor et al., 2000).

Impairments in executive functioning, such as those found in individuals with FASD, imply deficits in skills such as considering consequences, learning lessons from previous mistakes, accurately perceiving and processing environmental information, choosing appropriate options while simultaneously weighing out the potential outcomes, and controlling behavioural impulses (Brown, Wartnik, Connor, & Alder, 2010). Executive functioning plays a central role in the process required for making intentional decisions, such as engaging in a criminal act (Brown, et al., 2010). As identified by Brown and colleagues (2010), individuals with FASD have the capacity to plan simple tasks, such as planning offense behaviour, but state the plan is often developed with a narrow goal in mind, and neglects previously learned experiences or consequences. Overall, Brown et al. (2010) suggest the plans developed by individuals with FASD will likely not consider the impact of the behaviour on themselves or others. The research by Brown and colleagues (2010) identify characteristics that clearly place individuals with FASD at an unethical disadvantage in the criminal justice system, such as being easily-persuaded, a higher risk at waiving rights, and misunderstandings of legal system terminologies (Brown et al., 2010).

Adaptive functioning. While executive function likely has a large impact on the development of peer relationships with individuals with FASD, adaptive functioning is cited as being the most devastating deficit associated with FASD (Conry & Fast, 2000). Adaptive functioning is defined as the ability to meet social and community expectations in establishing independence, maintaining personal and physical needs, conforming to societal norms, and sustaining meaningful interpersonal relationships (Scales of Independent Behaviour-Revised; Bruininks, Woodcock, Weatherman, & Hill, 1996). Adaptive functioning can be measured by how well an individual functions when responding to common demands and how independent

they are in comparison to individuals of similar age and background. Professionals may evaluate one's adaptive functioning with the Scales of Independent Behaviour - Revised (SIB-R; Bruininks et al., 1996) and the Vineland Adaptive Behaviour Scales—II (VABS-II; Sparrow, Domenic, & Balla, 2005). The SIB-R and VABS-II are both comprehensive norm-referenced rating scales used to assess one's adaptive living skills. The SIB-R measures gross and fine motor skills, social interaction skills, communication (expressive and receptive language abilities), personal living skills (eating and preparation of meals, hygiene, independent dressing and domestic skills), and community living skills (being punctual, telling time, money management, work and employment skills, as well as being oriented to the home and community). The domains measured on the VABS-II include communication (receptive and expressive spoken and written language skills), daily living skills (personal, domestic, and community), socialization (interpersonal relationships, play, and coping skills), motor skills (gross and fine motor), and optionally, maladaptive behaviour (Sparrow, Cichetti, & Balla, 2005).

Adaptive behaviour deficits commonly reported by individuals with FASD include impaired social behaviour and reading social cues. When investigating the adaptive functioning and social functioning of adolescents and adults with FASD, Jirikowic, Kartin, and Olsen (2008) found children with FASD rated significantly lower than peers of similar age on SIB-R scales relating to social interaction and communication, personal-living skills, community-living skills, and maladaptive behaviour scales. Streissguth et al. (2004) found similar results, as individuals with FAS and FAE had significantly lower adaptive behaviour than similarly aged peers without FASD as measured by the VABS-II. Streissguth et al. (2004) found the greatest deficits in people with FAS and FAE in their study were in communication, daily living skills, socialization, and

maladaptive behaviours. When comparing adolescents to children with FASD, Streissguth et al. (1997) found that the adaptive functioning skills of their sample of participants with FASD (with a mean age of 17-years-old) were comparable to the adaptive skills of a 7-year-old. However, the studies previously mentioned that draw conclusions about adaptive living across the lifespan of individuals with FASD are not longitudinal studies, and therefore caution is needed when making such interpretations. Longitudinal studies of adaptive living of individuals with FASD across the lifespan, similarly to executive functioning, are an area where future research could focus.

Social skills. The available literature provides substantial support that individuals with FASD are more likely than the general population to have poor capacity to successfully communicate and function in social situations (Edward & Greenspan, 2011; Streissguth, 1997; Streissguth et al., 2004). Some of the common behaviours and poor social skills displayed by children with FASD included pestering, interrupting, refusing to take turns, acting defiantly, and pouting (Jirikowic et al., 2008). Similarly, Streissguth (1997) found children with FASD had problem reading social cues, understanding indiscriminate social behaviour, and had difficulty communicating with peers in social context. When controlling for differences in cognitive functioning, Whaley, O'Connor and Gunderson (2001) still found more significant deficits in social functioning when compared to children unexposed to alcohol during prenatal development. Studies of adolescents and adults prenatally exposed to alcohol have revealed that social deficits continue throughout the lifespan, and suggest the social abilities of people with FASD may plateau during adolescence (Carmichael-Olsen, Feldman, Streissguth, & Bookstein, 1998; Streissguth et al., 2004).

According to Paley and colleagues (2006), acceptance from peers promotes the development of social competence. Poor social skills are cited as placing children with or without FASD at risk of rejection (Kupersmidt, Cole, & Dodge, 1990), developing negative reputations amongst peers (Frankel & Feinberg, 2002), putting individuals at risk for internalizing behaviours such as depression later in life (O'Connor & Paley, 2006), but also for delinquency later in life (Kupersmidt et al., 1990). Children with social skill deficits, like many children with FASD, are more likely to be rejected by their well-adjusted peers, and therefore left to socialize with maladaptive or delinquent individuals. Many caregivers of people with FASD state their child is often "taken advantage of" by peers, having no "true friends", or as having negative peer relationships (Radford-Paz, Watson, Larivière, & Robinson, 2014; Sanders & Buck, 2010). The acceptance that comes from maladaptive or delinquent individuals has the potential to increase the rejected child's likelihood of getting involved with gangs, falling into "the wrong crowds", engaging in delinquent behaviour, and evidently becoming involved with the criminal justice system (Fast et al., 1999; McMurtrie, 2011; Sanders & Buck, 2010).

As cited in the literature, one of the most problematic delinquent behaviours displayed by individuals with FASD is inappropriate sexual behaviour (Clark et al., 2004; Edwards & Greenspan, 2011; Streissguth et al., 2008). Streissguth and colleagues (2008) identified that 39% of children, 48% of adolescents, and 52% of adults with FASD had engaged in inappropriate sexual behaviour, such as sexual advances against inappropriate or unwilling participants, and prostitution. Inappropriate sexual behaviour is cited as being significantly problematic, as it not only has an impact on the person with FASD, but also has an impact on the general population. As shown in the 2008 study, it would appear inappropriate sexual behaviours increase as people with FASD age. Clark et al. (2004) suggest inappropriate sexual behaviours are a direct result of

impairments in executive functioning, inability to understand societal rules, and social skill deficits.

Inappropriate Sexual Behaviour

Sexuality is an integral part of being human, a precious aspect of life, and a fundamental right. Knowing the importance of sexuality in a person's life, sexual health programs have been circulating since the 1960's, with improvements being incorporated as new discoveries are made. The Sex Information and Education Council of Canada (SIECANN) was founded in 1964 to ensure that all Canadians have access to sexual health information and education. By the current standards of SIECANN, an effective sexual education program involves a combination of educational experiences that allow individuals to develop an understanding of sexuality that is relevant to their specific health needs and concerns; the confidence, motivation and personal insight needed to act on that knowledge; the skills necessary to enhance sexual health and to avoid negative sexual health outcomes such as sexual abuse, sexual exploitation, unplanned pregnancy, STIs, HIV, and AIDS; and finally, a safe, secure and inviting environment that promotes optimal sexual health. An early introduction to sexual matters, as well as sexual abuse prevention allows for children to be aware and knowledgeable about the changes that will occur within their bodies, preparing them for the changes that come with puberty for their own safety, as well as safety for the general public (SIECCAN, 2011).

According to the Diagnostic and Statistical Manual of Mental Disorders-5 (American Psychiatric Association; APA, 2013), inappropriate sexual behaviour displayed by the general population is met with a diagnostic label of having a paraphilic disorder, which translates to love of the unusual, and encompasses a range of behaviours. As described in the Diagnostic and Statistical Manual of Mental Disorders-5 (APA, 2013), paraphilic disorders include voyeuristic

disorder, exhibitionistic disorder, frotteuristic disorder, sexual masochism, sexual sadism disorder, pedophilic disorder, fetishistic disorder, and transvestic disorder. Voyeuristic disorder involves spying on people engaging in private activities, exhibitionistic disorder involves exposing oneself to unwilling audiences, and frotteuristic disorder involves the act of touching or rubbing one's body against an unwilling participant. Additionally, sexual masochism disorder involves undergoing humiliation, bondage or suffering in sexual acts, while sexual sadism disorder involves inflicting humiliation, bondage or suffering on someone else in sexual acts. Pedophilic disorders relate to sexual arousal and focus on children; fetishistic disorders involve using non-living objects or being aroused by non-genital body parts, and transvestic disorder involves engaging in cross-dressings that are sexually arousing (APA, 2013). In order to receive a diagnosis of a paraphilic disorder, the behaviours related to the paraphilia must occur over a period of at least 6 months (APA, 2013).

Within the past 20 years, many studies have been conducted in order to better understand how to prevent sexual crimes and how to manage those who sexually offend. In the early years of sexual offending research, the studies focused almost exclusively on male adult offenders. A large majority of the sexual offender population is made up of males who offend against females, or against boys or girls (Steffensmeier, Zhong, Ackerman, Schwartz, & Agha, 2006). Burton (2000) found that some adolescent sex offenders engaged in coercive sexual behaviour even in childhood. Adolescent offenders are now being recognized more in studies, offering a better understanding of the onset of sexual offensive behaviours. Nonetheless, many studies have developed theoretical explanations of sexual offending.

Davis and Leitenberg (1987) suggest factors such as poor social skills, anger toward woman, fear of rejection from women, low self-esteem, perceived personal inadequacy, sexual

abuse, experiencing violence, and atypical sexual interests may be related to sexual offensive behaviour. This theory combined different types of sexual offenders, and drew conclusions on their sexual offender samples without comparing the results to a non-sexual offender group; therefore, the validity and reliability of the results are questionable. Marshall and Barbaree (1990) suggest that those who engage in sexually offensive behaviour will share similarities relating to childhood abuse or neglect, inability to regulate one's emotion and behaviour, deficits in social skills, and holding sexually arousing fantasies of children or forced sex. This theory includes a developmental perspective on sexual offending; stating that childhood experience somehow had an impact on adolescent development. However, the theory cannot explain why an individual may engage in fantasies of engaging in sex with children or forced sexual intercourse.

