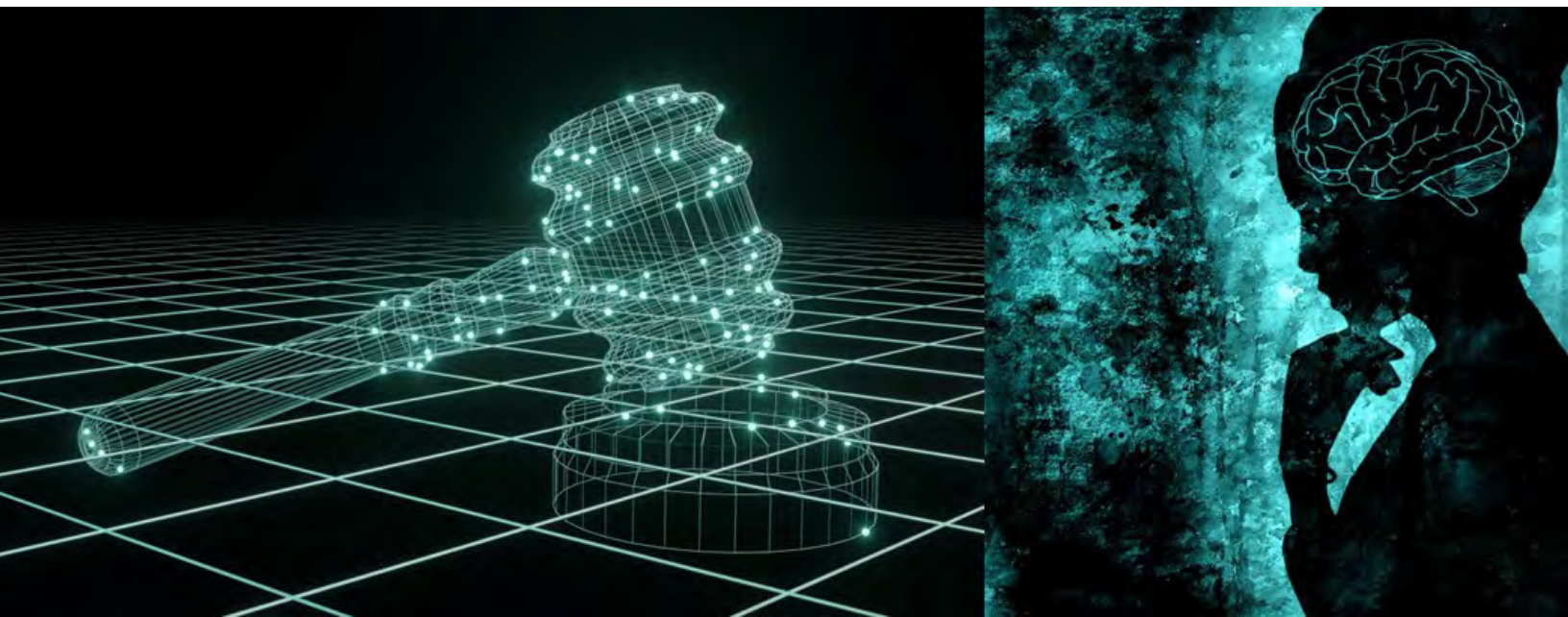


Adolescent Neurodevelopment and Implications for the Criminal Justice System



LITERATURE SYNTHESIS

April 2023



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Executive Summary

Issue: How can evidence from developmental science be used to inform more developmentally appropriate and effective services and programming for adolescents within the justice system?

Background: Current approaches to criminal justice in Canada treat youth and adults as distinct age groups, with separate systems developed to respond to criminal acts depending on whether the individual is above or below a specified age cut-off (i.e., 18 years). However, this approach does not recognize adolescence – a critical period of growth and maturation that continues into the mid-twenties, which differs in important ways from childhood and adulthood. As a result, there is a substantial disconnect in the justice system between what is currently known about adolescent development and existing policy responses to adolescent criminal behavior. Adolescents continue to be overrepresented in the criminal justice system in Canada, further highlighting the urgent need for more effective justice responses for this age group – particularly for older adolescents who are still transitioning to adulthood. There is increasing interest in the role of neuroscientific evidence for understanding and addressing adolescent misconduct.

Objective: This literature synthesis aims to examine and synthesize evidence related to adolescent criminal behaviour from a transdisciplinary perspective that considers biological, social, environmental and legal processes, with a focus on the role of neurodevelopmental factors in the late adolescence period.

Findings: Neuroscientific evidence has shown several key findings relevant to understanding adolescent decision-making and behaviours, including criminal behaviours. Models of brain development show that adolescence is a period of imbalance in the maturation of different brain regions, resulting in heightened arousal of the socioemotional system (which favours reward seeking behaviours), while the development of the cognitive control systems (which allow for self-regulation abilities) continues into the mid-twenties. Given that adolescents have not yet attained full capacity for reasoning and judgment, they may not be considered developmentally mature enough to be held responsible for criminal actions, particularly in situations of high emotional arousal and peer pressure. Furthermore, the threat of harsh punishments may not be the most effective approach to change behaviour in adolescents as they are more likely to focus on short-term rewards and consequences. Indeed, evidence across multiple studies and reviews generally shows that punitive justice system approaches which treat adolescents similarly to adults are not effective at reducing recidivism and may even have harmful consequences for both adolescents and society by perpetuating a cycle of further criminal behaviour.

Executive Summary

Rather than punitive approaches, evidence tends to support the use of rehabilitative or restorative justice system approaches for adolescents, which seek to help the individual reintegrate into society and repair the harm caused by their actions. However, while restorative justice programs, including sentencing circles, have shown promising results and benefits for both victims and individuals charged with crimes, more research is needed to evaluate their impact on actual behaviour and other outcomes.

Policy Implications: Research has increasingly shown that neurodevelopmental evidence has significant implications for the criminal justice system, particularly for informing more developmentally appropriate justice system responses for older adolescents. Overall, findings from the literature indicate that the justice system should respond to adolescent misconduct in ways that not only hold them accountable for their actions and deter future criminal behaviour, but that also support their development and promote more positive and healthy trajectories as they transition into adulthood.

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Adolescent Neurodevelopment and Implications for the Criminal Justice System – Literature Synthesis

1.0 Overview of the Issue

1.1 What is the Issue?

Approaches to criminal justice tend to follow an age-related pattern whereby separate systems have been developed to respond to young people (i.e. minors under the age of 18) versus adults, with a designated age cut-off to distinguish these two groups. This approach considers the special needs and circumstances of young people, recognizing that they lack the maturity of adults and that responses to criminal acts by youth should align with these needs and circumstances in a fair and appropriate manner (e.g. Government of Canada, 2021a). However, this same approach typically does not acknowledge the period of adolescence, which has been identified as a distinct stage by developmental researchers and scientists – one that differs in important ways from both childhood and adulthood. Instead, older adolescents (i.e. ages 18-25) are prosecuted in the same manner as adults, despite evidence that cognitive, behavioral, and emotional development continues past the age of 18 (Price & Turner, 2022). As a result, there is a substantial disconnect in the justice system between what is currently known about adolescent development and existing structures and responses to adolescent criminal behavior.

Furthermore, there is a lack of congruence across jurisdictions and policy domains with respect to child and adolescent rights and responsibilities. Researchers have noted a shift in views of child rights following the 1989 *UN Convention on the Rights of the Child* — while children have historically been viewed as dependent beings in need of protection through the law, there has been an increasing acceptance of children and youth as autonomous and capable beings with the right to participate in decision making. Yet there remains little consensus as to how and when these rights are realized (Bosisio & Ronfani, 2020; Gillen, 2006). In Canada, for instance, the law considers adolescents to be mature and autonomous enough to make their own decisions and take responsibility for their actions in some circumstances yet not in others, resulting in inconsistencies in the legal age that is designated for various actions and behaviors. For example, in Ontario, the age of majority is 18 years – at which point individuals are eligible to vote, change their name and see restricted movies, among other abilities; and are considered adults under the *Criminal Code of Canada*. However, some actions are permissible at a younger age (e.g. there is no specified age of consent for medical treatment in Ontario; and individuals are able to withdraw from parental control and give sexual consent at age 16); while other rights and privileges are prohibited until an older age (e.g. the age to legally purchase alcohol or tobacco is 19 years).

Researchers have also highlighted conflict between the focus on protection of children and youth that is inherent in the family care and child welfare system and the concept of responsibility that is apparent in the criminal justice system. For instance, the primary goal of child welfare practice and policy is to always promote the best interests of the child and ensure their protection. In contrast, the justice system is primarily concerned with protecting the public, thus the main goal is usually to prevent offending, albeit through rehabilitation and reintegration for young people¹ (Gillen, 2006).

¹ As noted in the preamble to the Youth Criminal Justice Act (2002) in Canada, the United Nations Convention on the Rights of the Child (UN CRC) Article 40, and United Nations Standard Minimum Rules for the Administration of Juvenile Justice (the Beijing Rules).

In sum, the issue of how to respond to adolescent misconduct extends beyond the justice system itself, with implications for child welfare, education, and social policy. The need for greater balance and congruency across these systems calls for a transdisciplinary perspective that considers evidence from several disciplines, including neuroscience, psychology, sociology, and law.

1.2 What is the Role of Neuroscience?

Advances in neuroscience have shown that brain development in adolescence is not a linear process, as discussed throughout this report. Based on this evidence, it would not be possible to identify or define an exact age at which an individual can be determined to have the cognitive capacity necessary to be considered criminally responsible for their actions. Similarly, literature on transitions to adulthood consistently shows that key milestones and life transitions are experienced at later ages in today's society compared to previous generations, yet our legal and institutional structures are still largely based on arbitrary age parameters that may no longer be appropriate (Price & Turner, 2022).

Researchers, scientists, and legal experts have increasingly called for a reconsideration of the juvenile justice system, noting that the ways in which we respond to criminal acts by adolescents and young adults should be informed by existing developmental science – including medical, biological, and psychosocial understandings of adolescent development (Steinberg, 2009). However, while there has been growing interest in the use of neuroscientific evidence as it relates to the justice system, the existing evidence has not yet made a significant impact on policy or practice (Pernu & Elzein, 2020). A better understanding of how various dimensions and processes of adolescent neurodevelopment affect their criminal behaviour as well as their responses to different interventions within the justice system would help to inform more effective justice policy responses (Bonnie & Scott, 2013).

1.3 Why is the Issue Important?

The issue of how to best respond to adolescent misconduct is important for several reasons. First, adolescents are overrepresented in the criminal justice system, highlighting the critical need for effective justice responses for young people who are still transitioning into adulthood. Indeed, one of the most well-established findings in criminology is the relationship between age and crime, referred to as the “age-crime curve” (Hirschi & Gottfredson, 1983). This concept describes the consistent observation across multiple datasets, samples and settings that criminal involvement increases throughout adolescence, peaks in late adolescence, and then declines steadily thereafter (Shulman et al., 2013; Flores De Apodaca et al., 2015; Bekbolatkyzy et al., 2019). Police-reported data from Canada also supports this finding, as young Canadian adults between the ages of 18 and 24 had the highest rate of criminal offending of any age group in 2014 (Farrington, 2017; Department of Justice Canada, 2019). However, while the age-crime curve has been widely observed and accepted, there is still a lack of consensus around the possible factors that might explain this relationship, including developmental, social, and even economic factors.

A second reason why this issue is important relates to the potential consequences of criminal involvement for adolescents compared to other age groups (i.e., children and adults). The experience of going through the criminal justice system can be traumatic for an individual of any age, but the



harmful consequences may be even more pronounced for adolescents and young adults, who are still developing and transitioning into adulthood. The impact of incarceration or other punitive sanctions not only limits future opportunities for these young people, including opportunities for employment, housing, and community integration (Peacebuilders Canada, 2023), but can also affect physical and mental health outcomes and psychosocial development, including impacts on their self-image and identity formation (see Section 6.1 for further discussion).

Overall, this transdisciplinary issue requires consideration from several perspectives, including scientific, social, ethical, and legal perspectives, and has important implications for both policy and practice (Center for Law, Brain & Behavior, n.d.). According to researchers such as Bekbolatkyzy et al. (2019), a better understanding of the reasons why criminal behavior peaks in adolescence would have at least two key benefits for both research and policy. First, our ability to provide a full and accurate account of this process would lead to stronger developmental and criminological theories which could better predict criminal involvement across the life course. Second, knowledge of the factors that account for age-related criminal behaviour could be used to inform the development and implementation of more effective crime prevention and treatment programs for adolescents in the justice system. In sum, more research on the neurological underpinnings of adolescent misconduct would not only have implications for determinations of guilt or criminal responsibility, but also for approaches and interventions that aim to reduce rates of re-offending and keep adolescents out of the justice system in the future (see Section 6).

2.0 Overview of this Report

2.1 Mandate and Scope

This report was developed to provide an overview and synthesis of the available literature relevant to the issue of how the justice system can better respond to adolescent misconduct from a transdisciplinary perspective, with a focus on neurodevelopmental evidence. An overview of current understandings of adolescence, adolescent brain development as well as existing justice system approaches for adolescents is provided. Findings from the literature in Canada and other high-income countries on the impact of various justice-related responses and interventions on adolescent development, behaviour, and other outcomes are reviewed. Finally, implications of the available evidence for policy and practice, as well as remaining limitations and questions for future research are discussed.

By offering an objective summary and analysis of the issue, the evidence surrounding it, and the applicable policy implications, this report aims to assist policymakers, practitioners, and other stakeholders in developing evidence-informed, cross-sectoral solutions to improve outcomes for adolescents involved in the criminal justice system.

Note: Given that the key issue underlying this review is distinguishing adolescents from adults in the criminal justice system, this report primarily focuses on evidence related to older adolescents, who are more likely to be treated as adults as they go through the justice system (also see Section 2.4 for a summary of inclusion criteria). While the period of early adolescence is increasingly recognized as a critical sensitive period for development, evidence around the capacities of early adolescents is largely beyond the scope of this report.

2.2 Objectives

The main objectives of this literature synthesis are:

- To explore and synthesize research on adolescent brain development from a transdisciplinary perspective that considers biological, social, environmental, and legal processes
- To understand the neural underpinnings of adolescent criminal behavior and how this differs from both adults and children
- To examine the evidence on different approaches to the response and management of adolescent conflict and (mis)behavior and their impact on adolescent development and other outcomes
- To provide insights that can help inform the development of alternative justice approaches that might be more developmentally appropriate for young people involved in the criminal justice system; with the ultimate aim of improving health, social, educational, employment, and other outcomes for youth and young adults

2.3 Research Questions

The primary research question guiding this literature synthesis is the issue of whether adolescents and adults differ in ways that have implications for criminal justice practice and policy. Specifically, should adolescents be held to the same standards of accountability for criminal acts or do they have unique needs and circumstances that necessitate a different approach as they go through the criminal justice system?

This main question leads to a number of additional research questions to further explore the issue from both research and policy perspectives:

- How can we apply an understanding of neurodevelopment to help reconcile tensions between promoting adolescent autonomy and inclusion based on their capacity for rational decision making on the one hand, versus not holding them accountable for certain decisions and actions because their brains are not yet fully developed?
- How can evidence from developmental science be used to inform services and programming within the justice system and how does it play out in existing approaches?
- What does the available evidence tell us about how an adolescent developmental lens can be applied to make services more developmentally appropriate and potentially reduce recidivism? Specifically:
 - What kind of services or programming might ameliorate trajectories for youth involved in criminal justice system? Are there certain types of justice approaches that the adolescent brain might be more receptive to?
 - On the other hand, how does exposing adolescents to punitive sanctions affect their physical and mental health, development, and behaviour?
 - How should we respond to adolescent criminal behaviour in ways that best hold them accountable for their actions and deter future crime while mitigating potential adverse impacts?
 - Finally, what are the implications of the existing evidence for other public services and systems more broadly?

2.4 Research Methods

A scan of the literature was conducted from October to December 2022 to determine the breadth of information available and to identify and synthesize information relevant to the issue of adolescent misconduct and the role of neurodevelopmental factors.

Various search engines, research portals, and institution-specific websites were utilized for the collection of relevant data. Two main sources of data sources were selected: 1) peer-reviewed journals found in electronic databases; and 2) internet-based grey literature, including published reports, websites of relevant organizations or groups; working papers; presentations or webinars; and government publications and legislation.

Sources were included in the literature review if they were found to contain variables of interest and keywords relevant to the research question and objectives. A hand search of reference lists from relevant studies was also used to supplement searches. Data sources were limited to those published in English. In addition, in order to gather the most current information, the search was largely focused on data sources published after the year 2000, or within the last five years for policy-relevant information. However, some sources published prior to 2000 were also included where they provided relevant background or evidence. Given the limited amount of research published in Canada on the topic, we included sources published in other countries where relevant. Finally, the search was focused on results specific to older adolescents, or ages up to 24 years (see Section 3.2 for a summary of definitions of adolescence). Findings specific to children or adults were used where relevant, such as to make comparisons with adolescents.

A list of keywords and search terms used in the literature scan are provided below. Throughout the search process, keywords were added, deleted, or modified as needed to enhance the search strategy.

