The Gap in Trauma Informed Care:

Coregulation, a Missing ingredient

by

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Abstract

The nature of the mother-child relationship has served as a model for therapists' interactions with their clients. This means that in the same way that the significant caretaker, usually the mother, aims to coregulate affects in their baby in order to promote the development of a secure attachment, the therapist also seeks to promote coregulation in their clients by embodying a number of characteristics. Current neuroscience has informed us about what these essential features are. They include embodying therapeutic presence, resonance and affect regulation. Essentially, the therapist needs to be regulated themself. However, there is a significant gap in the literature with regards to coregulation, principally in the applicability of coregulation principles in the context of group-based and important milieu treatments. In reviewing the literature on the implementation of interventions based on trauma-informed care, there is an absence of discussion on the importance and impact of staff regulation on clients. If staff are mentioned, it is often only to identify that they benefited from the change brought about within their clients. One purpose of this Capstone is to synthesize the available literature in order to address this gap. Recommendations will be made regarding what trauma-informed care means in terms of these principles of coregulation and secure attachment while emphasizing the vital role of service providers' own regulation. The information generated in this Capstone will have wide applicability in all settings where trauma-informed care is practiced. This includes healthcare services, substance abuse and mental health settings, criminal justice, and therapeutic fostering environments.

Keywords: trauma informed care, affect regulation, polyvagal theory, coregulation, adverse childhood experiences

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Chapter 1: Introduction

Overview of Topic

The contributions of the Adverse Childhood Experiences study and trauma-informed care (TIC) have been important in supporting both clients and service providers with a better understanding of the impact of stress and trauma on a wide range of health and behaviour factors (Felitti et al., 1998). This has helped to reduce stigmatization and the pathologizing of behaviours by viewing them as normal reactions to abnormal experiences (Leitch, 2017). It has also brought opportunities for the development of positive service delivery models that have strengthened staff and client relationships, improved personal safety, and increased a sense of welcome and respect in service delivery areas (Elliott et al., 2005 as cited in Leitch, 2017). However, there have been unintended consequences in the way that the ACE study and trauma-informed care have impacted service delivery, including an over-attention to the negative, ethical issues, impacts on developing relationships, and generating and reinforcing dysregulation for both clients and service providers (Leitch, 2017). An approach to trauma-informed care that includes support for both clients and service providers is vital as one directly influences the other. Specifically, given the high levels of stress and burnout in professions that provide care to individuals who have experienced trauma, such as in child protection, nursing, addiction, and juvenile justice to name a few, one cannot adequately address client emotional regulation within a model of trauma-informed care without considering the emotional regulation of service providers. Interestingly, Baker et al. (2018) identify that an important, but less commonly emphasized goal of TIC training is to improve staff wellbeing by reducing vicarious traumatization, which is common among service providers. It is vital to consider both the service user and provider in systems that provide TIC if we are to maintain a healthy and productive workforce. Thankfully, there is a growing awareness of the need to consider the service provider in models of TIC. A study by Beattie et al. (2018a) recognized that there is a gap in our understanding of the neurobiological impact on workers, and “how to prepare staff to

recognize the professional and self-care implications of such a response" (p. 43). When service providers are stressed or under threat, their sympathetic nervous system is activated, and their neurocognitive functions are reduced. They can get stuck in a state of hyperarousal or hypoarousal, or an oscillation between these two extremes (Leitch, 2017, p.7). Being in a state of high arousal disconnects the brain areas necessary for proper storage and integration of information (van der Kolk, 2014). "Clinical judgement, decision making, social engagement, and emotional and behavioral regulation is reduced "(Porges, 2003 as cited in Beattie et al., 2018, p. 43). Further, service providers may be less able to identify their own needs for self-care (Becker, 2016). All of this impacts the service provider personally and also impacts the care that they provide clients. When both clients and service providers understand their responses to stress and trauma, it can serve as a motivation to pay attention to signs of stress and calming and motivate the practice of self-regulation skills. Regardless of culture, gender, or race/ethnicity, we are all wired similarly in how we respond to stress and threat (van der Kolk, 2014). Service providers can learn to track regulation and dysregulation in themselves and clients by paying attention to sensory cues such as breathing, muscle tension, facial colour, posture, and gestures (Beattie et al., 2018).

Purpose Statements

This capstone will endeavour to answer the question: Why is the service provider's own state of regulation an essential component of training in trauma-informed care? First, this question will be explored by highlighting a gap in the literature on how we think about the therapeutic relationship in trauma-informed care based on thinking from attachment and affect regulation theory and neuroscience. It will include an exploration of the current training in trauma-informed care, which often focuses on psychoeducation for service providers and service users on understanding the impact of trauma and teaching strategies to service users to regulate their emotions. Literature will be reviewed that highlights the importance of including the role of service providers' capacity for affect regulation in

this conversation and will include an exploration of coregulation in the therapeutic relationship, as informed by affect regulation and attachment theories. Second, this capstone will expand on the notion of affect regulation in trauma-informed care based on the contributions of Polyvagal theory. The discussion will include a review of the literature on the implementation of Polyvagal theory and trauma-informed care and how a neurobiological understanding of stress and trauma can support both services providers and service users. Finally, this capstone will propose a psychoeducational workshop for those who work in systems that are implementing trauma-informed care. This will include a synthesis and summary of the research and provide a framework for workers to understand their capacity for neurobiological/affect regulation and the importance of coregulation in the work that they do.

Theoretical/Conceptual Framework

Throughout this capstone the terms self regulation, emotional regulation and affect regulation will be used interchangeably to refer to the ability of an individual to "efficiently and effectively modulate physiology, emotion and behavior in the context of shifting situational demands and internal goals" (Kiser et al., 2019, p. 3098). It is increasingly recognized that our capacity for regulating our emotions begins to develop in the earliest relationships that we have with our primary caregivers and that security in this relationship leads to flexible and resilient affect regulation. In contrast, insecurity in this relationship predisposes individuals to a variety of states of dysregulation, including prolonged states of hyperarousal and hypoarousal (Georganda, 2019). Like in the relationship between an infant and their primary attachment, "the therapeutic relationship requires stable, regulating and vitalizing emotional connection in order to establish the psychological and neurobiological conditions for development" (Hill, 2015, p. 4). This capstone will endeavor to explore an understanding of emotional regulation as it is related to interactions between service providers and service users who have experienced trauma through the contributions of regulation theory, attachment theory, Polyvagal theory, and trauma-informed care.

Contribution to the Field

This capstone research project will contribute to the conversation about the importance of service providers' regulation and coregulation in their relationships and interactions with clients involved in systems that provide TIC. Failing to recognize the impact of service providers' states of dysregulation can contribute to the ongoing dysregulation of both clients and service providers within these systems. By supporting service providers to better understand and track their own states of dysregulation when working with traumatized clients, there is the potential to promote resiliency and engagement in their work, improving the quality of the care that they provide to their clients. It is hoped that by highlighting the importance of including a focus on service providers' regulation in trauma-informed care training and providing a psychoeducation format for doing this, that service providers will be equipped with practical tools to understand and support both their own and clients' dysregulation in their day-to-day interactions.

Reflexivity and Positionality Statement

My location within this research is one of privilege. I am a university educated, white, middle class, heterosexual, cis-gendered woman who grew up in a two-parent home with parents who have continued to support me in both my personal and professional goals. My family cared for foster children for the first 20 years of my life and from a young age I had a sense that there were individuals who had lives that were very different from my own. This experience, as well as the privilege of my social location has shaped my views of the world. It provided me with a foundation of confidence and curiosity as I headed out into the world as a young adult. One such experience and the source of an initial spark that would years later ignite this capstone research was working as a child and family counsellor in a community drug treatment team in the Dublin inner city. While I did not recognize it at the time, both the staff and the service users were in various states of dysregulation most of the time. This impacted

both the service users' experiences within the program and also the capacity to support and level of engagement from the staff. In reviewing the literature on vicarious trauma, which is defined as "the negative changes in the helper that result from empathically engaging with and feeling, or being responsible for traumatized clients", this fits with what I was observing in my colleagues (Baker et al., 2018, p. 667). It also describes my own experience in this setting. It was in this job that I had my first experience of professional burnout, and this planted a seed of curiosity within me to understand this experience. With this seed planted, it was my next work experience that provided the fertilization and allowed the seed to germinate, giving me my first exposure to the ideas of trauma-informed care and nervous system regulation.

My first introduction to the idea of nervous system regulation came from a workplace training in an agency where I worked as a Child and Family Counsellor for a non-profit that worked alongside the child protection system. I was flooded by emotion in the training and learned that doing some things with my body could support me to settle and regulate. As I started to seek out more information, I became increasingly aware and connected to what was happening in my body and how this awareness could support me with a range of emotionally intense situations that I was experiencing within my work. I also became aware of how this impacted my interactions with clients. I was fortunate to work alongside colleagues who were interested in sharing what they knew and who supported me in my exploration.