More recently, Ward and Beech (2005) proposed an integrative theory of sexual offending that included concepts from biology, psychology, and neuroscience. For example, the researchers state that genetic predispositions, a history of sexual or physical abuse, lacking empathy, cognitive distortions, emotional difficulties, social skill deficits, and atypical sexual interests arise from an interaction of neuropsychological deficits in combination with environmental factors. The theory suggests that an individual who has emotional difficulties, such as the inability to regulate emotions, who also has deficits in executive function may impulsively engage in sexually offensive behaviour to cope with negative emotional states. Moreover, social skill deficits could stem from problems with attachment throughout childhood; paraphilic sexual interests or disproportionate sexual drives or preoccupation could be seen as the result of a combination of attachment problems, and an inability to regulate one's mood in a positive way.

Sexually offensive behaviour is clearly a complex issue, as there still lacks empirical evidence that answers the most basic question: why do some adolescents engage in sexual crimes while others do not? Over time, some researchers have developed what they believe to be a "profile" of characteristics associated with adolescents who engaged in inappropriate sexual behaviour. For example, when compared to adolescents who do not engage in inappropriate sexual behaviour, adolescents convicted of sexual crimes self-reported more conduct problems such as rule breaking behaviours, fighting, disruptive school behaviour, being expelled from school, and truancy (Snyder & Sickmund, 2006). However, when administering the Minnesota Multiphasic Personality Inventory (MMPI; Hathaway & McKinley, 1989) to a similar population, adolescent sex offenders did not differ from adolescent non-sex offenders in regard to antisocial tendencies or psychopathic deviate scores (Seto & Lalumiere, 2010). In the 2010 study, researchers could not support the theory of adolescent sexual offenders holding antisocial attitudes and beliefs about women or sex in general, as adolescent sex offenders and adolescent non-sex offenders did not differ when measured using the Buss Durkee Hostility Inventory (Buss & Durkee, 1957) or the Hare Psychopathy Checklist-Revised (PCL-R; Hare, 2003).

Seto and Lalumiere (2010) compared thirty-four studies that discussed childhood abuse and exposure to violence in adolescent sexual offenders in comparison to adolescent non-sexual offenders. Each of these studies employed either self-report or other source of data collection. All but two of the 31 studies presented a frequent history of sexual abuse in adolescent sexual offenders (46%). However, significant differences between sexual offender and non-sexual offender groups were not found to be experiencing non-sexual violence, poor family relationships, and social skill deficits. The largest group differences related to having atypical

sexual interests, sexual abuse history, having a criminal history, having delinquent peers, and having substance abuse problems (Seto & Lalumiere, 2010).

A great deal of research presented compares individuals who have engaged in inappropriate sexual behaviour to individuals who have not. The studies comparing offenders to non-offenders hope to provide an understanding of what features best predict sexual offending behaviour. However, studies that compare sexual offenders to non-sexual offenders fail to identify that sexual offending is a complex issue in itself. For example, the characteristics of an individual who offends against children vary drastically from individuals who offend against adults. Helmus and colleagues (2013) indicate "cognitive distortions", such as justifications and perceptions that rationalize sexual offending behaviour significantly predicted the rate of recidivism, more commonly in individuals who victimize children rather than those who offend against adults. Mann, Webster, Wakeling and Marshall (2007) also identified a strong correlation between belief tolerance and offending against children.

When comparing the attitudes of individuals who offend against adults and those who offend against children, Maio and Haddock (2010) identified that supportive attitudes of sexual offending significantly predicted inappropriate sexual behaviour recidivism. According to Maoi and Haddock (2010), the attitudes best predict recidivism when the attitude and behaviour related closely, when the behaviour is straight forward, when the attitude is strongly believed, especially in individuals who enjoy effortful cognitive activity, and when the behaviour is private. The comparison of individuals who had engaged in inappropriate sexual behaviour against children and adults was significant; however, the significance was quite small. The authors suggest that the significance was small because individuals who engage in inappropriate sexual behaviour against children and those who engage in the behaviour against adults are very different;

therefore, a better understanding of the two types of offenders is needed in order to make fair comparisons.

Nonetheless, Marshall, Marshall and Kingston (2011) state "cognitive distortions" or justification for behaviour is a normal, healthy, and common practice. Behaviour justification in general relieves the individual of personal responsibility for the behaviour, and therefore supports the behaviour. In the study by Maio and colleagues (2013), the rate at which rapists believed that victims deserved the crime predicted the incidence of recidivism. In contrast, the reported belief of individuals who offend against children was a "shared" responsibility of the behaviour between the offender and child (e.g., the child was flirting or welcomed the behaviour). The "attitude" fuelling the behaviour for individuals who engage in inappropriate sexual behaviour against children is vastly different from those who offend against adults. Obviously, sexual offending behaviour is a complex issue. In order to better understand the characteristics of individuals who engage in inappropriate sexual behaviour in the general population, the range of inappropriate sexual behaviours must be independently understood.

Moreover, Harris and colleagues (2010) state that individuals who have histories of sexual offending behaviour, like many individuals with and without FASD, also experience mental health difficulties. According to Harris and colleagues, the importance of investigating and understanding mental health histories in individuals who have engaged in inappropriate sexual behaviour has been recognized by policy makers, practitioners, and researchers alike. However, little is known about sexual offending behaviour of individuals with mental health diagnoses (Harris et al., 2010). The dual-diagnoses prevalent in the sexual offender population are cited to make attainting treatment, housing, employment, and rehabilitative resources difficult. According to Harris et al. (2010), the risk of recidivism of past inappropriate sexual

behaviour increases in those who lack stable housing, employment opportunities, and access to social resources. It is clear the policies that mandate the treatment of individuals who have engaged in inappropriate sexual behaviour are an area of research that not only has an impact on the offender, but the community as a whole. Additionally, future studies would benefit from identifying the risk and protective factors related to sexual offending by looking at females and males separately in order to understand the female population more thoroughly.

Among female offenders, one of the most common behaviours associated with incarceration involves street-level sex work. Moreover, the treatment of individuals involved in sex work is an area of growing interest. Overall, adults who engage in prostitution are still considered to be committing an illegal act (Halter, 2010), even when the behaviour is consensual between both parties. Halter (2010) explored six criminal justice agencies in the United States to determine if youths are treated in the same manner as adults when engaging in inappropriate sexual behaviour such as prostitution. In the research study, youth who were involved with prostitution were commonly viewed as either victims of exploitation or as delinquents (Halter, 2010). Whether a youth who has engaged in prostitution is seen as a delinquent or a victim of exploitation depends upon: (1) prior offenses, (2) level of cooperation during investigation, and (3) the way in which the individual was brought to the attention of authorities. For example, if a youth was identified externally as being a victim of exploitation through sex work and the police were called to intervene, the youth would be seen as a victim; if the youth was caught engaging in inappropriate behaviours in exchange for things such as money or drugs, the youth was seen as a delinquent (Halter, 2010). However, there may be additional factors that determine the outcome of youth involved with police regarding prostitution in Halter's (2010) study, as the author cited limitations in the research design. For example, treatment of youths undergoing

investigation may have influenced the youth's cooperation; therefore, cooperation may not be a good predictor of whether a youth is viewed as delinquent or as a victim. Furthermore, other factors such as gender, race, or age were not included in the research design or during data analysis, and therefore it is unknown whether the factors influenced the treatment of the youth examined in the research study.

Previous research has had some success in determining the common risk factors associated with entry into street-level prostitution, including experiencing childhood abuse, history of running away, juvenile crimes, school difficulties (Wilson & Widom, 2010), living on the streets, experiencing physical or sexual violence, early drug use, early exposure to sexual experiences (Tyler, Hoyt & Whitbeck, 2000; Wilson & Widom, 2010), and childhood neglect (Van Brunschot & Brannigan, 2002). Ecodevelopmental theorists suggest entry into prostitution results as a combination of developmental, situational, and resource-related factors (Dalla, 2000).

Wilson and Widom (2010) compared a sample of children who were reportedly abused and neglected during childhood between 1967-1971 to a control group of children without reports of abuse or neglect during childhood. The children were compared on life experiences throughout adulthood. The samples were matched on age, gender, sex, race/ethnicity, and socioeconomic status during the reported time frames of abuse or neglect. The researchers determined individuals who had exposure to abuse and neglect were at greater risk for early exposure to sexual experiences (both consensual and abusive experiences), incidences of running away, juvenile crimes, and school difficulties (such as truancy) when compared to children who were not reportedly abused or neglected during their childhood. Specifically to entry into prostitution, experiencing early exposure to sexual behaviour was the strongest mediating factor. Dunlap, Golub and Johnson (2003) state early sexual contact may lead individuals to perceive

sexual activity as a means for securing affection, money, drugs, or other material objects. The study included the comparison of both males and females involved with prostitution; however, the results were generalized without using gender as a qualitative measure of determining entry into prostitution.

The presented research studies lend to knowledge on the possible longitudinal effects of childhood abuse and neglect. Furthermore, research on determining factors related to entry into prostitution allow for a better understanding of not only how to treat individuals who engage in prostitution (e.g., the criminal justice system), but also how to increase early interventions for youth who are at risk. Further research is needed to determine the success of interventions programs provided during early childhood and teenage years. Moreover, the topic of sex work is also controversial; it is possible some adults choose to engage in the behaviour as a means of employment without problematic childhood experiences. Further research investigating the life histories of individuals who willingly choose sex work is needed in order to provide a holistic view of the lives of those who engage in behaviour such as prostitution.

Disabilities and inappropriate sexual behaviour. There have been a limited amount of studies investigating the prevalence of individuals with intellectual disabilities (ID) and developmental disabilities (DD) who have displayed inappropriate sexual behaviour, also described in the literature as "challenging" sexual behaviour (Fedoroff & Richards, 2012; Griffiths, 2007; Griffiths et al., 2013; Hingsburger et al., 1991; Lunsky, Frijters, Griffiths, Watson, & Williston, 2007; Murphy, Coleman, & Haynes, 1983; Santamour & West, 1978). Researchers hypothesize that individuals with DD in the sexual offender population are over represented (Langevin, 1992; Murphy et al., 1983; Santamour & West, 1978) and may engage in inappropriate sexual behaviour due to low sexual knowledge (Fedoroff & Richards, 2012;

Lunsky et al., 2007), and because of counterfeit deviance rather than sexual deviance (Fedoroff & Richards, 2012; Griffiths, 2007; Hinsburger et al., 1991; Griffiths et al., 2013; Lunsky et al., 2007).

