Integrating Neuroscience and Attachment Theory into

Play Therapy Practice

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Abstract

Childhood mental health concerns are on the rise in Canada. Providing early intervention and prevention initiatives can help children, youth and families work towards positive mental health and healthy attachments. Play therapy has been shown to be an effective therapeutic intervention and can be tailored to the unique needs of each client. This paper will explore how neuroscientific research and attachment theory can be integrated into play therapy practice to further support children and youth. This paper highlights the importance of safety, developmentally appropriate interventions, psychoeducation, and neuroplasticity. Providing effective treatment to children can help reduce negative symptoms and help mitigate the long-term effects of mental health disorders.

Keywords: Attachment theory, brain development, neuroplasticity, neuroscience, play therapy

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Chapter 1: Introduction

Childhood is a fundamental developmental stage where positive and negative experiences have a direct impact on future mental health. It has been estimated that 1.2 million children and youth in Canada are affected by mental illness (Mental Health Commission of Canada, 2020). There is growing concern as the number of children needing mental health services continues to increase. There are several theoretical modalities that have been shown to be effective when working with children ages 4-12 such as cognitive behavioural therapy (CBT), dialectical behaviour therapy (DBT), as well as social skills training and relaxation training (Hilt & Nussbaum, 2016).

When concerns arise in children and are left untreated or children are not provided with effective treatment, there is often a rise in negative consequences including relationship problems, violence, hospitalization, and suicide (Mental Health Foundation, n.d.). It is imperative to support children and their families to help increase positive mental health and healthy relationships. Maté (2022) highlighted that relational connectedness is a powerful predictor for human functioning. Providing effective therapy to children can help increase social/emotional support and reduce significant mental health issues as the child matures.

There is a growing body of research that supports the idea that prevention and early intervention initiatives can reduce significant mental health concerns. Children grow and develop based on the types of experiences they are exposed to. The Palix Foundation (n.d.-a) noted that it is the interaction between genes and environments that shapes the architecture of the brain. As the brain is shaped, children learn how to regulate, interact, and develop relationships according to the environment around them.

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When children grow up in healthy, safe, and stable environments, neural connections that foster health, happiness and growth can be positively expressed. When children are exposed to negative environments and situations, mental health concerns can arise. Maté (2022) highlighted that genetic vulnerabilities do not code a person for illness and that individuals who have experienced overt maltreatment do not always display mental distress. It is the interaction between genes and the environment that shapes the development of a child and how they respond to stress.

There are many theoretical modalities that can be used when working with children. Play therapy is a useful framework to use when providing therapy to children as it can be adapted to the child's developmental age and draws attention to the child's environment which can expand awareness and reflection (Stewart et al., 2016). Attachment theory is another framework that is often used with children as it is thought that early relationships shape an individual's survival functions and that attachment patterns developed in infancy will influence relationships throughout the lifespan (Schore & Schore, 2008). Individuals wanting to best support children and their families benefit when they have an awareness around how the brain develops and how neuroscientific findings can be incorporated into play therapy for children.

It is imperative that counsellors understand the science behind safety, relationships and learning to understand how to best support children. Developing a treatment plan that incorporates play therapy, attachment theory, brain development and the concept of neuroplasticity is beneficial to counsellors working with children who present with a variety of mental health concerns. Supporting children in therapy can help mitigate long term mental health concerns and provide effective treatment to those in need.

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Childhood Mental Health

The view and treatment of childhood mental health has changed considerably over the years. The Centers for Disease Control and Prevention (n.d.) suggests that healthy childhood mental health consists of reaching developmental and emotional milestones, developing healthy social skills, and learning how to cope when problems arise. Childhood mental illness is considered when serious changes occur in the way a child learns, behaves, or handles their emotions. Mental health is an integral part of an individual's overall health and is affected by social, environmental, biological, and psychological factors (Bhugra et al., 2013). Mental health illnesses in children are relatively common and it has been suggested that 14% of children will struggle with mental health at some point during childhood (Canadian Mental Health Association, 2014).

If left untreated, the effects of negative mental health can disrupt normal development and increase the risk of significant mental health disorders in adulthood. Hilt and Nussbaum (2016) noted that the most common mental and behavioural health disorders in children aged 6-12 include "attention-deficit/hyperactivity disorder (ADHD), disruptive, impulse-control, and conduct disorders; intellectual disability; anxiety disorders; and mood disorders" (p. 17). Research has also supported the idea that trauma has led to an increase in the neuropsychiatric symptomatology of children's increasing mental health diagnoses (Perry et al., 1995).

Kessler et al. (2007) reviewed the literature to understand the age of onset in mental health disorders. The authors reported that research clearly shows that the beginning symptoms of mental disorders begin in childhood or adolescence. It was found that typical childhood mental health disorders such as ADHD, oppositional defiant disorder (ODD) and conduct disorders typically start between the ages of 7-9. Learning difficulties, feelings of worry, and behavioural challenges are often reported by parents at an even earlier age.

Current Theoretical Modalities

Counsellors working with children can use several therapeutic interventions to help support positive change and healthy development. Hilt and Nussbaum (2016) noted that the most effective treatment for children with a mental health disorder will include some form of psychotherapy. The authors created a detailed list of treatment options that have been shown to be effective for treating children. Commonly recommended psychotherapies include CBT, DBT, family therapy, social skills training, relaxation and mindfulness training, and group therapy.

Children may have difficulty expressing their thoughts, or feelings through verbal or written expression which is why play therapy is a useful framework to use when working with children. As noted by Simmons (2020) play is one way that children can express their inner world. Children use play from an early age to engage in the world around them and to make sense of their environment. Using play therapy when working with children in a clinical setting is beneficial as it is engaging for children, makes therapy fun and helps children understand therapeutic concepts in a child friendly manner (Zandt & Barret, 2017).

Attachment theory is a valuable framework to consider when working with children and youth. Attachment theory began by looking at how early childhood experiences influence development and has continued to gain momentum in the field of psychology. Attachment theory can help explain how the parent-child relationship emerges and how it influences subsequent development (McLeod, 2017). Counsellors can identify a child's attachment pattern which can help one to understand the child's relationships and view of self. Attachment theory is a useful

theoretical model to know as it allows counsellors to understand how early attachment relationships influence identity and future relationship patterns.

Neuroscience research has generated knowledge on the processes and structures of the brain which supports counselling and therapy. Thanks to neuroscientific research, we now have an understanding around the importance of play, social development and what supports healthy brain development. Counsellors working with children in a play setting must understand the brain and other aspects of development to individualize their treatment plans and therapeutic interventions. There are several frameworks that are emerging that integrate a neurobiological lens with play therapy including, Bruce Perry's neurosequential model of therapeutics (NMT), Dan Siegel's Interpersonal Neurobiology (IPNB), and Lisa Dion's synergetic play therapy (SPT).

Purpose Statements

This paper will explore how research findings from the field of neuroscience, and attachment theory can be incorporated into play therapy practices. Furthermore, this paper will look at what aspects of the research overlaps and how these key scientific findings can be incorporated into how therapists work with children. Play therapy has been shown to be an effective treatment option for children and is useful as it allows counsellors to individualize and provide treatment that is tailored to the needs of the child. It is imperative that counsellors understand the science behind brain development and counselling outcomes so they are able to integrate brain science and play therapy to support their young clients.

The fields of art and science are linked, and practitioners can use this knowledge to advance counselling practices, validate therapeutic techniques and further understand human behaviour. Consilience is a term that is used to understand how different fields of study can come together to form a comprehensive theory. When researchers from various backgrounds collaborate and share their unique perspectives, overlapping ideas can be identified and theories can be further supported by the evidence presented (Siegel, 2019). This paper will explore the themes of neurobiological play therapy and provide recommendations for counsellors working with children. This information can guide therapists and help them work towards a more holistic vision of their client by focusing on what is needed to support positive brain development. Working with clients during childhood can help develop the building blocks for healthy brain development and reduce the long-term consequences for children living with mental health concerns.

