

ADHD and Youth Violence: A Critical Appraisal of the Literature

Capstone Project

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Bachelor of Law Enforcement

Laws 4003 - Research Project

Justice Institute of British Columbia

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April 10th, 2020

### Abstract

Attention Deficit Hyperactivity Disorder is one of the most common childhood disorders. Diagnosed youth typically have a decreased ability to focus and an increased level of activity. Typically, this leads to diminished social development in youth. Current literature has identified violence to be a side effect of ADHD, but this body of literature has not been validated. Many gaps have also been discovered, such as gender, ethnicity and family aspects of ADHD. These areas have been neglected when assessing for violence in ADHD youth. To progress the field of research regarding ADHD and youth violence, this paper is designed as a guide to critically appraise the research that has been conducted. The purpose of this research is not to identify new strategies of violence reduction, but rather to inform policy and programs to decrease future violence associated with ADHD.

*Keywords:* ADHD, youth violence, aggression, youth mental health, effects of ADHD, hyperactivity and youth aggression.

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## ADHD and Youth Violence: A Critical Appraisal of the Literature.

### **Background**

Attention Deficit Hyperactivity Disorder (ADHD) is a condition commonly diagnosed in childhood and defined as “a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development” (American Psychiatric Association [APA], 2015, p. 82). ADHD in Canadian children has been found to exist at a rate of 2.6% according to a study conducted by Brault and Lacourse (2012, p. 4). This same study also found an increase in the diagnosis of ADHD from 2000-2007. This condition complicates childhood, and many of the same characteristics are found among violent offenders. It has also been established that ADHD has consistent links to youth criminality, as indicated by Satterfield, Hope, and Schell (1982) and Satterfield, Swanson, Schell, and Lee (1994). If the rate of ADHD youth offending continues to increase, law enforcement may see a steady stream of crime committed by these youth.

Research conducted into the association between ADHD and youth violence has become its own subcategory of literature. Presently, the research on ADHD and youth violence has many gaps and requires a critical appraisal to assess these gaps and address the validity of the literature. After an evaluation of the literature, it became apparent that a critical appraisal had not been conducted on this topic. This paper is not intended to present solutions to the problem, but rather to identify possible areas where future research should be conducted to further policy development.

A pragmatic worldview will be applied to this research, as this is conducive to the present study. Creswell (2014) suggests that pragmatism is best utilized when an emphasis is placed on the research problem and a variety of approaches are used to develop solutions. For the present study, the focus will revolve around the limitations and gaps in the research and how this can be

used to inform practical solutions to ADHD and youth violence. This creates the proper conditions to conduct a pragmatic study.

### **Research Question**

The field of ADHD and youth violent offending is a small but expanding area of research. The material on this topic is growing, but still contains many large gaps that require further investigation. This leads to the research question: what is the relationship between a youth's level of violence and their diagnosis of ADHD?

To better understand this topic the current paper is designed to act as a critical appraisal of the current research. A critical appraisal would be best served for this type of research, as this will identify future areas that need to be expanded upon. This will assist in identifying the connections between different materials and where gaps exist in research. To gain a better understanding of the topic and the literature, three additional questions will be asked: what is the state of the literature? Where can the literature improve? And, what direction is the research heading?

The literature suggests that a strong relationship exists between ADHD and youth violence, but this relationship has not been well tested. If an increase in ADHD diagnoses does occur, it will be important to establish how this affects rates of violence for policymakers to respond appropriately. Analysis of the current research will indicate how policymakers can develop better policies and programs to assist youth with ADHD and violent tendencies.

Wojciechowski (2017) demonstrated that youth with a diagnosis of ADHD were more likely to be implicated in violent offending in youth and early adulthood. This research is consistent with findings from Evans, Clinkinbeard, and Simi (2015) where youth with ADHD were found to have a higher level of violence than youth without ADHD. To further the field

these sources, and others must undergo an evaluation to ensure their validity and relevance to the research question.

### **Literature Review Methodology**

The research was gathered through a literature review of secondary source material. The literature review was conducted with scholarly material only. Periodicals, newspaper articles, and magazines were not included in the study. Further, when searching for the material it was important to refrain from using broad terms such as “mental health” or “mental illness”. Rather, it was more pertinent to use terms that directly related to ADHD, such as “attention deficit” or “hyperactivity”. Articles from the year 2000 until the present day were included, any older material was excluded. Creswell (2014) suggests using a broad collection of literature as an effective way to gather material, so this was incorporated in the search strategy. Also included in the search strategy was the utilization of Boolean operators such as “and” to narrow the search or “or” to expand the search.

The Justice Institute of British Columbia (JIBC) Library’s online EBSCO Discovery System (EDS) was the main system used to search for relevant material. In addition, the JIBC Library’s ProQuest Criminal Justice database and National Criminal Justice References Services (NCJRS) Database were searched. Google Scholar and the Northern Alberta Institute of Technology (NAIT) Library online EDS database were other sources used to gather material. To search for articles, keywords and phrases were identified to assist with the search, such as impulsivity, violence, aggression, ADHD causing youth violence, and, hyperactivity leading to violence.