The Counterfeit Deviance (CD) Hypothesis was developed by Hingsburger and colleagues in 1991 to account for inappropriate sexual behaviour displayed by men with intellectual disability. The sexual misbehaviour of individuals with disabilities was hypothesized to be a product of experiential, environmental, or medical factors. The CD hypothesis was re-evaluated by Griffiths et al. (2013) and therefore this author will outline the re-evaluated CD hypothesis model. Griffiths and colleagues (2013) report that some individuals with disabilities meet the diagnostic label of paraphilia as described by the DSM-5 (APA, 2013). However, the researchers suggest in some cases, inappropriate sexual behaviour that appears to be paraphillic, can actually be explained by differential hypotheses, also known as the CD hypothesis. The CD hypothesis suggests that inappropriate sexual behaviour can be explained by 11 hypotheses, each resulting from experiential, environmental, or medical factors.

The first hypothesis outlined by Griffiths and colleagues (2013) is the structural hypothesis. In understanding the experiential life of an individual with disabilities, it must be acknowledged that some individuals with disabilities have lived or currently live in environments where their sexuality and sexual expression have been restricted. The sexual behaviour of individuals with disabilities who have experienced these environments could be the result of not knowing appropriate places or ways to engage in sexual expression without being sanctioned.

Similarly, the second hypothesis is the modelling hypothesis, which relates to the experimental life of individuals with disabilities who have lived or currently live in environments that did not model appropriate behaviours, such as a lack of privacy in general, or when

providing personal care. The caregivers of people with disabilities may model "helping" behaviours, which can potentially send inaccurate messages about appropriateness of behaviours (Hingsburger et al., 1991). Additionally, individuals with disabilities have historical experiences of sexual abuse, lack of sexual learning, and lack of appropriate sexual expression; therefore, it is possible that some inappropriate sexual behaviour are learned (Hingsburger et al., 1991). The behavioural hypothesis highlights that many individuals have learned to use inappropriate sexual behaviour as a means to escape an undesirable condition, or to foster attention.

Moreover, the partner selection hypothesis could explain inappropriate sexual behaviour being displayed by people with disabilities, as people with disabilities live in a "peer-void" (Griffiths et al., 2013). Individuals with disabilities are often neglected the opportunities to develop meaningful relationships, leading to poor understanding of social skills and relationship dynamic. The lack of opportunities to engage socially or to experience relationships has the potential to leave many individuals with disabilities in situations where they may attempt to develop relationships with inappropriate people, such as care-providers, or children. Hingsburger and colleagues (1991) identify that even in cases where inappropriate sexual behaviour was displayed against children, phallometric tests have been administered revealing "normal" results, indicating behaviour that appeared to be driven by "preference", but was more likely due to inappropriate partner selection. Moreover, the partner selection hypothesis has the potential to develop into the inappropriate courtship hypothesis, in which prolonged opportunities and education regarding courtship can potentially lead to a lack of courtship skills. The person with disabilities who lacks an understanding of mechanisms of courtship may attempt to achieve courtship by aggressive means.

Historically, individuals with disabilities have not been given opportunities to learn sexual knowledge through sexual education programs. Griffiths and colleagues highlight that inappropriate sexual behaviour has the potential to stem from the sexual knowledge hypothesis. Without adequate sexual education, people with disabilities may not understand the sexual urges and impulses that occur in their bodies. Similarly, the perpetual arousal hypothesis lends to the possibility of an individual with disabilities enduring a chronic state of sexual arousal, and therefore engages in behaviour, such as repeated masturbation in order to achieve relief. Griffiths and colleagues (2013) acknowledged that a state of perpetual arousal can be attributed to medication side effects, lack of body stimulation, lack of privacy, historical punishment, and a lack of physical ability. In some cases, individuals with disabilities may be unaware or unable to report a medical condition, such as a bladder infection, and may engage in behaviour that appears to be problematic sexual behaviour, such as public touching of genitals. Additionally, some medications provided to individuals with disabilities may lead to side effects such as sexual dysfunction or increased impulsivity (Hingsburger et al., 1991; Lunsky et al., 2007). Griffiths and colleagues (2013) cite that another possible explanation for inappropriate sexual behaviour by people with disabilities could be explained by the learning history hypothesis. As previously stated, many individuals with disabilities have experienced both sexual abuse and a lack of positive messages regarding sexual behaviour.

In the literature, earlier tests of counterfeit deviance did not adequately support poor sexual knowledge as being an explanation for inappropriate sexual behaviour. For example, Talbot and Landon (2006) and Michie, Lindsay, Martin and Grieve (2006) both compared the level of sexual knowledge held by those with a DD that have and have not been convicted of inappropriate sexual behaviour. Neither found significant difference in sexual knowledge

between sexual offenders with a DD to those with a DD that had not displayed inappropriate sexual behaviour. However, Lunsky and colleagues (2007) compared individuals with disabilities that had engaged in persistent inappropriate sexual behaviour to people with DD who were considered to be "naïve" as opposed to deviant. In this study, people with disabilities that had engaged in persistent inappropriate sexual behaviour had higher levels of sexual knowledge than the "naïve" participants, and therefore supported that the counterfeit deviance hypothesis may appropriately explain the behaviours of "naïve" individuals with DD who had engaged in inappropriate sexual behaviour. Furthermore, Lunsky et al. (2007) propose that there are two types of "sexual offenders" with DD: Type I being individuals with DD who have paraphilias and are sexually deviant, and Type II being individuals with a DD who offend because they are sexually naïve.

Griffiths et al. (2013) state low sexual knowledge may not be a definitive path to sexual offending behaviour, but it is an important area to explore when considering treatment for individuals who have been found to be engaging in inappropriate sexual behaviour. There have been few attempts to develop a model of inappropriate sexual behaviour displayed by individuals with disabilities, specifically what makes "offenders" with disabilities different from offenders without disabilities. Brown and Stein (1997) found that men with disabilities were more likely to engage in inappropriate sexual behaviour against male victims, and the behaviours were more likely to be related to inappropriate touching or masturbation. Lindsay (2002) found individuals with disabilities were less likely to discriminate in "type" of victim, suggesting a lack of "preference". For example, the participants of the 2002 study did not discriminate towards the age or gender of the victim. However, the level of force exerted upon the victims by individuals with disabilities was similar to that of the general population of people who engaged in

inappropriate sexual behaviour (Lindsey, 2002). Moreover, researchers state that based on the number of people known to engage in challenging sexual behaviour, individuals with a DD are more likely to get caught conducting the inappropriate behaviour, and are more likely to confess (Murphy et al., 1983; Santamour & West, 1978).

Additionally, some studies have looked at the personality traits of individuals with a DD that engage in inappropriate sexual behaviour and found that individuals with rigid, maladaptive personality traits are at a greater risk for sexually re-offending (Morrissey, Mooney, Hogue, Lindsay, & Taylor, 2007; Parry & Lindsay, 2003). The personality trait that most significantly predicted violent behaviours in sexual offenders with DD was impulsivity (Morrissey et al., 2007; Parry & Lindsay, 2003). Parry and Lindsay (2003) found, however, that individuals with a DD who engage in inappropriate sexual behaviour scored significantly lower on traits of impulsivity when compared to non-offenders with DD. Further research is needed to establish whether there are risk factors that correlate with sexual recidivism in individuals with a DD that engage in inappropriate sexual behaviour.

FASD and inappropriate sexual behaviour. As previously stated, inappropriate sexual behaviour is one of the most common adverse life outcomes across the lifespan of individuals with FASD (Streissguth et al., 2008). The types of inappropriate sexual behaviours displayed by individuals with FASD described in research appear to vary from traditional behaviours reported by the general population of people convicted of sexual crimes. Streissguth and colleagues (2004) identified that women and men with FASD were equally distributed in their research sample, while men were more likely to engage in behaviours against persons. LaDue and colleagues (1992) described that men were more likely to be reported for inappropriate sexual behaviour than females.

The most commonly cited inappropriate sexual behaviour displayed by individuals with FASD is promiscuity (Edwards & Greenspan, 2011; Streissguth et al., 2004); Streissguth and colleagues identified that promiscuity is more likely to be displayed by females compared to men. In the 2004 study, 26% of individuals in the study displayed promiscuous behaviours, while unwelcome and inappropriate sexual behaviours were displayed in 18% of participants. Other prevalent sexual behaviours found included inappropriate sexual touching, public masturbation, voyeurism, incest behaviour, obscene phone calls, bestiality, and attempting to engage in sexual behaviour with an inappropriate participant such as someone unwilling, or a youth (Streissguth et al., 2004).

FASD and identified risk factors for criminal behaviour. Few studies theorize inappropriate sexual behaviour being displayed by individuals with FASD. Lutke (2004) suggests inappropriate sexual behaviour is a direct result of impairments in executive functioning, and social skill deficits. Conry and colleagues (1997) attributed the inappropriate sexual behaviour as poor understanding of personal boundaries. Most studies that acknowledge the occurrence of inappropriate sexual behaviour being displayed by individuals with FASD attribute the behaviours to be the result of adverse life experiences (Bracken, 2008; Chudley et al., 2005; Streissguth et al., 2008). Further research studies that investigate the life histories of individuals with FASD who have engaged in inappropriate sexual behaviour are needed in order to draw further conclusions.

The limited research studies conducted on individuals with FASD in the criminal justice system have presented a number of adverse life experiences that could influence the likelihood of engaging in criminal behaviours. For example, individuals with FASD, similarly to people with disabilities, are cited to experience situations of long-term dependent living and potentially life-

long supervision and support. Therefore, it is likely that individuals with FASD may be faced with similar factors that could contribute to counterfeit deviance, such as modeled "helping" behaviour, vulnerability to sexual abuse and manipulation, lack of sexual knowledge learning opportunities as caregivers assume they may not understand, lack of privacy and appropriate opportunities to express sexuality, and medication side effects resulting from comorbid disorders (Clark et al., 2004; Streissguth et al., 2008).