With a growing awareness of my own states of regulation, I started to incorporate these ideas into my work with clients and also my own daily self-care process. Importantly, I came to recognize that self care was more than the traditional strategies that were promoted as part of "practicing self care", which often included eating well, getting enough sleep and exercising. It was what Bush (2015) refers to as the "micro-moments" throughout the day where I noticed and tended to dysregulation in my system that had the greatest impact on both my overall sense of well-being, and also how I was able to engage

and be present with my clients. Geller et al. (2014) suggest that “a therapist’s presence invites the client to feel ‘met’ and understood, as well as safe enough to become present within their own experience, and in relationship with their therapist, allowing for deeper therapeutic work to occur” (p. 179). I began to see the universality of regulation and dysregulation. I noticed states of regulation and dysregulation in both clients and service providers and how they impacted each other within the system that I was working in. As noted by Deb Dana (2018), “Once you understand the role of the autonomic nervous system in shaping our lives, you can never not see it again” (p. xix).

During this period of time, I was also learning about trauma-informed care. Like myself, social workers, foster parents, and others working alongside the foster care system were increasingly focusing on understanding the impact of trauma in our clients. While this trauma-informed lens was helpful in creating an understanding of how trauma impacts client behaviours, it did not seem to change the fact that I was still observing the impact of dysregulated nervous systems in both clients and the professionals there to support them. Leitch’s (2017) observations helped me to understand this. She proposed that on its own, a trauma-informed lens does not always help practitioners to know what to do when dysregulation presents in day-to-day experiences. A deeper understanding of one’s own regulation, and how co-regulation can support these moments seemed to be one of the missing pieces and led me to this capstone topic.

Appreciating the personal and professional interest that has brought me to explore this topic, I acknowledge the temptation that exists to position this research as a simple solution to big challenges within systems that care for traumatized people. While it is beyond the scope of this capstone, I recognize that there are many layers of systemic oppression that contribute to dysregulation in both service users, service providers and the systems within which they interact. Further, I recognize that the individualistic and patriarchal systems within which I live and work has influenced how I conceptualize and explore this topic. In considering the influence of both individual and systemic dysregulation, I

propose that that the two are interrelated. When we do not talk about the impact of service providers' regulation we reinforce the power dynamic that often exists between the service provider and the service user. The service provider is put in a position of power and the problem becomes centered on the client. It is my hope that this capstone research project will further contribute to the conversation about the importance of regulation and coregulation in systems that provide trauma-informed care and highlight the necessity of service providers' awareness of their own regulation in their interactions with clients.

Definition of Terms

ACE study

ACEs is an acronym for Adverse Childhood Experiences. It refers to the outcome of a 1998 study by Felitti et al. that found that people who had experienced adversities such as psychological, physical and/or sexual abuse; witnessing violence; exposure to substance abuse; mental illness; and/or imprisonment of a family member, had a greater likelihood of developing physical and/or mental health difficulties later in life. This included greater chances of developing heart disease, diabetes, obesity, depression, substance abuse and early death.

Affect Regulation Theory

Affect Regulation Theory is a biopsychosocial theory developed by Allan Schore (2005) about how humans regulate their emotions.

Autonomic Nervous System

The ANS is our threat detection system (Porges, 2004). It is always on guard and activates our survival system when needed and at times when we do not. There are two branches in the ANS. The sympathetic nervous system and the parasympathetic nervous system.

Co-Regulation

Feeling connected to others is essential for our survival. Co-regulation is when we connect with others, share emotional experiences, and feel a shared sense of safety.

Dorsal Vagal Response

From Porges' (2011) Polyvagal Theory, the dorsal vagus branch is the most primitive part of the vagus nerve and responds to cues of extreme danger with dissociation and immobilization. The dorsal vagal response takes us out of connection and awareness and into a protective state of collapse and immobility.

Neuroception

From Porges' (2011) Polyvagal Theory, neuroception describes the way that our ANS checks for signs of danger and safety. It is always on and checking for signs of danger and safety. This happens without us even knowing that it is happening. When danger is detected, the sympathetic nervous system is activated. When someone has experienced trauma, they can have faulty neuroception where they detect threat when none is actually present, and the reverse.

Parasympathetic Nervous System (PNS)

The PNS is made up of two pathways of the vagus nerve. The ventral vagal branch, which responds to cues of safety and social connection, and the dorsal vagal branch which responds to cues of extreme danger and takes us into a protective state of freeze or collapse.

Polyvagal Theory

Polyvagal Theory was developed by Stephen Porges (2011). It describes how the threat detection system of our autonomic nervous system works by processing sensory information from our internal and

external environments to assess cues of threat or safety. When safety is detected, a ventral vagal response generates social engagement and feelings of health and wellbeing. When a lack of safety is detected, either a sympathetic nervous system response that activates fight or flight strategies or a dorsal vagal response that activates defense strategies of shutdown are activated (Ossefort-Russell, 2018).

Sympathetic Nervous System (SNS)

The SNS is activated when we perceive a threat or danger, and it prepares us for action. The body releases adrenaline and we prepare for fight or flight in response to danger.

Trauma-Informed Care

Trauma-informed care is an approach to helping people that understands that problem behaviours may be a result of people having had traumatic experiences and not that they are being difficult on purpose. Service providers aim to figure out how to help someone by asking “What happened to you?” instead of “What’s wrong with you?”.

Vagus Nerve

The vagus nerve is part of the parasympathetic nervous system. It is divided into the ventral vagal pathway, which responds to cues of safety, and the dorsal vagal pathway, which responds to cues of extreme danger.

Ventral Vagus nerve

The ventral vagus nerve is the newest part of the ANS. It provides neurobiological foundation for connection. When it is active our attention is focused on connection.

Window of Tolerance

The window of tolerance was first described by Daniel Siegel (1999). It refers to the amount of emotion that a person can handle while still feeling calm. When we are within our window of tolerance, we are able to think clearly, remember information, experience the range of our feelings and plan things for the future. When we are outside our window of tolerance, we become dysregulated and the nervous system's fight/flight/freeze response is activated.

Outline of Capstone Project Chapters

Chapter one has provided an overview of the focus of this capstone research project. It has included the research question and an outline of the purpose statements that will guide the following literature review and has identified the theoretical frameworks that will inform this research. This is followed by a reflectivity and positionality statement acknowledging what the researcher brings to the research and finally a definition of key terms specific to this topic.

Chapter two will highlight a gap in the literature on how we think about the therapeutic relationship in TIC. It will explore an understanding of emotional regulation based on thinking from attachment, affect regulation theory, and polyvagal theory, highlighting the importance of service providers' state of regulation in interactions with clients. This will be followed by a review of the research on self regulation in TIC training and an examination of the prevalence of Adverse Childhood Experiences (ACEs) among service providers. Finally, this chapter will conclude with a look at how the application of polyvagal theory on workplace violence in healthcare has contributed to our understanding of the importance of service providers' regulation. This will lay the foundation for chapter three.

Chapter 3 will propose a psychoeducational format for those who work in systems that are implementing trauma-informed care. It will include a framework for service providers to understand their capacity for regulation and the importance of coregulation in the work they do.

Chapter 2: Literature Review

The following chapter will highlight the gap in thinking about the therapeutic relationship and the impact of service providers' own regulation in trauma-informed care (TIC). The discussion will begin with a look at regulation and coregulation as informed by thinking from attachment, affect regulation and polyvagal theories. It will include an examination of emotional regulation, what it is, how it develops and its role in psychotherapy. This discussion will be followed by a review of the literature on the implementation of TIC. It will highlight a lack of discussion on the role of the service provider and a call for change that has come from a recognition of the influence of the service provider's own state of emotional regulation in their work with clients. This will be followed by a review of the literature on adverse childhood experiences (ACEs), the prevalence of ACEs among service providers and the potential impact on their capacity for coregulation. Finally, this chapter will provide an example of how applying polyvagal theory to workplace violence in healthcare settings has contributed to an understanding of the influence of service providers' own regulation on their ability to coregulate dysregulated clients they are interacting with. This information will inform the discussion in chapter three. Finally, the chapter will conclude with a summary and synthesis of the research that has been presented.

Understanding Regulation and Coregulation

Self-regulation refers to the ability to "efficiently and effectively modulate physiology, emotion and behavior in the context of shifting situational demands and internal goals" (Kiser et al., 2019, p. 3098). It is increasingly recognized that our capacity for emotional regulation begins to develop in the earliest relationships that we have with our primary caregivers. An infant's emotional state is regulated through physical comfort, emotional availability and attunement of their caregiver (Bowlby, 1969 as cited in Perez et al., 2018). With the support of a regulated caregiver, who can monitor and regulate their own internal experiences to match the infant's behaviour, children learn to modulate their

behaviour and their emotions (Kiser et al., 2019). An attuned caregiver moderates the amount of arousal that an infant can tolerate and gradually increases this tolerance with a combination of stimulating and soothing interactions (Sroufe, 1983, as cited in Perez et al., 2018). The expectation that caregivers will be available when needed and that there will be a consistent response to cues and co-regulation of distress leads to the development of a secure attachment (Perez et al., 2018). Through a secure attachment, children "develop adaptive physiological stress responses and regulate emotion, which are critical underpinnings of self-regulation" (Kiser et al., 2019, p.3099). In the absence of this regulating presence, "maladaptive behavioral, emotional and physiological responses" may develop (Kiser et al., 2019, p. 3099).