Keywords: adolescent, adolescence, criminal justice, justice system, crime, development, neurodevelopment, neurological, brain, behaviour, Canada

3.0 Background – Understanding Adolescence

3.1 Characteristics of the Period of Adolescence

The period of adolescence is one of significant growth, change, and transition as individuals progress from childhood to adulthood. However, despite the importance of adolescence from biological, developmental, social and psychological perspectives, the exact definition and age range of this period is not always clear or consistent across cultures and decades. Indeed, conceptualizations and understandings of adolescence have changed over time in line with both scientific developments as well as societal trends and patterns (Sawyer et al., 2018). In the current context, the period of adolescence is generally understood to begin with biological changes and end with social role transitions; however, as described below, these markers can vary greatly (Patton & Viner, 2007; Sawyer et al., 2018; Steinberg, 2016).

Biological processes

The biological underpinnings of adolescence are widely recognized as originating with the onset of puberty, which is marked by the activation of the neuroendocrine network responsible for the development of the reproductive system (known as the hypothalamic-pituitary-gonadal (HPG) axis). Puberty refers to all of the seen and unseen changes that take place to prepare individuals for sexual maturation and reproduction. However, there is wide variation across individuals in the sequence and timing of the changes that occur in this process, which can be attributed to myriad

social and biological factors (Patton & Viner, 2007). For instance, higher BMI among young females has been associated with earlier emergence of secondary sexual characteristics (Biro et al., 2013). Exposure to adversity early in life, including maltreatment, has also been shown to accelerate the pace of puberty (Colich et al., 2020). Overall, the age of onset of puberty can vary by four to five years, averaging between 8 and 14 years in females and 9 to 15 years in males (National Research Council & Institute of Medicine, 1999). Furthermore, the average age of onset of puberty has decreased over time – a shift that may be related to improvements in child health and nutrition as well as other environmental influences (Eckert-Lind et al., 2020; Sawyer et al., 2018). In females for example, the average age of menarche (the first menstruation) has decreased from about age 17 in the year 1840 to age 12-13 today in most industrialized countries – a rate of decline of about three to four months per decade over the past 150 years (Ong et al., 2006; Lee, 2021).

Social processes

Adolescence is defined not only by these biological processes, but also by broader social and cultural processes (Patton & Viner, 2007). Historically, the passage from puberty to adulthood was denoted by social events or transitions such as marriage, sexual activity and parenthood as well as employment and economic independence. However, these same social milestones in the modern world tend to occur at later ages compared to previous generations, thereby blurring the distinction between adolescence and adulthood even further (Steinberg, 2016). For example, in many Western industrialized countries, the age of first marriage now surpasses 30 years, and many individuals continue to rely on their parents, family and community for support as they pursue higher education and training prior to securing employment (Sawyer et al., 2018). This more gradual and prolonged transition to independence has been referred to as “*emerging adulthood*” – broadly defined as the period of life in which young people have left adolescence but have not yet assumed the responsibilities of adulthood, and encompasses the age range of approximately 18 to 29 years (Arnett, 2004; 2015; Sansone et al., 2020).

3.2 Definitions from Key Health Organizations

Understandings of adolescence have also been guided by governments and prominent health organizations in Canada and internationally, including the Canadian Pediatric Society (CPS), American Academy of Pediatrics (AAP), the United Nations (UN), and the World Health Organization (WHO). In Canada, the age range of adolescence has been defined by CPS as between the ages of 10 and 19 years, which is also consistent with definitions provide by the UN and WHO (Canadian Pediatric Society, 2003; World Health Organization, n.d.; UNICEF, 2022). The American Academy of Pediatrics has previously defined adolescence as 11 to 21 years of age, with three



separate stages: early adolescence (11-14 years); middle adolescence (15-17 years); and late adolescence (18-21 years) (Hardin et al., 2017). However, a more recent policy statement from the American Academy of Pediatrics discourages the establishment of arbitrary age limits for discontinuing pediatric care, noting that research increasingly shows that development, including brain development, continues well into the 20s. This recommendation to expand care beyond the age of 21 without restrictive age limits is also consistent with the position statement of the Canadian Pediatric Society. Appendix A summarizes some of these key policy statements and definitions.

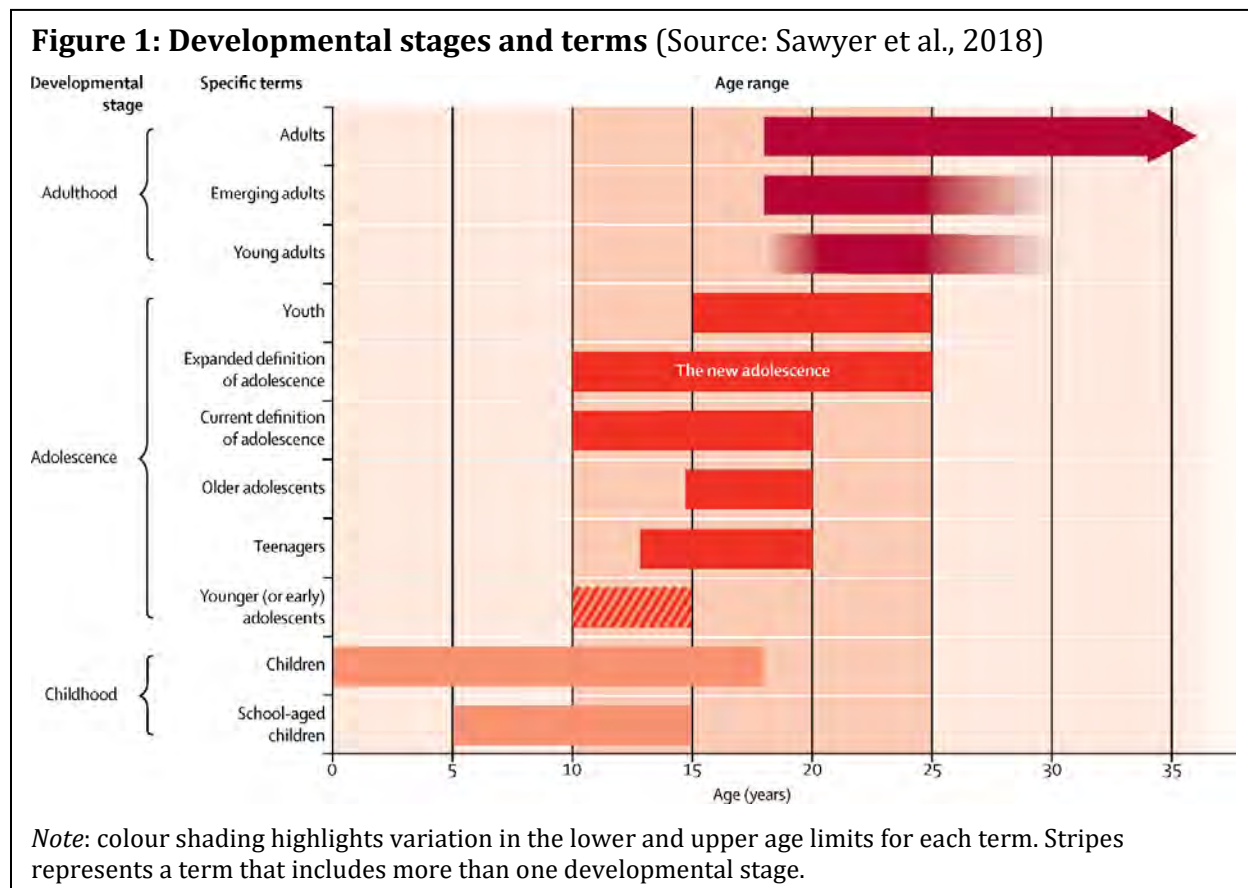
Besides definitions from policymakers and health organizations, there is also a lack of agreement within the literature on child and adolescent health as to the exact definition or criteria for the period of adolescence. According to Sawyer et al. (2018), the definition of adolescence as ages 10-

19 years is now outdated as it was based on earlier patterns of adolescent growth and development. These researchers argue that “An expanded and more inclusive definition of adolescence as 10-24 years of age aligns more closely with contemporary patterns of adolescent growth and popular understandings of this life phase” and “is essential for developmentally appropriate framing of laws, social policies, and service systems” (Sawyer et al., 2018, p. 223).

Definitions of adolescence are further complicated by the use of other terms for this age range and the individuals who belong to it. For example, individuals who would be classified as adolescents according to the CPS definition could also be referred to as ‘teenagers’, ‘youth’, or ‘young people’. In addition, the UN Convention on the Rights of the Child (CRC), to which Canada is a signatory, applies to “children up to the age of 18” (UN CRC, 1989). Figure 1 shows some of these commonly used age definitions and terms that cover the developmental phases of childhood, adolescence, and adulthood. Although these terms tend to have different meanings, they may overlap and are not necessarily mutually exclusive (Sawyer et al., 2018).

Note on Terminology

We recognize the varying terms and definitions provided by leading health and other organizations (including CPS, AAP, and Peacebuilders Canada) as well as researchers such as Shulman et al. (2016) and Sawyer et al. (2018) who have noted that while adulthood is often tied to the legal age of majority (i.e. age 18 or 21), many individuals of this age may not be considered fully mature adults, for reasons discussed throughout this report. Therefore, for the purposes of this report, the terms “adolescence” or “adolescent” are used to refer loosely to youth or young people between the ages of approximately 10 and 24 years of age.



3.3 Summary

In sum, adolescence is recognized as a critical period of sexual and social maturation, marked by major physical growth, brain development, as well as emotional, cognitive, and behavioural changes. Understanding the process of how and when these changes occur relies on considerations of both biological and social factors – factors which have changed themselves over time. For instance, the physical changes that occur in the body which mark the beginning of adolescence now generally occur earlier, while the social transitions that mark the end of adolescence often occur later. Beyond these broad shifts, there is also a need to consider the unique circumstances, experiences and developmental histories of each individual which can influence his or her trajectory through adolescence. As a result, while there is general consensus as to when adolescence begins, there is less agreement as to when it ends and adulthood begins, which has implications for public policy and systems, particularly the justice system.

4.0 Research on Adolescent Brain Development

Human development is often viewed as a linear, progressive process. However, the transitional period of adolescence adds complexity to this general trend, as many aspects of adolescent development and behavior show non-linear changes. For instance, adolescents tend to show improvements in some domains of cognition and behaviour as they mature, such as cognitive control, but they also have higher rates of behaviours that may be considered maladaptive, such as risk-taking and reward-seeking behaviours, compared to both children and adults. If the brain as a



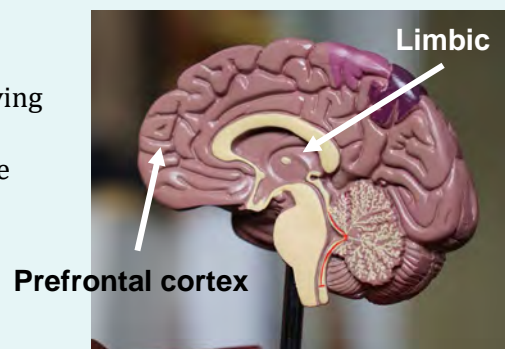
whole developed linearly, we would expect adolescents to make decisions that align with their level of development, meaning that children – whose brains are the least fully developed – should behave in the most inappropriate ways (Kanwal et al., 2016). However, the observation of increased impulsivity and reactivity among adolescents contradicts this assumption and suggests that there are distinct developmental trajectories underlying these different aspects of adolescent decision-making and behaviour.

Advances in developmental neuroscience have led to a deeper understanding of the period of adolescence and how patterns of brain development across neural systems might explain these observed behavioural patterns, including the greater likelihood of reckless or risky behaviours (Shulman et al., 2016). While there is still no perfect model that accurately captures the non-linear changes in behaviour observed throughout adolescence, there is strong evidence supporting the explanations offered by *dual systems* or *maturational imbalance* models. As described below, these models propose that adolescent brain development is an imbalanced process characterized by temporal incongruence between the development of two key brain regions that affect decision-making and self-regulation: the limbic system and the pre-frontal cortex.

Understanding Key Brain Regions Relevant to Adolescent Development

- **Limbic system** – a group of structures located deep in the cerebrum that includes the amygdala, hippocampus, and the hypothalamus. These structures are primarily responsible for controlling emotions, but are involved in several other activities and functions related to survival, including emotional responses, memory processing, aggression, pleasure and sexual arousal, reward seeking, regulation of the autonomic nervous system, and the flight-or-flight response (Arain et al., 2013; Barras & Bhattacharya, 2021; Rajmohan & Mohandas, 2007).
- **Prefrontal cortex** – an area of the brain located in the frontal lobe that is primarily responsible for reasoning and logic. This region is associated with executive functions in the brain – the cognitive processes that allow us to plan and direct thoughts and actions to achieve certain goals. It is also important for the development of self-regulation skills.

In adolescents, the limbic system has been linked to certain characteristics and behaviours such as expressing strong emotions or mood swings and relying on emotions or “gut feelings” when making choices (Arain et al., 2013). In contrast, the maturation of the prefrontal cortex allows individuals to apply better reasoning abilities, exert control over impulses, and make informed judgments.



4.1 Neurodevelopmental Models of Adolescent Risk-Taking

Adolescence is a time of significant growth and change within the brain. However, different brain structures and regions – including the limbic system and prefrontal cortex – develop at different ages and at different rates, with the limbic system developing earlier. Although basic reasoning capacity is mostly developed by mid-adolescence, the prefrontal cortex is one of the last regions of the brain to *fully* mature – a process that continues into the third decade of life (Arain et al., 2013). As a result, adolescents experience heightened arousal of the socioemotional system *before* the cognitive control system attains full functioning (Shulman et al., 2016). Furthermore, this imbalance is a feature that is unique to adolescence – distinguishing adolescents from both children (for whom both of these systems are still early in development) and adults (for whom both systems are fully developed) (Cohen & Casey, 2014).

This pattern of asynchrony is the basic premise of the dual systems model of adolescent risk-taking, which portrays adolescence as a period of heightened reward system activity in the brain, leading to increases in sensation-seeking behaviour; along with a more gradual maturation of cognitive control and self-regulatory capacities (Steinberg, 2009). Adolescents are thereby more inclined towards risk-taking or thrill-seeking behaviour, but with a dampened ability to exert top-down cognitive control over these behaviors (Steinberg et al., 2018). In a more visual sense (see Figure 2), this model proposes that sensation-seeking tends to follow an inverted-U shape, peaking in late adolescence, while self-regulation increases linearly through adolescence and young adulthood, plateauing in the mid-20s (Steinberg, 2016; 2018).

Related theoretical models with slight variations have also been put forth in recent years. These different models and their similarities and differences are briefly summarized in Table 1 and illustrated in Figure 2. As shown in Table 2, research evidence has generally supported the dual systems theory, with some critiques as well.

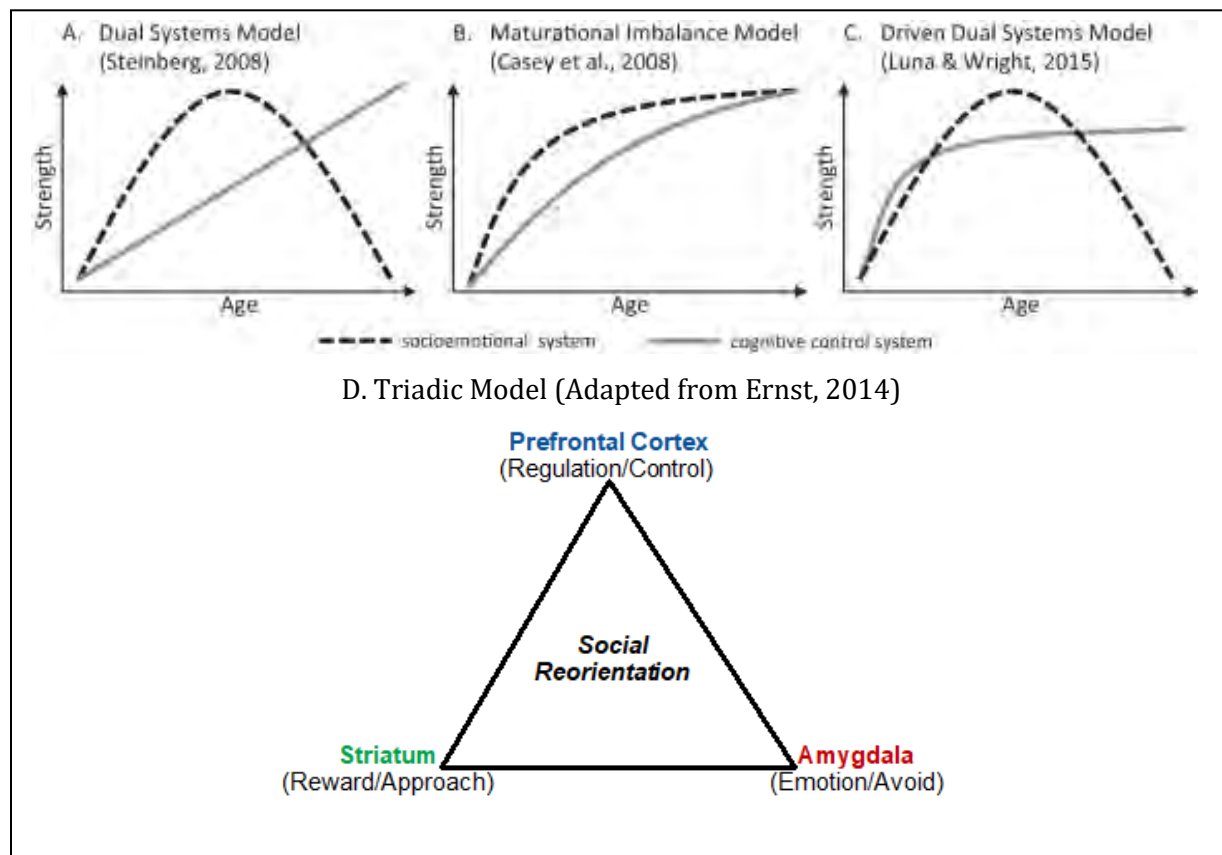
Table 1: Variations of the dual systems concept of adolescent neurodevelopment (Adapted from Shulman et al., 2016)