Furthermore, experiencing violence is cited as being a risk factor associated with developing secondary and tertiary disabilities. For example, Fast and colleagues (1999) described 73.1% of adolescents with FASD as experiencing some kind of abuse in their lifetimes, and 77% experiencing violence or sexual abuse in their lifetime. Of females with FASD who had engaged in inappropriate sexual behaviours, 94% had experience sexual abuse, physical abuse, or violence against themselves throughout their lifetime (Streissguth et al., 2004). Experiencing some form of abuse was a life experience shared by people with DD who engaged in inappropriate sexual behaviour; it was also cited as being one possible factor associated with sexual offending in the general population. Researchers also suggest that factors such as higher life stress, higher drug use, and experiencing or witnessing violence such as physical assault, sexual assault, domestic violence also significantly correlated with a greater range of delinquent behaviour (Fast & Conry, 2009; Streissguth et al., 2004). In a U.S. study, almost all 57 participants had reported street drug use, and alcohol problems (Streissguth et al., 2004). Moreover, family dysfunction was also found to be a common factor in the lives of individuals with FASD, as 22% of adolescents' mothers had a criminal history, and 48% of adolescents' fathers had a history of criminal behaviour (Clark et al., 2004).

Attachment theories of sexual offending may present similarly in people with FASD who display inappropriate sexual behaviour. Of the adolescent participants in a Canadian study, none of the youth with FASD were living with both parents, and most lived in some form of foster or group home (Fast & Conry, 2009; Fast et al., 1999). Living with a caregiver appears to be a key aspect for positive life outcomes for individuals with FASD (Clark et al., 2004). In fact, lower parental supervision has been shown to be significantly associated with a greater range of delinquent behaviour (Clark et al., 2004; Fast & Conry, 2009). Clark et al. (2004) found that the variable of living with a caregiver was significantly associated with not getting into trouble with the law.

There would appear to be similarities between characteristics of adolescent sexual offenders and what is known about individuals with FASD in the criminal justice system. It has been previously stated that sexual offenders are heterogeneous, often sharing similar characteristics and family histories (Righthand & Welch, 2004). As outlined previously, sexual offenders are complex, and viewing the behaviour as heterogeneous does little in promoting a better understanding of the behaviour. Like the general population of individuals who have engaged in inappropriate sexual behaviour, the multitude of differing biopsychosocial factors that an individual with FASD experiences in comparison to someone without FASD, it would be not be appropriate to generalize that the inappropriate sexual behaviour is displayed for similar reasons. Moreover, it is unethical to treat an individual with FASD that has engaged in inappropriate sexual behaviour in the same manner within the criminal justice system, as individuals with FASD present with unique learning difficulties due to prenatal exposure to alcohol (Clark et al., 2004).

Moreover, it is important to remember that the prevalence of FASD is considered to be grossly underestimated in Canadian, American, and Western European populations. It is possible that the "invisible" aspect of FASD has lead to various individuals with prenatal alcohol damage being undiagnosed, as well as being incarcerated and treated as an individual who conducted planned, willful acts of inappropriate sexual behaviour. Undiagnosed individuals who have engaged in inappropriate sexual behaviour may then be placed in treatment for their behaviour. However, due to the lack of research and awareness of FASD, few appropriate treatment programs to intervene with behaviours such as delinquency, substance abuse problems, social skill deficits, and inappropriate sexual behaviour have been developed.

Management and Treatment

Historically, the community corrections are cited as using unstructured clinical judgments when evaluating management of individuals who engaged in criminal behaviour (Borum & Verhaagen, 2006; Calley & Richardson, 2011). Calley and Robinson (2011) identified that over recent years, risk assessment tools have been more commonly implemented. Amongst the literature of risk assessment, the risk-need-responsivity (RNR) model is the most commonly reported implemented risk assessments (Calley & Robinson, 2011). The RNR is empirically supported model of determining the treatment needs of the individual who engaged in criminal behaviour (Andrews, Bonta, & Wormith, 2011). The RNR model serves to identify the factors related to the criminal behaviour in order to develop a rehabilitative treatment plan. As described by Andrews and colleagues (2011), the strengths of the RNR model is that it measures the level of risk of future recidivism, the underlying needs that support the engagement of criminal behaviour, and the individual abilities that would determine the responsivity (i.e., unique attributes such as strengths, areas of difficulties, and individual learning style). By implementing

the RNR model with an individual who was convicted of sexual crimes, the assessment tool would determine, for example, their level of risk. Andrews and Bonta (2010) describe lower risk individuals could likely benefit from a treatment model that had minimal attention, while someone at higher risk would obviously benefit from intensive services and restrictive placements (Andrews & Bonta, 2010).

Historically, individuals with disabilities who had engaged in inappropriate sexual behaviour were sterilized without consent (Kempton & Kahn, 1991), institutionalized (Griffiths & Lunsky, 2000), segregated in institutions by gender in order to limit sexual behaviour (Lunsky et al., 2007), and provided drugs in order to inhibit sexual behaviour (Lunsky et al., 2007). For individuals who have engaged in inappropriate sexual behaviour, with and without disabilities, physical treatments are still used in severe cases. Physical treatments include surgery, castration, and sexual-inhibiting pharmacological drugs (Di Fazio, 1999). Physical treatments are typically the least desired forms of therapies, as they are invasive and in some cases have permanent effects. Behavioural and cognitive-behavioural approaches to treatment are amongst the most cited preferred forms of treatment for those being treated for sex related crimes (Griffiths et al., 1989).

In more recent research, individuals with DD who engage in challenging sexual behaviour are provided risk assessments in order to determine treatment (Barron et al., 2002). As an example, some individuals with DD may be institutionalized in order to manage behaviours, while others can be managed satisfactorily within the community (Barron et al., 2002). Other management options for individuals with DD involve social skills training, assertive training, education on appropriate sexual behaviours, sexual education, and various forms of counselling depending on the lived experience of the individual (Lindsay, 2002). Similarly to individuals

without DD who have engaged in inappropriate sexual behaviour, the most common form of treatment involves pharmacological treatments in conjunction with cognitive behavioural therapy (Lindsay, 2002).

Because the incidence of inappropriate sexual behaviour displayed by individuals with FASD is a relatively new area of research, the assessment process is not thoroughly discussed. Novick (1997) described anecdotally working with people with FASD who were convicted of statutory rape. Novick (1997) stated that prior to treatment, the convicted individuals with FASD were provided an unstructured life history interview in which they discussed their life experiences including childhood experiences, as well as relationship and sexual history. Additionally, physiological tests (i.e., a polygraph and plethysmograph) were administered in order to determine patterns of arousal and to identify potential risks.

Therapeutic approaches to treatment. Generally, cognitive-behavioural therapy (CBT) is the traditional treatment for individuals displaying patterns of behaviours that have an overall impact on their everyday life, including depression, anxiety, panic disorders, compulsive disorders, post-traumatic stress disorder, schizophrenia, marital difficulties, anger management, eating disorders, and sexual offending (Butler, Chapman, Forman, & Beck, 2006). Cognitive-behavioural therapy allows individuals to gain insight into their dysfunctional emotions and beliefs, and making goal-oriented changes towards behaviours once addressing the dysfunctional beliefs (Butler et al., 2006). The individual engaging in CBT may better understand how internalized perceptions (i.e., automatic thoughts) influence behaviour, and learn strategies on how to challenge the internalized perceptions. The goal of CBT is to provide the individual with skills in identifying choices regarding their own behaviour (Butler et al., 2006).

As previously cited, CBT is considered the predominant approach when treating sexual offenders (Jennings & Deming, 2013). The use of CBT in treatment of sexual offenses evolved, as literature recognized how a large proportion of sexual offenders viewed themselves or their victims in a distorted fashion (Jennings & Deming, 2010). Offenders can use CBT to identify the distorted thoughts they hold about themselves and the victims related to the sexual offenses. Furthermore, CBT allows sexual offenders to understand their triggers and maladaptive beliefs about society, and therefore provide them the tools to use self-control and change the sexual offending behaviour.

Similarly, CBT programs have been adapted and used successfully with individuals with DD (Griffiths et al., 1989; Hill & Hordell, 1999; Lund, 1993). The CBT techniques provided in one adapted program for individuals with DD included problem solving techniques, stress and anger management, cognitive restructuring, social skills training, sexual education, and functional family therapy. In one example of an adapted CBT program for individuals with DD, adaptive behaviour increased, as well as level of participation in treatment (Nezu, Greenberg, & Nezu, 2005). Evaluating success over a period of 3 years, Nezu et al. (2005) found recidivism rates were low with individuals who had successfully completed the CBT program.

To this author's knowledge, there are few studies that have produced validated forms of treatment for individuals with FASD, specifically when dealing with inappropriate sexual behaviours. Boland, Chudley and Grant (2002) speculate that the multiple cognitive impairments associated with FASD would likely lead to difficulty with programs such as CBT, as the program tends to be have a cognitive emphasis, little repetition, and lacks the structure needed for many people with FASD. Similarly, Fast and Conry (2004) suggest CBT may not be appropriate for individuals with FASD, as the programs require individuals to have self-awareness, self-

motivation, impulse control, social skills, and self-regulation skills. Fast and Conry (2004) alternatively suggest individuals with FASD would benefit from modified educational social skills program, rather than programs that attempt to alter behaviour by focusing on cause and effect consequences. Novick (1997) identified success when implemented extensive CBT with participants with FASD who were convicted of statutory rape. Novick (1997) reported the success of her participants may have been the result of having structured support and monitoring from family members.

Educational approaches to treatment. Past research has focused on individuals with DD as having significantly less knowledge as well as more negative attitudes regarding sexuality compared to individuals without disabilities, as they are often not provided sexual education programs (Galea, Butler & Iacono, 2004; Garwood & McCabe, 2000; Griffiths, 2003). As outlined by SIECCAN (2011), socio-sexual education provides insight into the changes that will occur within the body, thus increasing awareness, knowledge, and guidance throughout these changes. Individuals who lack social skills and awareness of personal boundaries would benefit from additional information on culturally appropriate expressions of sexuality as well as appropriate places for expressing sexuality (Griffiths, 2003).

Walker-Hirsch and Champagne (1991) created a program called “Circles Concept” in order to teach individuals with disabilities about healthy boundaries. The Circles Concept helped educate individuals with disabilities about healthy boundaries, building self-esteem, and introducing relationship-building and maintenance skills so that individuals with disabilities could better socialize with their peers. The main critique of the Circles Concept program is the lack of evaluation of its effectiveness for individuals with disabilities (Garwood & McCabe,

2000); however, it is still commonly used as an educational treatment approach for people with disabilities.

Laugeson et al. (2007) state that previous programs focused on building social skills with individuals with DD have not accommodated particular deficits in cognition or learning. In recognition of the lack of accommodations in the past, Laugeson et al (2007) modified a traditional social skills program (Friendship Training Program) for children in order for the program to be more readily used with individuals with FASD. In the program modifications, the authors made enhancements to the language to help those with learning difficulties and language difficulties, increased exposure to role-playing and information rehearsal to help with executive functioning and memory deficits, and imposed clear rules and consistent reinforcement to help with behaviour deficits. To increase play skills, parents of children with FASD were advised to practice suitable activities (such as games or sports) with their children, and get the children involved with extracurricular activities.