Significance of the Research

The Canadian Institute for Health Information (2022) reported that one out of every four hospitalization stays for children and youth was related to mental health concerns. They also reported that in 2020, the Kids Help Phone reported twice as many calls across Canada from children seeking support. There has also been an increase in the use of mood and anxiety medications in the past 5 years which highlights the mental health crisis that children are facing. Furthermore, when studying the effects on adult mental health, 70% of young adults report that their mental health illness started in childhood (Mental Health Commission of Canada, 2020). With the rising rate of mental health concerns in children, it is important that parents, counsellors, teachers, policy makers, social workers and government agencies understand how to best support children through prevention and early intervention. Incorporating an attachment and neurobiological lens with play therapy can support counsellors in effectively treating childhood mental health disorders. Mental health concerns are continuing to increase worldwide. Childhood represents an important time in growth and development. Those working with children have seen an increase in dysregulation, childhood diagnoses and learning difficulties. Understanding how early experiences shape the brain and the role of attachment can help guide those working with children and parents to help build the foundation for healthy brain development. Play is a natural and healthy activity for children to engage in. Wheeler and Taylor (2016) noted that play is critical to a child's socioemotional, physical, neurobiological, and cognitive development. Utilizing the power of play, counsellors can engage in therapeutic interventions that promote fun and positive change.

During the first few years of life there is prolific cell growth. Early childhood represents a time where there is intense activity as connections are being made to form circuits. Tierney and Nelson (2009) noted that the basic structures of the brain develop first during the prenatal and early childhood period. The Palix Foundation (n.d.-a) note that the brain develops in stages with the most complex structures scaffolding on top of the simpler structures. The most basic structures govern our most basic skills. Once the foundational structures are in place, more complex processes can develop such as attention, executive functioning, and emotional regulation.

Understanding the hierarchical nature of brain development can help counsellors assess and treat children with individual and developmentally appropriate interventions. The brain develops in stages, and depending on the stage of development, children may not have the ability to participate in traditional talk therapy. Play provides children the opportunity to express nonverbally what they are not able to express verbally (Smith, 2020). Counsellors can also assess the type of play that the child engages in to determine how to best meet their needs. Simmons (2020)

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noted that the stages of play that a child engages in can provide information regarding their developmental age. Simmons highlighted six developmental play stages including: "solitary play, onlooker play, parallel play, associative play, co-operative play, and games with rules" (p. 243) that correspond with child development.

Connection to the Project

In 2015, I was invited to a conference on brain development through the Palix Foundation. The Palix Foundation partnered with several scientific and education centers to help provide knowledge on brain development and its connection to mental health and addiction. I was fascinated by the research findings and developed a better understanding on how the brain develops and the effects of early relational interactions on mental health and addiction. Throughout my career, I have worked with children and their families in a number of settings and as I have spent more time working in this field, I have found it valuable to incorporate child development, attachment theory, and neuroscience to better understand mental health and provide effective support.

I have continued to work with children and their families as I have found that prevention and early intervention is an essential part of the field. For the last 10 years I have provided mental health support to elementary aged school children and I have continued to learn how to best provide service. I believe that providing psychoeducation around brain development can help parents learn the value of attachment and the importance of 'serve and return' interactions (Palix Foundation, n.d.-a). Furthermore, when working with children in a clinical setting, it is imperative to use an evidence-based, client-centered approach to best support clients at their developmental age. I think that the research around neuroscience, attachment theory and play therapy can be integrated to provide best practices for children struggling with mental health concerns.

Position Statement

I identify as a cis-gender, heterosexual wife, and mother. I have worked with children throughout my career and have noticed a large increase in childhood mental health disorders. Not only have I seen an increase in the number of referrals, but I have also found that mental health concerns are becoming more complex in children. This project is meaningful for me as I have worked with children my entire career and am raising two children of my own. It is my hope to help promote healthy and positive development in children and to better understand how to best serve children in a therapeutic setting. The aim of this project is to better understand how to incorporate neurobiological research and attachment theory with play therapy to effectively support children to help reduce future mental health concerns.

Summary

Prochaska and Norcross (2018) noted that soon we may see a shift in language from mental health disorders to brain disorders. It is extremely beneficial to understand how early experiences affect brain development and the link to negative mental health. Understanding a biologically based theory of development can help counsellors target their interventions towards healthy brain growth. As childhood is a critical period of brain development, play therapy techniques can be used to help teach skills, regulate children's nervous systems, and develop coping strategies that can last a lifetime. Preventative measures and early interventions can help reduce mental health concerns from becoming more complex disorders.

In chapter two, this paper will dive further into the research regarding attachment theory, play therapy and neuroscience. As scientific research continues to expand in the field of neuroscience, counsellors can use this knowledge to understand the science behind play therapy and attachment theory. Looking at the research within each of these areas will help counsellors understand how to best assess and develop treatment plans to better support children. Understanding the value in each of these theories can help us understand how to best support children through evidence-based practices. Furthermore, this chapter will identify what considerations need to be further explored when working with children and youth in a play-based setting.

Chapter three will explore the common themes that have been found in the literature review and identify what aspects of the research therapists need to understand to support child clients. This section will focus on how attachment, brain science and play can be integrated together to help children who present in therapy. This discussion will include recommendations for counsellors on how to incorporate the key findings from research into their play therapy practice. Play therapy has a long history of providing effective treatment interventions to children, and brain science and attachment theory can inform counselling practices to further support children in therapy.

Definition of Terms

Attachment: A deep and enduring emotional bond between two people in which each seeks closeness and feels more secure when in the presence of the attachment figure (McLeod, 2017). *Attachment Theory*: The relationships that develop during the earliest stages of life shape our survival functions and subsequent relationships (Schore & Schore, 2008).

Brain Development: Brain development is a protracted process that begins after conception and continues throughout life. Brain development is a hierarchical process of wiring the brain that influences personality, learning and behaviours (Tierney & Nelson, 2009).

Externalized Behaviours: A variety of disinhibited or externally focused behavioural symptoms including aggression, conduct problems, delinquent behaviours, oppositionality, hyperactivity, and attention problems (Willner et al., 2016).

Internalized Behaviours: A variety of over-inhibited or internally focused symptoms including anxiety, fear, sadness/depression, social withdrawal, and somatic complaints (Willner et al., 2016).

Mental Health: Mental health is an integral part of overall health that includes our emotional, psychological, and social well being (Bhugra et al., 2013).

Neuroplasticity: Refers to the brain's ability to rewire and change over the lifetime based on new experiences (Frederick, 2021).

Neuroscience: The scientific study of the nervous system (Siegel, 2019).

Play Therapy: A theoretical model where the therapist uses the power of play to help clients with difficulties and works toward optimal health and development (Sarah et al., 2021).

Serve & Return Interactions: Responsive interactions between a child and their caretaker similar to a game of catch. Communication is passed between the two in a responsive manner (The Palix Foundation, n.d.-b).

Chapter 2: Literature Review

Children are often referred for counselling as they present with a range of emotional and/or behavioural difficulties. Counsellors wanting to best support their child clients benefit from understanding how early relational experiences shapes brain development. Understanding child development, brain development and attachment theory can help counsellors provide developmentally appropriate interventions that engage children through play. As many mental health disorders start in childhood, providing effective therapy that supports healthy development and relational attachments can help mitigate the long-term effects of trauma, worry, and neglect.