Two different search strategies were utilized, the details of which are provided in Appendix A. The first was a poor strategy with little detail and underutilization of the capacity of

the search engine. This was limiting and ineffective in providing material pertinent to the research question. The second search was much more robust and was guided by the assistance of previous mistakes and advisors who understood how to manipulate the search engine to its best ability. Within the search strategies, specific tools were utilized to maximize the potential results, such as the inclusion of an asterisk to find all endings of a root word. Quotation marks were also used to limit results to the exact phrase or term. In addition, limiting the field of search to the TITLE FIELD only, allowed the results to be more specific to the search.

A secondary cursory search was also conducted on the literature about preventative programming and policy development. This is an area that will require further examination in the future, as from the search conducted very little research was found on this topic. One of the most relevant results was the program by Eichelberger, Plück, Hautmann, Hanisch, and Döpfner (2016), which will be discussed further in the discussion section.

### **Literature Review**

Several themes emerged during the literature review. These themes were identified by comparing multiple scholarly sources to see if any factors were consistent among the literature. Low academic achievement in school was the first theme consistently linked to ADHD and youth aggression. Youth with ADHD appeared to have a more difficult time in an educational setting and would act out with violent impulses. The difficulty for youth to experience and sustain social relationships was also identified as a factor that increased the likelihood of youth violence. ADHD youth were disadvantaged in social settings, particularly in making friends and meaningful relationships. Additionally, impulsivity, which is a common characteristic of ADHD, was linked to lower socioeconomic status. The combination of these two factors consistently led to an increase in violent behaviour for ADHD youth. After reviewing the literature, it became

apparent that ADHD diagnosed youth are at a disadvantage in many areas of life and may manifest their frustration in the form of aggression.

### **Poor School Performance as an Indication of Increased Aggression**

One of the many consequences that youth with ADHD face as a result of the disorder is a decreased ability to perform well academically. Bernat, Oakes, Pettingell, and Resnick (2012) explored this, among other aspects of a youth's environment that contributed to a decreased quality of life. Their study is important in differentiating between youth who are at risk for violence and those that are not. The study identified factors that were indicative of youth violence, predictive factors, and characteristics that decrease the likelihood of youth violence, protective factors. A variety of characteristics from a youth's background were considered, such as their age, ethnicity, and socioeconomic status. Bernat et al. (2012) indicated that ADHD youth with a lower level of educational achievement were more inclined to use violence than those without ADHD.

These results are consistent with other research, such as the longitudinal research study conducted by Jolliffe, Farrington, Loeber, and Pardini (2016). Jolliffe et al. (2016) conducted a similar analysis of data when they examined if certain characteristics, such as hyperactivity or academic achievement, affected the youth's overall violence level. Results of the Jolliffe et al. (2016) research indicated that a higher level of academic achievement was correlated with a lower level of violence among youth. The characteristic most strongly associated with low violence levels was the ability for youth to achieve a high academic standard. The struggle of ADHD youth in an educational setting puts them at a stark disadvantage from the rest of the student population.



Evans et al. (2015) provided another perspective on this theme when they examined ADHD in the context of a learning disability. Youth diagnosed with ADHD are considered to have a learning disability. Sitting in a classroom and focusing for extended periods can be very difficult for these youth (Evans et al., 2015). This study compared rates of delinquency across a group of youth with ADHD, and those without. The group with ADHD was found to have lower achievement overall in academic success, as compared to those without ADHD (Evans et al., 2015). The main goal of the study was to examine if youth with ADHD were more likely to engage in delinquent behaviours to a greater extent than youth without ADHD. The results demonstrated that youth with ADHD were more likely to engage in certain violent delinquent behaviours than youth without ADHD. Youth with ADHD were found to engage in approximately 25% more instances of violent behaviour than youth without (Evans et al., 2015, p.11).

Violent behaviour was theorized to be the result of the youth acting out due to their additional difficulties in school. The findings from Jolliffe et al. (2016) mirror these results, as in both cases youth with lower academic achievement recorded more instances of aggressive encounters. As a result of their learning disability, youth are more likely to have a poor educational experience, which may then lead them to engage in more violent behaviours than their peers. Hawkins et al. (2000) further reinforce this theme. Their report substantiates the work of other scholarly material in the field when they identify both hyperactivity and poor school performance as an indication of increased youth violence.

### **Difficulty Creating and Sustaining Social Relationships**

**Difficulty establishing relationships between peers.** The theme of ADHD youth having more difficulty experiencing and sustaining social relationships was consistently demonstrated

throughout the literature. This was indicated in the Becker, Mehari, Langberg, and Evans (2017) study conducted on Grade 6-8 students. In their study, ADHD diagnosed students were administered a questionnaire regarding time spent with their peers in the student population. They were questioned on several aspects including, how they were treated by their fellow students, what relationship they had with their friends and how these factors affected their mental health. The youth in the study indicated elevated levels of victimization as compared to their peers. Becker et al. (2017) have acknowledged that the increase in victimization can cause significant violence problems in the future. For example, one of the consequences of having few peer relationships was a reduction in support for the youth when they are bullied by their classmates. Higher instances of peer abuse can lead to lowered self-esteem causing some youth to create friendships with delinquent peers (Becker et al., 2017).