O'Connor et al. (2006) state the adaptations in the Friendship Training Program lead to increasing pro-social performances and decreased problem behaviours in children between 6 and 12 with FASD, as evaluated by parent and teacher reports. This training serves mostly as a preventative procedure, as the program appears to be specifically geared towards children and adolescence and not towards individuals who have had long-standing social skill deficits. Additional research would be needed to determine if the success could generalize to older populations of individuals with FASD. The study by O'Connor and colleagues (2006) highlights the importance of experimenting with evidence based treatment plans, and making adaptations specifically towards the common social skill deficits of individuals with FASD.

Future Considerations

There are still remaining gaps in research regarding FASD. Past studies have uncovered the basics of understanding FASD, such as understanding the impact of prenatal alcohol exposure, and understanding risk and protective factors to reduce the chance of secondary disabilities and tertiary disabilities occurring in individuals with FASD. However, there are many areas of research that remain untouched in the field of FASD. A large amount of the current research on individuals with FASD is placed on the neurological deficits and the behaviour of the individual, rather than the prevention or treatment. Research has developed a consistent hypothesis that individuals with FASD are at risk, but very few solutions have been investigated or provided. It is clear that solutions are necessary; the criminal justice system currently has limited policies in place to protect individuals with FASD. Many people with FASD likely are incarcerated for behaviours that appeared pre-meditated and intentional; many people with FASD are likely being provided treatment programs that are ineffective (Boland, et al., 2002). Individuals who have been prenatally exposed to alcohol are at risk in the world at large until necessary policy changes occur.

Future considerations for research. Being that a large percentage of individuals with FASD have engaged in inappropriate sexual behaviour in their lifetime, both qualitative and quantitative studies would aid in developing a descriptive profile of individuals who display inappropriate sexual behaviour, serving to better understand the risks and protective factors associated with the behaviour. As an example, the grooming patterns of sexual offenders have been well-established in past research, and have provided insight into how to better protect potential victims. Although the literature shows that individuals with a DD to lack a discriminant "type" of victim, this author is not aware of any research on the victims of inappropriate sexual

behaviour by individuals with FASD. Further research into features of victims of inappropriate sexual behaviour from individuals with FASD would provide insight into behavioural patterns and potential risks, as well as potentially provide a greater understanding of why the behaviours may occur. Moreover, future research would benefit from qualitative studies on individuals with FASD who have engaged in inappropriate sexual behaviour, asking specifically about whom their potential victims were, and why they engaged in inappropriate sexual behaviour with or against the victim. Regarding entry into prostitution, understanding the risk factors associated with the behaviour could not only provide insight into early interventions for individuals with FASD, but also in adolescent and adult treatment in the criminal justice system.

To this author's knowledge, little is known about people with FASD's depth of sexual knowledge. As many people receive sexual education programs in school, it is possible that the current evaluated sexual education programs do not accommodate for the individual learning needs of people with FASD. Assessing level of sexual knowledge of people with FASD would not only provide insight into why inappropriate sexual behaviour is being displayed, but also insight into the success of sexual education programs being provided to people with FASD.

Additionally, future studies could explore how individuals with FASD develop the friendships that later lead to inappropriate sexual behaviour being displayed: how do they exchange consent to have sex with someone, and how do they decide to initiate sexual behaviour with people? More information on how individuals with FASD choose the people they initiate sexual behaviour with are also important: are the other individuals strangers or are they familiar; do the people engaging in inappropriate sexual behaviour understand the wrongfulness of the actions; do they understand how to recognize consensual sex; are there grooming patterns associated with initiating sexual behaviour? In contrast, future research on resilient individuals

with FASD could provide insight into why some individuals engage in inappropriate sexual behaviour while others do not. Focusing on resilient individuals with FASD could provide further insight into effective early interventions as described by Clark et al. (2004), as well as strategies that allow some individuals with FASD to master areas such as social skills and adaptive living, while others struggle to develop this area of social learning. Future research studies clearly have many avenues to undergo to identify a more thorough profile associated with inappropriate sexual behaviour and FASD.

Future research should be exploratory, yet ethical, using clinical judgment, with the inclusion of correctional services and health care professionals. As an example, in order to better understand the impact that serving jail time has on individuals with FASD, compared to those who live in psychiatric units would likely provide insight into whether incarceration leads to significantly more detrimental life outcomes for the individual with FASD. Moreover, another area of literature that appears to have limited attention is the knowledge of mental health professionals providing interventions and treatment to individuals with FASD. In one Canadian study of 5,361 health care providers, 50% of psychiatrists did not diagnose FASD because they lacked training (Public Health Agency of Canada, 2006), while 90% of health care professionals understood that early recognition and diagnosis of FASD led to better life outcomes for individuals with FASD. Clear prevalence rates of knowledge of FASD by health care professionals across Canada would not only provide insight into the state of FASD awareness, but also would provide necessary support for the implementation of FASD training into the educational preparations of health care professionals.

Future considerations for policy. As previously stated, staff and employees that make up the Canadian correctional services are only recently becoming aware of the importance of FASD

and the importance of not only having proper screening tools available, but also having adequately trained staff. It is unclear in the literature if mandated assessment procedures, such as the RNR model, are put in place when assessing individuals with FASD. As a high prevalence of individuals with FASD is recognized as being involved the criminal justice system, it is important to acknowledge the individual strengths and needs in relation to rehabilitation treatment.

While there appear to be limited studies that highlight specific treatments successful in rehabilitating people with FASD who have been caught displaying inappropriate sexual behaviour, professionals working with such clientele should proceed in determining the client's specific needs. When a professional is assessing an individual with or without FASD, a thorough assessment of their problematic behaviours (e.g., targeting the specific behaviour and beliefs or attitudes that support the behaviour) should occur in conjunction with a psychological assessment that identifies specific learning deficits (e.g., general intelligent quotient and measures of executive function). The result of the thorough assessment can be used as a guide to facilitate meaningful treatment strategies. It is likely that individuals who have FASD but may not be diagnosed are assumed to be fully capable, and thus are being provided unsuitable treatment.

Furthermore, health care professionals are cited as predominantly understanding the protective factors of providing early diagnosis of FASD to the individual's life outcome, but diagnosis appears to remain a challenge in Canada. Currently, FASD is not represented in the Diagnostic and Statistical Manual of Mental Disorders (DSM-V). It can be argued that FASD is not technically a "mental disorder" but rather a "medical disorder"; however, the DSM-V includes medical disorders such as Alzheimer's as it provides insight into other mental disorders

such as depression (Mansfield, 2006). Inclusion of FASD in the DSM-V would enhance awareness of FASD in the mental health field, specifically in relation to the diagnostic manual's primary users: psychiatrists. The mental health field should be adequately trained in recognizing and understanding FASD, as they are the individuals who provide assessments, treatment, and aid in resolving the individuals with FASD's comorbid disorders.

In respect to FASD prevention, simply publically identifying that there is no known safe level of alcohol consumption throughout pregnancy has not been effective (Public Health Service, 1981). However, strategies such as The Liquor Control Amendment Act as FASD prevention could be an effective approach to spreading awareness about the effects of alcohol, and decreasing the rate of maternal alcohol consumption. The prevention strategy suggests that identifying the harmful effects of alcohol consumption during pregnancy on products containing alcohol is similar to the successful packaging tactic in educating the harms of tobacco use on tobacco products. Future research could provide comparisons of the economic costs of FASD and the preventative strategy in order to provide support for the implementation of the regulated policy.

Future considerations for treatment. The development of validated forms of treatment for individuals with FASD should be inclusive of the known strategies, such as using concrete examples, using repetition to illustrate important information, and to simplify information. In conjunction with these strategies, individuals with FASD would also likely benefit from treatment that is consistent (e.g., same time of day to promote daily routine, and in the same environment), in a low-stimulating environment (e.g., low-lit and quiet environment with few visual distractions) as well as receiving support and supervision from caregivers outside of treatment. Novick (1997) identified successful intervention strategies when working with

individuals with FASD who had engaged in inappropriate sexual behaviour, specifically when involving guardians in the treatment. In the case of Novick's study (1997), guardians developed the therapeutic behavioural/cognitive strategies learned in treatment in order to continue the use of therapeutic interventions after completing treatment programs. Future programs may be more successful when using a family-based approach in order to allow for continued support for the person with FASD.

Alternatively, as individuals with FASD and Autism Spectrum Disorders (ASD) share common characteristics such as commonly having deficits associated with adaptive and social functioning, it is possible that many of the educational treatment approaches used with individuals with ASDs can also be used to treat individuals with FASD. As an example, Social Stories were developed by Carol Gray in 1991, and are designed for individuals with ASDs who have difficulty understanding social situations, coping with change, and managing and/or expressing emotions (Gray, 2010). A Social Story provides the reader with accurate information in order to promote true social understanding and learning, rather than to change an individual's behaviours.

To this author's knowledge, no studies have used Social Stories with FASD. Social Stories are often used on a daily to weekly basis with individuals with Autism Spectrum Disorder, and are shown to be evidence-based approaches (Ali & Frederickson, 2006; Briody & McGarry, 2005; Quirmbach, Lincoln, Feinberg-Gizzo, Ingersoll, & Andrews, 2008) to developing a better social understanding. Similar to people with Autism Spectrum Disorder, people with FASD often present with poor social understanding and social skill deficit, as well as difficulty coping with transitions and managing and/or expressing emotions. In future research,

caregivers, parents, and teachers that are familiar with individuals with FASD could provide presentation of Social Stories, and evaluate the story's effectiveness overtime.

Additionally, an emerging therapeutic intervention for individuals with behavioural difficulties or youth who are typically at "risk" of developing serious behavioural difficulties is equine-assisted learning/therapy (Bachi, 2000; Bachi et al., 2011; Burgon, 2011; Klontz, Bivens, Leinart, & Klontz, 2007). The individuals who are often referred to equine-assisted learning/therapy come from foster-cares, residential facilities, private referrals, and due to youth offensives (Burgon, 2011).