This chapter will focus on recent research regarding play therapy, neurobiology, and attachment theory. Scientific research helps support psychological theory, interventions, and can guide treatment planning when working with clients. Reviewing research and identifying effective practice is beneficial to counsellors working with children to ensure best practices. Furthermore, this chapter will look at how these theories can be applied to working with children in a clinical therapy setting. Evidence based practices are becoming increasingly important. Hong and Mason (2016) noted that understanding neurobiology can help play therapists "inform and justify clinical decision making" (p. 35). Understanding and integrating the research in these areas will allow counsellors to understand how treatment can effect positive change in children within a therapeutic setting.

This chapter will also explore considerations that need to be identified when working with child clients. Children are not often able to participate in therapy without caregiver consent and the environment can vary depending on location. It is important for play therapists to understand the value of parental participation, safety in session and the role of attachment. This section will also identify gaps in the literature and identify important aspects that need to be addressed in future studies to help further understand how best to integrate neurobiology, attachment theory and play therapy.

Attachment Theory

Attachment theory is considered one of the most influential perspectives on lifespan development (Levy, 2013). Levine and Heller (2010) noted that attachment theory is based on the idea that individuals need to be in a close relationship as it is embedded in our genetic makeup. Attachment theory helps explain how relationships that develop during the earliest stages of life shape an individual's survival functions and subsequent relationship (Schore & Schore, 2008). Early work in attachment theory has provided a theoretical framework for working with clients that allows us to understand the role of attachment in a therapeutic relationship.

Attachment theory originated in the 1950s when John Bowlby became interested in the effects of separation between mother and infant. Attachment theory began by looking at how early childhood experiences influence development and has continued to gain momentum in the field of psychology. Levy (2013) wrote that "from its inception, Bowlby conceptualized attachment theory as relevant not only to both normal and psychopathological development but also for psychotherapy in particular" (p. 1133). Bowlby identified that attachment is an instinctual behaviour that follows a predictable course in all human beings. He also noted that attachment behaviour is adaptive in nature, and it serves as a survival function (Marrone, 2014).

When working with children, attachment theory is a useful theoretical framework to use as it highlights the importance of developmental psychology. Attachment theory can be considered a structural developmental theory as new experiences build upon previous development (Sroufe et al., 1999). Bowlby theorized that the attachment behaviour system work in tandem with the exploratory behavioural system, implying that when a child feels safe and secure, they can venture out and explore their surroundings (Zeanah et al., 2011). The child-caregiver attachment is crucial to the development of the child.

Hong and Mason (2016) noted that there is evidence to suggest that a child's brain will develop based on the attuned interactions between the child and their caregiver. The development of an individual is an active process of adaptation that occurs within a social and economic context (Palix Foundation, n.d.-a). Children are constantly learning and developing and the social interactions that they experience are essential for the developmental process. Based on early relational attachments, a child can develop healthy brain integration or develop in a state of dysregulation. Bowlby believed that early attachment experiences influenced personality development, interpersonal functioning, and psychopathology (Levy, 2013).

Schore and Schore (2008) purposed that the first year of life is critically important to human development and the main task at this stage is the development of a secure bond between an infant and their primary caregiver. When a caregiver is attuned and responds to their child in a healthy and appropriate manner, they are helping to co-regulate the infants developing nervous system. Through a secure attachment, the child can develop an internal homeostasis which supports future development and regulation. If the child is not able to form a secure attachment, the nervous system is not able to regulate which disrupts healthy development. Early coregulation is thought to develop in the right hemisphere of the brain and is stored as implicit memories.

It is believed that early childhood experiences and attachment relationships shape later outcomes of personality and temperament. A key component of attachment theory includes the notion that the way that an individual develops their sense of self becomes their internal working model. It is thought that the day-to-day interactions between an infant and their caregiver influences how a child views themself. The internal working model is a set of expectations and beliefs about self, others and the relationship between self and others (Marrone, 2014). This develops through the early relational interactions an infant has with their main caregivers. How a caregiver responds directly influences how a child will grow to view themselves. Attachment orientation is thought to be based on early parental interactions which later determine the type of attachment style an individual will develop.

Attachment Theory and Therapy

Research in attachment theory has helped those working in the field of mental health understand how a secure base can influence the therapy process. Bowlby believed that attachment theory could be beneficial to the counselling process. He believed that counsellors could serve as a temporary attachment figure for their clients which would create a secure base and allow for safe exploration of self and others within a clinical setting (Levy, 2013). Prochaska and Norcross (2018) noted that psychotherapy at its root is an interpersonal relationship. Furthermore, they emphasized the link between a strong therapeutic alliance and positive counselling outcomes.

Social connections and relational bonds have been found to benefit mental health for all age groups (Fox et al., 2018). Modern attachment theory has theorized that attachment relationships are a major organizer of brain development. The process of attachment between a parent and their caregiver continues throughout an individual's lifespan and is felt within all affective relational communication (Schore & Schore, 2008). When a counsellor empathetically tracks the verbal and nonverbal communication that a client shares, they are helping to create

safety and a strong attachment relationship. When the client feels secure, they can safely explore and expand their awareness around interpersonal and intrapersonal experiences.

Childhood represents a crucial period of brain development. The early interactions that infants experience during the first few years of life help develop the relational base for all future relationships. As childhood has been found to be a critical period of development, counsellors can help support growth by providing attachment-based therapy. Hong and Mason (2016) noted that counsellors can support development by providing a caring and attuned experience with a safe adult in a therapeutic setting. Furthermore, Steward et al. (2016) documented that empathic attunement within a therapeutic alliance creates the optimal chemical environment that creates new neural pathways to support a developing child. In family counselling, counsellors can also help foster attachment between caregiver and child through play and modelling in the counselling setting.

Neuroscientific Research

Childhood is recognized as a very important time of development where cognitive abilities and behaviours become established that last a lifetime (Gilmore et al., 2018). Brains are thought to be built in stages with more complex structures building on simple structures. It is during early childhood when the simple structures are established that create the foundation for future brain development (Palix Foundation, n.d.-a). As childhood is a critically important time for brain development, understanding how the brain develops is vital for counsellors working with children. Meaningful experiences and connections can help to strengthen brain circuits which leads to healthy childhood development. Providing children with safe, healthy adult relationships that support high quality experiences gives children the strong foundation that is needed to support healthy brain development and wellbeing. Neuroscience refers to the scientific study of the nervous system. This includes looking at the development of the nervous system, functions, and structure. There are many different aspects of the nervous system that can be studied to help us understand human development, personality, and behaviour. Saunders (2010) proposed that an early attempt to unify neuroscience and psychotherapy came from Sigmund Freud when he worked to identify how psychopathology was linked to brain function. Freud theorized that conscious and unconscious behaviours were stored and organized within the brain's neural architecture (Cozolino, 2010).

In the 1970s, Paul MacLean proposed that the human brain is made up of a three-part system that includes a primitive evolutionary structure within the modern human brain. Cozolino (2010) detailed the three parts of the brain and MacLean's hypothesis. MacLean hypothesized that at the core is the reptilian brain which is responsible for reproduction, arousal, homeostasis, and activation. Building on that is the paleomammalian brain (limbic brain) which supports memory, learning and emotions. The last layer of the brain is the nonmammalian brain (cerebral cortex) which is responsible for problem solving, awareness and organizing conscious thought.