Rabiner, Coie, Miller-Johnson, Boykin, and Lochman (2005) expanded on the findings of the previous study. They explored how youth can form delinquent relationships that lead to increased violent behaviour. Their longitudinal research study was conducted with participants between 12 and 22 years of age. The participants who displayed a tendency for more violent behaviour had difficulty forming and sustaining relations with their peers. And, as Becker et al. (2017) have demonstrated, this can lead to a lowered level of self-value compared to others. These same participants also indicated a higher level of ADHD symptoms than those who had a lower level of violence. Not only are youth more likely to engage in aggressive behaviour after peer rejection, but they are also more predisposed to become involved in peer groups where aggressive behaviours and delinquency are commonplace (Rabiner et al., 2005).

**Difficulty establishing relationships in a family setting.** Relational problems are not isolated to friends and peers. Difficulty establishing family relations is another aspect of

meaningful bonds that ADHD diagnosed youth struggle with. Peasgood et al. (2016) examined the relationship that ADHD youth form with their family, as these youth typically face more challenges when forming interpersonal relationships. Youth were studied individually and questioned about the relationship they held with their family. Peasgood et al. (2016) found that ADHD youth overall had a lower quality of life as compared to their peers, due in part to their inability to form meaningful relationships with their family. Siblings of these youth reported a lower quality of life and self-reported more bullying towards their siblings with ADHD. Youth with ADHD also reported significantly higher levels of bullying experienced in their family. Bullying was more commonplace in these families due to the additional challenges ADHD youth provide.

Connolly and Vance (2010) came to similar conclusions when they examined the psychosocial aspects of a child's life. Their longitudinal study was conducted over five years where both teachers and parents were interviewed and surveyed. This data was then used to identify certain factors consistent across a group of youth who were all identified to have ADHD. Family dysfunction and interpersonal sensitivity were two of the characteristics examined that encouraged aggression in youth (Connolly & Vance, 2010). Parents frequently noted an inability for youth to form close relations with their family and the subsequent aggressive behaviour. The findings of this study help corroborate the research conducted by Peasgood et al. (2016). Both articles indicated that youth with high levels of aggression were also found to have an increased dissociated relationship with their family members.

Where this literature becomes important is in understanding the difficulties these youth experience daily. Youth with increased difficulty in developing social relations may be more inclined to resort to violent practices, whether this is towards others or themselves. The difficulty

for them to establish meaningful relationships, with family or otherwise, causes increased difficulty when responding to challenges that are presented in their lives. The lack of relationships can also cause bullying and abuse by their peers, causing further mental health problems such as anxiety disorders and depression (Peasgood et al., 2016). The results from this section of the literature reveal that youth with ADHD may need additional support to deal with the challenges that come with peer relationship difficulties.

### **Impulsivity and Socioeconomic Status as a Correlated Factor in Youth Violence**

One of the main characteristics of ADHD is the propensity to engage in impulsive behaviour (Wojciechowski, 2017). This is often an adverse side effect of ADHD, as impulsivity influences rash decision-making. Impulsivity, a frequently associated attribute of ADHD was directly implicated in its association with violent youth offending. Wojciechowski (2017) directly addressed the linkage between ADHD and its association with violent behaviour. This study assesses the relationship in the context of the frequency of violent offending and participation of the offending youth. Participants in this study were incarcerated youth taking part in a program designed to rehabilitate them. Impulsivity was frequently cited as a reason for committing a serious violent crime (Wojciechowski, 2017). Socioeconomic status was also examined, as youth who existed in a lower socioeconomic state were often more inclined to make impulsive, poor decisions. This study suggests that those with lower socioeconomic status were at a greater risk of impulsively committing a violent crime.

Zalot, Jones, Kincaid, and Smith (2009) conducted a similar study, where African American youth in single-mother homes were studied to examine the relationship between violent behaviours and impulsivity. Impulsivity was found to exist frequently as a factor for youth that indicated violence. Boys at the greatest risk for violence lived in neighbourhoods with

lower than average median household income. The youth in this study were found to be more impulsive and demonstrate other characteristics of ADHD as compared to their peers (Zalot et al., 2009). These youth were more likely to associate with deviant peers leading to violent encounters. Associating with deviant peers may be the result of the youth's inability to properly establish peer relationships. Additionally, the lower socioeconomic conditions of the youth placed them at a disadvantage, as the proper social supports needed for ADHD youth were not available.