Equine-assisted learning/therapy involves therapeutic riding of horses, guided by licensed medical health professionals (Bachi et al., 2011; Burgon, 2011). The horse is cited as providing therapeutic benefits to the individual undergoing treatment such as being nonjudgmental, motivational, and aids in bond development between the horse, participant, and the assisting therapist (Yorke et al., 2008). Because horses are large in size and power, and due to their heightened sensitivity to body language, the horse will only cooperate if one models positive behaviours such as calmness, confidence, and fair, rather than assertive, leadership (Bachi, 2000). According to Bachi et al. (2011), working with horses teaches individuals to redirect aggressive behaviour in a creative and positive manner, as it is the only way to master "controlling" the horse.

Among various studies focused on individuals with behavioural difficulties engaging in equine-assisted learning/therapy, decreases in negative behaviours (Bachi, 2000; Bachi et al., 2011; Burgon, 2011; Schultz, 2005; Trotter et al., 2008) and increases in positive behaviours (Bachi et al., 2011; Trotter et al., 2008) were consistently found. Equine-assisted learning/therapy appears to be a unique form of therapy allowing individuals to practice social

skills in a hands on manner. The horse, acting as a nonjudgmental and powerful figure essentially "trains" individuals to change their behaviour in order to effectively maneuver the horse. The hands on approach may be beneficial to individuals with FASD, and further research could establish a reliable treatment option for individuals with FASD with behavioural difficulties. However, some individuals may have health conditions or sensitivities towards horses, and therefore this form of therapy may not be suitable for all individuals.

Research Importance

The evolution of research conducted in order to better understand FASD over the past two decades has allowed great strides in improving assessment and diagnostic measures for individuals with FASD. Further research would only serve to improve current methods of assessment, and therefore provide a more ethical approach to individuals with FASD who are involved in the criminal justice system. Furthermore, research on individuals with FASD who engage in inappropriate sexual behaviour has individual and societal importance. Safety of the general public and community should be one area of communal importance. The limited research on individuals with FASD who engage in inappropriate sexual behaviour leaves not only the individual with FASD at risk of living a delinquent lifestyle, but the community who may be affected by the behaviour of the individual with FASD. Therefore, further research in this area will not only benefit protective and intervention strategies for individuals with FASD, but will also aid in protecting the general public.

In the limited research of individuals with FASD in the criminal justice system, it has been identified that some may endure incarceration for criminal behaviour, while others may receive rehabilitation through psychiatric units (Streissguth et al., 2004). Therefore, individuals with FASD who do face jail time are at risk of unfair treatment in the oncoming years. In March,

2012, the Conservative government passed Bill C-10, which implemented mandatory minimum sentencing for offenders. Previous to the passing of Bill C-10, individuals with disabilities that engaged in inappropriate sexual behaviour were often provided with conditional sentencing, allowing more individualized assessment and treatment. The new regime of sentencing evidently ends up sentencing the crime rather than the individual. The new regime also increases the rate of offenders with disabilities being incarcerated.

Despite individuals with disabilities being overrepresented in the criminal justice system, few facilities offer appropriate treatment for this population (Fedoroff & Richards, 2012). Therefore, the incarceration of offenders with disabilities leaves the prospect of being institutionalized and punished for the behaviour without the hope of ever being rehabilitated (Fedoroff & Richards, 2012). To the author's knowledge, no study has examined the impact that Bill C-10 has had on individuals with disabilities in the criminal justice system. Further research is necessary to assess the impact the new sentencing regime has had on offenders with disabilities, and if the bill had an impact on the treatment of individuals with FASD who engage in criminal behaviour.

Furthermore, continued research on FASD has ethical importance. Individuals with FASD, specifically children, are vulnerable within the legal system. It has been identified in past research that for the life outcomes of individuals with FASD, as well as the financial burdens associated with the condition, it is important that communities must become more invested in the assessment and intervention methods for individuals with FASD. However, the state of improving the screening process in the criminal justice system, as well as diagnostic training in the health professional field, appears to be progressing at a slow rate, despite the emergence of potentially damaging advancements in legal systems, such as Bill C-10. As acknowledged in

qualitative research on the families of individuals with FASD, despite the advancements in the understanding of the underlying factors associated with FASD, very few studies focus on treatment strategies and developing valid assessment and treatment practices in order to manage the internalized and externalized behaviours associated with FASD.

References

Abel, E.L., & Hannigan, J.H. (1995). Maternal risk factors in fetal alcohol syndrome: Provocative and permissive influences. *Neurotoxicology and Teratology, 17*, 445-462.

Ali, S., & Frederickson, N. (2006). Investigating the evidence base of social stories. *Educational Psychology in Practice*, *22*(4), 355-377.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (5th ed., text rev.)*. Washington, DC: Author.

Anderson, V. A., Anderson, P., Northam, E., Jacobs, R., & Mikiewicz, O. (2002). Relationships between cognitive and behavioral measures of executive function in children with brain disease. *Child Neuropsychology, 8*(4), 231-240.

Andrews, D. A., & Bonta, J. (2010). *The psychology of criminal conduct* (5th ed.). Cincinnati, OH: Anderson Publishing Co.

Andrews, D. A., Bonta, J., & Wormith, J. S. (2011). The risk-need-responsivity (RNR) model: Does adding the good lives model contribute to effective crime prevention? *Criminal Justice and Behavior, 38*(7), 735-755.

Astley, S. J., & Clarren, S. K. (2000). Diagnosing the full spectrum of fetal alcohol-exposed individuals: Introducing the 4-digit diagnostic code. *Alcohol & Alcoholism, 35*(4), 400-410.

Astley, S. J., Bailey, D., Talbot, C., & Clarren, S. K. (2000). Fetal alcohol syndrome (FAS) primary prevention through FAS diagnosis: II. A comprehensive profile of 80 birth mothers of children with FAS. *Alcohol and Alcoholism*, *35*(5), 509-519.

Bachi, K. (2000). The contribution of therapeutic horseback riding to drug addicts. *Animals & Society, 11*, 20-26.

Bachi, K., Terkel, J., & Teichman, M. (2011). Equine-facilitated psychotherapy for at risk-adolescents: The influence on self-image, self-control and trust. *Clinical Child Psychology and Psychiatry, 17(2),* 298-312.

Baldwin, M. R. (2007). Fetal alcohol spectrum disorders and suicidality in a healthcare setting. *International journal of circumpolar health*, *66*.

Berman, R.F., & Hannigan, J.H. (2000). Hippocampal damage following prenatal alcohol exposure in rats. *Hippocampus, 10,* 94-110.

Boland, F. J., Chudley, A. E., & Grant, B. A. (2002). The challenge of fetal alcohol syndrome in adult offender populations. *Forum on Corrections Research, 14*(3). Retrieved from http://www.cscscc.gc.ca/text/pblct/forum/e143/143s_e.pdf

Bookstein, F.l., Streissguth, A.P., Sampson, P.D., Connor, P.D., & Barr, H.M. (2002). Corpus callosum shape and neuropsychological deficits in adult males with heavy fetal alcohol exposure. *NeuroImage, 15*, 233–251.

Borum, R., & Verhaagen, D. A. (2006). *Assessing and managing violence risk in juveniles*. Guilford Press.

Bracken, D. C. (2008). Canada's aboriginal people, fetal alcohol syndrome, & the criminal justice system. *British Journal of Community Justice*, *6*(3).

Briody, J., & McGarry, K. (2005). Using social stories to ease children's transitions. *Young Children*, *60*(5), 38.

Brown, N. N., Connor, P. D., Adler, R. S. (2012). Conduct-disordered adolescents with fetal alcohol spectrum disorder: Intervention in secure treatment settings. *Criminal Justice and Behavior, 39*(6), 770-793.

Brown, H., & Stein, J. (1997). Sexual abuse perpetrated by men with intellectual disabilities: A comparative study. *Journal of Intellectual Disability Research*, *41*(3), 215-224.

Brown, N. N., Wartnik, A. P., Connor, P. D., & Adler, R. S. (2010). A proposed model standard for forensic assessment of Fetal Alcohol Spectrum Disorders. *Journal of Psychiatry & Law*, *38*(4), 383-418.

Bruininks, R.H., Woodcock, R.W., Weatherman, R.F., and Hill, B.K. (1996). *Scales of independent behavior-revised (SIB-R)*. Chicago: Riverside Publishing.

Buss A. H., & Durkee, A. (1957). An inventory for assessing different kinds of hostility. *Journal of Counseling Psychology, 21*, 343-349.

Burd, L., Fast, D. K., Conry, J., & Williams, H. (2010). Fetal alcohol spectrum disorder as a marker for increased risk of involvement with correction systems. *Journal of Psychiatry & Law 38*(4), 559-583.

Burd, L., Cotsonas-Hassler, T.M., Martsolf, J.T., & Kerbeshian, J. (2003). Recognition and management of fetal alcohol syndrome. *Neurotoxicology and Teratology, 25*, 681-688.

Burd, L., Selfridge, R. H., Klug, M. G. & Juelson, T. (2003) Fetal alcohol syndrome in the Canadian corrections system. *Journal of FAS International, 1*(14), 1-10. Retrieved from http://www.motherisk.org/JFAS_documents/FAS_Corrections_REV.pdf

Burgon, H.L. (2011). 'Queen of the world': Experiences of 'at-risk' young people participating in equine-assisted learning/therapy. *Journal of Social Work Practice, 25(2),* 165-183.

Burton, D. L. (2000). Were adolescent sexual offenders children with sexual behavior problems? *Sexual Abuse: Journal of Research and Treatment*, *12*, 37–48.

Butler, A. C., Chapman, J. E., Forman, E. M., & Beck, A. T. (2006). The empirical status of cognitive-behavioral therapy: a review of meta-analyses. *Clinical psychology review*, *26*(1), 17-31.

Calley, N. G., & Richardson, E. M. (2011). Clinical prediction making: Examining influential factors related to clinician predictions of recidivism among juvenile offenders. *Journal of Addictions & Offender Counseling*, *32*(1-2), 2-15.

Chudley, A. E., Conry, J., Cook, J. L., Loock, C., Rosales, T., & LeBlanc, N. (2005). Fetal alcohol spectrum disorder: Canadian guidelines for diagnosis. *Canadian Medical Association Journal*, *172*(5), S1-S21.

Chudley, A. E., Kilgour, A. R., Cranston, M., & Edwards, M. (2007). Challenges of diagnosis in fetal alcohol syndrome and fetal alcohol spectrum disorder in the adult. *American Journal of Medical Genetics Part C: Seminars in Medical Genetics*, *145*(3), 261-272.

Clark, E., Lutke, J., Minnes, P., & Ouellette-Kuntz, H. (2004). Secondary disabilities among adults with fetal alcohol spectrum disorder in British Columbia. *Fetal Alcohol Research, 2*(e13), 1-12.