Affect Regulation (Regulation Theory)

> Affect is at the core of our being, a measure of our heart. It excites and deflates us, connects and distances our relationships with others. It organizes us and undoes us. When affect is regulated, we are at our most adaptive, our most self-possessed, our most engaged, our best… Regulated affect states occur when we feel safe. (Hill, 2015, p. 1)

When our affect is regulated, we are able to access all of our psychological resources. We have access to memories of previous experiences that can guide our actions, we can reflect on our experiences in the moment, and we are able to focus our attention where it is needed. With regulated affect we can adapt to changing demands in our environment and we are available for connections with others (Hill, 2015). In a dysregulated state, we become more rigid and reactive in our thinking, our capacity for flexible and creative thinking is diminished and our availability for connections with others is impacted (Hill, 2015). Allan Schore (2014) proposes that the regulation of affect is essential for psychological wellbeing and optimal functioning. Deficits in affect regulation underly all developmental psychological disorders.

The “window of tolerance”, coined by Daniel Siegel (1999), helps us to understand regulation, dysregulation and the regulation of affect. It represents the range of emotional arousal that we can tolerate before becoming dysregulated. When we are within our window of tolerance, we can be in states of high and low arousal without becoming dysregulated. For example, we can be angry (hyperarousal) without losing our temper or we can be sad (hypoarousal) without becoming depressed. (Hill, 2015). When the level of our affect is greater than our tolerance for hyper- or hypoarousal, “our adaptive capacities are diminished and we become dysregulated” (Hill, 2015, p. 3). Experiencing states of regulation and dysregulation are part of our daily life. Resiliency describes our capacity to return to a regulated state of affect after a stress inducing experience (Cicchetti, 2010 as cited in Hill, 2015).

The capacity to regulate affect develops in our early attachment relationship through patterns of secure and insecure attachment, which impact the development of feelings of safety (Hill, 2015). The experience of a secure attachment leads to resilient affect regulation whereas an experience of insecure attachment predisposed us to states of dysregulated affect (Hill, 2015). Prolonged states of hyperarousal are characteristic of ambivalent/anxious attachment patterns while chaotic patterns of hyperarousal and hypoarousal are characteristic of disorganized/disoriented patterns of attachment (Hill, 2015). Hill further identifies the impact of attachment patterns on regulation. When affect is regulated, the ANS is regulated and develops a window of tolerance for affect. When the ANS is dysregulated, it moves between extremes of hyper- and hypoarousal. Allan Schore’s work further supports an understanding of the development of affect regulation.

Schore (2013) asserts that modern attachment theory that is informed by neurobiology recognizes the essential task of cocreating a secure attachment bond of emotional communication between an infant and their caregiver within the first year of human life (as cited in Schore et al., 2014). Both positive emotional states such as joy and excitement, as well as negative emotional states such as fear and anger, are communicated to the caregiver so that they can regulate them. Through a process of

affect synchronicity both caregiver and infant "adjust their social attention, stimulation and accelerating arousal to each other's responses" (Schore, 2005, p. 206). Through the caregiver's capacity to regulate their own arousal state, while engaging in interactive communication of emotions between themself and their child, the caregiver "acts as an external organizer of the infants biobehavioral regulation" (Schore, 2005, p. 207). The attachment relationship influences the infant's ability to communicate their subjective internal state to another human being and to receive their resonant response. This is the basis for all later social relationships (Schore et al., 2014). "Thus, the major developmental accomplishments of human infancy are the capacity to communicate emotional states, and subsequently the capacity for self-regulation, that is, the ability to auto-regulate emotional states" (Schore et al., 2014, p. 182).

Communication within the attachment relationship does not happen through language or semantics, but rather is nonverbal and emotional. It occurs between the right brain of the infant and the right brain of their primary caregiver. It is not until the middle of the second year of life that the left hemisphere and the speech centers and language areas of the brain come online (Schore et al., 2014). Emotional information is processed by the limbic system and "the autonomic nervous system is responsible for the bodily based/somatic aspects of emotion" (Schore et al., 2014, p. 183). The right brains of the infant and caregiver communicate rapidly through visual, auditory, and tactile cues of the body, including facial expressions, emotional tones, and gestures. This interpersonal transmission of information is often processed too quickly for conscious awareness (Hill, 2015). We use these nonverbal communication skills in our interpersonal relationships for the rest of our lives.

John Bowlby affirms that internal working models of attachment "encode strategies of affect regulation and contain coping mechanisms for maintaining basic regulation and positive affect in the face of stressful environmental challenge" (1988, as cited in Schore et al., 2014, p. 185). The internal working model is beneath conscious awareness and perceives, appraises, and regulates social-emotional

information and guides action in familiar and novel interpersonal environments. Regulation theory proposes that during heightened affective moments, the internal working model of attachment is unconsciously reactivated in the right brain's implicit-procedural memory and re-enacted in the therapeutic relationship (Schore et al., 2014). Schore suggests that developmental attachment studies have a direct relevance to the therapeutic process given "the commonality of nonverbal, intersubjective, implicit right brain-to-right brain emotion transacting and regulating mechanisms" in both the caregiver-infant and the therapist-client relationship (2014, p. 185). Like an attuned caregiver, an attuned clinician tracks not only the verbal content, but also the nonverbal communication beneath the words.

Emotional Regulation in Psychotherapy

Emotional regulation in psychotherapy describes the psychological process by which emotions are amplified, reduced, or maintained (Gratz et al., 2015). Many evidence-based treatments focus on training clients to use skills to support them to regulate their emotions, similar to the group-based TIC interventions that will be discussed later in this chapter. While research has focused on these intrapersonal emotional regulation strategies, emerging research from emotion science and social psychology, such as parent-child dyads and romantic relationships, has suggested that interpersonal relationships "are a default way that individuals regulate their emotions" (Soma et al., 2020, p. 592). Emotional coregulation refers to the idea that an individual's regulation is influenced by both their own internal emotional state, as well as the emotional states of those with whom they are interacting (Butler et al., 2013). Given the close interpersonal nature of psychotherapy, Soma et al. (2020) suggest that a therapist's emotional response may influence how a client regulates their own emotional experience during the interaction and in contrast, a client's emotion may also impact a therapist's emotional experience. While clinical theory suggests that one of the roles of the therapist is to support clients to regulate their emotional arousal, Soma et al. (2020) identify that if and how clients and therapists regulate each other's emotions has not been empirically studied. The authors highlight that the

suggestion that clients and therapists coregulate one another's emotions is consistent with studies such as one by Bryan et al. (2018). This study found a mutual influence between therapist and client arousal. Further studies have found that when therapists match their vocally encoded emotional arousal to that of their clients they are perceived as more empathetic by both the client and an objective observer (Imel et al., 2014). To further understand the idea that coregulation occurs between therapist and clients, Soma et al. (2020) looked at emotional coregulation and examined if and how therapists serve a regulatory function during a psychotherapy session. They tested the hypothesis that "each individual's emotional arousal would be significantly associated with fluctuations in the other's emotional state over the course of a psychotherapy session" (p. 591). The authors highlighted that their results demonstrated a moment-to-moment bidirectional linkage between the emotional experience of both clients and therapists, with evidence of an intrapersonal "oscillatory pattern where both become emotionally aroused, reach maximum arousal level, and return to an emotional set point" (p. 598). Consistent with the roles of the client and the therapist, there were differences in these patterns over time. The therapist's level of arousal started high and decreased over the session, while the client's arousal started low and increased. Differences between clients and therapists were noted in how changes in emotional arousal impacted the other. When their therapist was aroused over time, clients tended to be less aroused, while increases in client arousal were associated with the therapist becoming more aroused over time. Further, after high levels of arousal in their partner, both clients and therapists changed their emotional expression in a way that mirrored interpersonal regulatory processes.

The interconnection between the emotional regulation of a client and therapist can be further understood through the lens of polyvagal theory, which will be outlined in the next section.

Polyvagal Theory

Porges' early work in heart rate variability and his questioning and exploration of how the tone of the vagus nerve could be a marker and a risk factor for newborns led to his development of polyvagal

theory (Dana, 2018). Polyvagal theory offers an understanding of "how the human body and mammalian bodies in general, respond to life threatening situations" and it is based on the evolution of our autonomic nervous system (Porges, n.d., p. 4). It emphasizes the strong link between the autonomic nervous system and behaviour and provides us with insight into how our physiological and behavioural states are influenced by the nervous system's continuous monitoring for cues of risk and safety.

The Autonomic Nervous System

Understanding the Autonomic Nervous System (ANS) is central to understanding polyvagal theory. The ANS is made up of two main branches, the sympathetic nervous system (SNS) and the parasympathetic nervous system (PNS). The ANS responds to signals and sensations through three hierarchical pathways, each with a predictable and ordered pattern of response (Dana, 2018a). According to Porges (2011), these subsystems developed to support adaptive behaviours in response to features of safety, danger, and threat to life in the environment. They are often referred to as "our personal surveillance system", sensing safety and risk "in and around our bodies and in the connections we have to others" (Dana, 2018a, p. 4). The theory's explanation of two defense systems, the fight-or-flight system and the immobilization and dissociation system have been of particular interest to those working with individuals with a trauma history (Geller et al., 2014).