Impulsivity in youth and their poor neighbourhood context was further discussed by Lynam, et al. (2000). They examined how lower socioeconomic neighbourhood influences and impulsive behaviours can affect the level of violent youth offending. Findings of the study demonstrated that youth in poorer neighbourhoods are more inclined to act on impulsive urges than those in more affluent neighbourhoods. These youth also demonstrated additional characteristics of ADHD, such as inattentiveness and hyperactive behaviour. Perhaps ADHD is more common among areas with lower socioeconomic status. Youth with ADHD that reside in lower socioeconomic areas are at a greater risk for offending due to their lack of self-control (Lynam et al., 2000). Areas with lower socioeconomic conditions are at the greatest risk for ADHD youth offending, as there are few restraints to curb impulsive decision making (Lynam et al., 2000; Zalot et al., 2009).

### **Critical Appraisal**

#### **Gender in ADHD Youth Research**

**Research on female youth.** Within the literature, there was a considerable lack of research on ADHD girls. Most of the literature focused on male youth. Females were included in some research but generally were combined in samples of both boys and girls. The lack of

research may be due to the differentiating diagnoses between the two genders, as boys are more likely to meet the criteria of ADHD than girls (Peasgood et al., 2016, p.1). Some of the literature mentioned the inclusion of girls, but the individual characteristics were not examined separately. For example, Peasgood et al. (2016) studied the quality of life and family relationships of ADHD youth. Both youth with ADHD and their siblings were questioned, but no distinction was made between how male and female youth experience sibling bullying differently.

In this section of the literature, it is important to make the separation between male and female youth because they experience relationships differently. Further, the interactions between families are different for males and females. Blending the two genders creates broad assumptions that can be incorrect for one gender. Both the ADHD youth and their siblings respond differently to situations they encounter in life. Some of the research that did differentiate between males and females typically did not have an even ratio of male to female participants, such as Connolly and Vance (2010). Other studies focused exclusively on males (Rabiner et al., 2005; Jolliffe et al., 2016). Literature is available to assess the tendencies of violent females, such as Leschied, Cummings, Van Brunschot, Cunningham, and Saunders (2001). Although this study simply suggested additional research should be conducted to assess girls for ADHD.

**Application of male results to females.** Another issue in the study of ADHD youth violence was the tendency to apply the results from male-focused studies to females. The material from Connolly and Vance (2010) is indicative of this, as the article has a substantially smaller number of female participants than male yet draws conclusions that are applied to both genders from the data. This occurred frequently throughout the literature. Often when females were included in the study, they represented a very small number of the participants. One of the

themes, peer relations and ADHD, was particularly poor in this regard and tended to apply male-focused results to females.

Very little research has been conducted on female aggression as a result of failed peer relationships. Mikami and Lorenzi (2011) conducted one of the few studies that addressed this issue. These findings indicate that females have more difficulty adapting to peer rejection. Making the distinction between male and female needs is important for policy and program development. Additionally, female aggression is demonstrated differently than males. Females may first commit violent acts towards themselves rather than towards others as Leschied et al. (2001) have demonstrated. Females typically self-harm before they use violence against others.

### **Independent Diagnosis of ADHD**

Another consistent limitation in the literature was the lack of independent diagnosis of ADHD. Many of the studies relied on a self-reported diagnosis or youth with a cluster of characteristics that resembled those with ADHD (Evans et al., 2015; Zalot et al., 2009). Researchers should not depend on a previous diagnosis of ADHD due to the variability of diagnosis methods. ADHD, like many childhood disorders, is a subjective assessment of common characteristics. This allows for the diagnosis process to be contingent on the assessor. Diagnosis is typically conducted using the *Diagnostic and Statistical Manual of Mental Disorders* (DSM). The DSM diagnosis provides a subjective diagnosis of the youth. When the criteria in the DSM changes, entire populations of diagnosed individuals can be affected. For example, from 1979-1996 three different iterations of the manual were published resulting in the rate of diagnosis for ADHD increasing 5.4-fold in the United States (Brault & Lacourse, 2012, p. 2).

Independently diagnosing the youth in a sample population should be sought rather than relying on a previous diagnosis. Diagnosing the youth independently provides control over the process to ensure it is done correctly. Further, ADHD is divided into three differing subcategories: impulsive/hyperactive, inattentive/distractible and combined type (APA, 2015, p. 82). To correctly diagnose a youth the assessor must understand the differing types. Many of the studies did not identify a specific type that the youth were diagnosed with. Rather it was more common to refer to the youth as having general ADHD. An independent diagnosis of ADHD would allow the researcher to assess for one of the specific subtypes. When researching the link between ADHD and youth violence it is imperative to have a proper diagnosis to focus research on the specific type of youth. Generalizing ADHD as a disorder characterized by identifiable traits will diminish the three subtypes and become more difficult to measure characteristics that are consistent with violence.

