Combining NMT with Culturally Appropriate Interventions: Trauma-Informed Practice for Canadian Indigenous Youth to Cultivate Intergenerational Healing

by

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Abstract

The following mixed-method literature review examines the ongoing mental health crisis among Canadian Indigenous youth populations, the current trauma-informed care (TIC) model guidelines in Alberta, and how the neurosequential model of therapeutics (NMT) can be combined with Indigenous healing practices in treatment interventions. Given what we know about Indigenous youth's overrepresentation in the criminal justice system, substance use disorders, externalizing disorders, and placement in government care, it is critical to understand better what treatment interventions exist today and in what ways they are lacking. Current research and treatment plans fail to adequately consider the loss of culture and traditions due to colonization and intergenerational trauma (IGT) and how this shows up behaviorally, emotionally, physically, and spiritually in Indigenous youths. The purpose of this capstone is to address the gap in Indigenous-specific trauma research regarding the importance of viewing dysfunction from a holistic, developmental, and cultural lens and ask: How can neurodevelopmental, trauma-informed, and culturally appropriate integrative treatments be utilized in psychological intervention methods for Indigenous youth? It is hypothesized that by viewing Indigenous youth mental health challenges from a holistic lens that seeks to understand the child's entire lived experience and adjust interventions accordingly, long-term and intergenerational healing can be achieved.

Keywords: intergenerational trauma, historical trauma, trauma-informed care, TIC, Indigenous youth, culture as treatment

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Chapter One: Introduction

In Canada, the term Indigenous "refer[s] to peoples who have roots in ancestral lands that predate colonial incursions and nation-state boundaries" (Nelson & Wilson, 2017, p. 93) and includes First Nations, Inuit, and Métis communities (Graham et al., 2021). Historical atrocities of colonialism in the form of cultural genocide perpetuated from as early as the 1830s until recently in 1996 when the last Indian Residential School (IRS) closed (Matheson et al., 2022) had lasting impacts on the mental health of Indigenous populations that continue to persist today. North American Indigenous peoples are at an increased risk for a variety of psychological disorders including substance use disorders and suicidality (Chartier et al., 2024; Hautala et al., 2019), schizophrenia (Charter et al., 2024), attention-deficit hyperactivity disorder (ADHD) (Baydala et al., 2006; Chartier et al., 2024; Loh et al., 2017; Walls et al., 2021), mood disorders such as anxiety and depression (Graham et al., 2021), oppositional defiant disorder (ODD), and conduct disorder (CD) (Owais et al., 2022). Further evidence of this can be seen in Alberta where the Indigenous population represents roughly 6.81% of the total population, yet Indigenous youth make up approximately 75% of the children in foster and group care (Siever, 2023) and 33% of young offenders (Cesaroni et al., 2018). Cesaroni et al. suggested that Aboriginal youth have a greater likelihood of going to prison than graduating high school in Canada. Indigenous adults make up roughly 5% of the total population, yet account for 27% of incarcerated adults (McIntosh & McKeen, 2018), showing slight improvements in criminal justice involvement as youth mature but these are still alarming statistics. These changes could be attributed to other factors as suicide rates are significantly higher among Indigenous youth when compared with the general population (Graham et al., 2021).

While recent government initiatives such as the Truth and Reconciliation Commission of Canada (TRCC) have successfully brought forth greater awareness of the injustices committed against Indigenous communities (Matheson et al., 2022), there are still systemic barriers in existence that prohibit the collective healing that may be necessary to see long-term positive outcomes. Since the conception of the TRCC, statistics have shown an *increase* in the number of Indigenous youths in government care (Siever, 2023). The ongoing mental health crisis among Indigenous youth in Canada prompts a re-evaluation of how practitioners and support workers are approaching treatment interventions. Given what we know regarding the impacts of historical and intergenerational trauma (IGT), this capstone is guided by the research question: How can neurodevelopmental, trauma-informed, and culturally appropriate integrative treatments be utilized in psychological intervention methods for Indigenous youth? It is theorized that long-term and intergenerational healing can be achieved with a more holistic lens that honors Indigenous ways of knowing and considers the entirety of one's life experiences and how this shows up physiologically, behaviourally, and psychologically.

Purpose Statement

There are a multitude of socioeconomic factors contributing to the current mental health crisis in Indigenous populations. Canadian First Nations are at a heightened risk of poverty, particularly when living on reserves in comparison to the general population (Gone, 2013; Kelly, 2023). Access to basic needs such as traditional dietary choices and water may be limited. As previously mentioned, Indigenous youth are more likely to be involved in crime than complete high school (Cesaroni et al., 2018) which makes them unlikely to achieve well-paying occupations. The intergenerational transmission of trauma adds another complex layer that can affect how parents care for their children and subsequently pass on further trauma. Barfield et al.

(2011) noted that in “extreme poverty, homes with maternal mental health problems, parental substance abuse, and absence of social supports, the prevalence of neuropsychiatric problems is high” (pp. 30-31). In Canada, nearly 25% of Indigenous youth living on reserves have been identified as having “moderate to severe mental health disorders” (First Nations Information Governance Centre, 2018, as cited in Graham et al., 2021, p. 2). Much of this can be traced to the lasting impact of the IRS system. A study by Corrado and Cohen (2003, as cited in Graham et al., 2021) included 127 IRS survivors in British Columbia and discovered that only two did not have an existing mental health disorder. IRS survivors have been found to have “poorer physical, mental, and emotional health, including higher rates of depression, mental distress, substance misuse, stress, and suicidal behaviors” (Graham et al., 2021, p. 2). Children who are raised in traumatized environments have been found to exhibit developmental delays, emotional dysregulation, and behavioral problems of which symptom severity is highly dependent on the timing and duration of exposure (Barfield et al., 2012). These problems, when misinterpreted, may be inaccurately attributed to disorders such as ODD, ADHD, and CD when trauma is not considered as a contributing mechanism. This can lead to overmedicating and underestimating the healing impacts of Indigenous-specific trauma interventions that must be considered.

The purpose of this study is to bridge the existing gap in research that neglects to consider the impact of historical trauma on Indigenous populations and the current mental health crisis for Indigenous adolescents. There is currently minimal research that is dedicated specifically to Indigenous mental health support. In fact, in the meta-analysis conducted by Graham et al. (2021), only 14 studies were found that focused on Indigenous interventions. As noted by Perry (2006, 2009), who developed the Neurosequential Model of Therapeutics (NMT), the longer a child goes without adequate interventions the more vulnerable and resistant to

change they become. It is believed that with early intervention strategies that are aimed at younger Indigenous community members and their families, the potential for long-term and intergenerational recovery will be strengthened. This includes healing strategies that integrate collaboration with caregivers, parents, and Elders. Thus, the research question is: Can NMT be combined with culturally appropriate interventions to create a more effective trauma-informed treatment to address the Indigenous youth mental health crisis and cultivate intergenerational healing?

Theoretical Framework

When approaching psychological interventions with Indigenous populations, one must consider a trauma-informed care (TIC) perspective to practice ethically. There are six guiding principles in TIC, including Principle I: Awareness, Principle II: Viewing Trauma Through the Individual Lens, Principle III: Establish Safety and Trust, Principle IV: Collaboration and Choice, Principle V: Focus on Strengths, and Principle VI: Empowerment (Alberta Health Services, 2022). While these guidelines provide an adequate starting point in trauma treatment, some modifications are necessary when applying these principles to Indigenous populations presenting with IGT or HT.

NMT takes on a developmental and trauma-informed perspective that emphasizes the importance of in-utero, early infancy, and early childhood experiences on brain development and overall functioning throughout the life course (Perry, 2009). Taking into consideration the stages in which the brain develops—in a bottom-up fashion that begins with the brain stem, diencephalon, limbic, and finally the cortex, NMT posits that when there are disruptions early on in childhood, this can halt or delay the necessary advancement into the next stage for normal development. Perry noted that the timing of which exposure to neglect or trauma occurs can lead

to differing results in children with earlier events leaving more lasting and dysfunctional effects than those that happen later on in childhood. Furthermore, with each subsequent exposure to trauma, the child becomes increasingly vulnerable. The resulting impact is that these children often go on to have a plethora of dysfunction including emotional dysregulation, impulsivity, anxiety, and social skill impairments (Barfield et al., 2012; Evans et al., 2023; Perry, 2009) making it difficult for them to engage in typical treatment protocols (Perry, 2009). These symptoms may also mimic how other diagnoses present and are commonly ascribed as ADHD, ODD, and CD in adolescents. Perry stressed the importance of humans' natural survival mechanism of communication and bonding which has been present for hundreds of thousands of years. It is thought that connection and safety can serve as a protective mechanism in the face of trauma, which can come from having consistent and dependable close contact with caregivers or family members early on. In situations where this is not possible, Perry observed that symptoms are likely to persist.

When youth are taken into children's services organizations, as so many Indigenous children are today (Siever, 2023), the likelihood of each child receiving adequate attention in the form of a bonding experience is slim, if not impossible. To put it bluntly, they are not given a fair chance. Early interactions with caregivers set the stage for how children view others such as questioning if this person is a threat or if can they depend on them (Perry, 2009). The NMT intervention plan acts in stages aligned with the stages of brain development (Evans et al., 2024). This means that in the beginning stages, treatment focuses on operations managed by the primal brain areas such as emotional regulation and impulse control. Evans et al. explained that once these regulatory functions are manageable, treatment can progress gradually to higher-order functions using methods such as cognitive behavioral therapy. Therapeutic interventions that

incorporate an understanding of neurological mechanisms affected by trauma have been proven to be invaluable for children.