Model	Authors	Description
A. Dual systems	Steinberg et al., 2008	<ul style="list-style-type: none"> • Socioemotional system follows an inverted U-shaped trajectory, increasing in adolescence and then declining in early adulthood • Cognitive control system slowly develops and matures through late adolescence • The decline in the socioemotional system occurs independently of the development of the control system
B. Maturational imbalance	Casey et al., 2008	<ul style="list-style-type: none"> • Socioemotional system reaches a peak in mid-adolescence and then plateaus as the cognitive control system is strengthened • These systems must be considered together and influence each other
C. Driven dual systems	Luna & Wright, 2016	<ul style="list-style-type: none"> • Socioemotional system follows an inverted U-shape; but the cognitive control system plateaus in mid-adolescence rather than continuing to increase into the 20s
D. Triadic	Ernst, 2014	<ul style="list-style-type: none"> • Includes a third brain system centered in the amygdala, responsible for emotional intensity and avoidance, which interacts with the prefrontal cortex (responsible for regulation) and the striatum (reward system) • This system may boost impulsive decisions and may become hypoactive when faced with potential reward • However, according to Shulman et al. (2016), this model has less evidence to support it and the role of the amygdala in decision-making remains unclear

Table 2: Arguments in favour of and against the dual systems model (Steinberg, 2016, 2018; Shulman et al., 2016)

Pros	Cons
<ul style="list-style-type: none"> • Useful as a heuristic device • Supported by studies conducted among both humans and rodents, including neuroimaging studies • Supported by studies using a variety of methods and measures, including self-report and performance-based • The general pattern has recently been shown in an international sample of individuals from 11 different countries displaying cultural and economic diversity (Steinberg et al., 2018) 	<ul style="list-style-type: none"> • Has been critiqued as providing an oversimplified account of adolescent brain development • Most tests of the model have been conducted only in high-income Western countries, such as the US and Europe; leading to questions about universality • Not sufficiently attentive to the interactions between brain systems

Figure 2: Models of adolescent neurodevelopment (Sources: Top Image from Shulman et al. (2016); Bottom image from Ernst (2014))

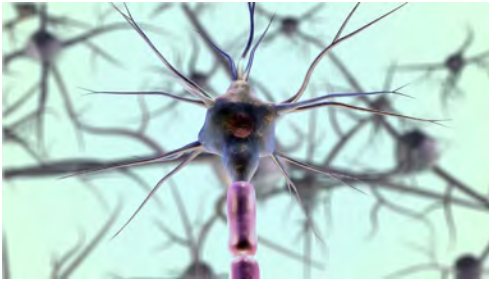


4.2 Other Unique Features of Adolescent Brain Development

Besides the neurodevelopmental imbalance described by these theories, adolescent brain development is characterized by several other key processes that distinguish this period from earlier and later life stages, as described below.

Brain plasticity and synaptic pruning

First, adolescence appears to be a highly sensitive period for brain *plasticity* – which refers to the brain’s capacity to change and adapt in response to experience (Steinberg, 2016). According to researchers such as Steinberg (2016), this growth in developmental plasticity beginning at puberty, followed by a drop at the end of adolescence, can be used as a marker of the actual stage of adolescence itself. Other researchers have noted that plasticity is an important component of adolescent development as it allows the opportunity for individuals to learn and acquire new skills, which can help to promote positive change and growth. However, it can also increase the likelihood of making rash or risky decisions as the neural systems and connections responsible for rational thought are still being constructed (Arain et al., 2013; Konrad et al., 2013). Enhanced plasticity of the prefrontal circuits during this time may also serve as a vulnerability factor for the development of psychiatric disorders, which may co-occur with or impel behaviours that give rise to criminal justice system involvement (Larsen & Luna, 2018).



Indeed, the process of establishing and modifying neural connections to ensure appropriate connections are in place for adulthood is a critical part of adolescent brain development (Spear, 2013). This “rewiring” process in the brain has been established by MRI studies, which show that neural connections continue to be fine-tuned throughout adolescence such that unnecessary synapses are gradually eliminated while relevant ones are strengthened – a process known as

synaptic pruning (Casey et al., 2008; Konrad et al., 2013; Steinberg, 2009). Moreover, the improvements in connectivity between different brain regions that result from this process are associated with more mature reasoning and decision-making abilities. While minor alterations in the brain’s synaptic connections continue to take place in adulthood, the rapid pace of growth and change that occurs during adolescence is unparalleled.

Dopamine activity

A final component of adolescent brain development that is important for understanding adolescent behaviour is the role of *neurotransmitters* – that is, chemicals that are released by neurons to send signals to other cells. Some of the key neurotransmitters that play a role in adolescent development are listed in Table 3. Of particular significance is **dopamine**, which is associated with a number of functions in the body such as mood, pleasure, and motivation. Dopamine supports reward processing by signalling the reward expectancy or value of a given behaviour. Given its important role in reward-seeking in particular, researchers have focused on changes in the dopamine system during adolescence to provide further explanation of the neurobiological underpinnings of risk-taking behaviour.

As described by researchers such as Kanwal et al. (2016) and Steinberg (2008; 2009), the dopamine system undergoes a remodeling process during adolescence, marked by an increase in dopamine concentrations in cortical areas of the brain (i.e., the prefrontal cortex) in early adolescence, followed by a subsequent stabilization or reduction in adulthood. This peak in dopamine activity has been used to account for the increase in reward seeking or sensation seeking behavior among adolescents. However, most evidence in this area has come from animal subjects; there is a lack of direct evidence among human adolescents as subjects due to methodological and ethical research challenges. As a result, it is still unclear how exactly these changes in dopamine activity influence actual behavioural changes. For instance, some researchers argue that it is the change in *relative density* of dopamine receptors in the brain that is responsible for changes in behaviour in adolescence (Steinberg et al., 2008). Changes in dopamine activity have also been posited to facilitate *critical period plasticity*² during adolescence by effectively motivating the drive towards novelty and reward-seeking, while also enhancing responsiveness to the rewards that result from this exploratory behaviour (Larsen & Luna, 2018). Another theory proposes that dopamine activity increases during adolescence in order to facilitate the transition to adulthood, as the ability to translate reward seeking into the “adaptive pursuit of positive incentives is critical to independent future-directed behavior” (Wahlstrom et al., 2010, p. 632).

² Critical or sensitive periods refer to time windows during which experience and neurobiological factors interact to shape normative brain development and alter behaviour, or more specifically, a time when the effect of experience on brain structure is particularly strong (Larsen & Luna, 2018).

Table 3: Important neurotransmitters relevant to adolescent development and behaviour (Arain et al., 2013; Glick, 2015; Cleveland Clinic, 2022).

Name	Primary Role(s)
Dopamine	Emotional responses, pleasure, pain, mood, reward seeking
Norepinephrine	Alertness, arousal, stress, 'fight-or-flight' response
Serotonin	Mood, anxiety, arousal, impulse control, aggression
Melatonin	Regulates circadian rhythms and the sleep-wake cycle

4.3 Role of Environmental and Social Factors

In everyday life, decisions and behaviours are not only influenced by changes in brain structures and activity; the broader social context in which these behaviours take place must also be considered. As described by Shulman et al. (2016), while adolescents may be the most likely age group to engage in risk-taking or reward-seeking behaviours because of the neurobiological changes described above, they may not actually express this propensity in the real world. Whether or not individual adolescents act on their impulses depends on the context, which can serve to enable or promote some acts and discourage others (Shulman et al., 2016). For example, younger or middle adolescents may be constrained in their behaviours by social and legal factors; in contrast, older adolescents may have less supervision as well as greater financial or legal access to certain behaviours, leading to greater *opportunity* for risk-taking.

Research Spotlight: The Impact of Race-Based Adversity

Beyond the immediate social and environmental context, it is also important to consider the role of broader structural factors that have been shown to affect child and adolescent health, development, behaviour, and well-being. This includes experiences of trauma and adversity in early childhood, which have negative effects on physical, mental, and social health outcomes throughout the life course (Svetaz et al., 2020). It also includes the intergenerational effects of colonialism, racism and discrimination which has led to a disproportionately higher risk of negative health outcomes for racialized groups, including Black and Indigenous children and youth.

Recent research from the United States has also shown an association between disparities in experiences of race-based adversity in childhood (such as socioeconomic disadvantage and family conflict) and structural differences in brain development among children aged 9-10 years (Dumornay et al., 2023). Findings from this study showed that Black children and youth disproportionately experience childhood adversity compared to White children, which is rooted in historical and structural factors such as racism and discrimination. Moreover, these experiences of race-based adversity may actually contribute to subsequent race-related differences in the development of brain structures that are responsible for regulating stress and emotions, as indicated by lower grey matter volumes in the amygdala and prefrontal cortex among Black children.

This research points to the importance of structural racism as a key contributor to differences in the ability of adolescents to regulate their emotions and respond to stressful situations, which can have implications not only for mental health outcomes, but also for potential criminal justice system involvement.

According to Hartley & Somerville (2015), there are two key domains in which research has shown the context-dependency of adolescent decision-making behaviour, described below.

- a) **Situations of heightened emotional arousal** – Adolescent decision-making is influenced not only by cognitive factors and inputs, but also by feelings and emotions experienced in a given situation – such as excitement, thrill, fear, or anxiety. According to Albert & Steinberg (2011), these emotions can influence behaviour either directly or indirectly (i.e. anticipated emotions of different choices). Researchers such as Cohen & Casey (2014) posit that in emotionally charged situations, adolescents are even less capable of regulating their still-developing socioemotional brain regions, making them more vulnerable to risky decisions.
- b) **Contexts involving peers** – Evidence also suggests that adolescents are particularly susceptible to the influence of peers. Studies consistently show the effects of peer pressure on adolescent behaviours, and the presence of peers in a social context appears to influence risk taking behaviours to a greater degree among adolescents compared to adults (Shulman et al., 2016; Smith et al., 2018). While research evidence has not yet clarified the exact mechanism by which peers exert a stronger influence on adolescent decision-making, there is some evidence that suggests the presence of peers increases reward sensitivity rather than restricting the cognitive control system (Smith et al., 2018; Ciranka & van den Bos,



2019). There is also some evidence that adolescents are more sensitive than adults or children to stress that stems from the social environment (known as *social stress*), as indicated by studies demonstrating heightened physiological reactivity to social stress in adolescence (Stroud et al., 2009; Romeo, 2013; van Roekel et al., 2015). The finding that the adolescent brain is particularly sensitive to stressors in the social environment, including peer relationships, further highlights the unique vulnerability of adolescents to the influence of peers.

Together, these findings show that highly arousing contexts as well as the presence of peers increase engagement of the socioemotional system in the adolescent brain, highlighting the role of reward processing in decision making (Shulman et al., 2016). In addition to the socioemotional system, research suggests that self-regulation abilities during adolescence (which are still maturing, according to dual systems theory) are also dependent on the context, such as the difficulty of tasks and the ways in which rewards are presented (Shulman et al., 2016).

Indeed, the overall balance of contextual factors and environmental conditions may be critical in understanding adolescent decision-making and risk-taking behaviours. For instance, under conditions where emotional arousal is minimal and there is enough time and space for thoughtful deliberation and reasoning, adolescents tend to make judgments and decisions at an adult level (Shulman et al., 2016). However, in situations of high emotional arousal and in the presence of peers, adolescents are more likely to rely on their reward processing systems and make impulsive or risky decisions (Cohen & Casey, 2014; Konrad et al., 2013). These two broad types of situations have also been referred to as “cold” versus “hot” cognition, summarized in Table 4 (Arain et al., 2013; Albert & Steinberg, 2011).

Table 4: Hot vs cold cognition: the role of context in adolescent decision-making

Type	Conditions	Effect on cognition	Examples of situations	Effect on Decision-Making Behaviour
Hot cognition	High arousal and intense emotions (i.e., fear, excitement, anxiety)	Intuitive, automatic, reactive	<ul style="list-style-type: none"> • Being around friends or peers • Novel situations • Urgent, “heat of the moment” situations 	<ul style="list-style-type: none"> • Risk-taking • Impulsive decisions • Rely on feelings or current emotions
Cold cognition	Less intense emotional circumstances	Deliberate, controlled, critical, analytical reasoning	<ul style="list-style-type: none"> • Being alone • Hypothetical/ experimental situations 	<ul style="list-style-type: none"> • Safer decisions overall • More objective • Show self-control • Understand and consider consequences

4.3 Summary

Neuroscientific evidence has shown several key findings relevant to understanding adolescent decision-making and behaviour, including criminal behaviour. First, adolescent brain development is not linear; rather, different neural systems mature at different stages. Of particular importance is the finding that the limbic system develops earlier than the pre-frontal cortex, meaning that the brain structures underlying socio-emotional arousal are heightened during this period. Second, adolescents have been shown to be more sensitive than adults to rewards and to the presence and influence of peers. Third, there is a peak in dopamine activity in the brain during adolescence, which further enhances reward seeking. Finally, adolescence is a sensitive period of high brain plasticity, meaning that the brain is still being shaped by experience and that complex decision-making may be limited as neural connections continue to be modified and strengthened. As a result of this heightened plasticity, adolescence can be seen as a period of enhanced vulnerability but also great opportunity for growth – depending on the nature of one’s experiences and environment.

Together, these findings reveal that adolescence is a unique window of time during which reward-seeking and risk-taking behaviours are favoured. However, not all adolescents will actually engage in risky or criminal behaviours; other factors that influence decision-making besides neurodevelopmental factors include the social and environmental context, as well as individual and developmental differences, as discussed below.

The importance of context is useful in understanding why adolescents are capable of making certain informed and rational choices in some circumstances, yet they are also most likely to make impulsive and risky decisions, compared to children and adults. For example, many delinquent behaviours occur in complex affective circumstances in which emotional arousal and stress levels are heightened, and peers are involved. In such situations, the socio-emotional systems in the brain have a greater influence on decision-making, leading to behaviours that are biased towards sensation seeking and short-term rewards. The ability to control these impulses and make decisions based on long-term consequences is not fully developed until adulthood.



However, according to researchers such as Casey et al. (2008), some individual adolescents will be more prone than others to engage in risky behaviours, and this variability must also be considered when examining brain-behaviour relationships. For example, studies have shown individual differences in brain structure and function as well as differences in impulse control and emotional reactivity across individuals – differences which may influence one’s predisposition towards reward processing and risk taking.

Given that brain maturation and the development of neural systems and connections occurs differently for each individual adolescent, neuroscientific evidence has not yet established a definitive and universal age at which adolescent brains are considered to be fully developed and thus adolescents could be held accountable for their actions and behaviours. Furthermore, while researchers generally agree with a dual systems model of brain development in which the socioemotional system is prioritized over the cognitive control system during adolescence, it is still unclear whether the changes that occur in these brain networks operate independently or interactively, and the relative contributions of each in explaining adolescent judgment and decision making (Shulman et al., 2016; Wahlstrom et al., 2010).

5.0 Adolescents in the Justice System

5.1 Overview of Current Justice System Approach for Adolescents in Canada

Definitions of adolescence in the justice system have profound consequences for individuals who are involved in this system, determining the ways in which they are prosecuted and sentenced. Canada’s criminal justice system differentiates adults and youth on the basis of an age cut off of 18 years, with separate systems, laws, and procedures for individuals on either side of this cut off. Some of these major differences are summarized in Table 5. One of the most significant differences from a developmental perspective is that the youth justice system specifically recognizes that young people lack the maturity of adults and that this must be taken into account through a separate system for youth based on the principle of diminished culpability, with an emphasis on measures that are consistent with the “greater dependency of young persons and their reduced level of maturity” (Government of Canada, 2021a; Youth Criminal Justice Act, 2002). In general, this

means that young people are more likely to be diverted away from the court system and to receive alternative sentencing measures which allow them to remain in the community. In addition, one of the key protections offered to youth that is not typically provided to adults in the justice system relates to privacy – this includes ensuring that information about the young person is not published and that he or she does not receive a permanent criminal record.