### **Collection of Violence Statistics**

The collection of violence statistics was another general area of the research that may need additional validity testing. Research often relied on self-reporting violence from the youth or the parents/guardians. This method may be ineffective in gathering data on youth offending for a variety of reasons. First, the youth are under no obligation to self-report their actual violent history. The study by Bernat et al. (2012) relies on youth to self-report their violence, which may incentivize youth to exaggerate their number of actual occurrences. Youth may inflate their number of violent encounters to appear more socially accepted, as violence can sometimes be used by youth to gain social notoriety (Rabiner et al., 2005).

The opposite is also at risk of occurring, as youth may neglect to be truthful when self-reporting instances of violence. A youth may do this for a variety of reasons, for example, they



may not want others to know of their violence, or they may feel others are judging them. The study conducted by Zalot et al. (2009) used self-reporting surveys to gather data, and while the entire study is not invalid, the validity must be taken into consideration when using this type of data. One way for the research to increase its validity is through independent interviews with youth and others in their lives. Comparing this data against the self-reported statistics boosts the credibility of the research, as both sets of data can be verified against each other to ensure well-founded research.

Another way the rates of violence were collected was through the anecdotes of parents/guardians and educators. There is also a considerable risk when doing this, as parents may be inclined to hide their child's true behaviour. The parent may not want to disclose this information on a survey, or to an interviewer. The guardian may also be unaware of the behaviour of their child, as the child may hide it, or have limited contact with their parent. Utilizing educators may be a more effective way to gather data depending on the child's level of involvement in school. An educator may spend more time around a child than a parent, therefore it is important to gather this data to substantiate the information from a parent. Some of the literature relied on parental anecdotal evidence, for instance, Peasgood et al. (2016). Others, Connolly and Vance (2010), utilized the method of corroborating the parent data with educators.

### **ADHD as a Factor in Family Relationships**

The family dynamic for youth with ADHD is important, as they typically require additional support compared to those without the condition (Peasgood et al., 2016). Higher levels of anxiety, underperformance in school, and a lacking ability to form adequate social relationships with peers increase the need for the youth to have a social safety net in their family (Peasgood et al., 2016). This area of research represents both a gap and limitation in the

literature, as very little research has been conducted on the siblings of ADHD youth and how they are associated with sibling violence. The study conducted by Peasgood et al. (2016) is one of the few pieces of literature that address families with ADHD youth. However, this example has its limits, as there was also very little data collected on the actual siblings themselves.

The additional attention and support required to raise a child with ADHD may create a rift in the family dynamic more than some of the other side effects. Discovering how this relationship is associated with ADHD may indicate how youth become aggressive or resort to violence. Becker et al. (2017) have demonstrated that youth with ADHD have a difficult time establishing peer relations more so than those without ADHD. But further research is required to see if this applies to siblings. The effects on a family can be difficult, including a lack of sleep and siblings bullying the ADHD youth (Peasgood et al., 2016). More research should be conducted to discover how this relationship affects the youth with ADHD and their inclination to resort to violence. Additionally, there is minimal research on the siblings of ADHD youth. Siblings spend a substantial amount of time together and may have insight that other methods of analysis do not have. Examining this relationship will be important in discovering if any association exists between sibling relationships and elevated levels of violence.

### **Discussion**

To further the process of the critical appraisal, predictions and suggestions for future research must be conducted. For this to occur a process was implemented whereby literature gaps were identified, the surrounding literature was examined and, based on suggestions and conclusions of other research, predictions were made. When speculating on the future of this research there was also special consideration to account for future policy implications. The results of the literature review were also indicative of future research. Some of the themes that

were consistently identified in that section commonly involved problems, such as the inability for youth to form adequate relationships. These problems then informed predictions for research to find solutions.

### **ADHD and Comorbidity in Youth**

Comorbidity is defined as a combination of two mental health disorders occurring within one individual (Evans et al., 2015). This is a topic of research that has been neglected in the study of ADHD and its association with violence. ADHD has been studied in conjunction with other issues in a youth's life, but its coexistence with other mental health disorders has been neglected. This is a particularly important topic for future research, as the implication of additional mental health problems may push youth to engage in violence. Peasgood et al. (2016) have shown that youth with ADHD may be more at risk for future mental health disorders such as anxiety or depression. As previously demonstrated, ADHD youth who were victims of frequent sibling bullying at the age of 12 were also more predisposed to depression, anxiety, or self-harming behaviour (Peasgood et al., 2016, p. 12). This may suggest that the strain on siblings caused by ADHD increases the likelihood of developing a comorbid mental health disorder.

Further research into this topic must consider all associations with conduct and defiance disorders in youth. Youth ADHD and violence research would be heavily impacted by exploration in this area, as the results would indicate how youth become violent. Peasgood et al. (2016) examined the implications of defiance and oppositional disorders on youth violence, and their impact on the quality of a youth's life. The study indicates that comorbid disorders, with a focus on defiance disorders, is an area that requires future research. Further, the research would be better served if there was an indication as to the type of ADHD associated with comorbidity.

The three different clusters of comorbidities create challenges when assessing for ADHD. This information would assist in furthering the field of research to help address a potential cause of violence in ADHD youth and how to provide solutions to the problem.