When working with Indigenous populations, the inclusion of Indigenous traditional practices must be considered when appropriate. The term *culture as treatment* is prominent among Indigenous treatment literature (Gone, 2013; Graham et al., 2021) and has revealed the deep and lasting positive outcomes found when culture becomes a focus in psychological therapy. Reeves and Stewart (2015) noted that some Indigenous peoples have succumbed to colonization practices and do not have an Aboriginal spiritual perspective of healing, however, this should be determined at the outset of treatment to plan appropriate intervention strategies. Indigenous perspectives encompass a holistic lens that considers one's emotional, physical, spiritual, and psychological sense of being. Consistent with this view, as observed by Reeves and Stewart, is the importance of counseling practices as an intervention as it is believed that the mind, body, and spirit are all interconnected and have an effect on overall health. Other techniques may include talking circles (Graham et al., 2021; Reeves and Stewart, 2015), breathing exercises, visualization, prayer (Reeves and Stewart, 2015), smudging ceremonies, and sweats. Many of these traditional Indigenous healing practices engage neurological structures that are affected by IGT and HT, which will be discussed further in the literature review.

Additionally, *spirituality* is "considered as a central focus in many Indigenous therapies" (Reeves and Stewart, 2015, p. 61), and as such it is important for the practicing therapist to be self-aware and in tune with their own sense of spirituality. Culturally appropriate trauma-informed interventions may also include a trauma-informed genogram (Thompson, 2022), self-regulation strategies (Fisher, 2019; Perry, 2014; Thompson, 2022), "limbic interventions [that]

support attachment and relational needs" and "cortex interventions [that] support the development of insight and reflective capacity" (Thompson, 2022, p. 126).

Methodology

The proposed study will be a mixed-method narrative literature review that incorporates the examination of both qualitative and quantitative data. Data will be collected using online databases such as PsycINFO, PubMed, and the CityU Library using keywords such as *intergenerational trauma*, *historical trauma*, *Indigenous adolescents*, *mental health*, *neurosequential model*, *Indigenous healing*, *youth in care*, and *trauma-informed*. This research will include consultation with faculty member Dr. Darlene Cyrus-Blaize, faculty second readers, and editors.

Contribution to the Field

It is my hope and intention that this capstone will be of interest to and benefit mental health practitioners and psychologists who specialize in treating Indigenous populations, particularly those working with adolescents and their families. By bringing more awareness to the presenting symptoms of IGT and HT, we can begin to remove some of the stigmas that are attached to common diagnoses found among Indigenous youth—addiction and substance use disorders, behavioral challenges showing up as ADHD, ODD and CD, and criminal justice system involvement. Rather than placing misguided labeling on traumatized youth, we can begin to approach treatment in a more compassionate and empathetic way that embodies a clear understanding of what these children are faced with in their daily lives.

Positionality Statement

As a Secwepemc First Nation member, specifically the Llenlleney'ten (High Bar) band, I have personally experienced the effects of IGT stemming from my paternal heritage. In

protecting the privacy of my family members' personal information, I will withhold details here but will share that when I began to explore my Indigenous genealogy further in recent years, I was both saddened and enlightened as it explained so much of the dysfunctional behavior that persisted across generations of First Nations family members. I found myself overcome with emotions as I was finally able to give grace to individuals towards whom I had held resentment and blame for much of the dysfunction that happened in my childhood. This sparked an innate passion in me to understand more about what is being done to rectify the century-long cultural genocide that occurred in Canada to Indigenous communities via the IRS system and the Sixties Scoop. The effects of such catastrophic government initiatives are still felt today as discrimination and prejudice towards Indigenous linger in the air.

As I began working with high-risk Indigenous youth in group care last year, it was strikingly apparent that these children were not being given a fair chance at life, let alone success. I couldn't help but feel that the entire government children's services organization eerily mimicked what had happened previously with the IRS system. Protective mechanisms known to aid in trauma recovery such as connection, safety, and belonging (Perry, 2009) were completely absent from their care. There were no psychological interventions provided, even though each day of these children's lives would be considered a traumatic experience for most people. This experience further strengthened my desire to find ways to integrate culturally safe and trauma-informed practices for Indigenous children and their families.

Definition of Terms

Historical Trauma and Intergenerational Trauma

A complex, collective, and cumulative trauma phenomenon that persists throughout generations among a shared group. When considering historical trauma among Indigenous

populations, this occurred as a result of colonization practices in which Indigenous people were subjected to severe physical, mental, emotional, and sexual abuse via the Indian Residential School (IRS) system. Much of the discriminatory and systemic racism continues today. HT and IGT differ from PTSD in that the range of dysfunction is much more comprehensive and affects entire communities, not just a single individual (Gone, 2013).

Sensitized Neuronal Networks

The result of repeated activation of neural networks due to external environmental stimuli (i.e., anxiety or fear-provoking trauma) in which a decrease in stimuli is necessary to elicit a response (Perry, 2006, 2009).

Emotional Dysregulation

An inability to manage emotions; may be caused by sensitized neuronal networks (Barfield et al., 2012).

Hypervigilance

Being in an overly alert state; may be constant or intermittent (Merriam-Webster, 2024).

Neural Plasticity

The ability to change dysfunctional neurological structures; can result in strengthening one's capacity to regulate emotions (Perry, 2006).

Outline of Capstone Chapters

The focus of this capstone research project is how TIC can be modified and applied to Indigenous youth populations to include culturally appropriate strategies that consider the negative aspects of colonialism on mental health. Indigenous populations embody unique and distinct symptom characteristics of trauma that are linked with IGT, HT, the IRS system, and cultural genocide. Chapter Two contains a literature review that examines the ongoing mental

health crisis among Canadian Indigenous youth populations, Alberta's current TIC training framework, the NMT, and the benefits of traditional Indigenous ways of healing. Chapter Three includes a discussion on the research material and explores how the research can be applied in practice with Indigenous adolescents to cultivate intergenerational healing, including the limitations and ethical concerns.

Chapter Two: Literature Review

This chapter includes an extensive inquiry into the ongoing mental health crisis in Indigenous youth populations in Canada and how our current trauma-informed care (TIC) model should be modified to include NMT and consider culturally relevant characteristics such as IGT and HT. Indigenous adolescents are at a heightened risk for developing a variety of mental health dysfunctions, substance use and misuse, criminal justice involvement, and overrepresentation in government care agencies. Much of this can be traced to the cultural genocide that occurred via colonization and the IRS which has left a lasting imprint on Indigenous communities. The current TIC is outlined and critiqued for its relevance when working with FNIM individuals. Additionally, the NMT is proposed which considers aspects of attachment theory, systems interventions, and the biological underpinnings of childhood trauma and adversity. Indigenous cultural aspects of healing are examined for both their successful integration into mental health treatment and also for how many of these traditional healing practices incorporate aspects of NMT.

Mental Health Crisis in Indigenous Youth Populations

Criminal Justice Involvement

There are multiple factors to consider when developing an understanding of the overrepresentation of Indigenous adolescent populations in the criminal justice system in Canada. This can include, but is not limited to historical trauma, domestic violence exposure, one or both parents being incarcerated, government-care interventions, mental health challenges, substance use and abuse (Cesaroni et al., 2019), and a lack of Indigenous-specific support in the criminal justice system itself. In Canada, the Youth Criminal Justice Act (YCJA) came into effect in 2003 to replace former legislation known as the Young Offenders Act (YOA) (Webster

et al., 2019). It was thought that the YOA guidelines were too quick to incarcerate youth without considering more effective measures to address recidivism. Webster et al. noted that when considering imprisonment, young offenders' criminal activity must meet one of four criteria:

> It is a violent offense; the youth has previously failed to comply with noncustodial sentences; the youth was found guilty of a moderately serious offense and has previous findings of guilt; or exceptional circumstances exist requiring a custodial sentence in order to be consistent with sentencing principles (including proportionality) (s.39(1)). (p. 1108)

This suggests that once a youth has been incarcerated, they are more likely to be jailed following subsequent offenses regardless of crime severity. While the YCJA seemingly lowered the prevalence rates of youth in custody as a whole, Webster et al. observed that rates of Indigenous youth imprisoned continue to drastically outnumber that of the general population.

Gladue principles were developed following *R. v. Gladue* (1999) to address barriers to appropriate sentencing of Indigenous populations and were introduced as a way to combat Indigenous overrepresentation in the criminal justice system (Government of Canada, 2023; Martin, 2020). However, according to the Government of Canada (2023), *Gladue* reports tend to be time-consuming and require additional resources that many judicial organizations may neglect to abide by. Furthermore, "courts [have] often dismissed *Gladue* factors when an offender's background is criminal, failing to take into account the effects of living in Indigenous communities with high crime rates" (n.p.). This begs the question as to whether *Gladue* principles are effectively being practiced when Indigenous populations come in contact with law authorities. Some would argue that cultural considerations in sentencing for Indigenous youth have had no bearing on rates of imprisonment (Cesaroni et al., 2019).

Much like the intergenerational transmission of trauma, the effects of criminal justice system involvement tend to persist throughout generations. In the event of parental incarceration in *any* racial group, consequences for children include isolation (Comfort, 2007; Foster & Hagan, 2015), juvenile delinquency (Foster & Hagan, 2015; Murray et al., 2012), disruption in parent-child attachment development, financial insecurity, and antisociality thereby increasing the risk of criminal justice involvement (Giordano et al., 2019). Studies have found that "risk factors associated with offending and disproportionality found among Aboriginal communities must be understood in the context of structural factors connected to the legacy of colonization" (Cesaroni et al., 2019, p. 113).

Cesaroni et al. (2019) conducted an interpretive phenomenological study to better understand the occurrence of Indigenous youth overrepresentation in the criminal justice system in Canada. Participants included Anishinaabe, Haudenosaunee, and Métis young people residing in urban communities. This study aimed to gain Indigenous youth perspectives on *what* is contributing to the crisis of over-incarceration of Aboriginal youth populations and *how* participants felt this issue could be resolved. In order to address cultural appropriateness, data was collected by way of talking circles that were Elder-led and included two designated Oshkawbaywuss helpers and a cultural advisor in addition to discussion with an Indigenous Advisory Council. Discussion transcripts were analyzed repetitively while Cesaroni et al. identified common themes and meaning units. The researchers found five overarching themes contributing to Indigenous youth overrepresentation in prisons. Notably the overarching main theme identified was the lasting "impact of colonization and IRS" (p. 117) and was interconnected to the four remaining themes: "(a) loss of Indigenous ceremony, culture, and tradition, (b) the destruction of the Indigenous family unit and Indigenous parenting practices, (c)

racism and stereotypes, all of which have culminated in (d) the loss of identity and sense of self" (p. 118).