Table 5: Key differences in justice system approaches for youth vs. adults in Canada

	Youth	Adults
Primary Law	Youth Criminal Justice Act (YCJA)	Criminal Code of Canada
Age range	12-17 years (*when the crime was committed)	18 years and above
Aim	To protect the public by holding young persons accountable for offenses	To protect society by imposing just sanctions and deterring offenses
Basic Principles	<ul style="list-style-type: none"> • Measures should be proportionate to the seriousness of the offence and the degree of responsibility • Refer young people to programs or services that address underlying circumstances of their behaviour • Ensure fair and proportionate accountability and timely intervention • Enhanced procedural protection is necessary, with special considerations to ensure young people’s rights and freedoms are upheld • Include measures and sanctions that reinforce social values, encourage the repair of harm, and are meaningful for the young person 	<ul style="list-style-type: none"> • Protect society and contribute to respect for the law and maintenance of a just, peaceful, and safe society by imposing just sanctions • A sentence must be proportionate to the gravity of the offence and the degree of responsibility of the offender
Emphasis of interventions	Rehabilitation and reintegration	Deterrence and reparation
Privacy and Records	<ul style="list-style-type: none"> • Identity protected through publication bans (except in cases where an adult sentence is received) • Police and government records may be kept for the purposes of the act or for investigating an offense but cannot be accessed unless authorized (i.e., by the young person, the court, the young person’s lawyer and parents, the victim) and no identifying information can be given to any person (except in respect to the implementation of the Act) • Youth records are sealed and/or destroyed once the access period ends (i.e., after two months if the youth is acquitted; but up to five years after the sentence is completed in some cases) 	<ul style="list-style-type: none"> • Police and government records related to offenses may be disclosed to certain individuals/organizations (including a judge or court; a member of government; or any other person where the disclosure is deemed by a judge to be desirable in the interest of the public, research, or administration of justice) • A criminal conviction will remain on an individual’s record until the individual successfully applies for a record suspension (the timing and eligibility for which depends on the case and offense) • Records are automatically sealed after 1-3 years if an individual receives an absolute or conditional discharge (depending on the type of discharge)

		<ul style="list-style-type: none"> • However, even those who are not convicted or found guilty can still have a police or court record as documentation of their involvement with the criminal justice system
Courts	Specialized courts for youth justice with its own judge	Most criminal cases are tried in provincial/territorial courts
Sentencing options	<ul style="list-style-type: none"> • Encourages the use of measures outside the formal court system for less serious offenses, including police warnings and referrals to community-based programs • Sentences must be the least restrictive possible and all available sanctions other than custody should be considered first • The sentence cannot result in a punishment greater than what would be appropriate for an adult convicted of the same offense • Sentencing options include a fine (up to \$1000); a payment, restitution, or compensation; reprimand; community service; probation; order to attend a non-residential program (i.e. support and supervision program) • Committal to custody and supervision may be ordered for more serious offenses 	<ul style="list-style-type: none"> • Sentences range from fines, restitution, imprisonment, and alternative measures (under certain conditions) • A sentence of less than two years can be served in the community and is called a conditional sentence • The court may use discretion in determining the degree or kind of punishment for an offense • Alternative measures divert individuals from the criminal justice system while still holding them responsible; and can include community service, mediation, referrals to counselling programs, treatment, education, letters of apology, etc.
Length of sentence	<ul style="list-style-type: none"> • No sentence for a single offense may continue for more than two years; or three years for multiple offenses – except in the case of first or second degree murder, in which the sentence shall not exceed ten years/seven years. • There are no mandatory minimum sentences and maximum sentences are lower than for adults. 	<ul style="list-style-type: none"> • Each offense is limited to a maximum sentence; some offenses have a mandatory minimum sentence

5.2 International Approaches to Defining and Implementing Juvenile Justice

Globally, children are entitled to special rights and protections which allow them to grow and thrive and ultimately support their development into responsible, contributing members of society. The UN CRC (1989) provides a set of minimum standards for legislative, administrative, and other policy measures which promote the best interests of the child and support their optimal development and survival. Among these standards, the CRC emphasises the need for a child-centered youth justice system and includes a number of guarantees that Parties must ensure for any child under the age of 18 years (based on their definition of childhood) who is accused of having infringed the penal law (Gillen, 2006; UN CRC, 1989). For example, approaches to justice for children should avoid judicial proceedings whenever appropriate, and alternatives to institutional care should be available “to ensure that children are dealt with in a manner appropriate to their well-being and proportionate both to their circumstances and the offence” (UN CRC, 1989, Article 40, 3(b)). While the CRC states that Parties should establish a minimum age below which children cannot be held criminally responsible, it did not specify what this age should be.

Consistent with this lack of a global standard or specification, the *minimum age of criminal responsibility* (MACR) varies considerably around the world, from a low level of age 7 or 8 years to a higher level of 14-16 years (UN Committee on the Rights of the Child, 2007). For example, most South American countries have a higher minimum age (i.e., 16 years and above) compared to high-income countries in Europe and North America, and there is still a great deal of discrepancy within each of these continents (Pillay, 2019). The UK³ currently has one of the lowest MACRs at 10 years old, despite the fact that no other legal or social policy domain in the UK gives children total responsibility at the age of 10 (Gillen, 2006). According to Pillay (2019), this variation may be due to a number of factors, including possible cultural differences, political factors and public perception, and the role of scientific evidence.

Pillay (2019) describes two broad approaches to how countries deal with the minimum age of criminal responsibility in their legislation:

- a) Setting a single age threshold below which a child is presumed not to have criminal responsibility and above which they can be prosecuted in the criminal justice system or youth justice system.
- b) Setting an absolute lower age threshold below which a child cannot be held criminally responsible, as well as a conditional age bracket within which a child is presumed not to be criminally responsible unless proven otherwise. Children in this age range may require assessment from a judge as well as from a child development expert in some cases to determine their level of maturity and thus their criminal responsibility (Pillay, 2019; UN Committee on the Rights of the Child, 2007, para. 30.).

Examples of countries that follow the second approach include Australia and Hong Kong, while other countries such as England have moved towards the first approach in recent years by setting a single age threshold.

The Committee of the CRC has acknowledged that the second system of two minimum ages is confusing and may lead to discrimination by allowing for discretion in determining a child’s maturity level. In recognition of this limitation as well as the wide variation in minimum ages for criminal responsibility across countries, the Committee on the Rights of the Child issued a general comment in 2007 to encourage Parties to implement a comprehensive juvenile justice policy in line

³ This does not include Scotland, where the MACR is 12 years old.

with the CRC and to provide further guidance and recommendations for such a policy. One of the core elements of a comprehensive juvenile justice policy was identified as a MACR. The Committee recommended Parties “not to set a MACR at a too low level and to increase the existing low MACR to an internationally acceptable level” (UN Committee on the Rights of the Child, 2007, para. 32). Specifically, the absolute minimum age should be 12 years and above without exceptions, although a MACR of 14 to 16 years is encouraged as contributing to a juvenile justice system in accordance with the CRC.

In addition to a minimum age, the Committee also acknowledged there must be an upper age limit after which the rules of juvenile justice no longer apply. According to the Committee, all individuals under the age of 18 at the time of their alleged crime must be treated under the juvenile justice system; however, they also recognize that extending the rules of juvenile justice beyond age 18 (i.e. until age 21 in some countries) is “appreciated”.

In sum, despite this recommendation to raise the MACR to at least 14 years of age, there is still considerable variation across countries in the age range within which adolescents in conflict with the law are held criminally responsible and treated under the rules and regulations of a juvenile justice system. While most countries apply the age of majority as the upper age limit for adolescents to be dealt with in the juvenile justice system (i.e. commonly 18 years of age), there is much greater variation in the lower age threshold (Schmidt et al., 2021). As a result, adolescents in different countries who are accused of similar offenses may be responded to in substantially different ways despite sharing the same age. According to researchers such as Pillay (2019) and Matthews et al. (2018), this variation reflects the lack of clarity and understanding around the definition of adolescence and issues of child development as they relate to juvenile justice. Indeed, there is much greater diversity in approaches to juvenile justice worldwide than adult criminal justice systems, reflecting the range of perspectives on these issues (Matthews et al., 2018).



Spotlight on Juvenile Justice Approaches in Europe

Compared to North America, developmentally appropriate responses to adolescent criminal behaviour have become more prevalent in Europe, with at least 28 out of 35 countries having special legal provisions for youth who are over age 18 (Matthews et al., 2018). A couple of prominent models of countries with specialized approaches to juvenile justice that recognize that developmental processes are ongoing beyond age 18 include Germany and the Netherlands, as described below.

- In **Germany**, juvenile criminal law has extended to individuals up to the age of 21 since 1953, setting an early example for other countries. In addition, unlike Canada, adolescents under the age of 18 in Germany cannot be prosecuted or sentenced as adults – even for serious offenses (Matthews et al., 2018). Imprisonment for young people is also very rare in Germany, with the majority of cases being diverted away from formal processing (Matthews et al., 2018).
- The **Netherlands** is another example of a country which has developed a more flexible justice system targeting adolescents aged 16-23 as a separate group with unique needs and risks (Schmidt et al., 2021; Barendregt & van der Laan, 2019). There has been debate in recent years in the Netherlands over the issue of raising the maximum age at which adolescents can be processed in the juvenile justice system (Barendregt & van der Laan, 2019). Prior to 2014, Dutch law allowed for adolescents between the ages of 18 and 21 to be treated as juveniles rather than adults in sentencing; however, this option was rarely applied in practice (Uit Beijerse, 2016). In 2014, a new *Adolescent Criminal Law* was implemented that encouraged greater use of this provision and extended the upper age limit from 21 to 23 years of age. This decision was made based on recent evidence showing the overrepresentation of adolescents in crime statistics, as well as recent scientific evidence demonstrating that adolescent brain development is not complete by the age of 18, but extends until around age 25. Together, these insights led to the recommendation to expand the application of juvenile criminal law to young adults, allowing for greater flexibility in sentencing individuals in this age cohort. For example, accused individuals between the ages of 16 and 23 can now be subject to sentences from either the juvenile or adult justice systems based on assessment by the public prosecutor early on in the process (Uit Beijerse, 2016).

The Dutch case is used to illustrate how scientific insights from adolescent neurodevelopment have raised awareness around the needs of adolescents who are still transitioning to adulthood and have led to actual policy change as a result. However, some authors point out that the existence of such laws does not guarantee their use in all cases, and that there are still challenges around defining maturity and determining which adolescents benefit from the application of juvenile law (Matthews et al., 2018; Barendregt & van der Laan, 2019).

5.3 Responses to Adolescent Criminal Behaviour

As discussed in Section 5.1, responses to criminal behaviour in Canada can vary considerably, depending on the type and severity of the crime, the age of the accused, and other circumstances. However, responses to adolescent crime generally take one of the following approaches, described below.⁴

a) Punishment-oriented approaches

The most traditional form of justice focuses on identifying an appropriate punishment based on the crime or the law that was broken. Adolescents who are convicted of an offense under the YCJA (See Table 5) may receive any of a number of identified sentences, some of which impose a penalty or sanction meant to discipline the young person and deter him or her from committing future crimes. Examples of this approach include fines, custody, surveillance, or prison exposure.

b) Rehabilitative approaches

Rehabilitative approaches aim to help the individual reconnect and reintegrate into society successfully, thereby decreasing the likelihood of future offenses (OJJDP, 2021). Examples include various forms of counseling (i.e., individual, family, or group counseling), as well as skill building programs which help the individual to develop behavioural and social skills. This may include behavior management programs, social skills training, and academic or job-related training interventions (Lipsey, 2009).

c) Restorative approaches

Restorative justice is based on the notion that crimes are not just a violation of the law, but they also impact many other people (UN Office on Drugs and Crime, 2006). Therefore, the basic aim of restorative justice approaches is to repair the harm caused by the criminal behaviour through the involvement of the offender, victim, and the community (OJJDP, 2021; UN Office on Drugs and Crime, 2006). Under this approach, the adolescent must be able to understand the consequences of their actions and make amends in order to reduce future criminal behaviour. Examples of strategies to achieve this goal include compensation, which may be required in the form of a financial payment to the victim(s), a letter of apology, or reparation through community service (OJJDP, 2021; Lipsey, 2009). Reconciliation may also take place directly through supervised mediation between the offender and victim(s). According to a report from the Correctional Service of Canada (CSC), the restorative justice process requires the following conditions in order to be successful: participation must be voluntary; the individual must be willing and prepared to accept responsibility for their actions; dialogue should be open and honest; the presence of a third party facilitator is needed; and any face-to-face meetings must take place in a safe environment (Beaudette & Thompson, 2015).

5.4 Alternative Justice Programs in Canada

Rehabilitative and restorative approaches can also be referred to as *alternative justice* approaches, as they represent an alternative response to crime than formal prosecution measures. According to some researchers, alternative justice is best understood as a complement to the traditional or mainstream justice system rather than a separate system; and should be considered for all cases while taking into account specific legal, social, and cultural characteristics (Leonardi & Bliss, 2016;

⁴ It should be noted that there is no established taxonomy or classification of interventions for adolescents in the justice system (Lipsey, 2009); the categories used here are not necessarily exhaustive or mutually exclusive.

UN Office on Drugs and Crime, 2006). In this way, restorative justice programs can help to reduce the burden on the criminal justice system by providing a range of alternatives meant to divert more cases out of this system (UN Office on Drugs and Crime, 2006).

In Canada, all provinces and territories have alternative justice programs in place for young people involved in the justice system, but there is limited data to provide information on how many adolescents are referred to these programs. According to recent data from 2018-19, over 30,000 criminal cases in Canada were referred to restorative justice processes, of which more than 60% involved youth (Department of Justice, 2022). However, a 2019 review of Canada's criminal justice system concluded that the use of restorative justice and other alternatives is still inadequate (Department of Justice, 2022). In addition, alternative justice programs vary greatly across jurisdictions in terms of how and when they are administered and who is eligible (Standing Committee on Justice and Legal Affairs, 1997; Leonardi & Bliss, 2016). According to a review of programs for justice-involved youth in Canada, the diversity of programs and specific characteristics of each is often a reflection of the needs and resources of the communities in which they are based (DuGusti et al., 2009).

Impact of the COVID-19 Pandemic on Youth Correctional Admissions

The Canadian criminal justice system was strongly impacted by the COVID-19 pandemic, resulting in a decrease in capacities and resources for police, courts and corrections – particularly in the first half of 2020 (Moreau, 2022). As a result, there was an unprecedented decline in the number of both adults and youth in correctional institutions.

- For youth, the annual average daily count of youth in custody showed the largest reduction in almost two decades, with a decrease by more than one-quarter (27%) in 2020-21; while the average for adults across provincial/territorial and federal levels decreased by 16% from the previous year (Moreau, 2022; Statistics Canada, 2022).ⁱ
- In addition, while youth admissions to correctional services have been decreasing steadily over the last decade, the rate of youth admissions to custody and to community supervision showed a much faster decline in 2020 (a decrease of 45% and 41%, respectively, from the previous year) – a greater decline than the decrease observed for adult admissions (21% and 7% decrease for admissions to custody and to community supervision, respectively, in 2020-21) (Statistics Canada, 2022).
- Among sub-population groups and categories, the decrease in youth in custody was more pronounced among females than males; and Indigenous and racialized youth – especially Indigenous females – were significantly overrepresented in youth custody admissions (Statistics Canada, 2022).
 - Despite representing only 8% of the youth population in Canada, Indigenous youth accounted for half (50%) of youth admissions to custody in 2020-21, and Indigenous female youth represented 62% of youth female admissions to custody.
 - Almost one in four (18%) of youth admissions in Nova Scotia, Alberta, and British Columbia (the only provinces with this information available) involved Black youth, even though Black youth represented only 4% of the youth population in these provinces.

ⁱ Note that the youth data does not include Quebec, as Quebec was unable to provide information on admissions counts and average daily counts for youth.

While many provinces have been slow to make use of alternative programs for young people, one notable exception is Quebec, which has a longer history of diverting adolescents away from the formal justice system and towards alternative measures (Standing Committee on Justice and Legal Affairs, 1997; DeGusti et al., 2009). As a result, the rate of young people who are processed through the youth courts and sentenced to custody have been much lower in Quebec compared to other provinces and territories (Standing Committee on Justice and Legal Affairs, 1997; DeGusti et al., 2009). In Quebec, youth under age 18 receive services through various Youth Centres located across the province, which are funded primarily by the Ministry of Health and Social Services. The approach to youth justice in Quebec has been described as a therapeutic approach with the goal of reintegration and rehabilitation (DeGusti et al., 2009). Under this approach, young people in the justice system are perceived and treated similarly to children and youth in the child welfare system, who are in need of protection and support.

Other examples of alternative programs and approaches used in various provinces include:

- **Intensive Support and Supervision Program (ISSP)** (Examples: Ontario, British Columbia, Newfoundland) – a community-based program that offers an alternative sentence for young people who have been found guilty of a criminal offense and would usually be sentenced to custody. In most cases, ISSP is used for youth who have mental health challenges which are better addressed in the home or community environment. For example, in Ontario, youth who have been diagnosed as having a major psychiatric disorder, developmental delay, or a dual diagnosis can be admitted to the program (MCCSS, 2022). ISSP is similar to a probation order, but also provides individualized supports (i.e. treatment, counselling, educational support) and closer monitoring (DeGusti et al., 2009).
- **Multi-agency models** (examples: Manitoba, British Columbia) – multi-agency intervention programs are a more recent model to prevention and monitoring of youth crime that has become common across jurisdictions in Canada (DeGusti et al., 2009). This approach typically involves multiple agencies working together as a team, such as police services, schools, child and family services, and other youth-serving community agencies. An example is the Turtle Mountain Multi-Agency Committee – a preventive program in Manitoba for youth at high risk of problem behaviour or criminal activity. The program involves a number of different agencies, including child and family services, the local school division, the local health authority, the Addictions Foundation of Manitoba, and the Royal Canadian Mounted Police (Turtle Mountain School Division, n.d.).
- **Nova Scotia Restorative Justice Program (NSRJP)** – the NSRJP was developed in 1997 and is now known as the most comprehensive restorative justice initiative in Canada (NSRJ-CURA, n.d.). The program expanded from four regional sites to become province-wide in 2001; and while it initially focused on youth, it has also expanded to include adults as of 2016 (Government of Nova Scotia, 2021). According to the NSRJP Community University Research Alliance, the ultimate aim is to apply the program to all offences and offenders throughout the entire criminal justice system (NSRJ-CURA, n.d.). The program is a partnership between government and community, with government overseeing the operations and monitoring, while community-based agencies are responsible for the delivery of the program and services within each local context (NSRJ-CURA, n.d.).