From an evolutionary order of oldest to newest, the three pathways are the dorsal vagus, the sympathetic nervous system, and the ventral vagus (Dana, 2018a). The level of safety determines which system is activated at any particular time (van der Kolk, 2014). In response to cues of danger, the sympathetic nervous system triggers a mobilization response with the release of adrenaline, fuelling the fight or flight response (Porges, 2015; Porges, 2004). The dorsal vagus and the ventral vagus are found in the vagus nerve and are part of the parasympathetic nervous system. The dorsal vagus nerve is the most primitive part of the vagus nerve and responds to cues of extreme danger with dissociation and immobilization (Porges, 2004, 2015). When the fight/flight response of the sympathetic branch has not

successfully returned us to safety, it takes us out of connection and awareness and into a protective state of collapse (Dana, 2018a). The ventral vagus nerve is associated with feelings of safety and social behaviour. It developed during our evolution from ancient reptiles to mammals. It allowed mammals the ability to convey a calm physiological state through facial expressions and voice prosody, linking autonomic regulation and social behaviour (Sanders et al., 2018). The connection between the heart and the face "forms an integrated Social Engagement System that provides and senses signals of safety" (Porges, 2015, p. 118). The ventral vagus inhibits the influence of the sympathetic nervous system on the heart, fostering a calm behavioural state (Porges, 2004). When the vagus nerve is functioning optimally in social interactions, emotions are regulated and calm social engagement behaviours are supported by the autonomic state (Geller et al., 2014).

Neuroception

Porges (2004) coined the term neuroception to describe the nervous system's process of evaluating the environment for safety, danger, and life threat, which happens unconsciously within the brainstem, the primitive part of our brain. "Neuroception is viewed as an adaptive mechanism that can either turn off defenses to engage others or prepare us for defensive strategies associated with either fight-or-flight behaviours or shutdown" (Geller et al., 2014, p. 182). A neuroception of safety or threat is communicated implicitly and explicitly through facial expressions, voice prosody, gestures, and body posture. These signals impact what Porges calls the "brain-heart-face circuit" that exists outside our conscious awareness (Eichhorn, 2015, p.20). It functions to control the range of our social expression, the quality of communication and our accompanying bodily states, including our expression of and recovery from stress (Eichhorn, 2015). When we are in potentially dangerous situations, our social engagement system has the ability to trump the fight or flight response of the SNS. "Similarly, under threatening situations, in which the social engagement system is already offline, the sympathetic nervous system's support for fight or flight responses trump immobilization" (Eichhorn, 2015, p.20).

The Vagal Brake

The vagal brake is another important concept in understanding the regulation of the nervous system. One of the roles of the ventral vagus nerve is to suppress heart rate through its influences on the heart's pacemaker. This is what Polyvagal Theory refers to as a vagal brake. Without this brake, the heart would beat dangerously fast (Porges et al., 2011). Releasing the brake allows us to quickly energize, while reengaging the brake brings a return to calm (Dana, 2018). When the vagal brake is not fully released, the ventral vagal system "allows more sympathetic energy in the system while inhibiting the release of cortisol and adrenaline" (Dana, 2018, p. 29). With the neuroception of danger, the vagal brake is fully released, and the nervous system takes over as it releases cortisol and adrenaline which triggers a fight or flight response (Dana, 2018). "The vagal brake is designed to release and reengage as a way of responding to challenges while still maintaining ventral vagal regulation. Once the autonomic challenge is met, the vagal brake recovers, reengages and returns the system to balance" (Dana, 2018, p. 29). For those who have experienced trauma, this process can be impacted. The ability of their ANS to engage, disengage and reengage can be impaired and their nervous system has been shaped away from connection to protection (Dana, 2018a). According to Dana (2018):

> Trauma influences autonomic regulation, setting in motion a pattern of chronically active defense systems. The result is ongoing distress that alters a person's ability to create and sustain nourishing relationships, which often leads to a lack of social support. In the absence of social support, the autonomic nervous system senses danger and moves further away from connection into protective response. This feedback loop creates the habitual response pattern so often found within clients (p.50).

Cues of Safety and Co-regulation

From the perspective of polyvagal theory, cues of safety from a regulated other are the antidote to dysregulation (Porges & Dana, 2018, p61). Regulation of our emotions and physiology are embedded

in relationship (Geller et al., 2014). The experience of co-regulation, which has been defined "as the bidirectional linkage of oscillating emotions between different partners, contributing to the emotional stability of both", can change the brain (Porges & Dana, 2018, p110). When we face triggers that alert us to danger, connection with another who's physiological state is regulated has the potential to calm us through signals of interpersonal safety from their social engagement system (Tucci et al., 2018). According to Porges (2015):

> Feeling safe requires a unique set of cues to the nervous system that are not equivalent to physical safety or the removal of threat. The theory emphasizes the importance of safety cues emanating through reciprocal social interactions that dampen defense and how these cues can be distorted or optimized by environmental or bodily cues. (p. 114)

There is a bidirectional communication that occurs between nervous systems of individuals in our social environment (Geller et al., 2014). Through activating a sense of safety with a client through their presence, service providers' social and emotional responses to a client can influence their physiological state, downregulating their defensive responses and activating positive social engagement behaviours and supporting growth and restoration (Geller et al., 2014). In order to activate this sense of safety, service providers must have access to their own social engagement system. This can be supported by service providers attuning to their own emotions, body sensations, breathing patterns and images as they interact with their clients (Geller, 2018).

Implementation of Trauma-Informed Care

Trauma-informed care describes an approach to service delivery that seeks to integrate an understanding of the pervasive impact of trauma by incorporating research on trauma into approaches, policies, and practices within systems of care (Baker et al., 2018). It grew out of a recognition that settings that supported trauma survivors were failing to integrate research on the effects of trauma into their approaches, policies, and practices (Baker et al., 2018). TIC recognizes the prevalence of toxic

stress, trauma, and interpersonal violence in the wider community (Beattie et al., 2018a). It acknowledges that both clients and service providers may have experienced trauma and considers the neurophysiological and psychosocial effects of stress, trauma, and violence (Bateman et al., 2013). TIC seeks to understand an individual's behaviour by considering what has happened to them, rather than what is wrong with them, and emphasizes safety and creating opportunities for restoring a sense of control and empowerment (Beattie et al., 2018a).

There has been an increasing focus across service systems to adopt a lens of TIC, with a focus on comprehensive training to help staff understand the purpose of TIC and to develop staff buy-in (Bryson et al., 2017). In a 2017 systematic review of peer-reviewed TIC literature, Bryson et al. noted that training that included psychoeducation on the neurological and behavioural impacts of trauma was highlighted as critical as "it gives staff a common language to use regarding patient experiences and particular trauma-informed interventions to be used with patients" (p. 11). Staff training on TIC largely focuses on the prevalence and impact of trauma; views behaviour as an adaption to trauma; recognizes the relationship as the primary agent of change; provides an ecological and strengths-focused perspective and supports the creation of safe environments that promote control, choice, empowerment, and collaboration (Baker et al., 2018). Baker et al. (2018) suggests that "TIC whole system change relies in large part on changing the attitudes and behavior of the staff, with the ultimate goal being improved client health outcomes" (p. 667). Interestingly, an important, but less commonly emphasized goal of TIC is to improve staff wellbeing by reducing vicarious traumatization. Vicarious trauma is common among helpers and has been linked to increased psychological distress and decreased well-being (Baker et al., 2018). While research on the impact of TIC on clients suggests improved outcomes, the connection between the implementation of TIC and staff well-being has had little attention (Baker et al., 2018).

Missing From the Conversation

In reviewing the literature on the implementation of TIC across group settings such as healthcare, mental health, addiction and criminal justice, discussions on the impact and importance of staff's emotional regulation are often missing from the conversation. If staff are mentioned at all, it is to identify that they benefitted from the change brought about within their clients, or it is to highlight the potential for staff to experience vicarious trauma as a result of working with traumatized populations. An evaluation of the impact of principles of TIC on seclusion and restraint, therapeutic engagement and ward routines in an inpatient mental health ward provides an example of this. The study identified that staff training that combined trauma-informed perspectives and training in de-escalation and physical safety resulted in nursing staff feeling "more confident and motivated to stay engaged therapeutically with consumers who were exhibiting high levels of emotional distress and behavioural disturbance" (Beckett et al., 2017, p. 36). While staffs' increased capacity to stay engaged with distressed patients may have been supported by de-escalation strategies that focused on staffs' own emotional regulation, this information is unknown. Like many other studies on the implementation of TIC, the conversation focuses on improving outcomes by educating staff on the impacts of trauma and teaching regulation skills to clients.

A 2012 study by Ford et al. further highlights this point. The authors reviewed the impact of implementing a group and milieu intervention, Trauma Affect Regulation: Guide for Education and Therapy (TARGET), in three juvenile detention facilities. They reported the positive impact of this intervention on improving safety, reducing punitive sanctions, and reducing the potential of recidivism. Staff were provided with tools to teach the youth in their care to manage their emotions, thoughts and behaviours and increase their capacity to follow the rules and expectations of the detention setting. While the authors highlighted that the skills taught in the program could be beneficial for staff, they stated that staff are "not formally asked or instructed to use the self-regulation skills themselves, but instead, are supported by a TARGET trainer or consultant if they spontaneously chose to apply the skills

for themselves" (Ford et al, 2012, p. 368). Although it was not a direct focus of the TARGET intervention, the study did report that staff identified that the strategies were helpful in responding to their own fearful and angry reactions to youth, suggesting that this reduced their reliance on confrontational disciplinary methods. Interestingly, administrators reported less need for disciplinary actions with staff, reduced staff absenteeism, sick leave and staff turn over. The reports from staff and administration highlight the question of what role did staff members self-regulation have on the outcome of this intervention?