Coles, C. D., Platzman, K. A., Raskind-Hood, C. L., Brown, R. T., Falek, A., & Smith, I. E. (1997). A comparison of children affected by prenatal alcohol exposure and attention deficit, hyperactivity disorder. *Alcoholism: Clinical and Experimental Research, 21*, 150–161.

Connor, P. D., Sampson, P. D., Bookstein, F. L., Barr, H. M., & Streissguth, A. P. (2000). Direct and indirect effects of prenatal alcohol damage on executive functioning. *Developmental Neuropsychology, 18*(3), 331-354.

Conroy, J.L., Fast, D.K., & Loock, C.A. (1997). *Youth in the criminal justice system: Identifying FAS and other developmental disabilities.* Vancouver, BC: Final Report to the Ministry of the Attorney General.

Dalla, R. L. (2000). Exposing the "pretty woman" myth: A qualitative examination of the lives of female streetwalking prostitutes. *Journal of Sex Research, 37*(4), 344-353.

Davis, G. E., & Leitenberg, H. (1987). Adolescent sex offenders. *Psychological Bulletin, 101*, 417–427.

Di Fazio, R. (1999). Evidence of the effectiveness of current treatments for sex offenders. *Forum on Corrections Research, 11*, 6-10. Retrieved from http://www.csc-scc.gc.ca/text/pblct/forum/e111/111b_e.pdf

Dunlap, E., Golub, A., & Johnson, B. D. (2004). Girls' sexual development in the inner city: From compelled childhood sexual contact to sex-for-things exchanges. *Journal of Child Sexual Abuse*, *12*(2), 73-96.

Edwards, W.J., & Greenspan, S. (2011). Adaptive behavior and fetal alcohol spectrum disorders. *Journal of Psychiatry & Law, 38*, 419-447.

Fagerlund, A., Autti-Rämö, I., Hoyme, E.H., Mattson, S.N., & Korkman, M. (2011). Risk factors for behavioural problems in foetal alcohol spectrum disorders. *Acta Paediatrica, 100(11),* 1481-1488.

Fast, D., & Conry, J. (2004). The challenge of fetal alcohol syndrome in the criminal legal system. *Addiction Biology*, *9*(2), 161-166.

Fast, D. K., & Conry, J. L. (2009). Fetal alcohol spectrum disorders and the criminal justice system. *Developmental Disabilities Research Reviews, 15*, 250-257.

Fast, D.K., Conry, J.L., & Loock, C.A. (1999). Identifying fetal alcohol syndrome (FAS) among young in the criminal justice system. *Journal of Developmental Behaviour & Pediatrics, 20*, 370-372.

Fedoroff, P.J., & Richards, D. (2012). Innovative approaches to ethical issues in the care of people with intellectual disabilities and potentially problematic sexual behaviours. *Journal of Ethics in Mental Health, 7*, 1-9.

Fuchs, D., Burnside, L., Marchenski, S., & Mudry, A. (2010). Children with fasd-related disabilities receiving services from child welfare agencies in Manitoba. *International Journal of Mental Health and Addiction, 8*(2), 232-244.

Frankel, F., & Feinberg, D. (2002). Social problems associated with ADHD vs. ODD in children referred for friendship problems. *Child Psychiatry and Human Development, 33*(2), 125-146.

Galea, J., Butler, J., Iacono, T., & Leighton, D. (2004). The assessment of sexual knowledge in people with intellectual disability. *Journal of Intellectual and Developmental Disability, 29*(4), 350-365.

Garwood, M., & McCabe, M. P. (2000). Impact of sex education programs on sexual knowledge and feelings of men with a mild intellectual disability. *Education and Training in Mental Retardation and Developmental Disabilities, 35*(3), 269-283.

Gioia, G., Isquith, P., Guy, S., & Kenworthy, L. (2000). *BRIEF: Behavior rating inventory of executive function*. Odessa, FL: Psychological Assessment Resources.

Gioia, G. A., Isquith, P. K., Kenworthy, L., & Barton, R. M. (2002). Profiles of everyday executive function in acquired and developmental disorders. *Child Neuropsychology, 8*(2), 121-137.

Griffiths, D. (2007). Sexuality and people who have intellectual disabilities. In I. Brown & M. Percy (Eds.), *A comprehensive guide to intellectual and developmental disabilities* (pp. 571-581). Baltimore, MD: Paul H. Brookes.

Griffiths, D., Hingsburger, D., Hoath, J., & Ioannou, S. (2013). 'Counterfeit deviance' revisited. *Journal of Applied Research in Intellectual Disabilities, 26,* 471-480.

Griffiths, D., & Lunsky, Y. (2003). *Socio-sexual knowledge and attitudes assessment tool – revised (SSKAAT-R)*. Wooddale, IL: Stoleting Company.

Griffiths, D. M., Quinsey, V. L., & Hingsburger, D. (1989). *Changing inappropriate sexual behavior: A community-based approach for persons with developmental disabilities*. PH Brookes Publishing Company.

Gray, C. (2010). *The new social story book*. Future Horizons.

Hanson, R. K., Harris, A. J. R., Scott, T. L., & Helmus, L. (2007). *Assessing the risk of sexual offenders on community supervision: The Dynamic Supervision Project* (User Report 2007-05). Ottawa, Ontario: Public Safety Canada.

Hare, R. D. (2003). *The psychopathy checklist—revised, 2nd Edition*. Toronto: Multi-Health Systems.

Harris, A. J., Fisher, W., Veysey, B. M., Ragusa, L. M., & Lurigio, A. J. (2010). Sex offending and serious mental illness directions for policy and research. *Criminal Justice and Behavior*, *37*(5), 596-612.

Hathaway, S. R., & McKinley, J. C. (1989). *MMPI-2: Minnesota multiphasic personality inventory-2: Manual for administration and scoring*. Minneapolis, MN: University of Minnesota Press.

Health Canada (2006). *It's your health: Fetal alcohol spectrum disorder, Minister of Health.* Retrieved from Health Canada website: http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/diseases-maladies/fasd-etcaf-eng.php

Helmus, L., Hanson, R. K., Babchishin, K. M., & Mann, R. E. (2013). Attitudes supportive of sexual offending predict recidivism: A meta-analysis. *Trauma, Violence, and Abuse, 14(1)*, 34-53.

Hill, J., & Hordell, A. (1999). The brooklands sex-offender treatment programme. *Learning Disability Practice*, *1*(4), 16-21.

Hingsburger, D., Griffiths, D., & Quinsey, V. (1991). Detecting counterfeit deviance: Differentiating sexual deviance from sexual inappropriateness. *Habilitation Mental Health Care Newsletter, 10*, 51-54.

Jennings, J. L., & Deming, A. (2013). Effectively utilizing the "behavioral" in cognitive-behavioral group therapy of sex offenders. *International Journal of Behavioral Consultation & Therapy*, *8*(2).

Jirikowic, T., Kartin, D., & Olson, H. C. (2008). Children with fetal alcohol spectrum disorders: A descriptive profile of adaptive function. *Revue Canadienne d'Ergothérapie, 4*(75) 238-248.

Jones, K. L., & Smith, S. W. (1973). Recognition of the fetal alcohol syndrome in early infancy. *Lancet, 302*(7836), 999–1001.

Kempton, W., & Kahn, E. (1991). Sexuality and people with intellectual disabilities: A historical perspective. *Sexuality and Disability*, *9*(2), 93-111.

Klontz, B., Bivens, A., Leinart, D., & Klontz, T. (2007). The effectiveness of equine-assisted experiential therapy: Results of an open clinical trial. *Society and Animals, 15*, 257-267.

Kodituwakku, P. W., Handmaker, N. S., Cutler, S. K., Weathersby, E. K., & Handmaker, S. D. (1995). Specific impairments in self-regulation in children exposed to alcohol prenatally. *Alcoholism: Clinical and Experimental Research, 19,* 1558-1564.

Kodituwakku, P. W., Kalberg, W., & May, P. A. (2001). The effects of prenatal alcohol exposure on executive functioning. *Alcohol Research and Health, 25*(3), 192-198.

Kupersmidt, J.B., Coie, J.D., & Dodge, K.A. (1990). The role of poor peer relationships in the development of disorder. In S.R. Asher & J.D. Coie (Eds.), *Peer rejection in childhood* (pp. 274-305). Cambridge: Cambridge University Press.

LaDue, A., Streissguth, P., Randels, P., Sonderegger, B. (1992). Perinatal substance abuse: Research findings and clinical implications. *Environmental Toxicology,* 104-131.

Langevin, R. (1992). A comparison of neuroendocrine abnormalities and genetic factors in homosexuality and in pedophila. *Annals of Sex Research, 6,* 67-76.

Laugeson, E.A., Paley, B., Schonfeld, A.M., Carpenter, E.M., Frankel, F., O'Connor, M.J. (2007). Adaptation of the Children's Friendship Training Program for Children with Fetal Alcohol Spectrum Disorders. *Child and Family Behavior Therapy, 29(3),* 57-69.

Lindsay, W. R. (2002). Integration of recent reviews on offenders with intellectual disabilities. *Journal of Applied Research in Intellectual Disabilities, 15*(2), 111-119.

Lunsky, Y.. Frijters, J., Griffiths, D.M. Watson, S.L., & Williston, S. (2007). Sexual knowledge and attitudes of men with intellectual disability who sexually offend. *Journal of Intellectual and Developmental Disability, 32* (2), 74-81.

Maio, G. R., & Haddock, H. (2010). *The psychology of attitudes and attitude change*. London, England: Sage.

Malbin D., Boulding, D., & Brooks, S. (2010). Trying differently: Rethinking juvenile justice using a neuro-behavioral model. *ABA Criminal Justice Section: Juvenile Justice Committee Newsletter, 5*.

Mann, R., Webster, S., Wakeling, H., & Marshall, W. (2007). The measurement and influence of child sexual abuse supportive beliefs. *Psychology, Crime & Law, 13*(5), 443-458.

Marshall, W. L., & Barbaree, H. E. (1990). *An integrated theory of the etiology of sexual offending*. In W. L. Marshall, D. R. Laws, & H. E. Barbaree (Eds.), Handbook of sexual assault: Issues, theories, and treatment of the offender (pp. 257–275). New York: Plenum Press.

Marshall, W. L., Marshall, L. E., & Kingston, D. A. (2011). Are the cognitive distortions of child molesters in need of treatment? *Journal of Sexual Aggression, 17*, 118-129.