The *loss of culture and traditions*, as expressed by participants, is significant to youth involvement in crime as culture plays a central role in the individual development of values and morals (Cesaroni et al., 2019), which can be said for all cultures and ethnicities. Who we are and who we become is innately strengthened by our social and familial relationships. The concept of interconnectedness is central to Indigenous culture and participant statements in Cesaroni et al.'s research such as "I have a total disconnect from my heritage" (p. 118) are indicative of the detachment to traditions found among many Indigenous populations.

The second theme identified, the *destruction of Indigenous families* as a direct result of colonization practices, was found to be a contributing factor in youth criminal involvement as the IRS created a "ripple effect" throughout subsequent generations (Cesaroni et al., 2019). Traditional Indigenous family systems include a broader, more complex system than the typical nuclear Westernized family and embrace blood relatives, community and band members, and those who were adopted. Colonization and the IRS system resulted in a complete and total breakdown of such cultural practices, thereby causing the lasting deterioration of Indigenous family systems. Cesaroni et al. noted that this also lends itself to youth in custody not having adequate parental support when dealing with criminal matters, such as logistics pertaining to bail and recidivism programming.

Cesaroni et al. (2019) identified the third theme as the development of *racism and stereotypes*. Participants noted several derogatory terms commonly used to describe them: *too native*, *criminal*, *lazy*, or *drunk*. In fact, judicial initiatives such as the *Gladue* principles, which were designed as a way for law enforcement to appropriately recognize the individual lens from

which Indigenous people view the world and assign sentencing as such, may be contributing to societal racism. Cesaroni et al. found that some participants described being treated *worse* due to such legislation and being labeled as taking "advantage of the system by utilizing the very laws that were meant to recognize the context and vulnerability of their lives" (p. 119). This innately felt racism undoubtedly impacts every possible social scenario in the daily lives of Indigenous youth as they navigate finding their place in the world, a typical period in all adolescent development.

The fourth theme addressed the *loss of identity and sense of self* among Indigenous youth populations (Cesaroni et al., 2019). Erik Erikson's psychosocial model of development categorizes adolescence as a period of identity formation and role confusion (Kaiser, 2020). Erikson posited that adolescence is the most critical period of development across the lifetime, which could explain why this appears to be a time of crisis for Indigenous youth. This *loss of self* is found in other research as a distinct symptom of historical trauma and involves a breakdown of one's spiritual, cultural, and interpersonal well-being (Gone, 2013). Again, this theme is rooted in colonialism and the IRS system as Cesaroni et al.'s (2019) research participants described being ashamed of even admitting their cultural heritage let alone openly engaging in deep conversations surrounding their beliefs and spirituality. From my personal experience, there are remnants of what I now know to be the *conspiracy of silence* the lurked among my Indigenous family members in which ties to native ancestry or the IRS were not discussed. Participant statements included: "our young people don't know who they are," "I never grew up getting to know my Indigenous identity," "afraid to talk about being Indigenous," "I'm no good," and "we always lose" (p. 120). Cesaroni et al. suggested that criminal activity involvement may serve as a way to connect with others and develop a sense of belonging, which may seem appropriate in the

young adolescent mind that doesn't fully understand consequences due to underdeveloped prefrontal cortical (PFC) regions of the brain. Potential intervention strategies identified throughout the researchers' talking circles included having youth involvement in decision-making processes and Indigenous cultural integration. Cesaroni et al. also recommended that effective therapy would incorporate nature and traditional activities into treatment. Notably absent from this study was transparency about the number of research participants, which could affect the generalizability of the data collected to Indigenous populations as a whole. The authors did mention throughout the study's description that much of their results were consistent with other research in this area. One of the predictors for criminal justice involvement is the co-occurrence of substance use disorders, particularly in youth populations (Hautala et al., 2019). This will be discussed further in the next section.

Substance Use Disorders

In the general population, the prevalence of substance use disorders in adolescents is correlated with self-reported trauma exposures such as "physical abuse or assault, sexual abuse or assault, and/or witnessing intimate partner violence of a parent" (Cole et al., 2019, p. 341). It is heavily discussed in addiction literature and research that substance use and abuse serve as a way to self-medicate an individual's deeply rooted pain. Particularly with children who are traumatized, there is nervous system dysregulation that stifles young people's ability to process emotions in psychologically healthy ways, which certain addictive substances may provide temporary relief from (Andersen and Teicher, 2009). Cole et al. (2019) found that symptom severity of substance use disorders (SUD) was correlated with *DSM-V* "PTSD Criterion A" symptoms, indicating that the more trauma a child is exposed to, the more likely they are to develop SUDs later on in life.

In North American Indigenous populations, cigarettes, alcohol, and cannabis are the substances of choice (Hautala et al., 2019). Studies have found Aboriginal youth to be twice as likely to smoke cigarettes, five times more likely to use cannabis, five times more likely to consume alcohol (Snijder et al., 2020), and earlier onset for SUDs when compared with the general population (11-13 years vs. 20 years) (Hautala et al., 2019). In some Indigenous communities, Hautala et al. noted that research has also found an overrepresentation of coexisting drug and alcohol dependence, which can be problematic to potential treatment interventions and add barriers in the form of socioeconomic disadvantage and psychiatric symptoms. Of those adolescents who use substances in Indigenous communities, *most* consume both cannabis and alcohol (Hautala et al., 2019; Walls et al., 2021).

Due to the overrepresentation of SUDs among Indigenous youth populations, Hautala et al. (2019) were curious to gain a better understanding of a) what is the most vulnerable period in development for SUDs onset, b) how SUDs co-occur over time, and c) are there further risks to these communities due to psychological and demographic qualities. Their 8-year longitudinal, community-based study included 744 Indigenous adolescent participants residing on North American reservations with shared cultural traditions. Data was collected via 1.5-hour interviews in four ‘waves’; wave 1 (M_{age}=11.08), wave 4 (M_{age}=14.25), wave 6 (M_{age}=16.23), and wave 8 (M_{age}=18.26). Consultation for research included tribal-appointed community research councils (CRC). Hautala et al. included parents in interviews and reporting for waves 1 and 2, due to young participant ages at those times. SUDs were determined using the Diagnostic Interview Schedule for Children (DISC-IV). Measures for comparison and correlation with SUDs included assessments for past year and past month presence of internalizing disorders such as major depressive disorder (MDD), dysthymia, and generalized anxiety disorder (GAD); externalizing

disorders such as conduct disorder (CD), oppositional defiant disorder (ODD), and attention-deficit hyperactivity disorder (ADHD); and demographic considerations such as geographic location and family income.

The results of Hautala et al.'s (2019) study demonstrated that nicotine and alcohol dependence peaked between the ages of 13-15 years (wave 4); alcohol use peaked between the ages of 15-17 years (wave 6); and at the ages of 17-19 years (wave 8), rates declined but with alcohol still having the highest probability of being abused. The researchers found that 69.1% of participants did not meet the criteria for multiple SUDs or only qualified for symptoms in one SUD. Hautala et al. broke down predictors of SUDs by particular substance as follows: nicotine dependence was more likely to be found in females and in those who had internalizing disorders in the past year; alcohol abuse was more likely to be found when there was a presence of externalizing disorders or with prior nicotine or marijuana dependence, gender was not a predicting factor; and, marijuana dependence was also more likely with a past-year presence of externalizing disorders and with prior nicotine or alcohol dependence, gender was not associated with risk. In all SUDs, Hautala et al. noted that family income could be seen as a risk factor or protective factor with an increase in family income correlating with a decrease in the prevalence of SUDs.

Criticism of Hautala et al.'s (2019) study includes a lack of consultation with Indigenous community members, such as Elders. Additionally, missing from the data were the actual prevalence rate statistics of internalizing and externalizing disorders in these communities. Given the association between externalizing disorders such as ADHD, CD, and ODD with the risk of developing alcohol or marijuana dependence, it is important to also examine the rates of such disorders among Indigenous youth populations. Some studies have found an estimated lifetime

prevalence of ADHD in Indigenous early adults to be 14.8% (Walls et al., 2021). This will be covered more thoroughly in the next section.

Increased Prevalence of ADHD, ODD, and CD

ADHD can be described as being "associated with disruptive behaviors, academic underachievement, peer rejection, noncompliance with adults, and poor social skills" (Parker and Corkum, 2016, p. 478). ODD is identified with the presence of a "frequent and persistent pattern of irritable and angry mood, vindictiveness and developmentally inappropriate, negativistic, defiant, and disobedient behavior toward authority figures" (Noordermeer et al., 2016, p. 44). CD is identified with a "frequent and persistent pattern of multiple anti-social behaviors during childhood and adolescence, including fighting, bullying, stealing, vandalism, and lying for personal gain" (p. 44). Many of these symptoms described mimic emotional dysregulation, a commonly known indicator of trauma.

There are a variety of hypotheses that attempt to provide predictors for the increased presence of externalizing disorders such as ADHD, ODD, and CD in the general adolescent population. Some research has suggested that it is experiences in infancy such as maternal stressors at around 3 months of age that contribute to these (Schulz & Muschalla, 2022). Perry (2009) went further in his research and posited that experiences of neglect and trauma beginning in early infancy through early childhood impact pertinent neurological development in which the brain regions responsible for emotional regulation are impaired. Other studies have demonstrated neurological impairments in children who present with ADHD, ODD, and CD, and also in brain regions responsible for emotional regulation (i.e., amygdala, striatum, frontal gyrus) (Noordermeer et al., 2016). The inability to regulate one's emotions is one of the primary symptoms of externalizing disorders. Indigenous children in North America are much "more

likely to be over diagnosed and overmedicated in mental health systems" and "suspended or expelled from school" (Perry & Winfrey, 2021, p. 220). Perry (2011) suggested that many children are often misdiagnosed with externalizing disorders, when in fact, they are presenting with symptoms of trauma or PTSD: "impulsivity, distractibility and attention problems (due to hypervigilance, dysphoria, emotional numbing, social avoidance, dissociation, sleep problems, aggressive (often re-enactment) play, school failure, regressed or delayed development" (p. 6). Other studies have suggested that even maternal stress is correlated with a greater risk of children presenting with symptoms of ADHD or ODD (Owais et al., 2023). One cannot ignore the social factors that can contribute to the development of such symptoms in Indigenous youth populations such as historical and intergenerational trauma, ongoing racism and prejudices, lack of social support, diminished cultural practices as a result of colonization, and poverty. It is hard to imagine a child that exists who can be so resilient that these factors do not have lasting impacts on their mental health and show up as dysfunctional behavior. The following section will examine how ADHD, ODD, and CD present in Indigenous adolescent populations.