A Call for Change

Before our current understanding of and language to describe trauma-informed care and emotional regulation, a 1994 discussion paper by Kathleen Delaney explored the role of psychiatric nurses in calming an escalated psychiatric children's inpatient unit. Delaney described how nurses regained control of a chaotic milieu by "tightening the structures of the routine, anticipating potential problems and maintaining a confident, calm manner" (1994, p. 5). She identified that when the unit becomes chaotic, children's feelings of anxiety and vulnerability increase as they become preoccupied with safety. They stopped responding to redirection, and "they sense the energy of their peers' emotion and begin to experience it as their own" (p. 5). Delaney suggested that contagion within the group is fueled by anxiety that staff may lose control. Delaney emphasised that they do not gain control by demanding attention, "but by regulating interaction patterns" (p. 8) with strategies that we would now describe as coregulating. This included having a staff member close by and drawing on the strong connection between a child and staff member to support calm. Delaney observed that when staff felt confident, they maintained a calm presentation which reassured the child that the chaos was dissipating. Delaney's article highlighted the role of staff's regulation in this setting almost 30 years ago. Despite this, there has continued to be an absence of a discussion on the importance of staff regulation

in trauma-informed care, although there has been a growing call for this conversation over the past 10 years.

In a 2013 discussion paper, Ford et al. focused on the impact that psychological trauma and PTSD have on youth and staff in residential juvenile justice facilities and staff's ability to achieve safety and rehabilitation goals. The authors proposed a paradigm shift in residential juvenile justice where a key focus of addressing dysregulated thinking and behaviour in youth involved consistent "role modelling of self regulation by adults whose focus is on being in control themselves rather than exerting control over the youth" (p. 673). The authors' highlighted that when staff and the facilities that they work for are under stress due to scarce resources or threats, that they can be trapped in a survival mindset. Punitive and correctional philosophies are understood as defensive survival responses resulting from a system that has become dysregulated "as a result of a combination of vicarious trauma, direct exposure in the line of duty to traumatic stressors, and political and economic pressures, constraints, and (real or perceived) threats" (Ford et al., 2013, p. 668).

In a 2018 discussion paper on relationships in trauma-informed mental health services, Sweeney et al. suggested that at times, the aetiology of a client's behaviour is less important than how it is responded to. They propose that a practitioner's response can "either cause more distress and heighten alarm or can support a lessening of distress and a return to emotional and physiological homeostasis" (p. 327). A randomized controlled trial evaluating the Safewards approach further highlights this idea. The Safewards approach aimed to reduce conflict and containment on a psychiatric in-patient ward through interventions that aimed to improve staff and patient relationships (Bowers et al., 2015). The study highlighted that staff could reduce defensive behaviour, such as aggression, by considering what trauma-related triggers, including their own behaviour, might be contributing to the current situation. Responding to defensive behaviours openly and calmly, rather than mirroring the behaviour, can potentially diffuse the level of arousal through a process of co-regulation. Understanding, moderating,

and managing the fear or triggers driving aggressive responses is an essential component of trauma-informed practice (Sweeney et al., 2018, p.328).

In their 2020 study, Griffing et al. evaluated the feasibility, acceptability, and initial outcomes of a psychoeducational program (EQ2: Empowering Direct Care Staff to Build Trauma-Responsive Communities for Youth). This program was designed to support staff in developing their own social and emotional regulation skills, enabling them to more effectively model and co-regulate the youth in their care. The authors' suggested that trauma-informed interventions often assume that staff already have strong emotional regulation skills and therefore do not specifically focus on them in their interventions. Further, the authors highlighted the need to consider the impact of service providers own histories of early adversity on their care of traumatized individuals. Griffing et al. (2020) proposed that "if direct-care staff have their own histories of adversity, this could affect their ability to create a trauma-responsive environment" (p. 3). They asserted that staffs' emotional regulation skills are essential in creating an environment "in which they can form and maintain nurturing and reparative relationships with youth, because self-regulation skills necessarily precede co-regulation skills" (Griffing et al., 2020, p. 4). Further, they proposed that in addition to creating a more trauma-informed community, building staffs' self-regulation skills promotes resilience and reduces burnout, which has been well documented in staff providing care to traumatized individuals (Middleton et al., 2015). Results of the Griffing et al. (2020) study revealed that staff identified that the program helped them to develop an understanding of their own emotional response and those of the youth that they work with. In addition, they identified that the program influenced the way in which they respond in crisis situations. Although there are limitations to the generalizability of this study, including a small sample size, differences in implementation across sites and the absence of an objective measure of behavioural change, it provides a valuable contribution to the conversation about coregulation in the implementation of trauma-informed care. It both identifies the importance of staffs' own regulation in their work with traumatized

clients and explores an intervention that was aimed at increasing staff's understanding of their own emotional response in the dynamics of their work.

Adverse Childhood Experiences (ACEs)

The adverse childhood experiences (ACEs) study informed our understanding of the relationship between ACEs and the health and wellbeing of adults. The 1998 study by Felitti et al. examined a variety of early adverse childhood experiences including psychological, physical and/or sexual abuse; imprisonment of a family member; and exposure to violence, substance abuse and/or mental health. Results found that 52% of respondents had experienced more than one ACE and 6.2% had experienced more than four ACEs. The authors identified that as the number of ACEs increased, so did the prevalence and risk for smoking and obesity, substance abuse, and mental health difficulties (Felitti et al., 1998). It has been recognized that exposure to ACEs can result in biological changes in brain development and stress responses which are highly associated with mental health conditions (Forkey et al., 2014). Further, exposure to childhood adversities has been "increasingly recognized as a predictor of interpersonal difficulties across the lifespan" (Poole et al., 2018, p. 123). Garland et al. (2019) highlight that the adaptive emotional regulation capacity, in the form of adaptive coping, may be less likely to develop in individuals who have experienced childhood adversity. This may disrupt the capacity to regulate negative emotions and impact interpersonal relationships due to difficulties in both displaying appropriate social cues and interpreting others' social cues (Fischer et al., 2008 as cited in Rojas, 2021). A 2018 study by Poole et al. examined both the individual and cumulative effects "of a wide range of ACEs on interpersonal difficulties and the role of emotion dysregulation as a mediator of the association between ACEs and interpersonal difficulties" (p. 128). The authors suggested that emotional regulation influences interpersonal interactions indirectly, as the ability to regulate emotions "assists in the interpretation of internal and social cues", guides social behaviour, conveys information about others' intentions and influences social interactions (Poole et al., 2018, p. 124). Results of the study reported

that 70% of respondents reported a history of at least one type of ACE, while 20% reported four or more. Further, “experiences of childhood adversity were positively associated with interpersonal difficulties in adulthood” and those ACEs that were emotional in nature (such as emotional abuse or neglect) explained more variability in interpersonal difficulties” (Poole et al., 2018, p. 129). Limitations of this study included the potential of response bias and self-selection bias. The study exclusively used self-report data and there was no data collected on the participants who were approached and not interested in the study or started the study, but did not complete it (Poole et al., 2018). As a result, the authors identified that it was not possible to assess whether there were relevant factors that impacted study results such as demographics, ACEs, emotional dysregulation or interpersonal problems (Poole et al., 2018).

Prevalence of ACEs Among Service Providers

Although there is a growing recognition of the prevalence of trauma in the general population, little is known about the incidence of ACEs among service providers (Esaki et al., 2013). Given the potential impact that ACEs have on interpersonal relationships that was highlighted in the previous section and the important role that relationship plays in trauma-informed care, it is important to consider the prevalence of ACEs among those who provide support within systems of care.

Studies on the selection of social work as a profession have “demonstrated associations between early life trauma, as well as frequency of adversity (e.g., familial substance abuse)” (Keesler, 2018, p. 121). A study on the prevalence of ACEs among Master of Social Work students reported the presence of at least one ACE in 80% of students, while 42% reported that they had experienced four or more ACEs (Thomas, 2016). Bloom and Farragher (2010) reported that more than “80% of their residential staff experienced some form of childhood adversity” (Keesler, 2018, p. 121) and results of a 2013 study by Esaki et al. reported that 70% of staff in residential, educational and day treatment programs within a child welfare agency serving at risk youth had a history of ACEs, although results of

this study are limited by the reliance on participants self report, a low response rate and its single agency sample. Esaki et al. (2013) suggested that a history of ACEs may impact staffs' capacity to manage stress and their responses in highly charged situations. These findings are consistent with a study by Keesler (2018) that looked at ACEs among direct support professionals supporting individuals with intellectual and special needs. The authors reported that 75% of those surveyed had at least one ACE and 30% had four or more. When compared to a 2010 study by the Center for Disease Control (CDC), the results of these studies suggest a higher prevalence of ACEs among those working in human services. The CDC study reported that 59.4% of those surveyed in a five-state population study in the United Stated reported that they had experienced at least one ACE (Ridings et al., 2010).