Steffen et al. (2022) noted that the triune brain is no longer an accurate theory to understand the brain, but it did help further research around brain development. The authors noted that the brain is not built upon a reptile brain and that the structures of the brain do not function independently from one another. Rather, the authors propose to shift the language towards the adaptive brain. "The term adaptive brain emphasizes the interdependence and plasticity of brain regions and the brain's ability to predict and adapt future needs and conditions" (p. 2). The authors note that the brain is organized along interoceptive and exteroceptive axes which work together to balance current need. Higgins (2018) suggested that we are in the Neurocentric Age of science which emphasizes the brain as the most complex organ in the body. Furthermore, he noted that recognising how brain development can change in response to experience has been an exciting discovery in neuroscience. As technology has advanced, scientists have been able to study the brain in new ways that provides valuable information. Using electroencephalogram (EEG), animal studies, positron emission tomography (PET) scans, single photon emission computed tomography (SPECT), functional magnetic resonance imaging (fMRI) and dissection studies we have come to understand how the brain develops and how genetics and experiences interact to form human behaviours.

It has been suggested that the last 20 years have been the decades of the brain and there have been plenty of hypotheses and theories that have been studied and tested to further our understanding. There are a number of research studies that highlight the importance of the brain and how it can be utilized in therapy to support positive well being. Hong and Mason (2016) noted that advances in neurobiology have furthered our understanding around how to support positive neural changes in the brain and how attachment theory can guide clinical practice. Perry (2009) noted that there are several clinical implications that need to be considered that relate to neuroscience and providing effective therapy. Counsellors can best support clients when they understand key neuroscientific findings and how they relate to providing effective therapy.

Hierarchical Development of the Brain

It is important to understand how the brain develops when working with children as this can guide our treatment planning and delivery as well as provide us with valuable information regarding behaviours. Brain development occurs roughly two weeks after conception and continues into an individual's early adult years. It is thought that brain development that occurs during the prenatal months is largely genetic, but it can also be affected by the environment. As the brain develops postnatally, it is experience-dependent and develops according to the interaction between an individual's genes and their environment (Tierney & Nelson, 2009).

Jones (2017) noted that each individual will follow a similar sequence of development and that the brain develops from the inside out. The prenatal period is an important first step for brain development that includes the development of the nervous system, neural tube, cerebellum, and synaptic connections. Brain development is thought to develop from the bottom up with the brain stem developing first, then the limbic system and lastly the cortical brain (Perry, 2009) The brainstem is thought to be the primitive part of the brain and focuses on safety and perception of threat. The brain stem is essential for bodily functions including heart rate, blood pressure, sleep, breathing and temperature (Hong & Mason, 2016). Motor and sensory input are processed in the brain stem. This area of the brain develops in utero and continues to develop during the first year of life.

The limbic system is thought to regulate attachment, emotions, and behaviours. This area of the brain develops throughout childhood and is involved in relational connection, motivation, and the integration of memory (Hong & Mason, 2016). The limbic system is experience-dependent and develops according to the environment and the attachments that a child experiences. A key area of the limbic system is the amygdala. The amygdala is responsible for scanning and assessing threat in the environment and is responsible for evoking physiological reactions which leads to the fight/flight/freeze responses (Hong & Mason, 2016).

The cortical brain is last to develop and is responsible for thinking, planning, inhibiting, and learning (Lyons, 2019). The cortical brain develops throughout childhood, teenage years and is thought to become fully developed during early adulthood. Siegel (2012) noted that this part of

the brain focuses on cognition and advanced thought such as problem solving, language, reasoning, and abstract thought. Hong and Mason (2016) noted that of the brain systems, the cortex is the easiest to access and can be modified through verbal input.

Although this is a simplistic version of how the brain develops, this information can support counsellors in understanding what is taking place within a child regarding brain activity. Each system of the brain has certain functions that are important for development and health, but the areas of the brain communicate with one another through a number of neurotransmitters that help to integrate the brain as a whole. Counsellors can support their child clients by identifying what area of the brain they are working with and target interventions to support neural connections.

It is believed that the brain is most receptive to experiences and changes during early childhood (Perry, 2009). It is through relational experiences that genes are activated to support healthy development. Siegel (2012) noted that neural pathways are activated through relational experiences and these experiences shape the regulation of synaptic growth, regulation of stress, and the regulation of gene expression. Infants are born with their own unique genetic makeup that provides the information that sets up the basic structure and organization of the brain.

Although genes play an important part in the development of the brain, it is through experience and attachments that genes will become expressed and activated. Hebb (1949) first suggested that what fires together wires together. Furthermore, as noted by Maté (2022), "genes affect how sensitive one is to the environment, and the environment affects how relevant one's genetic differences may be" (p. 250). Brain development is experience dependent, and genes that are not stimulated or activated will be lost due to a process called pruning. The literature

supports the idea of "use it or lose it," so areas that are not activated or stimulated will eventually be lost.

When we consider the brain and how it shapes an individual, it is important to also understand how memories are stored. Malchiodi and Perry (2015) documented the importance of understanding implicit and explicit memory when providing therapy. The authors noted that implicit memory stores emotional and sensory components that are related to the body's learned memories. Explicit memory is considered conscious memories, and this is where concepts, ideas and facts are stored. Memories from early childhood are often considered implicit memory as there is no language attached to the memory. These memories focus on the senses and can be triggered by smells, touch, taste, and noises. When working with children in therapy, we are often working with implicit memories and somatic sensations and this needs to guide how counsellors work with young clients.

Implicit memories create an undercurrent that influences present moment experiences (Kestly, 2014). Kestly also noted that implicit memories are felt in the body and may present themselves as perceptual shifts, behavioural impulses, and sensory fragments. Implicit memories are created during early childhood and the feelings associated can last a lifetime. During infancy and the toddler years, only implicit memory is available which is why people are not able to consciously recall events from infancy and early childhood (Hong & Mason, 2016). Understanding how the brain develops and how memory is stored provides counsellors with valuable information on how to approach therapy in children.

Understanding the hierarchical nature of the brain helps one understand what is happening within the child. Schore and Schore (2008) noted that early experiences shape the development and organization of the right brain, which they argue is the neurobiological core of the human unconscious. It is through right brain communication between an infant and their caregiver that regulation can occur. Through co-regulation, an infant learns how to regulate their own nervous system and form future social bonds. When a child is not provided with a secure, safe attachment bond, a child may become dysregulated which can lead to mental health concerns.

Through the work of Siegel and Bryson (2012) we now understand that children are right brain dominant which counsellors need to be aware of when working with young clients. Schore and Schore (2008) noted that right brain interactions support interpersonal functioning and can be activated in the therapeutic alliance. Furthermore, the authors noted that there are many aspects of therapy that are nonverbal that counsellors need to be aware of including eye contact, tone, volume, body posture and movement. It is through the nonverbal right brain communication that a client senses the empathic attunement and feels safe in the counselling space.

The field of neuroscience continues to expand and provide us with new information around human personality and behaviour. Counsellors benefit when they understand how the brain develops and the hierarchical nature of brain development when working with children, youth, and adults. Working to identify what area of the brain needs support, can help counsellors identify what therapeutic tools and treatments are needed to support the different functions of the brain to further growth and development.

Safety

It has been suggested that no training, modality, intervention, or specific approach will have any lasting effect unless a child feels physically, mentally, and emotionally safe (Smith, 2020). Safety is a key consideration in therapy, and this is especially true when working with children. When supporting young clients, counsellors need to not only vocalize positive regard, but the child must also experience the felt sense of being safe with the counsellor, which occurs through nonverbal and right brain communication.

It has been found that interacting with a safe person who is accepting and caring can change a child's brain structure for the better (Simmons, 2020). According to Dr. Stephen Porges, feeling safe is the treatment and creating safety is the work (Porges, 2017). People are not able to learn in environments where they feel unsafe due to the nature of the brain and how the body responds to threat. When a child feels safe in the therapy room, they are able to access vulnerable aspects of themselves and increase awareness and tolerance. When children can coregulate with the therapist, they are able to increase their window of tolerance. Dr. Dan Siegel created the window of tolerance to explain arousal states.