The longitudinal, community-based participatory research study by Walls et al. (2021) explored the prevalence of mental health disorders in American and Canadian Indigenous populations from 2002 to 2018 and included 735 participants from eight reservations. Data was collected in nine 'waves'; wave 1 *M* age of 11.1 years, wave 4 *M* age of 14.3, wave 6 *M* age of 16.2, wave 8 *M* age of 18.3, and lastly wave 9 *M* age of 26.3. Assessments based on *DSM-IV-TR* criteria were administered for SUDs, GAD, MDD, ADHD, and dysthymic disorder. Walls et al. found that the highest rates of past-year prevalence and comorbidity occurred at wave 4 when participants were roughly fourteen years old. While there was a decline in the prevalence rates of disorders as youth aged, the researchers noted a steep increase in the use of prescription

medications such as opioids and stimulants. Further research is needed here but the idea of self-medicating for symptoms of ADHD could be hypothesized as an explanation for the spike in the use of prescription stimulant medications. Walls et al. found cumulative lifetime rates of ADHD to be at 18.4% (*n*=83), well above the national average in the general population. Of these 83 participants, 65 also had comorbid SUDs, again indicating the potential for self-medicating strategies. These results are consistent with other research that has found prevalence rates of ADHD in North American Indigenous children to be around 22.7%, based on *DSM-IV* criteria and the Connors' ADHD Index (Baydala et al., 2006). The study conducted by Walls et al. (2021) demonstrated a mental health crisis that occurs in adolescent-aged Indigenous populations and also a distinct overrepresentation of ADHD symptoms. Limitations of this study included the validity of *DSM-IV-TR* ADHD assessment criteria. Many of the symptoms noted in the American Psychiatric Association's (1994) *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV),* as relating to inattention or hyperactivity-impulsivity overlap with symptoms of PTSD. The *DSM-IV* ADHD inattention criteria include:

1. often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities
2. often has difficulty sustaining attention in tasks or play activities
3. often does not seem to listen when spoken to directly
4. often does not follow through on instructions and fails to finish school work, chores, or duties in the workplace (not due to oppositional behaviour or failure to understand instructions)
5. often has difficulty organizing tasks and activities

6. often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as school work or homework)

7. often loses things necessary for tasks and activities (toys, school assignments, pencils, books, or tools)

8. is often easily distracted by extraneous stimuli

9. is often forgetful in daily activities (pp. 83-84)

These presenting symptoms could be interpreted as PTSD symptoms of poor concentration, detachment, and avoidance or symptoms of HT and IGT. *DSM-IV* (American Psychiatric Association, 1994) hyperactivity-impulsivity criteria include:

1. often fidgets with hands or feet or squirms in seat

2. often leaves seat in classroom or in other situations in which remaining seated is expected

3. often runs or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to [a] subjective feeling of restlessness)

4. often difficulty playing or engaging in leisure activities quietly

5. often “on the go” or often acts as if “driven by [a] motor”

6. often talks excessively

7. often blurts out answers before questions have been completed

8. often has difficulty awaiting [a] turn

9. often interrupts or intrudes on others (eg., butts into conversations or games) (p. 84)

It could also be proposed that nearly all of the *DSM-IV* (American Psychiatric Association, 1994) hyperactivity-impulsivity criteria would be more accurately explained by PTSD hypervigilance or emotional dysregulation due to IGT and HT. Given what we know about the Indigenous North

American population's persistent exposure to trauma, intergenerational and historical, it is unethical to consider assigning diagnoses without even considering the potential effects of trauma. This is particularly concerning as ADHD treatment often involves the administration of medications that can have lasting side effects. If we are not treating the potential root cause of symptoms, it is unlikely that children will find long-term relief and will become reliant on the need for prescription medications indefinitely.

Owais et al. (2023) were interested in understanding the prevalence rates of mental health challenges among North American Indigenous populations. Contradictory to previous findings of an abundance of ADHD diagnoses among Indigenous youth, Owais et al. found rates to be relatively comparable to that of the general population (2.9%), which the authors noted to be of concern and further inquiry. The researchers conducted a random effect systematic meta-analysis that included 28 studies of 48,494 youth participants identifying as First Nations (n = 26,081), Métis (n = 3,793), Inuit (n = 461), or self-reporting as Indigenous rather than a specified population (n = 19,159) in Canada. Métis data will be omitted as ODD/CD prevalence rates were not found in Owais et al.'s meta-analysis. Notably, the study found that in all Indigenous populations under the age of 25, rates of mental health challenges were 43.7% versus 28.4% in the general population. Owais et al. indicated the presence of the 12 common mental health disorders; however, for this section, the focus will be on how past-year rates of ODD and CD are reported among Indigenous youth populations. Owais et al. assessed First Nations communities for ODD/CD using the DISC-R from the *DSM-IV-TR* and the Child Behavior Checklist. The researchers found that in Inuit populations, ADHD, ODD, and CD symptoms were grouped together in assessments using teacher reports based on the Disruptive Behavior Disorders Rating Scale. For participants who identified generally as Indigenous, ADHD and CD were measured

together using the Strengths and Difficulties Questionnaire (SDQ). Their results indicated an increased prevalence of ODD and CD rates among First Nations youth populations, 8.8% and 12.8% respectively. Owais et al. noted that there is minimal data available for all other groups included in their study—Métis, Inuit, and Indigenous. The authors attributed this lack of research to be indicative of the presence of heightened disruptive behaviors, although they did not specify *why* this is hypothesized. Most of the research examined in this study was found to be at risk of having a methodological bias (*n*=19) or culturally invalid data collection (*n*=25). Notably absent from the data collection was the presence of any form of trauma assessment. This further strengthens the argument that Indigenous youth populations are neglectfully overly pathologized with disorders such as ADHD, ODD, and CD without the necessary consideration of historical trauma as a root cause of behavior and emotional regulation challenges. When these mistreated dysregulation symptoms are combined with adherence to government care interventions, this begs the question: How are these children being given a fair chance?

Indigenous Overrepresentation in Government Care

Among other challenges, Indigenous youth in Canada are at a heightened risk of being placed in government care—this can include foster care, group homes, or kinship. Caldwell and Sinha (2020) noted that prevalence rates for government care ranged from six times more likely for Métis up to 16 times more likely for First Nations children when compared with the general population. Newly published data from the Government of Alberta (2023) stated that as of March 2023, Indigenous children made up 74% of those in care, while those children only accounted for 10% of the child population. Most of these displacements are the result of reports and investigations of child neglect (Caldwell and Sinha, 2020), but it is hard to fathom how uprooting children from their family homes is the *best* solution. Many of the children who are

placed in government care are left feeling as though they do not have a place in the world. Often, this contributes to the development of substance use disorders, criminal activity involvement, or severe mental health challenges such as PTSD, anxiety, or depression as these children navigate their way through this new way of life. Supports offered are minimal, at best. Key mechanisms in Indigenous ways of life are non-existent such as connection with family and community, ceremonies such as smudging and sweats, and oral history sharing. If these children are taken in infancy, this can lead to disruption in healthy attachment formation as they are at an increased risk of not experiencing the consistent loving embrace of a caregiver which is pivotal to healthy emotional development. Adolescents in care lack adequate stability in parenting as staff turnover is high in government facilities such as group homes. Additionally, they lack the enforcement of effective boundaries such as mandatory attendance at a school daily or curfews that reflect their maturity. It is not uncommon for youth as young as 12 years old to be AWOL for days at a time. Each day in these young people's current lives could be considered a traumatic event, regardless of what circumstances brought them there. This is not even taking into account the intergenerational and historical trauma they carry with them each day, which is the focus of the next section.

Intergenerational and Historical Trauma

It is proposed here that the ongoing mental health crisis happening for Indigenous youth is rooted in historical and intergenerational trauma. While many organizations have implemented trauma-informed care practices, *trauma* itself may present differently in varying populations. PTSD can be described as including symptoms such as avoidance of triggers, re-experiencing the traumatic event(s), and physiological arousal (Gone, 2013). According to Gone, historical trauma can include a breakdown of the individual's spiritual, cultural, and interpersonal well-being and

presents as a loss of self and identity. It is not uncommon for this to result in substance use disorders as a mechanism for self-medicating (Gone, 2013; Nutton and Fast, 2015).

Nutton and Fast (2015) proposed that colonization needs to be understood as an entrenching event that has profoundly impacted generations of Indigenous peoples, known as a 'Big Event.' The authors argued that this resulted in cross-generational outcomes such as substance abuse, mental health challenges, health disparities, domestic violence, and childhood maltreatment. These ongoing intergenerational challenges are attributed to the Indigenous values and beliefs based on 'Seven Generations,' which posits that what we do and experience today will have an impact on seven future generations. When historically traumatized adults go on to become parents, the effects of their innate trauma may be transferred onto the child by way of neglectful or abusive parenting, substance use disorder, or the inability to form a healthy attachment. These children then mature to develop their own mental health challenges which may include substance use, emotional dysregulation, behavioral dysregulation, or other symptoms of PTSD (Meulewaeter et al., 2019) in addition to their biologically engrained historical trauma. And so, the cycle continues.