### **Female Approach to ADHD Youth Violence**

ADHD is typically diagnosed and found more in male youth than in female youth (Mikami & Lorenzi, 2011). Additionally, the problems faced by male youth and female youth are considerably different. This is another opportunity for study, as females are under-researched in the ADHD and youth violence field. While the number of diagnosed female youth is lower than males, there is still a need to examine them as they represent a portion of the violent offences committed. The social experiences of female and male youth are different also, as females may face more of a challenge in both peer and family settings. Research conducted by Mikami and Lorenzi (2011) refers specifically to female youth, but this is one of the few research articles conducted in this field so far. While this study does provide valuable information, it requires additional follow up to build upon this research.

The topic of gender and youth crime may provide considerable insight into the types of violence that youth commit. Female youth may express their anger and violent behaviours in other ways than males. For example, Leschied et al. (2001) found that aggressive female youth are more likely to commit acts of self-harm before violence towards others. Research such as this should be expanded upon to see if it is consistent with ADHD girls.

### **Distinguishing Between Varying Levels of Violence**

The type of violent act that a youth commits is another important consideration when researching in this area. Future research will need to examine what types of violent offences youth commit, as this will assist in developing programs to target these specific indicators.

Assault with a weapon is a dramatically different display of aggression than a child uttering threats. As research has yet to explore this area, any future literature should consider the type and severity of offences committed by youth. This research would assist in developing strategies for combating the serious assaults that are committed. Additionally, discovering the precipitating events that encourage youth to commit violence will be important for policymakers. Concurrent research is supportive of this, as Evans et al. (2015) suggested that differentiation between the types of violence provides considerable value to the field.

Wojciechowski (2017) is another scholar in support of this area of research and provides direction for the future. This study suggested that the types of diagnosable ADHD need to be further examined to assist in violence prevention. Future research should devote considerable time to this method. If a youth's level of violence can be predicted by their cluster of behaviour, this will provide invaluable insight into preventing future violence. Specific programming could be developed for youth who are significantly more prone to violence with a particular cluster of ADHD.

### **Inclusion of Multiple Ethnicities**

Another approach this area of research would benefit from greatly is in the discovery of ethnically diverse approaches to ADHD and youth violence. A large portion of this literature is based on the Western approaches to ADHD and youth violence. A better way to promote the topic would be through an analysis of youth from various ethnic backgrounds. There appeared to be two trends in the literature; the first being a focus on one racial group specifically, a majority being black or white males. The other approach was more general, where a sample of blended ethnicities was studied. Perhaps for future examination of this topic, an approach should be undertaken to specifically analyze other ethnic groups, such as Asian or Hispanic. Policies could

be created using the results from these studies, as certain ethnicities or geographical areas may be more prone to violence than others. Neighbourhoods and pockets of certain ethnic groups could be examined, and policy framed to deal with these youth specifically.

ADHD has been considered a North American condition, with rates of diagnosis higher in Western countries (Faraone, Sergeant, Gillberg, & Biederman, 2003). It may appear as though ADHD is found in North America more often; this may be due to several factors. Faraone et al. found that ADHD is consistent among youth across the world (2003, p. 8). If this is true, then why is ADHD diagnosed at a rate of 2.6% in Canada (Brault & Lacourse, 2012, p. 4)? Contrasting the Canadian rates with the rates of the world, approximately 6-7%, may provide insight into the diagnosis in other ethnicities and geographical areas (Willcutt, 2012, p. 9). The research should be conducted in other nations and compared to the level of violence. With this information the violence rates of youth in other countries could be compared to the rates in North America. This may describe certain characteristics that are consistent with some ethnic groups, and inconsistent with others. Further, there has been very little research conducted on whether one ethnic group is specifically more inclined to violence due to ADHD. This research will provide more insight into how to create policies and programs to help prevent future ADHD youth violence.

### **Strategies for Managing Violent ADHD Youth**

This is the most encompassing speculative area of research for violent ADHD youth. To implement successful strategies and policy to reduce ADHD youth offending, the previous gaps need to be examined. A generalized policy or program cannot consider the multiplicity of factors that increase violence in youth. Additionally, the literature review suggests that educational facilities may be an area to focus future research and strategies. The lack of research on factors,

such as gender, ethnicity, and the side effects of ADHD results in a critical lack of information. However, as many studies have discussed, the body of research is heading in the direction of informing policy for the future (Wojciechowski, 2017; Evans et al., 2015; Lynam et al., 2000).

Research has discussed these implications for a considerable amount of time, as Lynam et al. (2000) explained “They serve to remind us that accounts of antisocial behaviour that rely on either trait or situational explanations alone are incomplete” (p. 10). This indicates that there are many factors to be considered when developing strategies for reducing ADHD youth violence. Perhaps, when developing policies for diagnosing youth, a better tool should be considered rather than the current DSM. The variability and changing criteria contained within the DSM create problems with consistency for diagnosing youth.