As it is recognized that the prevalence of ACEs may impact the development of self-regulation skills, including managing one's emotions, cognitions and behaviours, the implications of the impact of higher ACEs among human services providers warrants further exploration (Griffing et al., 2020). Service providers' own history of adversity may impact their ability to work in a trauma-responsive environment and respond to challenging behaviours (Griffing et al., 2020). Further, "If staff struggle to manage challenging behaviors, it can inadvertently lead to environments that perpetuate cycles of victimization and re-traumatization" (Pickens, 2016 as cited by Griffing et al., 2020, p. 2). When service providers are supported to build their own emotional regulation skills, they can be proactive in monitoring their own reactions in highly charged situations, supporting them to create environments in which they can develop and maintain nurturing and reparative relationships with their clients (Griffing et al., 2020).

Applying Polyvagal Theory to TIC

A 2018 study on healthcare and workplace violence further highlights the growing focus on developing a greater understanding of service providers' states of regulation in their interactions with service users. In this exploratory study, Beattie et al. (2018b) examined the neurobiological response

that healthcare workers experienced when they were exposed to violence from clients, with the view of using this information to support the development of future training and self care strategies for staff well-being. The authors recognized that “there is a gap in understanding workers’ innate neurobiological response to workplace violence, and how to prepare staff to recognize the professional and self-care implications of such a response” (p.42). In this study, participants were interviewed about their experiences of workplace violence and aggression in community and hospital-based healthcare settings, such as mental health, community outreach and the emergency department. An inductive thematic analysis was conducted of the interviews, followed by a secondary analysis which endeavored to explore the body’s neurobiological response to threat as informed by polyvagal theory and the defense cascade. The defense cascade refers to the idea that “evolution has endowed all humans with a continuum of innate, hard-wired, automatically activated defense behaviour” (Kozlowska et al., 2015, p. 263).

The study highlighted that when healthcare workers experience a perception of a threat to their safety or survival, “a neurobiological state of arousal occurs, activating the SNS and PNS polyvagal stress response (fight, flight, or freeze). Thus, the emotional and survival parts of the brain ‘high jack’ cognitive, emotional, and behavioural regulation and control, which affects decision making ability” (Beattie et al. (2018b, p. 47). This can increase workers reactivity, impacting their ability to accurately assess their patients needs and regulate their response. The study emphasized the importance of staff training needed to support participants in the early recognition of “their own physiological symptoms of fight/flight/freeze, while they still have the capacity for emotional and behavioural regulation” (Beattie et al, 2018b, p. 47). Further, they call for organizations to implement evidence-based strategies such as designing a welcoming and safe environment for both consumers and staff. They propose that the experience of safe environments reduces activation of the neurobiological defense response (fight/flight/freeze) and that both patients and staff “unconsciously assess safety through the actions,

speech, and faces of others, which contribute to an individual and/or situation being perceived as safe or trustworthy" (Porges, 2003 as cited in Beattie et al, 2018b, p. 47).

Another study on workplace violence (WPV) perpetuated by healthcare clients provides an example of how a greater understanding of trauma-informed care and the neuroscience of threat is informing work to reduce violence in those settings (Beattie et al., 2018a). The results of this study also highlighted that there is still work to be done to support service providers to understand these ideas. In this study, directors and managers who were responsible for the prevention and management of WPV and direct staff who had experienced WPV by clients were interviewed. An inductive thematic analysis of the data described the guidance that healthcare staff sought for WPV, and a secondary analysis of the data was conducted, informed by understanding of ACE, polyvagal theory, and trauma-informed care. This framework was used to increase understanding of "trauma and the nervous system's defense response to threats to clients' physiological and psychological safety with a view to informing policy and practice related to WPV" (p. 119). Themes related to the sources of WPV included client stress and frustration, previous client trauma, and the impact of care provision on client violence and aggression. Discussions within these themes included acknowledging that client stress can trigger workplace violence, with approximately 4% of those surveyed recognizing that clients may exhibit neurophysiological defensive fight or flight responses when they are frustrated, stressed and in an unfamiliar environment. "One-third of participants recognised that clients who inflict WPV are not only highly stressed, but many have a history of trauma" (Beattie et al., 2018a, p. 120). The study highlighted that some participants perceived that a majority of incidents were unexpected. When examined from the lens of polyvagal theory, it is suggested that early and subtle signs of increasing agitation may have been missed. When responding to threat, the autonomic nervous system reacts in a hierarchy, starting with attempts at social engagement and communication, which may have been missed, through to fight or flight mobilization behaviours (Beattie et al., 2018a). The authors highlighted the power of staff

members' words and demeanour to defuse tension and the importance of being attuned to their own tone of voice, choice of words and body language in responding to clients. "When the staff member is fully present, paying attention and listening with an open physical posture, soft facial expression, eye contact and speaking softer and slower" they are "in a state of social engagement with decreased SNS activation" (Beattie et al., 2018a, p. 122). From this calm state, interactions with clients are more likely to result in their ability to coregulate the client's neurophysiology to a more socially engaged state (Porges, 2015).

Summary and Synthesis

In summary, this chapter has provided an understanding of emotional regulation within the therapeutic relationship, as informed by attachment, affect regulation and polyvagal theories. It has emphasized the importance of regulation and coregulation in psychotherapy, as highlighted by research that suggests that we primarily rely on interpersonal relationships to regulate our emotions (Soma et al., 2020). In reviewing the literature on training in TIC, it has been highlighted that this training has traditionally focused on understanding trauma, it's impact on clients and teaching clients' skills to regulate their emotions. Missing from this conversation has been a focus on service providers' own state of regulation and its impact and influence on dysregulation in their clients. Griffing et al. (2020) proposed that this is because there is an assumption that service providers already have a strong capacity to regulate their emotions. This assumption may be influenced by a systemic bias that presumes that service providers come from a certain background that precludes them from factors that influence the capacity for emotional regulation. Research on the prevalence of ACEs amongst service providers suggests that, like their clients, providers may struggle with emotional regulation as a result of early adversity. Studies highlight a greater prevalence of ACEs among service providers, as compared to the general public, although limitations in the research including small sample sizes, response and self-selection bias and the possibility of underreporting may impact the validity of results (Esaki et al., 2013;

Felitti et al., 1998; Keesler et al., 2018). Exposure to early adversity has been a predictor of interpersonal difficulties across the lifespan and can impact our capacity to regulate our emotions (Poole et al., 2018). Further, emotional regulation influences our interpersonal interactions. It assists with the interpretation of internal and social cues and guides our social behaviour and conveys information about others' intentions (Poole et al., 2018). When considering the impact on service delivery, a history of early adversity is a predictor of service providers' burnout and vicarious trauma; it may impact their ability to manage stress and respond to emotionally charged situations; and most importantly, "if staff struggle to manage challenging behaviors, it can inadvertently lead to environments that perpetuate cycles of victimization and re-traumatization" (Pickens, 2016 as cited in Griffing et al., 2020, p.2). When service providers are supported to increase their own capacity for emotional and behavioural regulation, they may be better able to monitor their own reactions in highly charged situations. This can decrease reflexive, impulsive, and over- or under-emotional responses to their clients and increase their capacity for empathy and engagement (Ford et al., 2013). Further, when service providers are in a regulated state, they are better able to support regulation in their clients through co-regulation. To address the gap in TIC training, the following chapter will outline a proposal for a 3-hour psychoeducational workshop that aims to support service providers in understanding their own regulation. This will include monitoring their state of regulation, identifying triggers and highlighting both self-regulation and co-regulation strategies to increase their capacity to be calm, aware and present even in the most stressful situations.

Limitations

The findings of this research project may be influenced by the writer's perceptions and interpretations of what she was seeing and experiencing in systems that care for traumatized people. The writer may be biased towards seeking research that supports both her understanding of dysregulation and her hypotheses for this research project. This may have excluded research that did

not support or perhaps better explain her hypotheses. While awareness can help to address this bias, it does not eliminate it. In addition, the writer's interest in polyvagal theory has influenced the focus of this capstone and there may be other theories that better support an understanding of regulation and dysregulation.

While the focus of this capstone explores the importance of service providers regulation, the influence of this can not be considered separate from the impact of issues within the systems in which they work. This includes, but is not limited to, bureaucratic constraints, the availability of resources, organizational culture and the influence of work environments, including the presence or absence of supportive supervision and coworkers. Given the lack of resources within systems that care for people who have experienced trauma, it is unknown whether this may have a greater impact on service providers capacity to regulate within stressful work environments. Further, there is a risk that research on the impact of service providers' experience may center the problem on the individual, without considering the oppressive and patriarchal nature of systems of care and the impact on service providers.

With regards to the research that examines the presence and impact of early adversity on service providers, there is still much that is unknown. This includes what the impact is, whether they have addressed it and what specific workplace interventions are needed to further support them (Griffing et al., 2020).