Gone (2013) described four key areas of focus when considering historical trauma in mental health treatments for Indigenous communities. First, he noted that PTSD diagnostic criteria are too narrow when considering Indigenous experiences. Second, the historical trauma lens considers sociopsychological factors rather than blaming an individual's challenges on "faulty genes or broken brains" (p. 688). Third, the inclusion of historical trauma unites Indigenous communities again which may alleviate symptoms of distress and empower the individuals to overcome barriers and obstacles. Lastly, by considering historical trauma as a causal influence on current distress, Gone observed that we allow for the integration of culturally

appropriate treatment tools that invite Indigenous populations to reconnect with what was wrongfully taken from them. Current trauma-informed care principles, while helpful, fail to acknowledge the broader landscape from which we need to approach care for Indigenous populations.

Trauma-Informed Care Principles

Alberta Health Services (AHS, 2022) outlined a guiding framework that can be utilized by practitioners working with vulnerable populations who may have experienced trauma in their *Trauma-Informed Care e-Learning Series.* While this educational series focused on trauma applications to the general population, for this capstone the primary focus will be on how these principles can be applied specifically to North American Indigenous communities and areas in need of more thorough inquiry. In the series, AHS proposed six key themes in trauma-informed care (TIC) practices: *awareness*, the *individual lens*, *safety and trust*, *choice and collaboration*, *strengths-based interventions,* and *empowerment of the individual*.

Awareness

AHS (2022) noted that one of the first criteria needed to be trauma-informed is an awareness of its prevalence. For Indigenous populations, this means acknowledging the impacts of historical (HT) and intergenerational trauma (IGT) which began with colonization over a century ago. Indigenous trauma could be considered one of the most severe examples of HT and IGT as the genocide and oppression experienced have persisted for over 400 years (Marsh et al., 2015). Colonization and the events that followed such as the Sixties Scoop and the Indian Residential Schools (IRS) system created what could be considered a spider web of trauma for subsequent generations. An estimated 150,000 First Nations, Métis, and Inuit attended IRS between 1880 and the 1990s (Government of Canada, 2024), which left devastating impacts on

the survivors, their children, grandchildren, and great-grandchildren. As previously mentioned, Corrado and Cohen (2003) examined the mental health outcomes of 127 IRS survivors and found that only two survivors did not have a mental health disorder. The researchers also found that the most distinct symptom of trauma for residential school survivors versus PTSD symptoms was a tendency to abuse drugs and alcohol. This must also be considered when understanding the societal racism towards Indigenous that they are exposed to daily. When society does not fully grasp the concept of the IRS, IGT, and HT and the impacts of these on mental health and substance use in affected populations, ignorance, and systemic racism persist. This further alienates Indigenous communities and puts them at a heightened risk for re-traumatization and loss of self.

Individual Lens

To effectively practice trauma-informed care, an ability to understand the individuals presenting challenges must be understood through their separate lenses to avoid or minimize any potential biases guiding treatment (AHS, 2022). This may include gathering information that identifies personal characteristics such as developmental and chronological age, personal support systems in place, disposition, or cultural factors. It is also suggested that when working with *any* population, the individual's *intersectionality* is considered. Intersectionality was initially proposed by Kimberle Crenshaw (1989) as an analysis of how race and gender combine to result in multifaceted discrimination, particularly for Black women. In more recent years, intersectionality theory has been broadened to include items such as socioeconomic status (SES), education, religion or spirituality, age, presence of disability, and culture. This is an important consideration in treatment planning with Indigenous populations due to the multiple areas for potential discrimination that amalgamate and create a more complicated trauma presentation.

Not only are Indigenous faced with discrimination due to societal and systemic racism, but they are also more vulnerable to experiencing lower levels of education and SES, loss of spirituality and culture, and heightened risk of the presence of mental health or developmental disorders. Nearly all the categories for consideration in intersectionality frameworks could apply to Indigenous peoples.

Safety and Trust

AHS (2022) outlined safety and trust as the third principle in trauma-informed care. Due to the often-chaotic upbringing of many trauma survivors, it is essential to create a therapeutic environment in which the individual feels protected. This could be elaborated for Indigenous youth populations to include *connection* and *belonging* (Maslow, 1943; Perry, 2009) as a breakdown in their sense of community via colonization is theorized as the origin of HT and IGT. Considerations should also include the level of *physiological* security of the individual (Maslow, 1943). From a humanistic standpoint, Maslow found that the most basic need that must be met for an individual to move forward is the ability to feel safe. For children in government care, physiological needs such as healthy food options, shelter, clothing, and sleep may be completely absent or disrupted. The idea of *shelter* prompts further examination as well. While children in care may indeed be provided with a roof over their heads and a bed to rest in, the idea that this is synonymous with a *home* is questionable. Youth in care may spend a great deal of their time wandering the streets. They may go AWOL for long periods in which adequate resources needed for survival are minimal. For First Nations communities in Canada living on reservations, there is an increased risk of poverty in comparison to the general population (Gone, 2013; Kelly, 2023). This can result in food and shelter insecurity among affected families. It is

important to consider the multiple layers contributing to the individual trying to overcome trauma.

Choice and Collaboration

The fifth guiding principle in trauma-informed care according to AHS (2022) is choice and collaboration. This can include encouraging the individual to make decisions in their care while simultaneously keeping these options at a minimum to avoid the potential of overwhelming. Traumatized individuals are often highly emotionally dysregulated leaving them in a constant state of alert, fight-or-flight, and hypervigilance. Children who have been traumatized are more likely to display an inability to self-regulate as childhood trauma disrupts healthy neurological development in brain regions responsible for managing emotions such as the amygdala, hippocampus, and prefrontal cortical region (Perry, 2009). It is important to understand the symptoms of emotional dysregulation due to trauma so that behavioral symptoms are not misinterpreted as being defiance or resistance. Techniques such as titration may prove beneficial to gently ease the individual into treatment. When working with Indigenous populations, collaboration should also include connecting with their Indigenous community Elders, when applicable.

Strengths-Based

The fifth principle in trauma-informed care, according to AHS (2022), includes the embodiment of a strengths-based perspective to combat the impact of trauma on poor self-image. For Indigenous peoples who have been subjected to HT, there is a distinct symptom of having a loss of *self* due to the breakdown of their sense of spirituality, culture, and interpersonal well-being (Gone, 2013). While strengths-based approaches for traumatized individuals may aid in shifting self-perception from weak to strong (AHS, 2022), for Indigenous populations this should

also include psychoeducation on the harmful effects of HT and IGT. Survivors of the IRS have been found to have "poorer physical, mental, and emotional health, including higher rates of depression, mental distress, substance misuse, stress, and suicidal behaviors" (Graham et al., 2021, p. 2). Studies have suggested that *at least* two successive generations are affected negatively when an individual was subjected to the IRS (Menzies, 2010). By bringing this awareness to victims of HT and IGT, much of the self-blame and shame that often comes with substance use disorders, and mental health disorders such as depression and anxiety can be clarified as effects following colonization. *Focusing on strengths* is also said to allow the individual to explore areas in which they have had success and build on resilience (AHS, 2022). I tend to proceed with caution when using the term *resilience* as I feel labeling traumatized youth with this can be insensitive when there are so many symptoms and consequences of historical trauma that resemble more of a *survival* strategy than resilience. However, a strengths-based approach may be helpful when introduced in a way that is also sensitive to validating the individual's victimization.

Empowerment

The final guiding principle in TIC suggested by AHS (2022) is empowerment for the individual. In a general sense, this can be therapeutic as the client learns to take accountability in actions and begins with small steps towards attainable goals. When working with minority populations such as Indigenous, however, empowerment plays a critical role in treatment. Due to systemic and environmental factors (Lee, 1991), Indigenous populations experience a deeper level of distress as a result of factors outside of their control. Lee suggested that to empower someone at the individual level, family and community support must be integrated. This is also consistent with Indigenous-based perspectives of The Four Laws of Change, which state that in

order for long-term change to occur one "must create a Healing Forest" (Coyhis and Simonelli, 2008, p. 1930).

Neurosequential Model of Therapeutics

NMT was initially developed by Bruce Perry and inspired by his work with traumatized and neglected children, half of whom were children placed in government care. Throughout his career, Perry (2006) observed that the commonly used medical model treatments failed to result in positive outcomes and that child protective services (CPS) often "recreate[s] the chaos, fragmentation, trauma, and neglect [that] these children experienced in their homes" (p. 29). The severity of the effects of adverse childhood experiences (ACEs) and relational health on neurological structures is determined by examining the developmental period in which specific events occurred; prenatal, perinatal, infancy, early childhood, childhood, and adolescence (Perry, 2006, 2009). Perry observed that when children are exposed to traumatic experiences during a particular developmental period, this adversely impacts the brain region undergoing the most growth at that time. When abuse, neglect, or trauma persists throughout childhood, children become more vulnerable to exhibiting a "combination of delays, functional problems, and strengths" depending on caregiver circumstances (Barfield et al., 2012, p. 31). Barfield et al. also noted the importance of genetic and epigenetic factors, which must be considered when working with Indigenous youth whose families have experiences of IGT or HT.

While many Indigenous families have not succumbed to the effects of IGT and HT and have gone on to raise their children in homes that promote "growth and development" (Booth-LaForce et al., 2023, p. 39), many have fallen victim to its cyclical nature, through no fault of their own. Indigenous parents who have been exposed to their "own adverse childhood experiences (including maltreatment, exposure to domestic violence, and parental substance

abuse) are associated with diminished social-emotional functioning in their children, due to parental mental distress" (p. 40). In their research, Cooper et al. (2019) asked young Indigenous participants between 8 and 12 years old to describe:

> what an ideal Indigenous community and/or family structure would look like, the description included single-parent homes, homes of other family members that they would visit, graveyards to bury family and friends, places to escape violence such as community centres or locations with signs that indicate they are safe spaces for children, and low-income housing played prominently. (p. 10)

This question brings awareness to the commonality in these communities of single-parent households, exposure to violence, lower socioeconomic statuses, and the heightened prevalence rates of death in close family members—all of which may contribute to traumatic experiences.