Siegel (2012) purposed that everyone has a window of tolerance that processes emotional arousal without disrupting the functioning of the human system. This is unique to each individual and there will be variability in how an individual processes emotional information. With heightened activation, an individual may move into hyperarousal which is best known as the fight or flight response. Hypoarousal occurs when an individual becomes overwhelmed and has too little arousal, this can lead to the freeze or fawn response. Hypoarousal is considered the collapse or shut down response (National Institute for the Clinical Application of Behavioural Medicine, n.d.). In therapy, counsellors want to provide activation that does not cause the client to go into a hypoarousal or hyperarousal state. Counsellors benefit when they understand what historical or current events may trigger a client and help support them during times of intense stress.

Polyvagal theory is another key theory that helps us to understand the importance of safety and was developed by Dr. Stephen Porges and was first published in 1995. Porges (2022) argues that humans endure a lifelong quest trying to feel safe in the world. Polyvagal theory provides scientific research around health and well being and provides information on the neurophysiological aspects of safety. Porges further notes that the need to feel safe influences mental and physical health, relationships, behaviours, and cognitive processes. The removal of threat is not enough when working with clients, and clients need to feel safe to heal.

Dr. Porges coined the term neuroception which describes how humans are genetically wired to detect safety, danger, or threat, consciously or unconsciously (Kestly, 2014). Porges identified three nervous system subsystems that occur in the nervous system that help manage stress: the dorsal vagal state, sympathetic state, and the ventral vagal state. The ventral vagal state represents an individual's connected and present self and is activated when one feels safe and engaged. This is known as the social engagement system and when an individual is in this zone they are open to connecting, learning, and collaborating with others (Vandenbroeck, n.d.).

The sympathetic nervous system is responsible for mobilizing our fight/flight response when one perceives danger. When a threat is perceived, the body automatically increases blood pressure, heart rate, fuel availability and circulation and moves the body into survival mode (Walker, 2021). When a client is in this state, they may present with anger, fear, panic, worry, frustration, or rage. If an individual decreases their arousal level, they will enter into the dorsal vagal or a hypoarousal state. In this state, an individual may appear to collapse or shut down. This response is activated by the parasympathetic nervous system and decreases heart rate, blood pressure, eye contact and temperature. The body may become immobilized, and endorphins increase to numb the pain and raise the pain threshold (Walker, 2021). The dorsal and ventral vagal responses happen outside of an individual's control and are influenced by genetics, epigenetics, and experiences.

Hong and Mason (2016) shared that excessive chronic exposure to stress can damage neurons. It has also been found that toxic stress can cause physical changes in a child's developing brain which can trigger problems in later life including addiction and mental health problems (Palix Foundation, n.d.-b). If children present to therapy with a history of feeling unsafe, the structures of the brain may change leading to dysregulation and impairment. It is imperative that counsellors understand the importance of creating safety in the therapeutic space. Not only does a child need to consciously understand that they are safe, but they have to feel safe. When a client feels safe in the counselling space, they can move into social engagement where they are able to learn, connect and heal.

Neuroplasticity

As the brain plays a central role in human health and well being, counsellors can integrate neuroscientific findings to support therapeutic change. Smith (2020) noted that the first step in creating new neural pathways lies in the counsellor's ability to provide safe, consistent, and predictable experiences for their clients. When a child feels safe in the counselling space, they can begin to create new neural connections that can support the healing process. It is the hope that the safety and connection felt within session can be transferred outside of session to build healthy relationships with the caregivers and supportive individuals in the child's life.

Perry (2009) noted that neural pathways and the brain are formed in a use-dependent fashion. When experience activates the brain, this creates new synaptic connections and strengthens existing connections. The neural connections that are used most frequently will become stronger and become the primary pathways that are activated which can be positive or negative. Brain development occurs rapidly during early childhood (0-6 years) and lays the foundation for future functioning (Wheeler & Taylor, 2016). In therapy, counsellors are working to change the brain by providing repetitive and patterned activation in the brain (Perry, 2009).

Frederick (2021) noted that neuroplasticity refers to the brain's ability to rewire and change over the lifetime based on new experiences. Furthermore, he noted that there are several factors that influence positive neuroplasticity. These include novelty, attention, emotional arousal and intensity, duration, repetition and relationships. Counsellors can help their clients rewire their brain through healthy, emotional experiences while in session. Cozolino (2010) noted that neural changes can be reflected in a number of ways. This can include changes in the connectivity between existing neurons, the growth of new neurons or the expansion of existing neurons. These changes represent the nervous system's ability to change in response to experience, otherwise known as plasticity.

Wheeler and Taylor (2016) documented that neuroplasticity offers hope for change and highlights the brain's potential. Siegel (2006) wrote that neural plasticity may be the fundamental way that psychotherapy alters the brain. It is valuable for counsellors to know that the brain can change across a lifetime and counsellors can support the development of new neural connections that moves a client into a more regulated and safe state. As the brain develops in a hierarchical manner, counsellors can target interventions that support the growth of systems of the brain to target healing. Hong and Mason (2016) noted that predictable, repeated, and nurturing interactions help support different areas of the brain to mature which supports integration.

Play Therapy

Siviy (2016) noted that play is an important part of normal childhood development and is synonymous with a happy childhood. Play can take many forms and changes based on the child's

developmental age, temperament, and interests. Children's play can be solitary or done with others. Kaduson and Schaefer (2021) noted that "play is the singular central activity of childhood and an essential wellspring of children's cognitive, emotional, and social development" (p.3). Furthermore, the authors note that there are eight distinctive characteristics that help define play including:

- It is freely chosen.
- It is intrinsically motivated.
- It values means over ends.
- It involves multiple positive affects.
- It is personally directed.
- It includes active involvement.
- It includes nonliterality/pretense.
- It includes flexibility.

As play is a natural activity for children, play therapy is useful as it engages children, and it is fun. As children are not always able to express their thoughts and feelings through talk therapy, play therapy is a useful modality when working with children. Play therapy can be defined as a theoretical modality where the therapist uses the power of play to help clients with difficulties and works toward optimal health and development (Sarah et al., 2021). Bratton et al. (2005) noted that the Association for Play Therapy was established in 1982 which recognized play therapy as a specialized treatment modality within the field of mental health.

Play therapy is often described as being either directive or non-directive in nature. Play therapy has a long history and there are a number of theories that have contributed to the field including Jungian play therapy, child-centered play therapy, cognitive- behavioural play therapy, filial therapy, and prescriptive play therapy (Drewes & Schaefer, 2015). There are numerous ways that play therapy can be incorporated into a clinical setting. Art, crafts, building toys, dolls, sand, and sensory toys highlight a few examples of items that can be included in the counselling space. Play therapists need to be creative, flexible, and nurturing to respond and work with children.

Many play therapists believe that children know what they need, and can heal when given the time, space, and comfort to do so. Play therapy allows a child to process their experience in a way that feels safe. It is also developmentally appropriate as it is intended to be adapted to the developmental stage of the child. Bratton et al. (2005) documented that "play is viewed as the vehicle for communication between the child and the therapist on the assumption that children will use play materials to directly or symbolically act out feelings, thoughts and experiences that they are not able to meaningfully express through words" (p. 376).

Zandt and Barrett (2017) noted that play is used as the child's language in session. The assumption is that children will symbolically enact or draw the feelings and/or experiences that they cannot put into words. Play therapists can be creative in therapy as they are able to combine a number of different toys, expressive art interventions and games to support the growth of a child. Providing a nurturing and supportive therapy environment for children to play and explore allows the child to play out problems or issues in a way that feels safe. Therapists can help children feel heard and understood and then reflect thoughts and feelings to foster a greater understanding (Schaefer, 2011).