Current strategies of ADHD management are typically conducted through medication. Medication is not the only type of strategy, as preventative programming has also been developed, such as utilizing education for parents and educators. Eichelberger et al. (2016) researched this topic and provided insight for programming that should be conducted in the future. Their research is an example of the type of programming and policy the present study attempts to inform. Eichelberger et al. (2016) assesses the side effects of ADHD and attempts to reduce the harm they cause to the youth and others. By implementing parental and educator training for ADHD youth, they found a subsequent reduction in violent behaviour in which ADHD youth engaged (Eichelberger et al., 2016).

The results of this critical appraisal validate the research conducted by Eichelberger et al. (2016) as many of the same characteristics, such as family dynamic and educational achievement, were assessed when drawing conclusions. This is an area of research that should be

expanded upon in the future. Research that isolates the most detrimental characteristics of ADHD and supports the youth to overcome the disorder is greatest for policy development.

This research would suggest that an educational setting would be the preferable area to implement strategies to assist ADHD youth. Due to the difficulty experienced in the educational atmosphere, these youth would greatly benefit from additional programming. The needs of the child would have to be considered, as those with an impulsive cluster may require more stimulation than youth with a hyperactive cluster. By tailoring programming to the specific needs of the youth future violence may be negated.

### **Conclusion**

There is consistent thought among scholars that ADHD is associated with elevated levels of youth violence. The characteristics of ADHD make some youth more predisposed to engage in violent behaviour than youth without the disorder. There are still many gaps in this body of literature, therefore it is important to critically appraise the information. The appraisal process will assist in policy development for youth who are currently facing the challenges that ADHD presents. To advance the field, this literature must continually undergo an analysis of its conduct and credibility. This will push the research into new territory and allow for better policy and programming to be created.

Additionally, certain themes emerged that were examined through critical analysis. Gender and the state of the family dynamic represented large gaps in the literature. Further analysis led to the discovery of limitations found consistently such as how the studies collected information and the diagnosis of ADHD. The gaps and limitations found will assist to further the topic, as the present study can inform future work. This is where the strength of a critical



analysis lies, as this will inform future strategies and policy development for decreasing ADHD youth violence.

The purpose of this analysis was not to present new policy or programs, but rather to assess the current research and address future programming. As previously discussed, ADHD causes many side effects throughout a youth's life, and will, in some instances, lead to violent behaviour. This research is best utilized in informing preventative programming and policy to reduce the effects on families and youth. By conducting this appraisal of the literature future strategies will be developed to reduce the violence and ADHD youth.

## References

- American Psychiatric Association. (2015). *Neurodevelopmental disorders: DSM-5 selections*. Retrieved from [www.ebscohost.com](http://www.ebscohost.com)
- Becker, S., Mehari, K., Langberg, J., & Evans, S. (2017). Rates of peer victimization in young adolescents with ADHD and associations with internalizing symptoms and self-esteem. *European Child & Adolescent Psychiatry*, 26(2), 201–214. <http://doi.org/10.1007/s00787-016-0881-y>
- Bernat, D. H., Oakes, J. M., Pettingell, S. L., & Resnick, M. (2012). Risk and direct protective factors for youth violence: Results from the National Longitudinal Study of Adolescent Health. *American Journal of Preventive Medicine*, 43(2, Suppl 1), S57–S66. <http://doi.org/10.1016/j.amepre.2012.04.023>
- Brault, M.-C., & Lacourse, É. (2012). Prevalence of prescribed attention-deficit hyperactivity disorder medications and diagnosis among Canadian preschoolers and school-age children: 1994-2007. *The Canadian Journal of Psychiatry / La Revue Canadienne de Psychiatrie*, 57(2), 93–101. Retrieved from <https://journals.sagepub.com/home/cpa>
- Connolly A., & Vance, A. (2010). Psychosocial factors associated with parent and teacher reports of aggression in children and adolescents with attention deficit hyperactivity disorder. *Australian & New Zealand Journal of Psychiatry*, 44(7), 667–675. <https://doi.org/10.3109/00048671003664697>
- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Thousand Oaks, CA: SAGE Publications