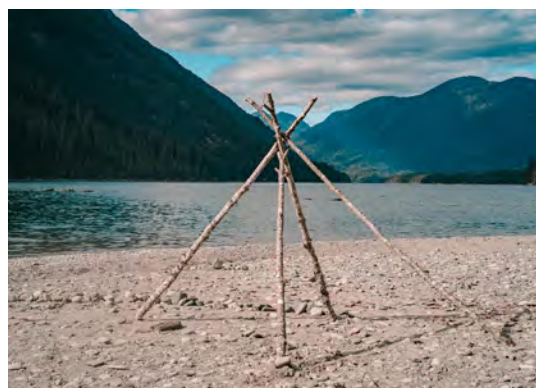
5.5 Benefits of Alternative Justice Approaches

Alternative justice responses for adolescents can not only benefit the offender, but also the victims of the crime and the community as a whole. Some of these benefits are briefly listed in Table 6.

Table 6: Benefits of restorative or other alternative justice responses (Sources: Standing Committee on Justice and Legal Affairs, 1997; OJEN, n.d.; Leonardi & Bliss, 2016; Wong et al., 2016)

Offender	Victim(s)	Community
<ul style="list-style-type: none"> Given an opportunity to make amends with those they have caused harm to Encourages a sense of responsibility May be provided support or services to address any behavioural problems 	<ul style="list-style-type: none"> Given opportunity to ask questions and seek answers regarding the crime May feel a sense of significance and recognition of the harm or trauma they experienced Receive support from the community May received additional restitution or compensation 	<ul style="list-style-type: none"> Community members feel empowered by the act of problem solving and resolution Sense of safety in the community is strengthened May benefit from reduced costs of running programs compared to criminal justice processing

Restorative justice approaches for youth also align well with Indigenous values and practices, such as the value of community, healing, the restoration of harmony, and the interconnectedness between all individuals involved in or affected by the crime. An example of a restorative justice approach in First Nations communities is *sentencing circles* (also called peacemaking circles), which can be incorporated into the court process for certain cases involving First Nations peoples in Canada. Sentencing circles typically involve a holistic approach which brings together members of the



community with the offender, victim, and authorities (i.e. judge, prosecutor) to meet and provide input to help understand the criminal behaviour, discuss the impact on each individual, and determine the most appropriate sentence (Government of Canada, 2021b; OJEN, n.d.). Compared to other alternative justice approaches (such as victim-offender mediation or family group conferencing), peacemaking or sentencing circles generally extend to include a wider range of participants and enhance the level of equality and inclusion for all members (Ehret et al., 2016). Some findings from studies of sentencing circles are discussed in Section 7.4.

- For adolescents in Canada, sentencing circles are recognized as a type of “youth justice conference” under the YCJA. A youth justice conference can be used to provide advice and perspective to the decision-maker on a youth’s case; however, recommendations made by the group are not necessarily accepted (Government of Canada, 2021c). According to the UN Office on Drugs and Crime (2006), the premise of circle sentencing is that the process used to arrive at the sentence is more important than the sentence itself.

6.0 Neurodevelopmental Perspectives on Justice System Responses for Adolescents

6.1 *Relevance of Neurodevelopmental Research in the Justice System Process*

Based on current knowledge and understanding of adolescent neurodevelopment, the alternative justice system measures described above may be especially relevant and appropriate for young persons, who are still developing and forming their lives and identities. Indeed, most restorative justice programs that have been developed thus far have focused primarily on youth in conflict with the law (UN Office on Drugs and Crime, 2006).

Research on the dual systems model of brain development and the influence of emotional arousal and peers on adolescent decision making (discussed in Section 4.1) highlights the importance of acknowledging the developmental and situational factors underlying brain and behaviour when considering appropriate justice system responses for adolescents, in comparison to adults (Casey & Cohen, 2014).

There are at least three key areas of justice system responses in which these factors should be considered, which are discussed below: determinations of culpability, determinations of competence to stand trial; and determinations of appropriate punishment or sanctions for adolescents who are found guilty of committing an offense.

a) Determinations of guilt or culpability

When the law has been violated, it is the responsibility of the justice system to first make a determination of the accused individual's blameworthiness in committing the crime before determining whether and how to hold the individual responsible for the action (Steinberg, 2009). Decisions about criminal responsibility can depend on several characteristics of the crime, the person accused of the crime, and the circumstances. For example, factors that might reduce culpability and thereby reduce the severity of the punishment include impulsivity (vs. premeditation), being coerced by others, and being incapable of making a rational decision (Steinberg, 2009).

Neurodevelopmental evidence is particularly relevant for judgements about criminal responsibility among adolescents, who may lack the capacity for mature reasoning and judgement and are especially susceptible to peer pressure and impulsive decisions (as discussed in Section 4). According to some researchers, these developmental characteristics distinguish adolescents from adults in ways that mitigate culpability (Steinberg, 2009; Scott & Steinberg, 2008). For instance, adolescents cannot be held accountable for criminal behaviour if evidence indicates that they are not developmentally mature enough to meet the criteria for culpability in the circumstances of the crime.

b) Determinations of competence

Besides determinations of guilt or responsibility, developmental research could also have implications for other aspects of the justice system process, such as competence or fitness to stand trial. Competence to stand trial refers to the "ability of an individual to function effectively as a defendant in a criminal or delinquency proceeding" (Steinberg, 2009, p. 473) and is a necessary condition for both adults and youth charged with a criminal offense in Canada in order to ensure a just and fair hearing. This concept differs from determinations of culpability because it is more relevant to the accused's mental state at the time of the court proceeding, rather than at the time that the crime took place (Steinberg, 2009).

Developmental science is relevant to the concept of competence because certain capacities or skills must be present for an accused individual to participate meaningfully in any criminal proceedings (Steinberg, 2009). For instance, being involved in the court system involves understanding the charges, engaging with legal counsel, and entering a plea – and the YCJA even provides special protections to ensure that young people are aware of and understand their rights, including the right to participate in the process and to retain and instruct counsel (Youth Criminal Justice Act, 2002). These steps require certain cognitive abilities such as comprehension and information-processing – abilities which are still developing in adolescents. However, while developmental research suggests that adolescents are less mature in their cognitive reasoning, judgment and decision-making capacity, there is little evidence available regarding adolescents’ cognitive abilities with respect to legal competence specifically, such as the ability to participate in and respond to the trial process (Grisso et al., 2003). As a result, it is uncommon for courts to recognize that young people may be considered incompetent due to developmental factors; most cases of competence have centered around considerations of mental health issues and disability (Grisso et al., 2003).

c) *Determinations of appropriate sanctions*

Neurobiological evidence showing that adolescents are more prone to making risky decisions than adults despite being capable of good judgment suggests that while adolescents in conflict with the law should still be held accountable for their actions, the specific sanctions or punishment in each case should be considered in the context of this reduced level of maturity (Cohen & Casey, 2014; Steinberg, 2009).

According to researchers such as Cohen & Casey (2014), the meaning of a “fair” sentence can and should differ depending on the age of the individual — what is considered a fair punishment for an adult may be considered a cruel and unusual punishment for an adolescent who has committed the same crime. This has been established in recent court cases in the US (i.e., *Roper v. Simmons* (2005) and *Graham v. Florida* (2010)), in which the Supreme Court ruled that mandatory life sentences without parole or the death penalty for juveniles violates the Eighth Amendment ban on cruel and unusual punishment (Miller, 2012; Lambie & Randall, 2013). However, despite these rulings, adolescents can still receive an adult sentence in some cases in both the US and Canada.

It has been well established that many youth who come into conflict with the law have experienced a combination of risk factors that already increase the likelihood of developmental challenges in their transition to adulthood – such as poor school performance, mental health problems, substance use, and a lack of positive and supportive peer and family relationships (Chung et al., 2005; Lambie & Randall, 2013). For these youth, traditional punishment-oriented justice responses can amplify the risk of poor outcomes in their developmental trajectories even further (Steinberg, 2009). For example, punitive sanctions such as placement in a residential facility or probation can have negative effects on identity formation; prevent opportunities for the development of prosocial behaviours and social integration; and hinder their overall growth and ability to transition successfully into adulthood (Cohen & Casey, 2014; Lambie & Randall, 2013).



Key Elements of a Successful Transition to Adulthood

As discussed by Chung et al. (2005), understanding the processes and factors that help young people to become healthy and productive adults is key to improving life outcomes for youth involved in the justice system. According to these researchers, the process of transitioning from adolescence to adulthood relies on the completion of a series of developmental tasks across three domains:

- 1) *Mastery and competence* – developing the knowledge and skills needed to function and participate as productive members of society (i.e., proper educational and vocational training)
- 2) *Interpersonal relationships and social functioning* – achieving the necessary social skills to interact well with others and maintain relationships with other people and the community as a whole
- 3) *Self-definition and self-governance* – developing a sense of self-worth, independence, and the ability to set and achieve personal goals

The successful completion (or near-completion) of these three goals ultimately leads to the outcome of attaining sufficient psychosocial maturity. Those individuals with higher levels of psychosocial maturity are more prepared to handle the roles and responsibilities of adulthood, and show healthier adult outcomes as a result (Chung et al., 2005).

Importance of the social and environmental context

Research has shown the importance of the environmental context for psychosocial development, especially for youth in their transition to adulthood (Dmitrieva et al., 2012). This includes the family or home environment, the peer group, and the broader community context such as school, the workplace, and the neighbourhood (Chung et al., 2005). An optimal environment for a successful transition would be one in which a young person is able to “live and participate in social settings that help them to carve out their personal identities, decide what values and activities are important to them, and develop the interpersonal, educational, and occupational skills needed to achieve their goals as adults” (Chung et al., 2005, p. 78).

For youth who are involved in the criminal justice system, the environmental and social context in which this process takes place may include the correctional setting. As described by Steinberg (2009), this context can influence the developmental trajectories of adolescents in important ways. For instance, whether or not the correctional setting provides opportunities for skill building and the completion of the core developmental tasks described above affects whether youth successfully transition to adulthood. Factors such as the attitudes and behavior of other youth and adults (i.e. supervisors) in the correctional setting can also influence the likelihood of a successful transition (Steinberg, 2009). For example, exposure to violence or antisocial behaviours and peers in an environment that lacks the usual societal norms can lead to detachment of adolescents from “adaptive law-abiding society” (Lambie & Randall, 2013, p. 451). In addition, the social isolation from being separated from family and friends during a time when coping skills are still being acquired can exacerbate the stresses of being incarcerated (Dmitrieva et al., 2012).

Moreover, researchers have proposed that the effectiveness of punitive sanctions for adolescents may be limited because of their tendency to engage in reward-seeking behaviour without consideration of future consequences — which may mean that they are less responsive to the threat of harsh punishment for their actions (Steinberg, 2009).

In addition to these developmental effects, formal justice system responses can be stigmatizing for adolescents and young adults, which can not only impair their social relationships and their own self-image but can also lead to lasting negative impacts on future education, housing, employment, travel, and social opportunities (UN Office on Drugs and Crime, 2006; Chung et al., 2005). Moreover, a young person who is over the age of 18 years at the time of the crime is no longer protected under the provisions of the YCJA that ensure privacy and record sealing. Therefore, some young people in the justice system (i.e. those aged 18-24) who would be considered adolescents or emerging adults according to some definitions (see Section 3.1) can still obtain a permanent criminal record that will continue to limit their opportunities throughout life.

Given the negative developmental impact of involvement in the court and correctional system for adolescents, some researchers argue that instead of punitive approaches, juvenile justice system responses should “aim to promote rehabilitation, reduce recidivism, and implement interventions that will bolster healthy development” (Cohen & Casey, 2014, p.65). Rather than criminalizing the behaviour, alternative approaches could offer unique opportunities to support youth in conflict with the law outside of the criminal justice system, such as through school-based or community-based programs that could provide a more developmentally appropriate response to the behaviour (UN Office on Drugs and Crime, 2006). Having access to social, emotional, and practical supports and resources may help direct these youth away from future criminal behaviour and towards healthy and productive activities that would facilitate the transition to adulthood (Chung et al., 2005).



6.2 Summary

Based on the issues described in this section, an important question for research on appropriate juvenile justice system responses is whether involvement in the justice system has a detrimental impact on adolescents’ likelihood of becoming a successful and productive adult member of society, and how different justice system responses can either hinder or facilitate more positive developmental trajectories. For instance, some research suggests that correctional environments can support positive outcomes for adolescents and young adults through programming such as educational or vocational training; on the other hand, being transferred to an unfamiliar environment with new restrictions (such as a residential placement) disrupts relationships and routines and limits autonomy – which may constrain the ability to achieve psychosocial maturity (Chung et al., 2005; Lambie & Randall, 2013).

Moreover, evidence from several studies has shown that criminal involvement declines after adolescence and that most adolescents who commit criminal acts do not become chronic offenders as adults. Taking this observed age-crime curve into account, it is even more important to determine the most effective way to hold young people accountable for their behaviour and reduce the risk of future crime while minimizing any potential adverse effects on their development and ability to transition to independent living (Steinberg, 2009).

7.0 Empirical Research Findings

7.1 Overview

As described in Section 2.4, published literature was scanned to examine evidence related to the impact of different justice system programs and responses to adolescent misconduct in order to better understand the effectiveness of various approaches and their potential effects on adolescent development, behavior, health and other outcomes. This section provides an overview of the findings from the reviewed literature, highlighting common themes and key points as well as limitations of the evidence.

First, general findings on the effectiveness of various programs and interventions for adolescents in the justice system from higher-level review studies and meta-analyses are summarized (Section 7.2). Next, research focusing on restorative justice approaches is reviewed, including evidence from review studies as well as studies evaluating specific programs in the US and Canada (Section 7.3). In addition to evaluating the effects of restorative justice programs on behavioural outcomes such as recidivism, some studies have also examined the impact of alternative justice programs on other psychosocial and health outcomes, described in Section 7.4. Finally, any available evidence on the impact of sentencing circles for young people, including Indigenous peoples, is examined in Section 7.5.

Evidence from Canada is highlighted when available; however, most of the evidence on justice system responses and restorative justice programs for adolescents comes from the United States. In addition, given the limited evidence on the impact of alternative justice approaches, including restorative justice programs and sentencing circles, some findings are included which are not specific to adolescents.

7.2 Findings from Review Studies

Overall, findings from several review studies show that there is a lack of support for punitive sanctions in response to adolescent criminal behaviour, and greater support for rehabilitative programs that help adolescents to develop the necessary skills to be successful in their adult lives. According to researchers such as Greenwood (2006) and Steinberg (2009), there is growing consensus that punitive justice system approaches which treat adolescents similarly to adults (i.e., incarceration, boot camps, transferring juveniles to the adult criminal system) are counterproductive as they “likely do more harm than good, cost taxpayers much more than they need spend on crime prevention, and ultimately pose a threat to public safety” (Steinberg, 2009, p. 478). Other reviews of the available evidence on programs and interventions for adolescent misconduct have reported similar conclusions; for example:

- An early meta-analysis of research on the effectiveness of treatment programs for juvenile delinquency found that of 400 reviewed programs, the most effective were those that focused on skill development – including interpersonal skills, academic and job skills (Lipsey, 1995).
- A broad overview of research on juvenile delinquency programs conducted since the 1990s noted that in contrast to punishment-oriented approaches, which do little to deter adolescents from future criminal behaviour, some interventions have had a positive effect on crime reduction, with the most effective programs demonstrating effect sizes of 20-30% reduction (Steinberg, 2009). In general, programs found to be more successful were those that provide supportive social contexts which help young people to gain the skills needed to reach psychosocial maturity.

Other recent reviews and meta-analyses have provided further insights into some of the components of more effective approaches and programs for adolescents in the justice system and their impact on specific outcomes such as recidivism. Some of these findings are summarized below.

According to Lambie & Randell (2013), research published since 2000 continues to reinforce the negative effects of incarceration on young people. Not only does this punitive approach have little impact on reducing crime, but it also fails to meet the developmental needs of youth and may even have harmful consequences for their behaviour and mental health. Some of these consequences noted in this review of the literature include the risk of victimization and suicide, a negative effect



on social relationships, physical health problems, and a failure to address mental health and learning needs. While the available literature in this review was mixed in terms of the impact of juvenile incarceration on recidivism rates, most studies showed negative or null effects on later offending, leading the authors to conclude that incarceration and transfer to adult criminal courts appears to be ineffective in reducing recidivism (Lambie & Randell, 2013).

After reviewing the evidence on the impact of various treatment approaches for justice-involved youth, Lambie and Randall (2013) further concluded that in order to achieve the best possible outcomes for adolescents and the communities in which they live, evidence-based rehabilitative interventions should be used as an alternative to incarceration wherever possible. Specifically, community-based and family-centered programs that address developmental and criminogenic needs were recommended. This includes family systems approaches and various therapy programs that incorporate principles of cognitive behaviour therapy and social learning. The authors also acknowledged that a key feature of this recommended approach is the way it involves collaboration between juvenile justice, mental health and other services to form a comprehensive response to adolescent criminal behaviour (Lambie & Randell, 2013).