Effectiveness of Play Therapy

Play therapy has a long history and Ray (2014) noted that research regarding play therapy dates to the 1940s. In an early meta-analysis study, Bratton et al. (2005) looked at 93 controlled outcome studies over a period of 50 years to determine the overall efficacy of play therapy. 3,248 boys and girls with diverse presenting issues participated in the play therapy research. The average age of a child receiving treatment was 7.0 years. Presenting concerns were categorized as internalized problems, externalized problems, or a combination of the two. The authors noted that play therapy was shown to be equally effective for boys and girls although it was noted that more boys were included in the studies reviewed. There were several characteristics that were noted when reviewing effect size including a) the type of therapy or theoretical modality, b) who provided the treatment, c) treatment setting, and d) whether that treatment was done in an individual or group format.

The results indicated that play therapy was effective no matter the therapeutic approach, although there appeared to be a strong positive correlation with a humanistic approach. Play therapy provided by a mental health professional indicated a moderate to large effect size, but play therapy conducted by a paraprofessional was shown to produce a very large effect size. It is important to note that many of the treatment approaches done by paraprofessionals also included parent involvement which may provide evidence for the importance of including parents in child therapy. Schools, outpatient clinics, and residential settings were all shown to contribute towards a positive effect size, supporting the idea that play therapy can be effective in a number of treatment settings. The authors also found that both individual and group play therapy were found to be effective in treating children with mental health concerns.

To further study the effects of play therapy, Ray (2014) reviewed hundreds of studies to better understand the efficacy of play therapy. The author created a list of inclusion criteria to help classify and evaluate the research. Inclusion criteria included studies that had been published from the year 2000 on and all had a) play therapy as the treatment, b) participants needed to be between the age of 3 and 13 years old, c) descriptive information on interventions needed to be reported, d) play therapy was child focused, e) studies needed to be found in peerreviewed journals and/or books and f) studies needed to report quantitative measures to evaluate intervention. In the end, thirty-three studies were considered and analysed.

The result from the analysis helps provide empirical support for counsellors using play therapy as a treatment modality. Ray (2014) found that a great strength of play therapy is that it demonstrates practicality in real-life settings for children. The author found that play therapy is effective for children from diverse populations, with varying mental health concerns and can be effective in multiple settings. It was also found that individual play therapy and group play therapy are shown to demonstrate positive results. The results indicated that play therapy can be effective even with a brief number of sessions. It was noted that the mean number of sessions found throughout the studies was 16 and that positive results were noted following 8-10 play therapy sessions.

Child centered play therapy (CCPT) was noted as the most researched approach to play therapy and similar to the results found by Bratton et al. (2005), a humanistic approach was found to demonstrate positive strong effects. It is also important to note that Ray (2014) found that play therapy includes a cross-section of educational background, race, ethnicity, gender, and socioeconomic levels. As play therapy incorporates a multicultural lens, the author argued that this would further increase success in the real world and is appropriate for a wide range of children and presenting concerns.

In a recent systematic review, Drisko et al. (2020) also found that play therapy does appear to be effective for children with a range of mental health concerns. The authors reviewed seventeen methodologically and data adequate reports to study the effectiveness of play therapy. To be considered for the review, the authors noted criteria that needed to be met to be considered. Child clients needed to be between the ages of 4-12 years old, counselling services needed to be provided individually at an outpatient clinic, and the goal of treatment needed to be clearly defined, as well as the outcome measures. The authors considered studies between 1990 and 2018 and all studies needed to have a control group.

Depending on the study, children received play therapy to help reduce symptoms of ADHD, anxiety, aggression, trauma as well as internalized and externalized behaviours. Effect size was calculated based on the reported pretest and post-test results. The authors noted that there were large variations between the studies investigated, and that the reported information varied based on the perspective of the rater. Drisko et al. (2020) found that the overall effect size for play therapy ranged from d= -.04 to 3.63, though most studies displayed an effect size between d= .35 to .80, indicating play therapy to be effective in reducing negative mental health symptoms.

Future research considerations were documented in the review. The authors noted that it would be important to fully understand how play therapy can be adapted to a diverse range of children. It was also noted that the studies included girls and boys and it would be valuable to continue to research play therapy with attention given to nonbinary genders. As there was variation in rater's responses, it would be beneficial to understand how changes occurred in

different settings and how long positive change was found in children who received play therapy counselling.

McMahon (2009) noted that play therapy is an evidence-based practice with a long history of providing effective treatment for children with a number of presenting concerns. Drewes and Schaefer (2015) documented that play therapy has been shown to be effective with effect sizes ranging from medium to large. Furthermore, they identified that what makes play therapy effective transcends specific theoretical models and instead focuses on the therapeutic powers of play that are common among the varying types of play therapy. Looking at the research helps counsellors find empirical support for play therapy treatments that can reduce negative behaviours, improve functioning, and support positive growth.

Hall et al. (2002) noted that the more play techniques counsellors have in their toolbox, the more likely they are to select the right tool to help heal an individual child. A client centered approach is often utilized in play therapy as Smyth (2017) argued that supporting the holism of the child is an essential building block which helps promote emotional health and well being. In all forms of counselling, there does not appear to be a one size fits all approach to helping individuals. There is no evidence that one play therapy theory is more effective than another (Kaduson & Schaefer, 2021). Rather, counsellors need to assess and individualize treatment that supports the growth of the child.

Hong and Mason (2016) noted that the goal of play therapy is to achieve optimal growth and development by resolving or preventing psychosocial difficulties. Play therapy can help facilitate communication, fosters emotional wellness, enhances social relationships, and increases personal strengths (Drewes & Schaefer, 2015). The therapeutic power of play can initiate, facilitate, or strengthen the therapeutic effect size when working with children.

Considerations

It is important to note that not all children needing support will be able to access counselling resources. Moroz et al. (2020) found that during 2018, 2.3 million Canadians needing mental health services felt their needs were only partially met or not met at all. There were many barriers noted including wait times, financial barriers, transportation issues, stigma concerns as well as cultural and language barriers. Although play therapy is an effective modality to use when working with children, not all children needing support will be able to access services.

O'Brien et al. (2016) found that only 25-35% of children and adolescents accessed treatment for mental health concerns. As noted above, there are a number of systemic barriers to service that need to be addressed, but when working with child clients there are also a number of family issues that may hinder access to counselling. Custody issues, parental mental health, transportation, and confidentiality may all impact a child being able to access treatment. Even when the service is available to children at no cost, such as in a school setting, parent permission is required and may not always be provided.

When working with child clients, counsellors need to not only consider the developmental and psychosocial needs of the child but also the needs of the caregiver-child relationship and the needs of the family (Farley et al., 2020). There may be cultural considerations and/or social barriers in place that affect the family unit. This can contribute to mental health concerns in children and a more holistic family approach may be more beneficial. Providing families with access to affordable housing, health and dental benefits and access to nutritious foods may prove to be beneficial in reducing family stress and may lead to lower rates of childhood mental health concerns.

Another consideration to note revolves around how to increase positive development by increasing parent engagement and working to provide psychoeducation to parents and caregivers. Farley et al. (2020) noted that play therapy should support the relationship between the caregiver and the child to increase overall well-being. Furthermore, the authors noted that the caregiver-child relationship can foster optimal child development. Bratton et al. (2005) further supported this and found that play therapy that included parent involvement showed a stronger treatment effect size than play therapy treatment alone. Having a caregiver engaged in the process and working with the child at home will help create long lasting positive effects for the child.