Given that we know Indigenous youth are at an increased risk of exposure to trauma, Perry's (2006) NMT provides a useful framework to better understand the impact on young people's development. NMT posits four principles as a treatment guide: Principle I: The brain processes incoming information hierarchically in a bottom-up fashion; Principle II: Neuronal change is 'use-dependent'; Principle III: Brain development is sequential; and Principle IV: The brain develops at a rapid rate early in life. These four principles will be outlined in the next section.

Principle I: Bottom-Up Processing

The brain processes incoming environmental information via a 'bottom-up process.' This begins with the *brainstem* where basic survival needs of temperature, respiratory functioning, and heart rate are managed (Perry, 2006). Next, is the diencephalon where arousal, rest, digestion, and kinetics are controlled. The third hierarchical region is the limbic region in which

deeper emotions, memory, reward systems, and attachment formation are managed. Finally, the cortex is responsible for higher-order processing such as concrete and abstract thinking and our understanding of consequences for behavior. When an individual comes into contact with a stimulus in the environment, for example, a woman passing by in the supermarket, the information is first sent to the brainstem which determines whether or not the stimulus is deemed to be a threat or safe. In a healthy individual, the information would continue upwards to the diencephalon, limbic system, and then the cortical region and likely result in the woman in the supermarket being labeled as 'safe.' In children who have been traumatized, there is an almost paralyzation that occurs in which they are stuck in hypervigilance or 'fight or flight' mode and interpret seemingly harmless external stimuli as threatening, without having a conscious knowledge of *why* (Perry, 2006; Perry & Winfrey, 2021, p. 40). This is because our sensory systems that develop early on in life store incoming memories in the form of smell, sound, taste, and touch (Perry & Winfrey, 2021, p. 30). Through interoception, we may, over time begin to associate certain sensory cues (i.e., perfume) with being dangerous (i.e., abusive mother). This is somewhat like classical conditioning in that a stimulus becomes paired with a response. How severely abuse or neglect affects a child is determined by both the nature of the abuse and the attunement of the caregiver, which can alter neuronal development either negatively or positively (Perry, 2006).

Principle II: Use-Dependent Neuronal Change

The second principle proposed by Perry (2006) in the NMT posits that as the brain develops, neurons are formed in a 'use-dependent' manner in which activation via environmental sources determines how these structures form and function. Healthy and consistent stimulation from caregivers who engage with the child in developmentally appropriate ways results in

typical neurological development in which the child can manage emotions, behaviors, and interactions in ways that are considered to be typical. When an infant or young child is repeatedly exposed to a caregiving environment that is filled with chaos, threatening situations, violence, abuse, or neglect, this results in repeated activation of neural stress response mechanisms—including, Perry noted, the release of neurotransmitters such as dopamine, epinephrine, norepinephrine, serotonin, and glutamate (Tamman et al., 2023). These systems then become overactivated and *sensitized*, leaving the child in a constant state of fear (Perry, 2006, 2009) in which moderately stressful events such as completing a homework assignment will be an overload on the already maxed-out internal system of the child affected.

Principle III: Sequential Brain Development

Much like how external information is taken in and interpreted by the brain to contribute to a behavioral response, neurological development also occurs in a bottom-up fashion (Perry, 2006). Lower-level brain regions responsible for emotional regulation and stress response, the brain stem and diencephalon, are formed in utero up to around 2 years of age (Perry, 2006, 2009). Higher-level brain regions, the limbic system, and the cortex all rely heavily on the adequate functioning of lower-level regions to operate smoothly and respond to stimuli in a well-thought-out and rational way (Perry, 2009). When a child is exposed to repeated trauma early on in life, their brain essentially becomes incapable of higher-order reasoning processes and remains stuck in the immediate and reactive stress response originating in the brainstem and diencephalon, resulting in impulsive and irrational responses to distress. The limbic system, which develops between one and four years of age, and is responsible for emotional regulation, interpretation of nonverbal cues, and empathy, cannot develop healthily in traumatized children (Perry, 2006). The cortical region, which forms between three and six years of age, is responsible

for abstract reasoning and moral development, and also remains stifled in traumatized children. Perry (2006, 2009) suggested that there are specific periods of development that are at a heightened vulnerability to trauma, which will be covered in the next section.

Principle IV: Sensitivity Periods in Infancy and Early Childhood

There are periods in a child's life in which they are more at risk of suffering severe consequences due to exposure to trauma. Due to the rapid neurological development that occurs early on, Perry emphasized that when in:

> the first two months of life, a child experienced high adversity with minimal relational buffering but was then put into a healthier environment for the next twelve years, their outcomes were worse than the outcomes of children who had low diversity and healthy relational connection in the first two months but then spent the next twelve years with high adversity. (Perry & Winfrey, 2021, p. 109)

In fact, by the time a child reaches the age of four, their "brain is 90% adult size," making this a critical period of development (Perry, 2006, p. 40). The longer a child remains in a traumatized environment, the more challenging it will be to reverse any damage that has been done. According to Perry, the important factor to acknowledge, however, is that the damage *can* be changed via neural and synaptic plasticity.

Principle V: Neural Systems Can Be Changed

Similar to how the brain develops and takes in new information, its plasticity is also hierarchical with the lower regulatory regions, the brainstem and diencephalon, being more resistant to change than our higher-order brain regions, the limbic and cortical areas (Perry, 2006). Perry (2006, 2009, 2011) proposed that in addition to creating an environment of safety, patterned and repetitive interventions targeted in a bottom-up manner are the key to long-term

positive outcomes. Perry (2006) suggested that the reason neurological mechanisms are structured this way could be an adaptive function as it would not be helpful for human survival if brain regions responsible for our basic and primitive needs could be modified by singular events. Indeed, our brain is designed for an environment much different than what we are living in today.

Principle VI: The Human Brain Is Designed for a Different World

Of humans' roughly 250,000 years on the planet Earth, most of this time was spent pre-modernization (Perry, 2006). For the vast majority of human history, children were raised in hunter-gatherer communities where there was an abundance of social connection and facilitation of learning. What we see today is children spending an insurmountable amount of time on technological devices whereby socialization is dependent on applications such as Instagram and Snapchat. There is minimal time spent on socioemotional development within the family and community members, resulting in what Perry referred to as a "relationally impoverished world" (p. 45) in which "the more isolated physically and socially a family becomes, the more vulnerable a child becomes" (p. 46). These negative effects are exemplified in Indigenous communities as a result of colonization, IRS, IGT, and HT which halted intergenerational culture transmission. Indigenous communities are faced with discriminative practices on a continued and ongoing basis in modern society, despite efforts in 'reconciliation.'

Current Research on NMT

There are limited quantitative studies evaluating the effectiveness of NMT interventions, likely due to their novel nature. However, in the existing research it has been demonstrated to result in positive outcomes when it is applied consistently over a long period of time to youth who are not in the care of their biological parents (Evans et al., 2024; White et al., 2023). This is

important when considering treatment interventions for Indigenous youth, since they make up the majority of children in care in Alberta. The study conducted by Evans et al. (2024) examined the effects of NMT applied to 178 adopted children in the United States over the course of approximately 7 months between pre- and post-assessment. Assessments were issued based on cognitive, relational, sensory integration, and self-regulation functioning to determine actual functioning in comparison to chronological age. Evans et al. categorized their intervention strategies based on the individual characteristics of each participant as either *therapeutic, enriching,* or *essential*. *Essential* interventions were needed when the child was functioning below 65 percent of the typical development for their age, *enriching* interventions were utilized for children who were functioning between 65 and 85 percent of typical development for their age, and therapeutic interventions were enacted when the child was functioning at over 85 percent of age-typical development. Evans et al.'s results indicated that of those participants who exhibited majority adherence, improvements were found in all four categories of functioning: cognitive, relational, sensory integration, and self-regulation. The potential limitations of this study are that only a quarter (25.29%) of the child participants were BIPOC, which minimizes the transferability of this data to Indigenous youth populations. However, this does demonstrate effectiveness in youth populations who may be experiencing attachment disruption and childhood adversity as is common among Indigenous youth in care.

White et al. (2023) conducted a similar quasi-experimental study that included 552 adopted youth in Tennessee. The mean age at the time of assessment was 11 years old. The researchers were interested in comparing the effects of NMT interventions with services-as-usual (SAU) versus SAU on its own on internalizing and externalizing symptoms over a period of 6 to 9 months. SAU typically includes Trauma-Focused Cognitive Behavioural Therapy (TF-CBT),

attachment-based interventions, and interactional methods. White et al. included 233 participants in the SAU group and 319 participants in the NMT and SAU group. Their results indicated that of those who exhibited majority adherence (*n*=109) to NMT interventions, there were "significant decreases in child behavior problems over time than those who received SAU (p. 1019). However, White et al. noted that in the 'intent to treat' sample, which could be considered to more closely represent a practical example, no statistically significant changes were found. Again, the participant sample included minimal BIPOC participants (SAU, 17.18%; NMT, 6.35-6.48%), which brings questions about the validity when applying these results to Indigenous populations. However, this study does confirm the gap in research where further inquiry is needed to determine if NMT interventions that are modified in a culturally specific way could prove to be beneficial for Indigenous youth populations. The underlying theme across most NMT research is the need for interventions to be consistent over a period of time. This presents many challenges when considering future treatment plans as it is hard to manage adherence outside of a laboratory setting, but this does not negate the importance of further understanding its utility.

Perry and Winfrey (2021) noted the success of traditional healing practices for thousands of years as being rooted in:

> 1) connection to clan and the natural world; 2) regulating rhythm through dance, drumming, and song; 3) a set of beliefs, values, and stories that brought meaning to even senseless, random trauma; and 4) on occasion, natural hallucinogens or other plant-derived substances used to facilitate healing with the guidance of a healer or elder. (p. 200)

Many of these practices have been found to engage sensitized areas of the brain that are affected by trauma (Perry, 2006). Rhythmic drumming is said to benefit the brainstem and aid in emotional regulation. Connection with nature, animals, kinetics, and music allows for sensory integration in the diencephalon. Creative arts such as storytelling through paintings, carvings, moccasins, and beadwork engage the limbic system and strengthen a child's social skills, language development, nonverbal understanding, and emotional regulation. Perry also noted that performing arts found in traditional pow-wows support the cortical region, allowing for more complex and abstract thought processes, socio-emotional development, further creativity, and spirituality.