- Eichelberger, I., Plück, J., Hautmann, C., Hanisch, C., & Döpfner, M. (2016). Effectiveness of the prevention program for externalizing problem behavior (PEP) in preschoolers with severe and no or mild ADHD symptoms. *Zeitschrift Für Kinder- Und Jugendpsychiatrie Und Psychotherapie*, 44(3), 231–239. <https://doi.org/10.1024/1422-4917/a000425>
- Evans, M. K., Clinkinbeard, S. S., & Simi, P. (2015). Learning disabilities and delinquent behaviors among adolescents: A comparison of those with and without comorbidity. *Deviant Behavior*, 36(3), 200–220. <http://doi.org/10.1080/01639625.2014.924361>
- Faraone, S. V., Sergeant, J., Gillberg, C., & Biederman, J. (2003). The worldwide prevalence of ADHD: Is it an American condition? *World Psychiatry: Official Journal of the World Psychiatric Association (WPA)*, 2(2), 104–113. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1525089/pdf/wpa020104.pdf>
- Hawkins, J. D., Herrenkohl, T. I., Farrington, D. P., Brewer, D., Catalano, R. F., Harachi, T. W., & Cothorn, L. (2000). *Predictors of youth violence* (Juvenile Justice Bulletin NCJ 179065). Retrieved from U.S. Department of Justice, Office of Justice Programs, National Criminal Justice Reference Service <https://www.ncjrs.gov/pdffiles1/ojjdp/179065.pdf>
- Jolliffe, D., Farrington, D. P., Loeber, R., & Pardini, D. (2016). Protective factors for violence: Results from the Pittsburgh youth study. *Journal of Criminal Justice*, 45, 32–40. <http://doi.org/10.1016/j.jcrimjus.2016.02.007>
- Leschied, A. W., Cummings, A. L., Van Brunschot, M., Cunningham, A., & Saunders, A. (2001). Aggression in adolescent girls: Implications for policy, prevention, and treatment. *Canadian Psychology/Psychologie Canadienne*, 42(3), 200–215. <http://doi.org/10.1037/h0086892>

- Lynam, D. R., Caspi, A., Moffit, T. E., Wikström, P.-O., Loeber, R., & Novak, S. (2000). The interaction between impulsivity and neighborhood context on offending: The effects of impulsivity are stronger in poorer neighborhoods. *Journal of Abnormal Psychology, 109*(4), 563–574. <http://doi.org/10.1037/0021-843X.109.4.563>
- Mikami, A., & Lorenzi, J. (2011). Gender and conduct problems predict peer functioning among children with Attention-Deficit/Hyperactivity Disorder. *Journal of Clinical Child & Adolescent Psychology, 40*(5), 777–786. <https://doi.org/10.1080/15374416.2011.597089>
- Peasgood, T., Bhardwaj, A., Biggs, K., Brazier, J., Coghill, D., Cooper, C., ... Sonuga-Barke, E. (2016). The impact of ADHD on the health and well-being of ADHD children and their siblings. *European Child & Adolescent Psychiatry, 25*(11), 1217–1231. <http://doi.org/10.1007/s00787-016-0841-6>
- Rabiner, D. L., Coie, J. D., Miller-Johnson, S., Boykin, A.-S. M., & Lochman, J. E. (2005). Predicting the persistence of aggressive offending of African American males from adolescence into young adulthood: The importance of peer relations, aggressive behavior, and ADHD symptoms. *Journal of Emotional & Behavioral Disorders, 13*(3), 131–140. Retrieved from <https://journals.sagepub.com/home/ebx>
- Satterfield, J. H., Hoppe, C. M., & Schell, A. M. (1982). A prospective study of delinquency in 110 adolescent boys with attention deficit disorder and 88 normal adolescent boys. *The American Journal of Psychiatry, 139*(6), 795–798. <http://doi.org/10.1176/ajp.139.6.795>
- Satterfield, J., Swanson, J., Schell, A., & Lee, F. (1994). Prediction of antisocial behavior in attention-deficit hyperactivity disorder boys from aggression/defiance scores. *Journal of the American Academy of Child and Adolescent Psychiatry, 33*(2), 185–190. <http://doi.org/10.1097/00004583-199402000-00005>

- Willcutt, E. G. (2012). The prevalence of DSM-IV attention-deficit/hyperactivity disorder: A meta-analytic review. *Neurotherapeutics*, 9(3), 490–499. <https://doi.org/10.1007/s13311-012-0135-8>
- Wojciechowski, T. W. (2017). The role of ADHD in predicting the development of violent behavior among juvenile offenders: Participation versus frequency. *Journal of Interpersonal Violence*. <http://doi.org/10.1177/0886260517734225>
- Zalot, A., Jones, D. J., Kincaid, C., & Smith, T. (2009). Hyperactivity, impulsivity, inattention (HIA) and conduct problems among African American youth: The roles of neighborhood and gender. *Journal of Abnormal Child Psychology*, 37(4), 535–549. <http://doi.org/10.1177/0886260517734225>

## Appendix

## Search Strategy Chart

Search strategy 1	impuls* and youth violence
Number of hits	836
Inclusion criteria	Scholarly (peer reviewed) journals, academic journals, material in English, articles published within 2000-2020
Exclusion criteria	Terms: mental health, mental illness. Other criteria: news articles, magazines, periodicals, articles published prior to 2000
Revised number of hits	48

Search strategy 2	ADHD or "attention deficit hyperactivity disorder" (field of search: title) AND Aggress* or violen* (field of search: title) AND youth or adolescents (field of search not specified)
Number of hits	404
Inclusion criteria	Scholarly (peer reviewed) journals, academic journals, material in English, articles published within 2000-2020,
Exclusion criteria	Terms: mental health, mental illness. Other criteria: news articles, magazines, periodicals, articles published prior to 2000
Revised number of hits	140