Summary

Childhood mental health is a serious concern that needs to be addressed around the world. There is value in understanding attachment theory, neuroscience and play therapy and how they can support children struggling with negative mental health. Understanding how theory supports practice can help counsellors working with children in a therapeutic setting. Therapists must also consider the interconnection between theory, practice, and the different social, ethical, cultural, and legal considerations that are involved when working with children.

It has been suggested that psychological trauma experienced in early childhood increases the risk of psychosis in adulthood (Bloomfield et al., 2021). Furthermore, Schore (2014) has suggested that insecure attachments play a central role in the psychoneuropathogenesis of all psychotic disorders. The interactions between an infant and their caregiver during early development shapes and changes the brain for better or worse. Understanding attachment theory and childhood development allows a counsellor to understand how early experiences in infancy and childhood affect mental health in later years. Integrating neuroscientific findings into play therapy can support counsellors in providing effective treatment to children to reduce future mental health diagnoses.

Chapter 3: Discussion

Kestly (2014) noted that most children use play to process their life experiences. Play is a natural way for children to express themselves and can be used in a variety of settings. Play therapy has been shown to be effective in treating a wide range of mental health concerns in diverse populations (Ray, 2014). With rising rates of childhood mental health concerns and an increase in those looking for support, I believe that counsellors can further support their child clients in play therapy by integrating attachment theory and neuroscientific findings into their practice.

Prevention and early intervention have been shown to be effective in reducing serious health conditions (Palix Foundation, n.d.-b). Working to support children who are exhibiting internalized and externalized behaviours can help reduce serious negative mental health concerns in later life. Early childhood is recognized as a key time for brain development and counsellors can support healthy growth by establishing rapport, creating safety, and engaging the child in play to help support neural development.

Perry and Hambrick (2008) identified six core components that support positive neurodevelopment. It was found that experiences had to be relevant, repetitive, relational, rhythmic, rewarding, and respectful to help support positive changes in the brain. Gaskill (2019) noted that play therapy supports the core elements of positive neurodevelopmental and can guide therapists in how they support young clients. Having this knowledge can further enhance how a counsellor works with their clients in session. Integrating research from neurobiology and attachment theory can help enhance the counselling experience for child clients.

After reviewing the literature, it appears that there are many ways that attachment theory, neuroscience, and play therapy can be integrated together to best support children and their

mental health. It is important for counsellors to properly assess and develop a treatment plan that is best suited for their clients. Neuroscience, attachment theory and play therapy all provide useful knowledge and interventions that support a person-centered approach to therapy. Play therapy is a developmentally appropriate intervention that can target the emotional side of the brain to help reduce symptoms and promote positive mental health.

Recommendations

Safety & Rapport

A child must feel safe in session to engage, process, and learn new skills. In all areas of counselling, safety is a key consideration and working with children is no different. A child who presents in therapy has to both logically understand that they are safe in session, and also feel safe in the space and with the counsellor. Understanding neuroception and polyvagal theory can help a counsellor understand the importance of safety in session. Wheeler and Taylor (2016) noted that the sympathetic nervous system has to be calmed to engage in neural processes. Depending on the needs of the child, counsellors may need to spend a number of sessions working to create safety for the child.

Safety is key, as Smith (2020) noted the first step in creating new neural pathways is providing clients with a predictable, safe presence. When counsellors engage authentically and in a warm and caring manner, children are able to feel safe in their presence. Hong and Mason (2016) discussed the idea that playful engagement helps to counterbalance the alarm system within a child which helps promote safety and develops rapport. As safety is so important to the therapeutic experience, counsellors can work to develop a playroom and environment that supports safety and engagement. The counsellor can do this by playfully engaging with the child, introducing them to the space and materials, providing choice and allowing for flexibility in the therapeutic session.

Kestly (2014) noted that counsellors can set up their counselling space to help promote safety and well-being. When creating a play therapy space, counsellors need to consider if the space feels inviting, is well-organized and is predictable for clients. Boundaries are important in all relationships and children especially benefit when they have predictable rules and guidelines that they need to follow. Neufeld and Maté (2004) noted that consistent boundaries and expectations help a child feel safe and help support the attachment process. Counsellors need to be aware of their own triggers and regulate throughout the session as needed to support a calm and caring environment.

Developmentally Appropriate Interventions

Play therapy has been shown to be an effective intervention. Kestly (2014) noted that play is the glue for developing a secure relationship. In caregiver-infant interactions, it is through the secure attachment that a child learns to understand the world and who they are. The Palix Foundation (n.d.-b) identified that serve and return interactions create the environment and experiences necessary to affect how genes are expressed. When children interact with their caregivers and the caregiver responds, it creates an environment of experiences that supports emotional development, resiliency, and teaches the child new skills.

Counsellors can use this knowledge to create positive serve and return interactions in therapy. When the counsellor is attuned to their child client, they are able to provide the experiences necessary to promote healthy brain growth and emotional change. Play is a healthy activity for children to engage in and counsellors can track thoughts, behaviours, and words throughout the session to engage in positive serve and return interactions. When counsellors engage and create positive exchanges with the child, they are providing developmentally appropriate support as serve and return interactions form the building blocks for healthy brain development.

Jones (2017) noted that best practice when providing therapy to children is to honour their neurodevelopmental stage and move away from linguistics and explicit memory. When working with children, counsellors must assess the child's developmental age rather than informing treatments based on actual age. Counsellors can support their clients by assessing developmental age and utilize knowledge from neuroscience to assess what is happening within the brain of the child. When working with children, counsellors can focus on right brain communication to engage the child to create new neural connections.

Right brain interactions are considered "implicit intersubjective affective transactions embedded in the attachment relationship" (Schore & Schore, 2008, p. 12). In therapy, counsellors can focus on nonverbal communication and regulate their own system to help regulate their clients. Ways to support right brain communication include focusing on facial expression, tone, body posture, movement patterns and eye contact (Schore & Schore, 2008). These unconscious interactions help create an environment of safety and healing. Furthermore, Simmons (2020) noted that children are right brain dominant and play is considered a right brain activity.

It is thought that emotion is initially regulated externally through caregiver interactions. Counsellors can use this knowledge to help co-regulate their clients in session. Dion (2018) noted the importance of staying connected to oneself as well as the client during uncomfortable moments in therapy to support coregulation. When the counsellor is attuned and aware of what is happening within themselves as well as the client, they are able to regulate themselves which helps regulate the client and helps keep the child within their window of tolerance.

As research suggests that the brain develops in a hierarchical manner, counsellors can further support development through play by targeting brain regions that are appropriate for the developmental age of the child. Perry (2009) documented that counsellors can support the brain stem by incorporating breathing, drumming, music, and movement into the therapeutic environment to support regulation. To support the limbic area of the brain, counsellors can integrate play and art therapies to support relational functions. Lastly, counsellors can move towards more verbal, insight oriented, cognitive approaches to support the cortical region of the brain.

This is further discussed by Hong and Mason (2016) who noted that counsellors can support children in play therapy by targeting brain regions that support neural growth based on development. The brainstem needs rhythmic, repetitive, and somatosensory experiences. It was further noted that counsellors need to develop rapport and provide safe, positive, and nurturing experiences to help modify previous interactions which support the limbic area of the brain. Lastly, the authors noted that the cortex is the easiest to modify as it can be accessed consciously and can be targeted through verbal interventions.

The Role of Neuroplasticity

Research supports the idea that the brain is most plastic in early childhood (Perry, 2009). Childhood is thought to be the time when the brain is most vulnerable to new attachments and experiences, which supports the idea that prevention and early intervention are key for this age group. Michael and Luke (2016) noted that neural plasticity is the key mechanism that may underlie how change works in therapy. Play has been noted to be an essential element of physical, emotional, social, intellectual, and psychological development (Smith, 2020). When counsellors are aware of how play influences neural development, they are integrating knowledge to support the mental health of the child.