Chapter 3: Discussion, Workshop and Conclusions

As has been highlighted in the previous chapter, training in TIC has traditionally assumed that staff have a strong capacity for emotional and behavioural regulation. As a result, a focus on staff's own regulation has often been missing in these trainings. Given the vital role that relationship and co-regulation plays in working with traumatized people, and the potential impact that difficulties with emotional and behavioural regulation can have on the capacity to build relationships, it is vital that TIC training includes an emphasis on supporting staff to increase their capacity in these areas. Further, by supporting service providers to understand and increase their capacity for self-regulation, they are better able to support their clients through co-regulation. Not only is this essential for those who are engaged in direct clinical work, but it is also essential for all support roles within systems that interact and care for those who have experienced trauma. In a 2018 study, Keesler highlighted that it is often those who provide direct day to day care who have minimal levels of education and experience. To address this gap identified in TIC training, it is proposed that staff receive training to understand their own state of regulation. This is the starting point for understanding dysregulation in their clients and the influence of the two on each other. When service providers are able to attune to and monitor their own state of regulation, they can increase their capacity to be calm, aware and present even in the most stressful situations. Further, it supports their capacity to be responsive to the needs of their clients while also supporting their own regulation needs and possibly reducing their own experiences of overwhelm and burnout.

The following chapter will outline a proposal for a 3-hour psychoeducational workshop that aims to introduce service providers to the importance of being aware of their own state of regulation during interactions with clients, support them to notice when they are becoming dysregulated, and identify strategies that they can use moment to moment as they move through their day as well as those that

can support them overall to build a greater capacity for regulating. This discussion will include an outline of who the training is targeted at, the desired outcomes of the training, and an outline of the session.

Workshop Outline

Workshop Title

Understanding and regulating your nervous system

Overview:

This 3-hour, experiential workshop will support participants in increasing their capacity to be calm, aware, and present even in the most stressful situations. It will include a psychoeducation component based on an understanding of nervous system regulation as informed by Stephen Porges' polyvagal theory. It will include a focus on the neurobiology of regulation and the window of tolerance. Participants will be supported to identify and understand their own states of regulation, and increase their capacity for emotional and behavioural regulation, thus promoting greater resiliency and enhancing their ability to engage with clients in a meaningful way. Participants will be encouraged to build awareness through self monitoring and will have an opportunity to explore practical strategies to increase their capacity for affective and behavioural regulation. The format of this group will combine information sharing, reflective exercises and experiential learning opportunities and be guided by concepts from adult learning.

Goals of workshop

-To increase staff's capacity for emotional and behavioural regulation by introducing them to the neurobiology of nervous system regulation, including the neuroception of safety, window of tolerance and activating the social engagement system.

-To support participants to identify their state of nervous system activation and increase their capacity to self-regulate.

-To support participants to understand their triggers that lead to dysregulation and support them to identify and enhance their self-regulation skills.

-To support participants to identify how they can create a neuroception of safety and the social engagement system to co-regulate their clients.

Target Audience

-This workshop is for any individual who works within a setting that supports people who have experienced trauma, regardless of their role. This includes but is not limited to those working within healthcare services, substance abuse and mental health settings, criminal justice, and therapeutic foster care environments.

-This training recognizes the importance of supervisors and administrators participating alongside frontline staff as they can be powerful sources of modelling and reinforcement for staff as they respond to stress and challenges in their work. When management consistently sets an example and encourages self-regulation amongst their staff, they can increase their staff's capacity to manage the potentially dysregulating nature of their work (Ford et al., 2013).

-This training would be conducted in person with 15-20 participants. An effort will be made to have participants from similar work environments grouped together to allow for opportunities to develop a supportive work environment from which to apply the learning. For example, groupings such as healthcare workers, foster parents, social workers in the child protection system, etc.

Considerations for Implementation

Oftentimes settings with staff who work with individuals who have experienced trauma are busy, under-resourced and stressed. There are many demands on staff's time, and it can be difficult to find time to pause during the workday. Further, training that focuses on staff's experiences in these settings often focuses on self-care strategies such as such as exercise, sleep, healthy eating, yoga, and social connection. Bush (2015) refers to these as "macro-strategies". While these are each important for overall wellness, they do not address the moment-to-moment dysregulation that occurs while working within stressful environments. Part of the focus of this training will be on the self-regulation strategies that participants can use in micro-moments throughout the day. For example, this could include taking a moment to notice their nervous system state and supporting self-regulation by taking a few slow deep breathes or slowing down their pace as they walk down the hall or noticing the feeling on the bottom of their feet to name a few. An effort will be made to highlight the small efforts that can bring a moment of regulation.

-While this workshop has been planned as a three-hour session, it has been structured so that it can be broken down into three 1-hour modules. Part 1 and 2 can be done as two 1-hour modules and parts 3 & 4 can be combined for the third 1-hour module. Facilitating this workshop in three 1-hour modules may provide an increased opportunity for participants to reflect on and integrate the information between sessions and deepen their learning. This consideration should be balanced by the potential of participants dropping out over the three modules given workplace time demands.

-Learning may be enhanced by developing worksheets and using video clips to supplement the learning in this workshop.

-It is recommended that this workshop is facilitated by a therapist or facilitator who has clinical experience working with individuals who have experienced trauma.

Session Outline

Part 1: Understanding the ANS, Neuroception and the Window of Tolerance

- The ANS is our personal surveillance system and is always asking the question "Is this safe?". It senses safety and risk by listening to what is happening in and around our bodies and in the connection we have with others (Dana, 2018). It is made up of the sympathetic and the parasympathetic branches and responds to signals and sensations through three pathways, each with a characteristic pattern of response (Dana, 2018a).
    - *Sympathetic branch*- This responds to cues of danger (a neuroception of danger) and triggers our fight or flight response. When this state is activated, we may feel mobilized, agitated or frantic. Our heart rate speeds up, and our breath becomes shorter and shallower. We may experience anxiety, panic attacks, anger, difficulties focusing or following through on tasks, and distress in our relationships. When we are in this state, we are in a state of hyperarousal.
    - *Parasympathetic branch*- contains two pathways within the vagus nerve, the ventral vagal and dorsal vagal pathways.
        - The *ventral vagal pathway* responds to cues of safety and supports social connection. In this state our social engagement system is active. Our heart rate and breathing are regulated, and we can tune in and engage in conversations with others. We feel safe, calm, connected and social. When in this state, our daily living experiences can include being organized, following through with plans, self-care, playfulness, engaging socially with others and an overall sense of well-being.
        - The *dorsal vagal pathway* responds to cues of extreme danger. It takes us out of social connection and awareness and into a protective state of collapse when we feel like we're trapped or can't escape danger. We shut down to survive. When we are here, we can feel frozen or numb. When we are in this state we are in a state of

hypoarousal. Some of our daily life experiences can include dissociation, memory problems, depression, isolation and a lack of energy for daily tasks.

- *Neuroception*- this is the way that the NS reads cues that tell us whether it should move into connection or protection. This happens below our conscious awareness. The level of safety determines which branch of the ANS is activated. A neuroception of safety inhibits our defense systems and supports our ability to engage with others through eye contact, facial expressions and voice prosody (Ogden, 2018). A neuroception of danger can move us from a state of connection to protection. Taking action can help us return to a safe and social state. Information is gathered through three streams (Dana, 2018):
    - Inside (the body through neuroception)
    - Outside (in the environment)
    - Between (between nervous systems)
- *Hierarchy*- we move in and out of ventral vagal, sympathetic activation and dorsal collapse in predictable ways, many times throughout the day. When we feel threatened, we first turn to the social engagement of the ventral vagal system (van der Kolk, 2014). If no one comes to our aid or we're in immediate danger, our sympathetic response is activated, and we are mobilized into fight or flight. If this response fails the dorsal vagal pathway supports preservation by shutting down and expending as little energy as possible.
- *Window of Tolerance*- The window of tolerance was first described by Daniel Siegel (1999). It refers to the amount of emotion that a person can handle while still feeling calm. When we are within our window of tolerance, we are able to think clearly, remember information, experience the range of our feelings and plan things for the future. When we are outside our window of tolerance, we become dysregulated and the nervous system's fight/flight/freeze response is activated.

- Note to facilitator- this section is very information dense. Participants' learning can be supplemented through the use of visuals including video clips and worksheets that illustrate the concepts and can be found in the literature.

Part 2: Exploring the different states of your nervous system

The focus of this next section is to support participants to gain a deeper understanding of nervous system regulation and the responses of their ANS through a series of experiential exercises. Bessel van der Kolk (2014) suggests that simply noticing our inner experiences "helps us shift our perspective and open up options other than our automatic, habitual reactions" (p. 210). The goal is to help participants think about how their states of regulation shift and change and to notice how each state feels in their body (Dana, 2018). This awareness is an important step in tuning into and tracking their own experiences. Participants will be prompted to think about an experience that has activated parasympathetic and sympathetic responses. They will visualize the experience and notice sensory cues such as breathing, muscle tension, posture, and body sensations and how their experience in each state impacts their thinking and connections with others. As engaging in this experiential work can be stirring for participants, it is recommended to begin with exploring the sympathetic fight-flight response before moving to the dorsal vagal response and then finish with the social engagement of the ventral vagal pathway (Dana, 2018).