Lipsey (2009) conducted a comprehensive meta-analysis of research on interventions in the juvenile justice system to determine which factors and types of interventions are associated with the greatest reductions in recidivism. Essentially, the purpose of the analysis was to understand not only which programs are most effective overall, but also for whom and in what circumstances are they most effective. Data from 548 independent study samples derived from 361 primary research reports spanning the years 1958-2002 was analyzed and outcome effect sizes⁵ among juveniles⁶ who received an intervention were compared. A number of moderator variables were also included in multiple regression analyses, focusing on four categories: a) characteristics of the study methods; b) characteristics of the juvenile samples; c) level of juvenile justice supervision⁷; and d) treatment philosophy.

⁵ Recidivism outcomes were standardized to be comparable across studies by conversion to a standardized effect size. The most common form of recidivism reported in studies was the proportion of juveniles who were re-arrested within 12 months after the intervention.

⁶ Juveniles for this study included the ages of 12-21.

⁷ Levels of juvenile justice supervision represent different contexts for intervention, and included: diversion (i.e. to community treatment); probation or parole; incarceration; or no supervision (i.e. in the community).

- Results showed that holding other variables constant, the factors associated with recidivism outcomes were characteristics of the juvenile samples and the overall intervention or treatment philosophy. There was no significant association between the level of juvenile justice supervision (i.e. being treated in the community, on parole or probation, or while incarcerated) and recidivism; and there were few differences based on age, sex, and ethnicity.
- In terms of treatment approaches, programs that focused on discipline were found to have smaller effects on recidivism than other approaches, while counselling programs had the largest effects. Interventions with multiple coordinated services and skill building programs were also shown to be effective in reducing recidivism.
- Finally, programs had a greater impact on recidivism when they were of higher quality, and when they applied to juveniles with higher risk of delinquency.

According to Lipsey (2009), these findings demonstrate that a certain “magic bullet” program is not necessarily needed; instead, the average program within these generic intervention categories (such as cognitive-behavioral, social learning, and skill-building interventions) can be effective for adolescents if implemented well (i.e. high quality) and aimed well (i.e. targeted towards high risk offenders).

Finally, Fagan (2008) examined the research evidence to determine the effects on reducing crime of state policies in the United States which transferred more juveniles to the adult criminal court system. Many states began to redraw the boundaries between the juvenile and adult justice systems in the late 1970s. Over the course of approximately two decades, new laws were enacted and old laws were revised to expand the criteria in which juveniles could be processed and punished as an adult in the criminal court, largely in the interests of public safety. After assessing the available empirical evidence on the consequences of these laws across different states, Fagan (2008) concluded that “without exception the research evidence shows that policies promoting transfer of adolescents from juvenile to criminal court fail to deter crime among sanctioned juveniles and may even worsen public safety risks” (p. 105). Indeed, rates of juvenile offending were *not* found to be lower in states where adolescents were more commonly prosecuted as adults after changes to legislation. Moreover, studies also showed that juveniles who were prosecuted as adults had higher rates of rearrest for serious crimes, were rearrested more quickly, and were reincarcerated more often compared to matched samples of youth who were processed in juvenile courts. According to Fagan (2008), the potential short-term benefits of processing young people as adults are more than offset by the long-term costs of exposing these youth to harsher forms of punishment that can actually serve to increase future criminal behaviour.

7.3 Evidence for Restorative Justice Programs

Given that alternative justice system approaches tend to be more common for young people than adults, research has also examined the impact of restorative justice programs for adolescents in conflict with the law. Overall, evidence on the effectiveness of restorative justice programs for adolescents is mixed, with high variability across studies as well as methodological challenges leading some researchers to highlight the need for more research that might lead to clearer conclusions. However, as described below, some studies and meta-analyses have found that restorative justice programs have a positive impact on various outcomes, including rates of reoffending and psychological outcomes.

According to Bouffard et al. (2017), there is growing evidence to support the use of restorative justice overall; however, there has been limited research to evaluate the impact of restorative justice on actual recidivism rates – most previous studies have focused on other outcomes or benefits of restorative justice programs, such as victim satisfaction, community involvement, and perceptions of fairness. According to these authors, more research is needed to determine which aspects of restorative justice interventions or in which circumstances they are most effective at reducing recidivism risk.

Findings from review studies

Earlier meta-analyses published between 1998 and 2005 provide support for restorative justice programs as an alternative to traditional justice system responses; however, not all of these studies were specific to programs for young people. Among those that did focus on juveniles, effect sizes for restorative justice programs on recidivism reached .26 to .30 – compared to previously reported effect sizes of around .10 found for traditional justice programs (Bradshaw & Roseborough, 2005; Nugent et al., 2004). However, researchers such as Bergseth & Bouffard (2007) and Wong et al. (2016) have noted a number of methodological issues with previous evaluation studies of restorative justice interventions, including variations in the outcomes used, definitions of re-offending, and the length of follow-up period.

Another recent meta-analysis identified 21 studies evaluating the impact of restorative justice programs on juvenile recidivism published between 1990-2013. Results from the pooled effect sizes showed that restorative justice programs are generally effective at reducing recidivism among juveniles.⁸ Specifically, the overall effect size was significant and positive (OR=1.28), and 15 of the 21 individual effect sizes across the studies also had positive effects on recidivism – although the remaining six studies showed a negative impact. Further analyses were conducted to examine potential moderator effects of various study and treatment characteristics on the results. These findings showed that characteristics of the study (such as program delivery year, research design, sample size, and the racial/ethnic composition of the sample) were all important factors associated with the magnitude of effect of the intervention. For instance, studies using stronger research



designs were actually less likely to show treatment effects, and studies that involved primarily Caucasian samples were more likely to show a significant treatment effect. Overall, the authors concluded that the meta-analysis results “suggest that restorative justice approaches are a promising way to combat recidivism among youth and should continue to be implemented and evaluated” (Wong et al., 2016, p.1324). However, there is a need for more rigorous research to better distinguish the role of program characteristics versus study characteristics in juvenile recidivism outcomes, as well as more research and interventions targeting youth of diverse racial and ethnic backgrounds – who may not be adequately served by existing programs.

Similar findings were reported in a meta-analysis of 60 unique studies that evaluated the impact of restorative justice programs compared to traditional justice system responses for

⁸ Recidivism outcomes included police or court contact or referral, or arrest over a follow-up period, which ranged from 6 months to 3 years across the studies.

juveniles⁹ (Wilson et al., 2017). Results revealed moderate reductions in future delinquent behaviour for participants of restorative justice programs (including diversion programs, victim-offender conferencing, family group conferencing, and circle sentencing) relative to traditional court processing. However, conclusions about the effectiveness of restorative justice were limited due to high variability across the studies and a limited number of studies for each type of program. The analysis also found promising results for the effects of restorative justice programs on other outcomes for both youth and victims, including greater perceptions of fairness and satisfaction. Overall, while the evidence reviewed suggests possible benefits of restorative justice for both delinquency and non-delinquent outcomes, the authors cautioned that more high-quality research on these programs is needed.

Findings from individual studies in the US

Studies that have compared outcomes between young people who were referred to restorative justice programs and those who experienced traditional court processes have demonstrated the positive effects of restorative justice on recidivism outcomes. However, researchers have noted that further research with larger samples across a wider geographical area would improve our understanding of which interventions are most effective for which individuals, which would help to refine and tailor approaches to reach as many young people with justice system involvement as possible (Bouffard et al., 2017).

- One study that used a relatively long time frame to evaluate recidivism among juveniles using several different outcome measures found that restorative justice programs were more effective in reducing recidivism risk overall than traditional court processing (Bergseth & Bouffard, 2007). Specifically, the study compared a sample of youth referred to a restorative justice program to those referred to traditional justice system processes in the same county in the US between 2000-2003 and analyzed the impact of each approach on the prevalence of reoffense, number of later official contacts with the police, and the seriousness of later offenses over a follow-up period of four years post-referral. After controlling for initial differences between the groups (i.e., demographic characteristics, offense history), multivariate analyses showed that referral to restorative justice processes was associated with significantly lower likelihood of re-offense; a smaller number of new police contacts; and less serious re-offending behaviour – each measured at six months, two years, and three years post-referral.
- In a later study, Bouffard et al. (2017) examined recidivism outcomes¹⁰ for different types of restorative justice interventions among a sample of youth who were referred to restorative justice programming in a rural area of the upper Midwest US between the years 2000-2005 (total n=352) compared to a similar group who were processed through a traditional juvenile court system in the same country over the same time period (n=351).¹¹ Among those youth who received restorative justice programming, outcomes were compared for those who participated in three different types of interventions, which varied in intensity: direct mediation between victim and offender through conferencing;

⁹ Most (77%) of these studies were conducted in the United States, and about two-thirds (65%) were published after 1999.

¹⁰ Recidivism data was obtained from court and probation records that occurred after the date of initial referral to either juvenile court or restorative justice programming

¹¹ In this study, youth were **not** randomly assigned to either traditional court processing or restorative justice programs. Therefore, analyses attempted to control for selection effects using a two-stage modeling procedure that controlled for the probability of being assigned to restorative justice programming.

community panels¹²; and indirect mediation (without face-to-face contact); as well as those who received no or minimal interaction (i.e. those who were referred to a program but were unable to be reached). Results from a four-year follow up period after the initial referral revealed that 40.1% of the overall sample had new contact with law enforcement, but rates of reoffending were higher among those referred to traditional juvenile court (49.8%) compared to juveniles referred to any of the restorative justice interventions: indirect mediation (27.3%), community panel (24.2%), direct mediation (33.5%), and no/minimal program (30.8%). Multivariate analyses controlling for several initial group differences (e.g. age, sex, race, number of prior contacts, most serious current charge) also showed that among those with a recorded reoffense, the reoffense occurred more quickly among those referred to juvenile court (mean of 10.9 months) compared to the direct mediation (12.5 months), indirect mediation (22.3 months) and no/minimal intervention groups (18.1 months).¹³ The researchers suggest that these results not only demonstrate the effectiveness of restorative justice interventions as whole compared to traditional juvenile court systems, but also that even less intensive or less involved approaches (such as indirect mediation) can still be effective in reducing recidivism risk.

Findings from Canadian studies

Evidence on the impact of restorative justice programs for adolescents in Canada is limited. Most studies that have evaluated alternative justice programs have focused only on adults, or have included both adults and youth in their samples without distinguishing results by age. However, some promising findings from specific programs across the country are summarized below.

- Data from Nova Scotia was used to examine patterns of youth re-contact with the criminal justice system among a cohort of youth (aged 12-17 years) who had been accused of a criminal offense in 2012-13, over a period of two years following the initial offense (Ibrahim, 2019). The majority of youth in the study (71%) had no further contact with the police or justice system during the follow up period. However, among those who did have further contact, some differences were observed based on the severity of the initial offense and the justice system response to that offense. For instance, youth who were accused of a more severe crime were more likely to go through the court system for that offense rather than restorative justice programming. Moreover, those who went to court for the initial offense were more likely to have a re-contact with police in the follow-up period (77% of youth) compared to those who initially had only contact with the police (46% had re-contact) or who had contact with police and were referred to restorative justice programs (46% had re-contact). The time to re-contact with police was also quicker among those youth who had court contact for the initial offense (i.e., 40% had re-contact within three months of the initial contact; compared to 11% of those who went through restorative justice). These findings show that in Canada, a young person's pathway through the justice system (i.e. court system or restorative justice) is often dependant on the severity of their offense, which is then linked to their subsequent criminal behaviour.

¹² Community panels (also called reparative boards) were typically used for cases where there was no direct victim. Panel members included school officials, police officers, and volunteer community members.

¹³ There was no statistically significant difference in time to reoffense between the juvenile court group and the community panel group (mean of 10.2 months).

- At the national level, the Department of Justice Canada (2016) conducted an evaluation of its Aboriginal Justice Strategy (AJS) to assess its activities, relevance, and outcomes over a four-year period (2012-16). The aim of the AJS is to divert offenders away from the mainstream Canadian justice system towards community-based programs that reflect the culture, values and needs of the communities they serve. Findings from the evaluation included a positive impact of participation in AJS programs on recidivism – participants were 43% less likely to reoffend one year after completing the program compared to non-participants,¹⁴ and this difference remained after eight years (37% less likely), suggesting that community-based restorative justice programs have a lasting impact. However, these findings were reported among all those participating in programs from a selection of 30 programs (n=2,807), and while the majority of the sample were in the youngest age group at the time of program completion (ages 18-24; 42%), results were only shown for the entire sample as a whole.
- A small quasi-experimental study conducted in Ottawa, Ontario examined the impact of restorative justice programming on individual well-being by focusing on psychological and physical health outcomes among both victims (n=50) and offenders (n=42) (Rugge & Scott, 2009). Data were gathered from pre- and post-program interviews with adult and youth participants (52% of the sample were youth) who voluntarily agreed to participate in a restorative justice program¹⁵ in Ottawa, Ontario between 2004-2006. Results indicated that a majority of participants experienced positive changes in health after completion of the restorative justice program. For instance, 85% of participants reported improvements in psychological health as indicated by decreases in psychological health scores¹⁶ and the percentage of participants who reported no physical health indicators¹⁷ increased from 41% pre-program to 57% post-program. Findings also showed that participant satisfaction with the process was associated with changes in the physical and psychological health outcomes – those who were more satisfied showed a greater degree of change. While this study reveals some interesting findings regarding possible benefits of restorative justice on health and well-being for young people, conclusions are limited based on the study design and small sample size.
- Finally, adults in the justice system in Canada may participate in the Restorative Opportunities program, which has been offered by the Correctional Service of Canada since 2006 and is considered the most well-known mediation program for people with justice system involvement in Canada (Government of Canada, 2022a). Restorative Opportunities is a post-sentence program in which victims of a crime are offered a chance to communicate either directly or indirectly with the offender through various mediation models. One study that evaluated the effectiveness of the program examined the association between participation in facilitated face-to-face mediation meetings and rates of revocation¹⁸ of

¹⁴ The comparison group included individuals who were referred to AJS programs but did not participate.

¹⁵ Two programs were included – one targeting more serious crimes (the Collaborative Justice Project) and one targeting less serious cases and more young people (the Lanark County Community Justice Programs). While the programs used different approaches, they were considered to have similar goals, so results were combined.

¹⁶ Higher scores on the psychological health checklist (which included indicators such as anger, fear, shame, guilt, depression) indicate more psychological health problems.

¹⁷ Results for physical health were based on an 8-item checklist constructed from an 18-item questionnaire.

¹⁸ Revocation of conditional release can occur for several reasons, including: committing a new offence, breaching a condition of release, failure to appear, etc.

conditional release by comparing a sample of participants¹⁹ to a matched sample who did not participate (total n=244). Overall, participants in the Restorative Opportunities program had fewer revocations and were less likely to return to custody than non-participants; however, results differed depending on when and where the victim-offender mediation took place. Those who had a face-to-face meeting in the community post-release had lower rates of revocation compared to the matched sample; however, there were no differences between participants who completed mediation prior to release (i.e., while incarcerated) and the non-participants. These findings suggest that post-release mediation sessions delivered in the community can be effective in reducing future delinquent behaviour, even for serious or high-risk offenders. However, a more rigorous study design would be needed to make stronger conclusions about the impact of mediation, as the results from this study may be subject to a selection bias. For instance, individuals who voluntarily participate in restorative justice programming post-release may be more likely to succeed due to higher motivation levels (Beaudette & Thompson, 2015). In addition, it is unclear from this study how effective community-based mediation would be for adolescents with justice system involvement, or whether there would be any differences between adult and youth participants.

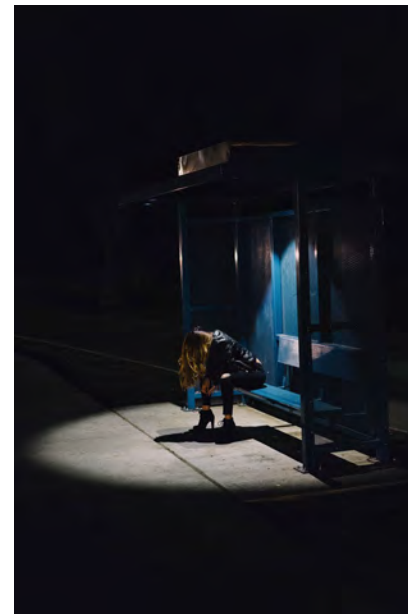
7.4 Evidence on the Effects of Justice System Involvement on Other Outcomes

Besides examining the impact of justice system responses and approaches on adolescent behaviour, including the likelihood of reoffending, some research has also explored the effects of justice system involvement on other outcomes for adolescents, including their mental health and ability to develop and attain psychosocial maturity.

Mental health

Involvement in the justice system, particularly incarceration, has been associated with declines in mental health outcomes among adults; however, less is known about the consequences of justice system involvement earlier in life and how differences in the timing of this involvement may translate to differences in mental health outcomes (Powell, 2021).