Cozolino (2010) identified four factors that influence neural plasticity and growth in relation to counselling. The first factor identified is the establishment of a safe and trusting relationship. Secondly, the client needs to experience mild to moderate levels of stress to promote change. The third factor looks at how counsellors can activate emotions and cognitions and lastly, counsellors can support clients by co-constructing new personal narratives.

Smith (2020) noted that play therapy provides the sensory based, non-verbal, experiential learning that allows new neural connections to form and strengthens existing pathways. Huberman (2022) further argued that play is the portal for neuroplasticity. Furthermore, he states that play triggers the chemicals that spark neuroplasticity. Play is effective at creating new neural connections as play allows a child to test new situations, is a regulating activity and keeps the stakes low for exploring tough emotions. Play is also believed to be able to access the lower nonverbal regions of the brain and regulate the physiology to support positive growth (Smith, 2020).

Neuroplasticity is a key component for supporting child development. It is also important for counsellors to be aware of how neural connections can be changed in the brain. Providing a child with a safe, repetitive, and consistent environment, with a caring attachment figure, helps to create new neural connections, but the brain also needs to be activated for change to occur. Counsellors must consider how the window of tolerance can be used to support clients in therapy. Dion (2018) noted that counsellors must work at the edge of the window of tolerance to promote neural change.

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Counsellors can support clients by helping to widen the window of tolerance through play. Therapists must be attuned to their clients' feelings as mild to moderate activation is healthy but counsellors need to identify when a client is starting to shut down or become dysregulated in session. Each child will have their own unique window of tolerance and counsellors need to assess regulation throughout the session. The Palix Foundation (n.d.-b) identified three types of stress that influences individual well-being. Positive stress provides mild activation and supports heathy development. Tolerable stress is an intense stressful period but is managed by adult support. Toxic stress is frequent, intense, and long lasting and is not adequately supported by the adults in the child's life.

Hong and Mason (2016) noted that play in itself is a regulating activity. Counsellors can support clients by tracking, reflecting, and processing play, which engages the individual with mild activation. Mild activation in session briefly increases heart rate and blood pressure and may elevate stress hormone levels (Palix Foundation, n.d.-b). Counsellors can help clients regulate by providing controlled exposure to stress during play. Dion (2018) shared that integrating intensity starts first with the counsellor who works as the external regulator. Simmons (2020) also documented that counsellors can co-regulate with clients due to engagement and mirror neurons in the brain.

Play not only supports a child by helping to regulate the system but through neuroplasticity the child benefits throughout life. Wheeler and Taylor (2016) documented that play therapy helps support the reduction of symptoms and behaviours including aggression, ADHD, anger, impulsivity as well as supporting prosocial development. Jones (2017) noted that play provides the somatosensory experiences that help create the necessary neurological foundations for advanced brain functioning such as creativity, abstract thought, expressive language, advanced mental skills, and prosocial behaviours.

Psychoeducation

Kestly (2014) highlighted that play is often considered a trivial activity. It is important for counsellors to provide psychoeducation to parents, caregivers and those working with children. Those providing play therapy need to provide information as to the benefits of play and how it promotes positive change. According to Landreth (2012), play is the language of children and toys represent their world. Play is integral to the healthy development of a child and is thought to support children's emotional and physical well being (Simmons, 2020). Explaining the benefits of play and providing science around how play is effective can legitimize play therapy practice.

Play is essential for healthy brain development and counsellors can support children's health by documenting how play is effective and how it influences physical, emotional, and mental health. To build a healthy foundation for brain development, play should occur in serve and return interactions with an adult attachment figure. Play is often taken away as a consequence for negative behaviour which further hurts the development of the child. Those working with children can help support childhood mental health by providing time for play and fostering positive play experiences between a child and their caregiver.

As noted in chapter two, a key consideration is how parents and caregivers influence the development of the child. Counsellors can further support their young clients by providing information to parents that increases their attachment and engagement in play. Lee et al. (2021) highlighted that play is on the decline due to lifestyle changes, technology, changing norms and urbanization. Counsellors can share valuable knowledge with parents detailing the importance of

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play to help increase free play in the home. As play is a regulating activity, parents can support brain development by encouraging play in the home and by becoming actively involved in play with their children.

Perry (2009) noted that therapy itself is not sufficient in providing the repetitions needed for neural growth and integration. Caregivers are busy and life can become chaotic, disorganized, and highly overscheduled. Counsellors can promote playful engagement between family members and discuss the benefits of play. Counsellors can teach parents the importance of coregulation and how they can support their child between sessions. Parents and caregivers should be the main attachment in their child's life. When this is not the case, dysregulation and negative behaviours can occur (Neufeld & Maté, 2004).

Trotter (2014) documented that play therapy can be incorporated into family therapy to help the child and the family unit. Furthermore, she noted that counsellors can support parents by modelling patience, receptivity, flexibility, being present with the child and allowing the child to free play without an agenda or direction. As the counsellor gets to know the child in therapy, they may find it valuable to include the parents or caregivers to teach and model behaviours that are beneficial to the child.

Conclusions

Childhood mental health concerns are on the rise across Canada. Parents, caregivers, and those working with children are looking for support to help reduce childhood mental health and the long-term associated effects. Cozolino (2010) noted that psychotherapy works to understand the interwoven forces of nature and nurture and then looks at how to support healthy neural functioning to best support the client. Providing effective therapy to struggling children is essential for health and well-being. Working to support the healthy development of the brain can

reduce mental health diagnoses and provide long term positive effects for individuals who struggle in childhood.

Supporting children during critical developmental years can provide lifelong resiliency and wellness. Individual genetics and life experiences that occur during sensitive periods of brain development can alter the brain positively or negatively. Counsellors that have an understanding of brain development, attachment theory, and play therapy can support children struggling who are referred for counselling. Wheeler and Taylor (2016) noted that play is the natural first language of children and can be used to communicate needs, emotions, and thoughts. Using play therapy with children during early development, with an appreciation of brain science and attachment theory, can help the counsellor effectively support children.

Perry (2009) noted that the more the therapeutic setting can replicate the normal sequential process of development the more effective the intervention will be. When counsellors understand the neuroscience behind brain development and neuroplasticity, they can tailor treatment to their young clients by being child-centered and promoting brain growth through play. We now know that the mind consists of cognitions and emotions which are interconnected but distinct (Hong & Mason, 2016). Counsellors can support their clients by working with both implicit and explicit memory during play. Utilizing information from attachment theory and neuroscience can enhance play therapy practice, which supports the sequential process of brain development.

It has been argued that promotion, prevention, and early intervention strategies may have the greatest impact on health and well-being (Colizzi et al., 2020). This capstone research project has identified that there is a growing need to support children and families in therapeutic settings. Counsellors benefit when they understand how to best support their clients and what interventions and techniques are evidence-based and provide long-term positive change. This paper has explored the literature regarding attachment theory, neuroscience, and play therapy and identified how these areas can be integrated to best support children in therapy.

Within the research, there are ideas, philosophies and theories that overlap that provide counsellors with information on how development occurs, the importance of play and how counselling can support childhood mental health. This paper has identified that counsellors can best support child clients by providing safety in sessions, developmentally appropriate treatment plans, interventions that foster neural change and psychoeducation.

When counsellors integrate neurobiology, attachment theory, and play therapy they are able to provide positive, relational, play experiences in session that foster healthy brain development. This in turn supports the physical, emotional, social, and mental health of the child. Badenoch (2018) suggested that never before have we been more aware of both the fragility and resilience of children. Working with children and their families can help mitigate toxic stress and build the foundation of resilience through healthy attachments and positive social interactions.

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