McMurtrie, J. (2011). The criminal justice system's disparate treatment of individuals with fetal alcohol spectrum disorders in cases involving sexual activity. *Journal of Psychiatry & Law, 39*, 159-179.

Mela, M. (2006). Accommodating the fetal alcohol spectrum disorders in the diagnostic and statistical manual of mental disorders (DSM V). *Journal of FAS International, 4*, 1-10.

Mela, M., & Luther, G. (2013). Fetal alcohol spectrum disorder: Can diminished responsibility diminish criminal behaviour? *International Journal of Law and Psychiatry, 36*(1), 46-54.

Michie, A.M., Lindsay, W.R., Martin, V., Grieve, A. (2006). A test of counterfeit deviance: A comparison of sexual knowledge in groups of sex offenders with intellectual disability and controls. *Sexual Abuse: A Journal of Research and Treatments, 18*, 271-278.

Milner, B. (1963). Effects of different brain lesions on card sorting: The role of the frontal lobes. *Archives of Neurology, 9*(1), 90.

Mitten, R. (2004). Section 9: Fetal alcohol spectrum disorders and the justice system. *From the First Nations and Metis Justice Reform Commission Final Report, 2*. Retrieved from http://www.justice.gov.sk.ca/justicereform/volume2/12section9.pdf

Moore, T.E., & Green, M. (2004). Fetal alcohol spectrum disorder (FASD): A need for closer examination by the criminal justice system. *Criminal Reports, 19*, 99-108.

Morrissey, C., Mooney, P., Hogue, T. E., Lindsay W. R., & Taylor, J. L. (2007). Predictive validity of the PCL-R for offenders with intellectual disability in a high security hospital: Treatment progress. *Journal of Intellectual and Developmental Disabilities, 32*(2), 125-133.

Murphy, W.D., Coleman, E.M., & Haynes, M. (1983) Treatment and evaluation issues with the mentally retarded sex offender. In J. Greer & I. Stuart (Eds.), *The sexual aggressor: Current perspectives on treatment (pp. 22-41). New York, NY: Van Nostrand Reinhold.*

Nezu, C. M., Greenberg, J., & Nezu, A. M. (2006). Project STOP: Cognitive behavioral assessment and treatment for sex offenders with intellectual disability. *Journal of Forensic Psychology Practice, 6*(3), 87-103.

Novick, N. (1997). FAS: Preventing and treating sexual deviancy. The challenge of fetal alcohol syndrome: Overcoming secondary disabilities, 162-170. Retrieved from http://www.americanbar.org/content/dam/aba/migrated/child/PublicDocuments/novick_sex_deviancy.authcheckdam.pdf

O'Connor, M. J., & Paley, B. (2006). The relationship of prenatal alcohol exposure and the postnatal environment to child depressive symptoms. *Journal of Pediatric Psychology, 31*(1), 50-64.

Olson, H. C., Feldman, J. J., Streissguth, A. P., Sampson, P. D., & Bookstein, F. L. (1998). Neuropsychological deficits in adolescents with fetal alcohol syndrome: Clinical findings. *Alcoholism: Clinical and Experimental Research, 22*(9).

Paley, B., O'Connor, M. J., Frankel, F., & Marquardt, R. (2006). Predictors of stress in parents of children with fetal alcohol spectrum disorders. *Journal of Developmental & Behavioral Pediatrics, 27*(5), 396-404.

Parry, C., & Lindsay, W.R. (2003). Impulsiveness as a factor in sexual offending by people with mild intellectual disability. *Journal of Intellectual Disability Research, 47*, 483-487.

Popova, S., Lange, S., Bekmuradov, D., Mihic, A., & Rehm J. (2011). Fetal Alcohol Spectrum Disorder prevalence estimates in correctional systems: A systematic literature review. *Canadian Journal of Public Health, 102*(5), 336-340.

Popova, S., Lange, S., Burd, L., & Rehm, J. (2012). Health care burden and cost associated with fetal alcohol syndrome: Based on official Canadian data. *PLoS ONE, 7(8),* 1-7.

Quirmbach, L. M., Lincoln, A. J., Feinberg-Gizzo, M. J., Ingersoll, B. R., & Andrews, S. M. (2009). Social stories: Mechanisms of effectiveness in increasing game play skills in children diagnosed with autism spectrum disorder using a pretest posttest repeated measures randomized control group design. *Journal of Autism and Developmental Disorders, 39*(2), 299-321.

Radford-Paz, E., Watson, S., Larivière, M., & Robinson, A. (2014). Risk and protective factors for criminality among adults with fasd. Manuscript in preparation.

Rasmussen, C. (2005). Executive functioning and working memory in fetal alcohol spectrum disorder. *Alcoholism: Clinical and Experimental Research, 29*(8), 1359-1367.

Rasmussen, C., Andrew, G., Zwaigenbaum, L., & Tough, S. (2008). Neurobehavioral outcomes of children with fetal alcohol spectrum disorders: A Canadian perspective. *Pediatric Child Health, 13*(3), 185-191.

Righthand, S., & Welch, C. (2004). Characteristics of youth who sexually offend. *Journal of Child Sexual Abuse, 13*, 15-32.

Sanders, J. L., & Buck, G. (2010). A long journey: Biological and non-biological parents' experiences raising children with FASD. *Journal of Population Therapeutics and Clinical Pharmacology, 17*(2), e308-e322.

Santamour, W., & West, B. (1978). *The mentally retarded offender and corrections*. Washington, DC: U.S. Department of Justice.

Schonfeld, A. M., Paley, B., Frankel, F., & O'Connor, M. J. (2006). Executive functioning predicts social skills following prenatal alcohol exposure. *Child Neuropsychology: A Journal on Normal and Abnormal Development in Childhood and Adolescence, 12*(6), 439-452.

Seto, M. C. (2008). *Pedophilia and sexual offending against children: Theory, assessment, and intervention.* Washington, DC: American Psychological Association.

Seto, M. C., & Lalumiere, M.L. (2010). What is so special about male adolescent sexual offending? A review and test of explanations through meta-analysis. *Psychological Bulletin, 136*(4), 526-575.

SIECCAN. (2011). Sexual health education in the schools: Questions and answers (4th edition). Toronto, ON: Sex Information and Education Council of Canada.

Sokol, R. J., & Clarren, S. K. (1989). Guidelines for the use of terminology describing the impact of prenatal alcohol on offspring. *Alcoholism: Clinical and Experimental Research, 13*(4), 597–598.

Sokol, R. J., Delaney-Black, V., & Nordstrom, B. (2003). Fetal alcohol spectrum disorder. *Jama*, *290*(22), 2996-2999.

Snyder, H. N., & Sickmund, M. (2006). *Juvenile offenders and victims: 2006 national report.* Washington, DC: U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.

Sparrow, S., Cicchetti, D., & Balla, D. (2005). *Vineland Adaptive Behavior Scales* (2nd ed.). Minneapolis, MN: Pearson Assessment.

Stade, B., Ungar, W., Stevens, B., Beyen, J., & Koren, G. (2007). Cost of fetal alcohol spectrum disorder in Canada. *Canadian Family Physician, 53*(8), 1303-1304.

Steffensmeier, D., Zhong, H., Ackerman, J., Schwartz, J., & Agha, S. (2006). Gender gap trends for violent crimes, 1980 to 2003: A UCRNCVS comparison. *Feminist Criminology, 1*, 72–98.

Streissguth, A. P., Aese, J. M., Clarren, S. K., Randels, S. P., LaDue, R. A., & Smith, D. F. (1991). Fetal alcohol syndrome in adolescents and adults. *Journal of the American Medical Association, 265*(15), 1961-1967.

Streissguth, A., Barr, H., Kogan, J., & Bookstein, F. (1997). Primary and secondary disabilities in fetal alcohol syndrome. In Streissguth, A. and Kanter, J. (Eds.) *The Challenge of Fetal Alcohol Syndrome: Overcoming Secondary Disabilities* (pp.25-39). Seattle, WA: The University of Washington Press.

Streissguth A. P., Bookstein, F. L., Barr, H. M., Sampson, P. D., O'Malley, K., & Young, J. K., (2004). Risk factors for adverse life outcomes in fetal alcohol syndrome and fetal alcohol effects. *Developmental and Behavioral Pediatrics, 25*(4), 228-238.

Streissguth, A. P., & O'Malley, K. (2000). Neuropsychiatric implications and long-term consequences of fetal alcohol spectrum disorders. *Seminar of Clinical Neuropsychiatry, 5*(3), 177-190.

Talbot, T. J., & Langon, P.E. (2006). A revised sexual knowledge assessment tool for people with intellectual disabilities: Is sexual knowledge related to sexual offending behaviour? *Journal of Intellectual Disability Research, 50,* 523-531.

Trotter, K., Chandler, C., Goodwin, D., & Casey, J. (2008). A comparative study of the efficacy of group equine assisted counseling with at-risk children and adolescents. *Journal of Creativity in Mental Health, 3(3),* 254-284.

Tyler, K. A., Hoyt, D. R., & Whitbeck, L. B. (2000). The effects of early sexual abuse on later sexual victimization among female homeless and runaway adolescents. *Journal of Interpersonal Violence, 15*(3), 235-250.

Van Brunschot, E.G., & Brannigan, A. (2002). Childhood maltreatment and subsequent conduct disorders. The case of female street prostitution. *International Journal of Law and Psychiatry, 25,* 219-234.

Walker-Hirsch, L., & Champagne, M. (1991). The circles concept: Social competence in special education. *Contemporary Issues: Sexual Education,* 65-67.

Ward, T., & Beech, A. (2005). An integrated theory of sexual offending. *Aggression and Violent Behavior, 11,* 44–63.

Wechsler, D. (2008). Wechsler Adult Intelligence Scale–Fourth Edition (WAIS–IV). *San Antonio, TX: NCS Pearson*.

Whaley, S. E., O'Connor, M. J., & Gunderson, B. (2001). Comparison of the adaptive functioning of children prenatally exposed to alcohol to a non-exposed clinical sample. *Alcoholism: Clinical and Experimental Research*, *25*(7), 1018-1024.

Wilson, H. W., & Widom, C. S. (2010). The role of youth problem behaviors in the path from child abuse and neglect to prostitution: A prospective examination. *Journal of Research on Adolescence*, *20*(1), 210-236.

Yorke, J., Adams, C., & Coady, N. (2008). Therapeutic value of equine–human bonding in recovery from trauma. *Anthrozoos, 21*(1), 17–30.