According to Powell (2021), adolescents and emerging adults who are involved in the justice system may experience “heightened immediate and prolonged negative consequences” on their mental health as the social stresses of the justice system and correctional environment are compounded with the stresses that are already characteristic of this developmental stage. To better understand the relationships between justice system involvement, age, and mental health, longitudinal data from the National Longitudinal Survey of Youth (1997) in the US (n=8,984) were analyzed to identify any differences in mental health outcomes depending on the type of involvement (i.e., arrest, incarceration, conviction) and age (Powell, 2021). Findings indicated that there were no significant age differences in the impacts of arrest or conviction; rather, the negative effects of arrest on mental health outcomes such as depression and anxiety



¹⁹ Most participants were assessed as high risk and were involved in cases of serious crime, although all participants were under supervision in the community prior to December 31, 2014.

were equally harmful for all ages. However, age was found to be a moderating variable in the association between incarceration and mental health. Specifically, even after controlling for recent arrests, confinement between ages 16 and 22 was associated with significant increases in negative mental health outcomes in adulthood; however, there was no significant impact of incarceration on mental health for those who experienced confinement at ages 24 and older. According to Powell (2021), these findings suggest that the adverse effects of incarceration on mental health are uniquely experienced by adolescents and emerging adults. However, further research is needed to determine the exact mechanisms underlying this observed association.

Psychosocial maturity

As discussed in Section 6, research suggests that the social and environmental context plays an important role in the developmental trajectories of youth involved in the justice system. However, according to Dmitrieva et al. (2012), most research has focused on normative variations in social context; less is known about how development is affected by atypical contexts, such as incarceration during adolescence.

To help answer this question, Dmitrieva et al. (2012) conducted a longitudinal study to examine the effects of incarceration on the development of psychosocial maturity from ages 14 to 25. Data came from interviews conducted over a 7-year period with a sample of 1,171 adolescent males in two metropolitan US areas²⁰ who participated in a larger study. In addition to the overall effects of incarceration on psychosocial maturity,²¹ analyses also tested the effects of total time incarcerated, the role of age, and whether the type and quality of the facility (i.e., whether the focus was on incarceration or rehabilitation) influenced outcomes. Results showed some short-term as well as long-term effects of incarceration on psychosocial development, although the effects differed depending on the type of facility (secure or residential).

- In the short term, confinement in a secure facility was associated with lower levels of psychosocial maturity at age 14, while confinement in a residential treatment centre was associated higher levels of psychosocial maturity. However, over the course of the whole study, the total amount of time spent in secure confinement was no longer significantly related to the measures of psychosocial development, while those in residential facilities showed slower developmental gains across the measures of psychosocial maturity.
- The quality of the facility (as reported by the participants) did not affect the results; however, some differences were found based on age at incarceration. Specifically, older youths (age 18) showed reduced levels of responsibility after incarceration in a secure facility compared to those who are incarcerated at a younger age (age 14); but time spent in residential facilities was associated with higher levels of temperance (i.e., impulse control, suppression of aggression) among older youth compared to younger youth.
- Together, these findings indicate that incarceration in a secure setting negatively impacts the development of psychosocial maturity, and that these effects may increase with age through adolescence. However, overall, the study results also suggested that the net effects of secure incarceration on psychosocial development may be short lived and not cumulative.

²⁰ The larger study was the Pathways to Desistance study – a multisite longitudinal study of serious juvenile offenders, conducted in Philadelphia, Pennsylvania and Phoenix, Arizona beginning in 2000 (see Schubert et al, 2020 for study details).

²¹ Psychosocial maturity was conceptualized as having three separate components (temperance, perspective, and responsibility). Four measures were combined to create indicators of psychosocial maturity for this study.

- Despite the lack of significant long-term effects of incarceration, the researchers noted that the short-term effects in themselves may still have important implications for the juvenile justice system, as being confined in a correctional setting can disrupt the development of psychosocial maturity. As a result, youth may leave the justice process with lower levels of maturity compared to their peers, which can increase the risk of subsequent delinquent behaviour, thereby perpetuating a cycle of punishment and reoffending.



Besides examining psychosocial maturity as an outcome that is influenced by justice system involvement, other studies have also assessed existing differences in psychosocial maturity between adolescents and adults to examine whether justice system responses for adolescents should be adjusted based on their maturity level.

- A study from Australia (Bryan-Hancock & Casey, 2010) sought to understand maturity levels among young people and to determine whether adolescents who are at risk of coming into contact with the justice system are functioning at a similar level of psychosocial maturity compared to young adults (aged 18-25), who are treated differently in the criminal justice system based on their age. Participants in the study included a small sample of 18 year-olds and 25 year-olds drawn from student and community volunteers, and youth aged 15-17 years old who were engaged with a non-profit organization dealing with at-risk youth. All participants completed a questionnaire with scales assessing levels of responsibility, temperance, perspective, and anti-social decision-making, and multivariate analyses were conducted to compare groups on each outcome measure, as well as an overall measure of psychosocial maturity combining these dimensions.
 - Results showed a significant difference between the under-18 at risk group and the 25-year-olds on the overall combined measure of psychosocial maturity; however, there were no differences between the 18 year-olds and the other two age groups on the combined measure. There were also no differences between the 18 year-olds and the at-risk youth on any of the individual outcome measures. However, 25 year-olds were found to have higher scores for responsibility, consideration of future consequences, and ability to consider others' perspectives compared to both of the other age groups; and lower scores on temperance (indicating greater ability to suppress aggression and show self-restraint) compared to the at-risk youth.
 - These findings suggest that young people aged 18 and under are not functioning at the same level of psychosocial maturity as adults. Given that 18 year-olds in the study did not differ from the adolescents who already experienced social disadvantage and were at greater risk of involvement in the justice system, the authors concluded that the typical age cut-off of 18 years between the youth and adult justice systems is likely not sufficient as a basis for determining maturity and adult levels of decision making (Bryan-Hancock & Casey, 2010).

- A study from the US²² (Grisso et al., 2003) assessed abilities associated with adjudicative competence among adolescents (aged 11-17 years) who are typically processed in juvenile courts, compared to young adults (aged 18-24 years) who are processed in adult courts. Participants were drawn from both justice system and community samples²³ to determine whether current court involvement affected results, or if any age differences in competence were present regardless of prior criminal offenses. Outcomes included scores on the MacCAT-CA²⁴, which is a tool used to assess criminal defendants' competence to proceed to trial, as well as the MacJEN instrument to assess age-related differences in decision-making.
 - After controlling for social class, intelligence, and justice system experience, results showed a significant effect of age on all three subscales of the MacCAT-CA, whereby adolescents aged 15 and younger were more likely than older adolescents and young adults to be “impaired in ways that compromised their ability to serve as competent defendants in a criminal proceeding” (Grisso et al., 2003, p. 356). Specifically, approximately one-third (30%) of adolescents aged 11-13 years and one-fifth (19%) of 14-15 year-olds were found to be significantly impaired one or both of the ‘understanding’ and ‘reasoning’ subscales; however, 16-17 year-olds did not significantly differ from the young adults aged 18-24.
 - Furthermore, results on the decision-making measure showed that issues of competence among adolescents may extend beyond understanding and reasoning to other factors that indirectly affect their behaviour, such as how they make choices and respond to the trial context. For example, adolescents were found to be more likely to make choices that showed compliance to authority figures and were less likely to recognize risks and to consider long-term consequences of their legal decisions.
 - According to the study authors, these findings have important implications for policymakers and courts as they suggest that many young people (especially those under age 15) may not be competent to stand trial and would not be appropriate subjects for adjudication in an adult criminal court.

7.4 Evaluations of Sentencing Circles

While sentencing circles or peacemaking circles have been identified as a beneficial and inclusive approach to restorative justice for many Indigenous communities, scientific evaluations of the impact of existing sentencing circle programs on outcomes such as recidivism are lacking. According to Weitekamp (2015), the use of circles in the criminal justice system is still fairly new, and most available research studies focusing on their use and evaluation come from narrative reports or interviews that aim to assess participant perceptions and attitudes rather than objective measures. Moreover, given that the goals of sentencing circles are more community-based (i.e. community building), and that they are often implemented as part of a broader community program, it can be even more challenging to assess their impact on individual outcomes for the victim or offender.

²² The study was conducted in four sites in different states: Los Angeles, Philadelphia, northern Florida, and northern, central, and western Virginia.

²³ Justice system participants were those detained in juvenile detention facilities or adult jails. Community participants were those residing in the same or similar communities as the detained participants, who reported never being held in a justice system facility and were not currently charged with an offense.

²⁴ The MacCAT-CA includes three subscales to measure: understanding, reasoning, and appreciation. Based on indicated cut-offs, scores are categorized as “minimal or no impairment”, mild impairment”, or “clinically significant impairment”.

Despite these challenges, a few small-scale studies have shown the benefits of sentencing circles for youth in Canada and the US:

- **Restorative Youth Circles** is a restorative court-diversion program operated by Peacebuilders Canada and based in Toronto, Ontario. The program is aimed at youth aged 12-18 years old who are in conflict with the law, as well as their families, community members, and other affected individuals who may wish to participate in the process (Peacebuilders Canada, 2018). Youth who are referred to the program partake in a number of sessions and activities modelled after Indigenous peacemaking circles, including both peer-led group circles and individual circles with a trained Circle Keeper. After completing the required sessions, the program staff develop a plan with the participant to achieve their goals in the future and submit a progress report to the court. If the program is completed successfully, then the charges against the youth are formally withdrawn, in accordance with the goal of diversion.
 - An evaluation of the program conducted between 2017-2020 summarized some of the key findings that emerged from pre- and post-program interviews with a sample of 53 youth participants ²⁵ (Wortley, 2020). Overall, results indicated that the program is popular with participants and that participants believe the program will have a positive impact on their future behaviour, including avoiding future conflict. Participants also rated both the individual and group circle sessions positively and stated they felt comfortable working with staff during these sessions.
 - While these findings show that the restorative justice program was received well and can have a positive impact on youth participants, more data would be needed to assess the long-term impacts of the program on actual behavioural outcomes.
- **Youth Circles Project** - An earlier pilot project to implement and evaluate the peacemaking circles for youth model also showed positive outcomes. The project was conducted in Toronto, Ontario by Peacebuilders International between 2006-2009 and was funded through the Youth Justice Fund of the Government of Canada (2022b; see [website](#) for other funded projects). Through the pilot project, a total of 72 youth aged 12-17 were referred to the program who were known, suspected, or at risk of gang involvement. Using a multi-disciplinary panel of trained facilitators representing community agencies, mental health professionals, lawyers, community members, and others, youth were guided through a series of meetings and a circle session in a safe space in which all participants (offender, victim, families, and staff) worked towards a resolution.
 - An evaluation of the program based on case studies and interviews indicated that the pilot program met all goals, including “creating a greater sense of ownership in the community, bringing together victims and offenders, creating common ground for individuals with diverse backgrounds and alleviating emotional suffering” (Government of Canada, 2021d). Other findings showed that youth participants had greater conflict resolution skills after completing the program, and fewer youth were sentenced to pre-trial detention as a result of being diverted to the restorative justice project.

²⁵ Participants were those who completed the program and the exit interview. Of the 86 youth who entered the program in the study period, 62 completed the program (72%), while 12 participants failed or dropped out; 7 were transferred to another program; and 5 were still in the program at the time of the study completion.

Similar to the Canadian studies of restorative justice programs described above, findings from evaluations of peacemaking or sentencing circles for adolescents are also limited by study designs and methods. Specifically, some studies have included young people in their sample but did not focus on outcomes for youth, or did not distinguish results by age. For example, some preliminary research from pilot studies in the US and Europe (described below) have noted the potential for peacemaking circles to be effective; however, future research will be needed to evaluate the impact of these programs as their implementation becomes more widespread.



- **The Red Hook Peacemaking Program** was a pilot project launched in a community court in Red Hook, Brooklyn in 2013 in which a traditional Native American peacemaking model was adapted for use in a state court setting. The program was offered as a voluntary pretrial diversion option for selected juvenile delinquency or misdemeanor criminal cases, with the following aims: healing relationships, giving victims a voice, holding participants accountable, and empowering the community (Lambson, 2015).
 - An evaluation of the program was conducted over a period of 18 months (2013-2014) using qualitative interviews with program participants²⁶ as well as court stakeholders and community members to understand perceptions and experiences with the program (Lambson, 2015). Findings from the interviews indicated high levels of support for the program from participants, including offenders and victims. Most community members also stated that they were happy with the process and would recommend it; and court stakeholders reported that the program has had a positive impact on the participants and community. While many of the offenders accepted responsibility through the program, those who benefited the most appeared to be participants who had an existing relationship with the victim, who were able to work towards healing that relationship. Additional data on participation and outcomes showed that most participants (31 of 42) completed the program successfully, with 90% of those who completed the program receiving a dismissal of their case. However, six of the 42 participants had been re-arrested during the study period.
- In Europe, a pilot peacemaking circles project was developed and implemented between 2011 and 2013 in three countries (Germany, Belgium, and Hungary) in collaboration with local research institutes and practitioners. As there was no existing model at the time for how to incorporate peacemaking circles into the European judicial context, the aim of the project was to explore possible methods for implementation through action research as well as possible outcomes or benefits for participants in the short-term (Weitekamp, 2015; Ehret et al., 2016). Through the study, the researchers gained important insights into best practices for conducting and implementing peacemaking circles, which led to the development of a handbook for facilitating peacemaking circles (Fellegi & Szego, 2013). However, given the exploratory nature of the research, it was not possible to collect or

²⁶ While the program was aimed at youth in the justice system, only those aged 18 and older were selected to participate in interviews for this study. It should also be noted that in New York, where this program takes place, the age of adult criminal responsibility is 16 years and above.

analyze sufficient data for a complete evaluation of the pilot program in terms of crime prevention (Weitekamp, 2015). Moreover, the findings reported from case studies within each of the pilot countries did not distinguish clearly between adult and youth participants; therefore, more data would be needed to determine the specific impact of the program for adolescents.

8.0 Conclusions and Implications

8.1 *Summary of Findings from the Literature*

As discussed in Section 6.1, research on adolescent brain development points to the need to consider the neurodevelopmental underpinnings of adolescent misconduct in determining the most appropriate and effective response to delinquent behaviour. Current understandings of brain development maintain that adolescence is a period of imbalance between different brain regions, resulting in heightened arousal of the socioemotional system, which controls sensation seeking and reward seeking; and a more gradual maturation of the cognitive control systems, which allow for self-regulation abilities. Given that adolescents have not yet attained a full scope of reasoning and judgment skills, they may not be considered developmentally mature enough to be held responsible for criminal actions, particularly in situations of high emotional arousal and peer pressure. They may also lack the cognitive ability to understand and participate meaningfully in criminal justice proceedings, which would severely limit the fairness and effectiveness of the process. Indeed, evidence from the US and Australia has shown that adolescents are not functioning at the same level of psychosocial maturity and reasoning capacity as adults, meaning they may not be considered competent for adjudication in criminal courts (Bryan-Hancock & Casey, 2010; Grisso et al., 2003). Finally, the salience of the socioemotional brain region in adolescent decision-making means they are biased towards behaviours that lead to short-term rewards, with little consideration of long-term consequences. It follows then that threatening adolescents with punishment for their actions in the form of harsh legal sanctions may not be the most effective approach to change their behaviour.

These initial findings lead into our additional research questions exploring the impact of different justice system approaches for adolescent behaviour and other life outcomes. Specifically, evidence was reviewed to examine the consequences of punitive juvenile justice responses and whether there are other approaches which adolescents may be more responsive to which could potentially improve their developmental trajectories and outcomes.

As described in Section 7, evidence across multiple studies and reviews generally shows that punitive justice system approaches which treat adolescents similarly to adults are not effective at reducing recidivism and may even have harmful consequences for both adolescents and society. For instance, longitudinal evidence from the US has demonstrated that incarceration is associated with negative mental health outcomes for people of any age, but the harms appear to be even greater for those who experience incarceration during the sensitive period of adolescence and emerging adulthood (Powell, 2021). Incarceration in a secure setting has also been shown to negatively impact the development of psychosocial maturity in adolescents, with short-term declines in the development of temperance and responsibility in particular (Dmitrieva et al., 2012). Not only can harsh punishment approaches lead to negative effects on developmental and mental health outcomes for adolescents, but research suggests they may also lead to greater costs in the long-term by perpetuating a cycle of criminal behaviour.



Rather than punitive approaches, evidence tends to support the use of rehabilitative or restorative justice system approaches for adolescents in the justice system, which seek to help the individual reintegrate into society and repair the harm caused by their actions. Reviews of multiple treatment programs for juvenile delinquency have shown that the most effective programs are those that help adolescents to develop the necessary skills to transition successfully to adulthood, such as interpersonal and social skills, job skills, and educational support. There

is also some evidence to support the use of community-based programs rather than institutional programs, as well as therapeutic interventions such as cognitive-behavioural therapy and counselling. Some researchers have recommended a comprehensive approach to address both the developmental and criminogenic needs of adolescents in the justice system, involving collaboration between multiple services and people – including family, community, correctional services, counsellors and mental health professionals (Lambie & Randall, 2013).