- Notes for the facilitator:
    - The use of art materials can provide participants with an additional way to explore and express their experiences during these exercises. Have paper and colored markers available.
- Directions for participants
    - *Exploring the sympathetic nervous system*-(Sample scripts are provided): "Think about a time when you felt stressed, anxious or overwhelmed. Maybe you felt a sense of irritation or

anger. Spend a few moments remembering that experience. As you sink into the memory of that experience, notice what you felt in your body. How was your thinking impacted? What did you do in response to that experience? How did it feel to interact with people around you?"

- Use the materials provided to create a picture of that experience using words or images. As you bring this experience to mind, chose a color that represents the experience. On a piece of paper, make note of what this experience is like. What are you feeling? What thoughts are you having? What do you notice in your body? What do you do in response? How is your social behaviour impacted?
- *Exploring the Dorsal Vagal Response*- "Think of a time when you felt extreme stress or overwhelmed. Maybe you felt depressed, and it was hard to get through daily tasks. Or there was a feeling of numbness and disconnection from the world. Let enough of this experience into your memory to allow you to notice how it felt in your body. How was your thinking impacted? What did you do in response to that experience? How did it feel to interact with people around you?"
- As previously, use the materials provided to create a picture of that experience using words or images. As you bring this experience to mind, choose a color that best represents the experience. On a piece of paper, make note of what this experience is like. What are you feeling? What thoughts are you having? What do you notice in your body? What do you do in response? How is your social behaviour impacted?
- After exploring the dorsal vagal response, you may notice this energy remaining in your body. Take a moment to take a few breaths and move your body. Perhaps look around the room for a friendly face.

  - *Exploring ventral vagal*- "Think about a time when you felt relaxed, calm and grounded. Perhaps you had a sense that everything felt okay, and you had an overall sense of well-being. Maybe you felt a sense of compassion and connection to those around you. Imagine that you are in that experience right now. As you sink into the memory of that experience, notice what you felt in your body. How was your thinking impacted? What did you do in response to that experience? How did it feel to interact with people around you?"
  - "As previously, use the materials provided to create a picture of that experience using words or images. As you bring this experience to mind, choose a color that best represents the experience. On a piece of paper, make note of what this experience is like. What are you feeling? What thoughts are you having? What do you notice in your body? What do you do in response? How is your social behaviour impacted?"
- *Reviewing your experience*- in groups of 2 or 3, participants are invited to share what they experienced in each of the ANS states. Participants are reminded to only share what they are comfortable sharing. Perhaps they prefer to describe their experience in each of the states but keep the details of the situation private. Invite each participant to take the role of listener and sharer.
  - *As the sharer*- "Describe to your partner what your experiences were in each state. Is there one state that is more present in your daily life? Which state are you currently in? Can you identify moments in your work week where you move from one state to another?"
  - *As the listener*-your role is to offer ventral vagal connection through a warm voice, soft eyes, and curiosity and compassion.
- Coming together in the larger group, invite participants to share what they learned.
- Note for facilitator- depending on the energy and sense of safety in the group, you can review the experience of exploring each state as a large group. This could be done as a group conversation or participants can be invited to write responses to the reflection questions on sticky notes and add

them to poster paper for each state. The group facilitator would then review them with the larger group.

Part 3: Identifying Your Triggers and Resources

Once participants have gained an understanding of their ANS and have had some experience identifying their autonomic states, the next step in the process is to learn to track response patterns, recognize their triggers and identify resources that support them to regulate (Dana, 2018). This exercise brings our attention to what happens in our body, in our environment and in our relationships that influences shifts in our autonomic state (Dana, 2018).

Dana (2018) defined triggers as "cues of danger that activate sympathetic and dorsal vagal defense" (p. 67). Resources refers to the ways that we come back into a regulated state. Dana (2018) emphasized the importance of recognizing both our triggers and the moments where we are regulated as our brain has a built-in negativity bias and we can get caught in a loop of focusing on dysregulation. Recognizing the resources that support regulation helps us to bring calm to our nervous system. Even when moments of regulation are only experienced in micro-moments, it can build enduring resources (Kok et al., 2013).

- Note to facilitator- For this exercise, start with the triggers first as they are often easiest to identify. As with the previous exercises, have coloured markers available for participants to use.
- Sample script: "The triggers and resources exercise brings your attention to what happens in your body, in your environment and in your relationships that create shifts in your autonomic state. To begin, consider which survival state (dorsal vagal or sympathetic) is easiest to identify and start there. Once you have explored those states, do the same for the ventral vagal state. You may find it helpful to refer to the previous explorations of your ANS states or consider a recent experience in each of these states to guide this process."

- Start with the question “What brings me here?”. e.g., I move into this state when I feel _____. Then consider the concrete situations that lead to this. Ask the question, “How exactly does this happen?”. Examples:
    - Sympathetic fight-flight: “I move into sympathetic fight-flight when I feel ignored. This happens when someone turns away from me during a conversation.”
    - Dorsal vagal collapse: “I move into dorsal vagal collapse when I feel unwanted. This happens when my colleagues are having a conversation and exclude me.”
    - Ventral vagal response: “I move into a ventral vagal state when I feel seen. This happens I’m talking with my colleague, and they are looking at me, smiling and interested in what I have to say.”
- *Reviewing your triggers and resources*- as before, in groups of 2 or 3, invite participants to share their learning from this exercise. Remind them to share only what they are comfortable with sharing.
    - *As the sharer*- “What did you notice about how you respond in different situations? Were there any sensitivities that you noticed? What did you learn about yourself? Are there circumstances where you are more sensitive to a neuroception of danger in some setting? E.g., Workplace demands? Stress in personal life?”

Part 4: Identifying and increasing your capacity for regulation.

This exercise highlights our patterns of regulation. Participants are invited to identify what moves them out of dorsal vagal and sympathetic states and the actions that support them to maintain a ventral vagal state (Dana, 2018).

- Notes for facilitator:
- This exercise builds on the previous ones and introduces participants to two categories of regulation. I*nteractive regulation*, refers to things that you can do with others and *self*-

regulation refers to things I can do on my own. Examples of interactive strategies include talking or texting with a friend, going for a walk with a friend, doing a group activity with others or being with someone without talking. Examples of self-regulation strategies include listening to music, engaging in a hobby, exercise, taking a few slow, deep breaths, noticing something beautiful in nature, etc.

- As participants are completing this exercise, two different colours can be used for each state, one for interactive regulation strategies and one for self-regulation strategies. As with the previous exercises, participants are invited to start with whichever survival state is easiest to identify. Once they have completed both survival states, they finish with the ventral vagal state.
- Directions for participants:
- "For this exercise, consider both the interactive and self-regulation strategies that can lead you from a sympathetic or dorsal vagal state back into a ventral vagal state. Use two different colours to distinguish between the interactive and self-regulation strategies that you use. Notice both the resources that you already use and the areas where your resources are scarce. Remember that highlighting areas where your resources are scarce provides an opportunity to create new resources. Identifying what helps you stay in a ventral vagal state of connection strengthens your capacity to maintain regulation."

- *Reviewing your experience*- in groups of 2 or 3, participants are invited to share what they learned about the interactive and self-regulation strategies that support them to return to the ventral vagal state or maintain a ventral vagal state. "What are the areas where you need to develop additional resources?"
- Coming together as a large group, invite participants to share what they've learned. As participants share the strategies that they use, create a group list of the interactive and self-regulation strategies that are shared.

- *Integrating the learning*- invite participants to identify how they can incorporate the learning from this workshop into their daily life. What strategies will they continue to focus on and what ones will they add to what they are already doing?

Capstone Summary and Conclusions

My own experiences working within systems that care for people who have experienced trauma, as well as my observations of both clients and service providers inspired the topic for this capstone. The purpose of this capstone was to consider the question: Why is the service provider's own state of regulation an essential component of training in trauma-informed care? This capstone identified that there is often an assumption that service providers already have strong emotional regulation skills and therefore training in TIC does not need to focus on this. This may be due to systemic biases that presume that service providers come from certain backgrounds that preclude them from factors that influence the capacity for emotional regulation. A review of the literature highlighted the impact of ACEs on the ability to regulate emotions and the influence on social interactions. It was identified that little is know about the prevalence of ACEs amongst service providers. The existing literature suggests that there is a higher prevalence of early adversity in service providers compared to the general population. It was suggested that service providers own history of adversity may impact their ability to work in trauma-responsive environments (Griffing et al., 2020). The literature reviewed highlighted that when service providers are supported to increase their own capacity for emotional regulation they may be better equipped to response to highly charged situations, create and maintain a nurturing and reparative relationship with their clients. This was further emphasised in reviewing literature on the application of polyvagal theory to TIC, which proposed that having a neurobiological understanding of emotional and behavioural arousal supports staff to recognize their own physiological symptoms of fight/flight/freeze while they still have the capacity for regulation (Beattie et al., 2018b). When they are supported to regulate their own arousal, staff may have a greater capacity from which to coregulate

their clients (Porges, 2015). To address the highlighted gap in TIC training, the final section of this capstone outlined a proposal for a 3-hour psychoeducational workshop that aims to support service providers in understanding their own regulation, as informed by polyvagal theory. It is hoped that this workshop would be a resource to service providers in both clinical and non-clinical roles within systems that care for people who have experienced trauma.

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