Indigenous Healing Practices

As previously mentioned, the concept of *culture as a treatment* is common among Indigenous mental health intervention literature (Gone, 2013; Graham et al., 2021). The integration of culture is of the utmost importance when considering treatment as one of the most devasting impacts of colonization was the total loss of culture for those who were subjected to historical atrocities such as the IRS system in Canada. The IRS system created a ripple effect on subsequent generations in which traditional teachings, ceremonies, language, values, and traditions were restricted. Many Indigenous were left feeling ashamed of their heritage and refrained from any future attempts to reconnect with cultural customs that were so brutally taken from them. The following section will provide an overview of cultural integration in treatment and medicine wheel teachings.

Cultural Integration in Treatment

Several studies have demonstrated positive results with the inclusion of culturally appropriate tools being utilized. Cooper et al. (2019) found that including Métis arts workshops,

storytelling, Medicine Wheel teachings, and talking circles resulted in participants feeling stronger and more capable. Crooks et al. (2017) examined how culturally relevant school-based mentoring programs would impact FNMI adolescents and found that both mental health scores based on the Mental Health Continuum—Short Form (MNC) and cultural identity scores based on the Cultural Connectedness Scale improved following a 2-year period. The study conducted by Harder et al. (2015) included 130 Indigenous youth from the Carrier Sekani First Nations, British Columbia. Harder et al. utilized *culture camps* in which participants were involved in traditional food gatherings, language teachings, medicine, and music. Youth participants attended nine camps between 2007 and 2012. Harder et al.'s results indicated that after attending the culture camps, youth experienced decreases in Beck Depression Inventory-II (BDI-II) scores $t(109) = 4.00$, $M = 2.55$ ($SD = 6.69$), $p < .01$), Beck Scale for Suicide Ideation scores $t(116) = 3.06$, $M = 1.15$, ($SD = 4.08$), and Beck Hopelessness Scale scores $t(118) = 2.71$, $M = 0.91$ ($SD = 3.65$), $p < .01$. Additionally, they observed that "levels of self-esteem significantly increased after the youth participated in culturally appropriate activities $t(116) = -3.02$, $M = -1.36$ ($SD = 4.87$), $p < .01$" according to the Rosenberg Self-Esteem Scale (p. 26). Other research has found that integrating Indigenous healing practices such as smudging and sweat lodges have demonstrated decreases in substance use and misuse among Indigenous youth (Spillane et al., 2021).

Holistic Healing and the Medicine Wheel

The traditional Medicine Wheel is central to First Nations teachings and symbolizes "interconnectedness and worldviews" as the basis for health and well-being (Tanner et al., 2022). While Tanner et al. noted that not all Indigenous communities are guided by the Medicine Wheel, and some interpretations of its meaning may vary, the Medicine Wheel is included here as it is commonly used among Indigenous peoples in one form or another. The overarching

theme when guided by the Medicine Wheel is that an individual's health is determined by how effectively they are balanced in the four aspects of physical, mental, emotional, and spiritual well-being. There are also the four directions: north, south, east, and west; four sacred medicines: sage, sweetgrass, cedar, and tobacco; the four seasons: fall, winter, spring, and summer; and the four stages of human development: childhood, adolescence, adulthood, and elder. All of these represent an area of significance in First Nations culture, however, providing more detail is beyond the scope of this capstone project.

In their descriptive community-based survey study, Tanner et al. (2022) were interested in examining how domains of the Medicine Wheel would be impacted by social determinants and health (SDOH) and colonization, namely HT, IGT, and racial discrimination. The results from Tanner et al.'s study included in this capstone will focus on aspects of IGT, HT, childhood trauma, and the Medicine Wheel. A total of 194 adult participants from the Aamjiwnaang First Nation in Ontario, Canada, were included in the study. Participants' perceptions of their four domains of health according to the Medicine Wheel (physical, mental, emotional, and spiritual) were assessed using a Likert scale with response options being poor, fair, good, very good, and excellent. HT was determined using the Historical Loss scale. Childhood adverse experiences and trauma were measured using an adapted version of the lifetime trauma scale. Racial discrimination was measured using the Measure of Indigenous Racism Experience scale. Tanner et al.'s results indicated that:

> historical trauma showed consistent negative associations with each of the four domains of health, including physical (aPR: 0.87, 95% CI: 0.78 to 0.98), mental (aPR 0.91, 95% CI: 0.83 to 0.98), emotional (aPR: 0.83, 95% CI: 0.75 to 0.91), and spiritual health (aPR: 0.90, 95% CI: 0.82 to 0.99). Exposure to racial discrimination was associated with

> decreased likelihood of reporting good or better physical (aPR: 0.87, 95% CI: 0.78 to 0.97), mental (aPR: 0.86, 95% CI: 0.79 to 0.94), and emotional health (aPR: 0.83, 95% CI: 0.75 to 0.91). Childhood adversities were associated with decreased likelihood of reporting good or better mental health (aPR: 0.95, 95% CI: 0.91 to 0.99). (p. 5)

Furthermore, Tanner et al. (2022) was found that the more connected participants were with their culture and traditions, the more positively they reported feeling in realms of the Medicine Wheel:

> Each cultural strength identified within the community was associated with a higher likelihood of reporting good or better physical (aPR: 1.08, 95% CI: 1.01 to 1.16), mental (aPR: 1.06, 95% CI: 1.00 to 1.13), and emotional health (aPR: 1.09, 95% CI: 1.02 to 1.16). Use of traditional healing was associated with [a] lower likelihood of reporting good or better mental (aPR: 0.79, 95%: 0.65 to 0.96) and emotional health (aPR: 0.74, 95% CI: 0.6 to 0.91). Finally, social support was associated with [a] higher likelihood of reporting good or better physical (aPR: 1.17, 95% CI: 1.02 to 1.33), mental (aPR: 1.25, 95% CI: 1.10 to 1.41), emotional (aPR: 1.36, 95% CI: 1.17 to 1.58), and spiritual health (aPR: 1.18, 95% CI: 1.05 to 1.35). (p. 6)

This research by Tanner et al. (2022) demonstrated both the importance of culture for Indigenous communities and the effects of colonization on aspects of the Medicine Wheel teachings. HT was shown to negatively impact all four realms; racial discrimination negatively impacts mental and emotional well-being; and adverse experiences in childhood negatively impact mental health. Cultural strength was shown to increase mental and emotional well-being while traditional healing practices contradicted previous research and were indicative of lower reported mental and emotional well-being. The researchers noted that this surprising result may

be due to individuals who are struggling more being more likely to seek out traditional healing methods. Tanner et al. also found the presence of social supports positively influenced all four realms, which is important to consider when treatment planning for Indigenous children in government care where social isolation may be of concern. While Tanner et al. did not address the concept of *balance* pertinent to Medicine Wheel teachings, their research did show that the effects of HT and IGT hurt First Nations populations today and inadvertently lead to an imbalance.

Conclusion

There is no denying that Indigenous youth in Canada are undergoing a mental health crisis. Without adequate and immediate modifications to current interventions, the cycle will perpetuate. While the existing TIC principles serve as an adequate starting point in treatment planning, it does not address Indigenous-specific IGT and HT of which symptoms present in a more complex way. The NMT provides a comprehensive framework for understanding how systemic factors and childhood experiences interact and show up as behavior and emotional dysregulation, which is commonly found among Indigenous adolescents. Indigenous traditional healing approaches are included as they provide necessary benefits in psychological care such as cultural safety and connection while also integrating NMT methods. The following discussion section will provide an overview of how TIC, NMT, and Indigenous healing practices can be combined to create effective interventions for Indigenous youth.

Chapter Three: Discussion, Limitations, and Clinical Application

Discussion

It is clear that there is an ongoing mental health crisis among Indigenous youth in Canada currently. Despite efforts of reconciliation, Indigenous adolescents continue to grossly outnumber the general population in government care (Caldwell & Sinha, 2020; Government of Alberta, 2023; Siever, 2023), the criminal justice system (Cesaroni et al., 2019), substance use disorder (Hautala et al., 2019; Snijder et al., 2020), and externalizing disorders such as ADHD, ODD, and CD (Owais et al., 2023; Walls et al., 2021). Much of these challenges can be attributed to intergenerational trauma and the effects of colonization and the IRS system that resulted in a loss of cultural heritage and language, a breakdown of Indigenous family traditions, systemic racism, and a deep loss of self that is felt among Indigenous peoples today (Cesaroni et al., 2019).

The current TIC model proposed by AHS (2022) contains guidelines that include awareness, the individual lens, safety and trust, choice and collaboration, strengths-based interventions, and empowerment of the individual. While this may be effective in the treatment of trauma in the general population, when considering approaches for Indigenous populations, the AHS TIC model lacks the integration of aspects of historical trauma and Indigenous healing practices. While there is minimal research regarding Indigenous-specific mental health practices, the few studies that *do* exist have demonstrated overall effectiveness in cultural interventions. Cultural integration in the mental health treatment of Indigenous peoples has been shown to improve self-efficacy (Cooper et al., 2019), decrease depression and suicidality, increase self-confidence and cultural pride (Harder et al., 2015), aid in substance use disorders (Spillane et al., 2021), and improve mental and emotional well-being (Tanner et al., 2022).

Bruce Perry's (2005, 2009, 2014; Perry & Winfrey, 2021) NMT is suggested here as it acknowledges key factors to consider in TIC with Indigenous populations such as epigenetic and genetic variables, critical periods of neurological and emotional development, adverse childhood experiences (ACEs), attachment theory, emotional dysregulation, interoception, and the historical effectiveness of traditional Indigenous healing practices. It is theorized that the bottom-up and repetitive intervention processes of NMT can be combined with Indigenous cultural practices to create an integrative and culturally appropriate intervention plan that addresses the emotional dysregulation found in traumatized Indigenous youth, thereby cultivating long-term intergenerational healing by minimizing the effects of IGT transferred onto future generations.