Research on the effectiveness of restorative justice system approaches is more limited with mixed findings; however, some evidence has shown positive outcomes from restorative justice programs for young people, including reductions in criminal behaviour. For instance, studies from both the US and Canada have found that adolescents who were referred to restorative justice programming (i.e. victim-offender mediation, community panels) had a lower likelihood of reoffending or subsequent police contact compared to youth who were processed through the traditional court system (Bergseth & Bouffard, 2007; Bouffard et al., 2017). Studies have also demonstrated other benefits of restorative approaches, including greater satisfaction and positive attitudes towards the process from participants and improvements in psychological health. However, more research is needed to improve our understanding of the impact of restorative justice programs on recidivism and the circumstances in which these programs might be most effective. This includes more research to evaluate the use of sentencing circles or peacemaking circles, which are based on Indigenous principles of community-based justice but have been increasingly used for other populations in Canada and other countries. While preliminary evidence from smaller studies and pilot programs suggests that this particular approach to restorative justice may be beneficial for victims, offenders, and the community, there is a lack of empirical evidence demonstrating its impact on behavioural and other outcomes.

8.2 *Implications of the Findings*

The findings from this review have important implications for policy and practice – some of which are discussed in this section.

Research has increasingly shown that neurodevelopmental evidence has significant implications for the criminal justice system, particularly for informing more developmentally appropriate justice system responses for adolescents. As discussed by Cauffman & Steinberg (2012), a better understanding of developmental science would help guide policymakers and legislators as well as judges, lawyers, probation officers, and mental health professionals working with adolescents. For instance, legislators can use research on normative developmental processes to establish evidence-informed laws and legal requirements, such as setting appropriate age boundaries. Information on the development of mature reasoning and judgment capacities through adolescence is also important for judges to consider in their own decision-making to support more fair and effective

judgments and sentencing. This information would also help to inform appropriate recommendations for treatment and programming from mental health professionals as well as legal strategies and communication strategies for attorneys working with adolescent clients (Cauffman & Steinberg, 2012). As suggested by Grisso et al. (2003), special procedures may be warranted for dealing with adolescents charged in criminal court based on their level of psychosocial maturity, which could include an evaluation and determination of competence prior to proceeding to adjudication and trial.

While research shows that adolescent brains are less developmentally mature than adults, the evidence as a whole does not suggest that adolescents should be automatically excused for delinquent behaviour. Instead, findings from the literature indicate that the justice system should respond to adolescent misconduct in ways that not only hold them accountable for their actions and deter future criminal behaviour, but that also support their development and promote more positive and healthy trajectories as they transition into adulthood (Cohen & Casey, 2014). For instance, based on evidence showing that harsh punitive sanctions have little impact on reducing future crime and may actually have harmful effects for youth and the public, the use of sanctions such as incarceration, bootcamps, and subjecting adolescents to adult criminal court processes should be limited. Instead, expanding the use of community-based treatment programs, especially those that emphasize rehabilitation, skill-building, and therapeutic approaches may have a greater impact because they allow adolescents to reintegrate into society with greater opportunities to succeed as adults.

In addition to determining appropriate pathways and responses through the justice system, neurodevelopmental evidence can also be used to inform correctional planning and programming for those young persons who have been convicted and placed in either a juvenile or adult correctional setting. This point was emphasized in a 2017 report by the Office of the Correctional Investigator of Canada in partnership with the Ontario Office of the Provincial Advocate for Children and Youth examining experiences of incarcerated young adults (aged 18-21) in Canada. The report acknowledged the significance of this time period and the importance of intervening in a way that promotes positive outcomes (The Correctional Investigator of Canada & Provincial Advocate for Children and Youth, 2017):



“This timeframe is a critical period in their life as they transition to adulthood and it can be an important point in which to positively intervene to potentially stop the cycle of criminal offending and movement into and out of the criminal justice system. If the cycle can be disrupted early, these young people have an opportunity to become law-abiding citizens, thereby substantially reducing the social costs associated with offending.” (p. 6)

As a result, the Correctional Investigator recommended that correctional services in Canada develop more developmentally appropriate programming as well as supports for young people in correctional settings which would provide them with the best chances to change their behaviour and live a more productive life once they are released. This would include rehabilitative interventions, educational programming, and programs and workshops that teach life skills (e.g. budgeting, searching for housing, resume building, parenting skills, job search skills).

Finally, this literature synthesis has consistently highlighted that adolescents as an overall age group have unique developmental needs and circumstances that distinguish them from adults, necessitating a separate justice system response for adolescents. Yet there are also individual, family, and community-level factors that can affect both brain development and behaviour, leading some adolescents to have a disproportionately higher risk of involvement in the justice system – including mental health issues, family violence, unsafe neighbourhoods or communities, negative peer associations, and poverty. Researchers such as DeGusti et al. (2009) have noted that a better understanding of the role of these factors on adolescent development and behaviour would lead to more effective prevention and early intervention strategies to reduce criminal behaviour among at-risk youth.

Data from Canada also shows that certain sub-groups of young adults are overrepresented in the criminal justice system at every stage, including racialized and Indigenous youth and young adults (e.g. The Correctional Investigator of Canada & Provincial Advocate for Children and Youth, 2017; Department of Justice Canada, 2016). For instance, while the overall number of youth admissions to correctional services in Canada decreased from 2010-11 to 2014-15, the percentage of Indigenous youth admissions increased over this same period; and this overrepresentation has continued in more recent years, as shown by data on youth admissions to custody in 2020-21 (see Section 5.4) (Department of Justice Canada, 2016; Statistics Canada, 2022). These findings point to the need for more effective and culturally relevant programs, services, and interventions to meet the specific needs and interests of racialized youth in the justice system, including greater availability of community-based justice programs for Indigenous youth. Increased resources and enhanced training efforts for staff and program facilitators working with Indigenous and racialized youth would help to build greater capacity to implement and maintain these programs (The Correctional Investigator of Canada & Provincial Advocate for Children and Youth, 2017; Department of Justice Canada, 2016).

8.3 *Limitations of the Evidence*

As noted throughout this report, there are several limitations and gaps within the existing literature on adolescent neurodevelopment and its implications for the criminal justice system. First, given the challenges with evaluating the impact of justice system responses for adolescents in real-world contexts, few studies have assessed actual outcomes associated with different programs and interventions using objective measures and high-quality study designs. As mentioned in Section 7, conclusions about the effectiveness of alternative justice system approaches for adolescents are hindered by methodological limitations of existing studies, including small sample sizes, variations in definitions and measures across studies, and the role of possible confounding factors, such as differences between groups which might influenced the type of justice system response they received or their motivation to succeed. Conclusions about causal effects of programs are also limited by the lack of studies that have been able to randomly assign participants to different groups or treatments.

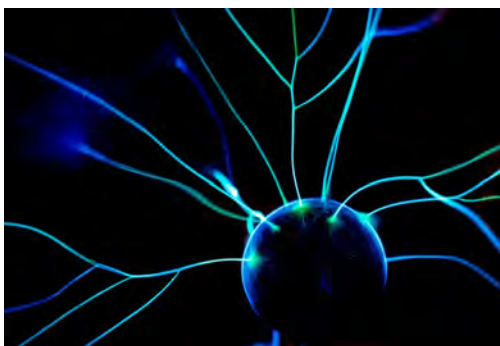
There is also there is limited evidence focusing on the population of interest for the Canadian juvenile justice system. This includes a lack of research conducted in Canada, as well as a lack of studies that have distinguished between adolescents and other age groups in their samples and results. While evidence from other countries can still provide important insights, there are additional challenges with making comparisons across different jurisdictions as there is low consistency in juvenile delinquency laws and processes. This includes variation in the ages at which adolescents can be held responsible for criminal actions and at which they can be processed as adults in the justice system.

Policies that apply specific age cut-offs or boundaries are often based on determinations of responsibility or maturity. Yet researchers have noted that there are still challenges with defining and measuring the concept of maturity, which makes it even more difficult to make judgments about an adolescent's level of responsibility or culpability in judicial cases (Barendregt & van der Laan, 2019). Without a standard method for assessing psychological and cognitive maturity, adolescents across different jurisdictions – and even across different courts and judges – may face bias and inequalities in the ways they are processed and sentenced.

Furthermore, as discussed by Bonnie & Scott (2013), neuroscientific evidence can only provide general descriptions and explanations for behaviour at a group level (i.e. explanations for how the adolescent brain develops and how these developmental processes influence behaviour); but there is considerable variability in the timing and nature of these processes from individual to individual, which limits the use of neuroscientific research for making decisions or determinations of guilt on a case-by-case basis (Bonnie & Scott, 2013). In other words, while existing research can provide important information as to how adolescent misconduct is influenced by underlying neurodevelopmental processes, research cannot provide a clear answer on the current level of developmental maturity of an individual adolescent who has been accused of a crime.

8.4 Future Research Needs and Remaining Questions

To provide a clearer understanding of the impact of different justice system approaches to adolescent misconduct and the role of neurodevelopmental processes, more rigorous research is needed that addresses the limitations of the existing literature. This includes more longitudinal studies examining the longer-term effects of different programs and interventions on a range of outcomes for adolescents – including recidivism as well as developmental, educational, psychological and health outcomes. Given that scientific research has clearly established unique developmental and neurological features of adolescence, findings from programs or evaluations with other age groups cannot necessarily be generalized to adolescents. Therefore, more studies are also needed which focus on programs and outcomes specific to adolescents, with results specified according to age. More clearly specified age information would also help to reduce some of the ambiguity surrounding the varying definitions and understandings of adolescence in the literature.



As noted in Section 8.3 and throughout this report, there is wide variation across individuals in the timing of developmental changes including brain maturation during adolescence, as well as other individual-level factors that can influence risk-taking behaviour and propensity. According to some researchers (i.e. Casey et al., 2008; Barendregt & van der Laan, 2019), these differences might explain why some adolescents are more prone than others to engage in delinquent acts, and why some adolescents continue to engage in criminal acts once they reach adulthood while the

majority refrain from further crime as they mature. These individual differences raise the question of whether justice system responses should be tailored to the individual needs and risk levels of adolescents to be most effective. On the other hand, neuroscientific evidence also shows that regardless of individual variation in sequence and timing, adolescent brains are not fully mature until the mid-twenties. According to Barendregt & van der Laan (2019), this evidence indicates that an *inclusive* rather than a selective approach is most appropriate for responding to adolescent misconduct. In other words, the benefits of alternative justice system approaches would extend to

all adolescents and young adults, whose brains are still developing and who have not yet reached adult levels of psychosocial maturity. Furthermore, given the challenges in defining maturity – even for psychiatrists and psychologists (see Section 8.3), researchers caution against allowing judges or prosecutors to make judgments about individual levels of maturity in each case. This issue has led some researchers to call for the need for more research to develop reliable assessment tools which could be used in the justice system to determine levels of psychological functioning and maturity (Bryan-Hancock & Casey, 2010).

Besides the question of whether different approaches should be taken for different individuals depending on their level of maturity, there has also been debate as to whether the benefits of juvenile justice approaches should only be available for less serious cases, with adolescents who have been charged with more serious or severe crimes able to be subjected to adult justice system responses. Indeed, the YCJA currently does allow judges to impose an adult sentence on a young person who is found guilty of a serious offence in Canada. While some argue for proportionality in sentencing for all offenders, where the sentence is proportionate to the severity of the offense and the degree of responsibility of the offender, others argue that the seriousness of the offense should not be used as criteria for determining whether an adolescent is processed through the juvenile or adult justice systems. For instance, Barendregt & van der Laan (2019) argue that a neurodevelopmental approach to justice would provide the same treatment and sentencing options to all adolescent or young adults based on their level of brain development rather than their crime.

In sum, while neuroscientific evidence on brain development has advanced significantly in recent decades and its influence on the justice system has grown, there are still questions as to how this evidence can be more informative for the development and implementation of appropriate and effective justice system responses for adolescents. Moreover, involvement in the justice system encompasses more than just being punished or sentenced; it can also include arrest, being charged with a crime, determinations of guilt, determinations of competence to stand trial, and interactions with lawyers and judges. This raises additional questions of how neurodevelopmental processes affect adolescents at different stages of the justice system, such as whether the available evidence necessitates a differential approach for adolescents compared to adults at each stage as they move through the justice system, and how responses at each stage impact developmental trajectories.

8.5 Conclusion

Adolescents continue to be overrepresented in the criminal justice system in Canada, highlighting the urgent need for effective responses for this age group to address their needs and mitigate the adverse impacts of justice system involvement as they transition to adult members of society, while also reducing crime rates and enhancing public safety (Matthews et al., 2018). Research on adolescent brain development has tremendous potential to inform policy responses to adolescents in the justice system by demonstrating: a) that adolescent misconduct and risk-taking behaviour is a product of normative developmental and neurobiological processes which are unique to adolescence; and b) that the adolescent brain is also highly amenable to change if provided with opportunities that promote learning and positive growth (Steinberg, 2009; Bonnie & Scott). Indeed, findings from developmental science have increasingly been considered by policymakers, judges, and the media in recent years, sometimes leading to changes in laws which extend the benefits of juvenile justice processes to higher ages (Bonnie & Scott, 2013).

Canada has made progress towards a more fair, effective, and developmentally appropriate youth justice system. This includes replacing the original *Young Offenders Act* with the *Youth Criminal Justice Act* (YCJA) in 2003, with further amendments to the YCJA adopted in 2012. These reforms followed the publication of Canada's strategy for the renewal of youth justice in 1998, which sought

to improve the youth justice system through an integrated and balanced approach to justice that focuses on prevention, meaningful consequences, and rehabilitation (Department of Justice Canada, 1998). The Youth Justice and Strategic Initiatives Section (YJSIS) was also established to meet the objectives of the Youth Justice Initiative of the federal Department of Justice. Ongoing activities of the YJSIS include monitoring the implementation of the YCJA, research and knowledge sharing to respond to emerging issues and encourage a fair and effective youth justice system (Government of Canada, 2021e).

However, despite these initiatives, more research and evaluation efforts are needed to fill existing knowledge gaps on the impact of various programs, interventions, and approaches to youth justice in Canada. This knowledge could then be used to develop more targeted responses to adolescent misconduct and ensure that resources are allocated in ways that have the greatest impact and benefit for youth at this critical stage of development (DeGusti et al., 2009).

It may be that rather than one specific approach to juvenile justice, a multi-sectoral and collaborative approach would have the greatest impact. According to a review by the Canadian Research Institute for Law and the Family (CRILF), “collaborative efforts in the different contexts in which a child develops are essential to increase the likelihood of success” (DeGusti et al., 2009, p.9). Therefore, the most effective strategies may be those that address a number of interrelated factors that affect adolescent risk-taking and criminal behaviour, including cognitive and brain development, the impact of peers, and the environmental context (Mercurio et al., 2020). For example, this could include police and judicial services working together with community-based agencies and representatives who provide other services to youth, such as child protection services and social workers, probation services, and substance use treatment services. As summarized by Cauffman & Steinberg (2012):

“No one policy regime will yield good outcomes for all young offenders, but looking to developmental research to guide our decision making provides a solid framework for policies and practices that will enhance public safety in the long run by promoting effective treatments and healthy adolescent development.” (p.44)

9.0 References

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Appendix A: Policy Statements and Definitions of Adolescence

Organization	Source	Statement(s)
American Academy of Pediatrics	Hardin, A.P., Hackell, J.M., Simon, G.R., Boudreau, A.D.A., Baker, C.N., Barden, G.A., Meade, K.E., Moore, S.B., Richerson, J., & Committee on Practice and Ambulatory Medicine (2017). Age limit of pediatrics. <i>Pediatrics</i> , 140(3), e20172151.	<ul style="list-style-type: none"> • Recent research has begun to shed more light on the progression of mental and emotional development as children progress through the adolescent years into young adulthood. It is increasingly clear that the age of 21 years is an arbitrary demarcation line for adolescence because there is increasing evidence that brain development has not reliably reached adult levels of functioning until well into the third decade of life. • Although adolescence and young adulthood are recognizable phases of life, an upper age limit is not easily demarcated and varies depending on the individual patient. The establishment of arbitrary age limits on pediatric care by health care providers should be discouraged. The decision to continue care with a pediatrician or pediatric medical or surgical subspecialist should be made solely by the patient (and family, when appropriate) and the physician and must take into account the physical and psychosocial needs of the patient and the abilities of the pediatric provider to meet these needs.
Canadian Pediatric Society	Canadian Pediatric Society (2003). Age limits and adolescents. <i>Paediatrics & child health</i> , 8(9), 577–578.	<ul style="list-style-type: none"> • The Canadian Paediatric Society believes that a definition of adolescence based solely on chronological age is unjustified and impractical. The Society favours a more functional definition based on the biopsychosocial readiness of young people to enter adulthood. • Adolescence begins with the onset of physiologically normal puberty, and ends when an adult identity and behaviour are accepted. This period of development corresponds roughly to the period between the ages of 10 and 19 years, which is consistent with the World Health Organization’s definition of adolescence. • Those responsible for providing healthcare to adolescents must allow sufficient flexibility in this age span to encompass special situations such as the emancipated minor or the young person with a chronic condition leading to delayed development or prolonged dependency
UNICEF	UNICEF (2022, April). <i>Adolescents</i> . Available online .	<ul style="list-style-type: none"> • Defined by the United Nations as those between the ages of 10 and 19, adolescents experience a transition period between childhood and adulthood and with it, significant growth and development. As children up to the age of 18, most adolescents are protected under the Convention on the Rights of the Child. Yet, their vulnerabilities and needs are distinctly different from those of children and therefore often remain unaddressed.
World Health Organization	World Health Organization (n.d.). <i>Adolescent health</i> . Available online .	<ul style="list-style-type: none"> • Adolescence is the phase of life between childhood and adulthood, from ages 10 to 19. It is a unique stage of human development and an important time for laying the foundations of good health.