Limitations

Key limitations to consider include the ongoing systemic barriers that limit the access Indigenous populations have to mental health support. Aspects of discrimination and racism that still exist in society today may hinder minority ethnicities like Indigenous from seeking help when they need it. Although I am First Nations, I am well aware that my white appearance shields me from experiencing certain prejudices that occur for visible minorities. I have also engaged in discussions with visible minorities who have shared their experience of being followed around in retail establishments and treated with disrespect by professionals when they have done nothing to warrant such behavior. These repetitive experiences of discrimination would undoubtedly make anyone hesitant to place themselves in the vulnerable position that counseling therapy requires. This is especially important for traumatized individuals as feelings of safety and belonging are at the forefront of effective therapy. Additionally, as previously mentioned, there is a loss of self felt across generations due to the IRS system and colonization (Cesaroni et al., 2019). This loss of self erodes confidence, which makes it difficult for the

individual to believe they can effectively overcome their psychological injuries. Shaw et al. (2019) noted the importance of developing a strong therapeutic working alliance early on in treatment. They also observed that Indigenous people who do receive counseling services attend an average of seven sessions. The brief nature of this is unlikely to result in long-term positive outcomes given the complexities of Indigenous trauma. It is also important to consider the variations across Indigenous groups when integrating cultural aspects; some First Nations, Métis, and Inuit populations may have traditions unique and specific to them. While the following clinical application provides a basic outline of how to approach trauma interventions, it is critical to engage in collaboration with the client, family, and Elders to ensure there is an understanding of what is meaningful for each individual client.

Clinical Application

The clinical application proposed is modeled after the NMT's bottom-up therapeutic activity Table 3.1 (Perry, 2006, p. 41) and incorporates some culturally appropriate Indigenous practices. Cultural integration and collaboration with Elders are necessary as *loss of culture* and traditions has been identified as a contributing factor in the overrepresentation of Indigenous youth in the criminal justice system (Cesaroni et al., 2019) and is lacking in current research surrounding substance use disorders among Indigenous youth (Hautala et al., 2019). This loss of culture caused by the IRS system and colonization is additionally theorized as correlational with the increased prevalence of externalizing disorders and overrepresentation in government care. Perry (2006) noted the importance of repetition until neurological change occurs before proceeding to the next stage of intervention. It must also consider the developmental age of the individual. While this specific model is designed to be used with adolescent populations, Perry stipulated that chronological age may differ from developmental age, particularly in children

who are traumatized. The interventions here may be modified to accommodate the individual client's experience.

Phase One: State Regulation

Before beginning any trauma intervention, it is important to create a sense of safety and trust between the client and therapist (AHS, 2022). This could include bringing in trusted family members or Elders early and conducting a biopsychosocial assessment to better understand the holistic nature of the individual's lens. Trust-building is done via *titration* and may occur over several, short-term sessions (Perry & Winfrey, 2021, pp. 143-151). This must also include a psychoeducational component that explores the lasting and persistent impacts of IGT among Indigenous populations. The next step in phase one includes integrating patterned and repetitive rhythmic activities (Perry, 2006). Initial intervention sessions are recommended to begin with state regulation of mechanisms implicated by the brain stem. According to Perry, the brain stem structures manage regulatory networks needed for survival such as breathing and heart rate. This could include culturally specific drumming and music, choreographed repetitive movements to the beat of the drumming, walking while engaging in talk therapy, and grounding exercises such as a body scan. The body scan involves speaking slowly and softly, beginning at the feet and exploring any sensations or emotions that come up as you move your way up. It may begin with statements such as 'Think of your toes…pause for reflection…notice any feelings that come up…pause for reflection...They may be feeling squished from being in your shoes all day…pause for reflection…maybe they feel excited and want to wiggle…pause for reflection…' and so on. Again, titration may be needed here. It is recommended to pause intermittently and allow the child to vocalize any feelings or emotions that surface—good or bad. Any distressing emotional

responses will require a stop and thorough exploration of what is happening for the client at that moment.

Phase Two: Sensory Integration

Sensory integration occurs by activating the diencephalon neurological region with music and movement that is not patterned and engaging multiple sensory organs (Perry, 2006). This could include attending Indigenous cultural events such as pow-wows with active participation encouraged by the clinician. Other techniques may include distress tolerance skills such as the five senses grounding exercise or mindful visualization. The five senses grounding exercise involves identifying items that are appealing to the client's sense of sight, taste, touch, sound, and smell and exploring in detail what it is about those items that are meaningful to the client. Mindful visualization may include the safe place technique in which the client is asked to imagine a place that makes them feel calm and happy. This can be real or imagined. Again, the client is asked to engage all five senses and describe the various smells, tastes, sights, sounds, and tactile surroundings in this safe place.

Phase Three: Emotional Regulation

Phase three focuses on emotional regulation skills controlled by the limbic system and includes enhancing socialization and empathy via creative arts and more complex movements (Perry, 2006). Indigenous sweats, smudging ceremonies, talking circles, basket weaving, and making Métis ribbon skirts are suggested here. The sweat lodge, smudging ceremony, and talking circle can serve as a way for youth participants to engage and feel connected with others and their shared history. Basket-weaving and construction of Métis ribbon skirts can provide a multifaceted intervention that enhances creativity and honors cultural pride. Phase three also includes continuing with grounding exercises explored in phase two.

Phase Four: Abstract Reasoning

Phase four moves on to develop more complex thought processes and abstract thinking managed by the cortical region of the brain (Perry, 2006). This can include Indigenous storytelling and performing arts, traditional language teachings, continued mindfulness and grounding techniques, and collaborative activities between the client and therapist. Collaboration nearing the end of treatment could include inquiry into the client's perspective of what interventions they preferred, anything they didn't like, and suggestions for modifications. Perry also noted that cognitive behavioral (CBT) interventions may be included at this stage of intervention.

Future Research

While this research hopes to address the current gap in the literature regarding the intergenerational effects of historical trauma and the Indigenous youth mental health crisis, further research is needed. Based on what little research is available, it is evident that Canadian Indigenous youth are at an increased risk of incarceration, substance use disorders, externalizing disorders, psychological injury, and placement in government care due to historical trauma. We know that most of what is being done currently is *not* working; however, there is limited evidence that supports psychological interventions that *can* be effective. It is recommended that future studies include quantitative and qualitative analyses of Indigenous-specific trauma interventions for these youth who are experiencing mental health challenges.

Ethical and Cultural Considerations

The Canadian Psychological Association (CPA, 2017) provides a framework of ethical guidelines that must be followed by mental health practitioners. *Principle I: Respect for the Dignity of Persons and Peoples* includes specific sections outlining aspects of non-

discrimination, consent, and protection of vulnerable persons. Given the sociocultural context of this research and its sensitive nature, it is pertinent to be cognizant of the client's intersectionality and way of viewing the world. Informed consent must include the consent of any parent or guardian figures and clearly state the potential risks and benefits of such interventions. This is also related to the CPA's *Principle II: Responsible Caring,* which requires careful risk and benefit analysis by the clinician to ensure that the benefits outweigh any potential harm that could be done. Part of responsible caring includes adequate knowledge of the client's culture and individual characteristics unique to them. Research has suggested that Indigenous clients tend to be more receptive to innate biases among mental health workers and experience anxiety when feeling as though their Indigenous values are being compromised (LaFromboise et al., 1990). It is important to meet the client where they are at, and not assume they are open to *any* particular intervention. The trauma intervention framework explored in this paper provides a generalized approach, however, it is recommended that the clinician have a thorough understanding of the client's specific needs before proceeding. This leads to the next category for ethical consideration, *Principle III: Integrity in Relationships,* which describes the minimization of biases and objectivity (CPA, 2017). My own biases are rooted in a belief that the current mental health crisis experienced among Indigenous youth and adult populations is rooted in colonialism and ongoing systemic racism in Canadian society. These overt biases, however, are supported by the research presented here. It will be important to remain regulated when working with Indigenous clients in the future to avoid potential countertransference or influence on my behavior. In order to practice in alignment with the CPA's *Principle IV: Responsibility to Society,* I feel that I have a duty to bring greater societal awareness to the issues presented here.

Reflection on Personal Learning

In completing this capstone project, it became clear that there is so much more to explore with the existing Indigenous mental health crisis and potential psychological interventions. I have researched Indigenous trauma extensively throughout both my undergraduate and graduate degree programs, yet I feel as though we've only touched the surface of this important research area. This is an emotional and personal matter to unearth as I often reflect on the effects of colonization and IGT within my own family. My grandmother died having never regained her Indian status. I recall speaking with Indigenous Services Canada who advised me that she had attempted to apply for her secure certificate of Indian status (SCIS) but had been denied in her later years of life as the Indian Act had not yet been amended to allow it. She died never having any restitution for the trauma and abuse she was exposed to and never understood what led to her becoming an addict and abuser herself. The harm she endured rippled through our family and affected subsequent generations, including my father, myself, and my late sister.

When I began my post-secondary education many years ago, I felt drawn to study psychology due to an innate curiosity to better understand 'what was wrong with me.' I was struggling with prolonged grief following my sister's tragic death and complex trauma. I internalized these as being due to personal defects. What I came to understand over time through my education journey was that, in the simplest terms, we are all the sum of our life experiences. Very few people live through repeated traumatic experiences and attachment disruptions completely unscathed. It is not 'what is *wrong* with you' but 'what *happened* to you' (Perry & Winfrey, 2021). Furthermore, I now have an understanding of the neurological impacts of our life experiences and how this can present as so-called dysfunctional behavior. I believe that society over-pathologizes Indigenous youth when their symptoms could better be explained by

factors that include epigenetics, intergenerational trauma, and attachment disruption. There is a distinct lack of consideration for IGT and historical trauma when planning interventions for Indigenous populations. I hope that as a future grief and trauma psychologist, I can advocate for and guide others through their healing journey with treatments that examine and target the person's entire lived experiences rather than just considering the presenting symptoms.

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