

Dublin Business School
Department of Psychotherapy

Pierpaolo Paparo

**The Integrative Power of Embedded Relational Mindfulness for the Treatment of
Trauma**

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Counselling and Psychotherapy.**

Supervisor: Siobáin O'Donnell

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Abstract

Embedded Relational Mindfulness (ERM) is a therapeutic map used in sensorimotor psychotherapy that sets guidelines for the use of mindfulness in a therapeutic relationship. While ERM is a general map valid for the use of mindfulness in any therapeutic encounter, this thesis will focus on its application for trauma treatment. The essay grounded ERM's two driving principles, mindfulness and relationship, within the theoretical framework of polyvagal theory, the triune brain model and interpersonal neurobiology. It concluded that integration, defined as the principle which connects different and specialized parts into a functional whole, seems to be the common important factor for successful therapy. Integration among the reptilian, limbic and prefrontal cortex; integration of the social engagement system, the sympathetic system and the dorsal vagal nerve; integration of mind, brain and relationships; tend to move the client toward mental health. Further research could investigate how to expand integration further. Psychotherapy could be coupled, outside the therapeutic encounter, with more hands-on techniques aimed at improving the physiology of the social engagement system. Another way to expand the integrative work could be a new definition of the body, which could extend the body boundaries beyond the physical limits of the skin. This can allow for theories that can integrate spirituality into the therapeutic process.

Keywords: mindfulness, therapeutic relation, polyvagal theory, triune brain, sensorimotor, interpersonal neurobiology, mind, integration, trauma, body therapy

Chapter 1: INTRODUCTION

This thesis sets out to focus on the work of Pat Ogden on Embedded Relational Mindfulness (Ogden, 2015b, 2015a; Ogden, Minton, & Pain, 2006). It will define and describe this concept and it will give a theoretical background for its use in therapy. It will also explain why it is important to use a mindfulness-based approach in conjunction with more traditional cognitive and affect-based therapeutic interventions.

The name “Embedded Relational Mindfulness” (ERM) was introduced in the context of sensorimotor therapy, but its principles and techniques are borrowed directly from the Hakomi method of Ron Kurtz (1990). This is a specific approach to mindfulness that can be only used in the therapeutic room.

The main idea behind the use of ERM is to consider the body as a way to access the unconscious (Weiss, 2015). Somatic experiences can be directly observed and explored with an attitude of curiosity, typical of mindfulness, to bring to the surface unconscious core beliefs that manifest directly in the body through sensations and movements (Kurtz, 1990; Ogden et al., 2006).

The importance of ERM and why it works will also be linked to the neurological model of polyvagal theory (Porges, 2011) and the triune brain of MacLean (1990). All of this has important implications on how to conduct a therapeutic session. In polyvagal theory, the concept of neuroception (Porges, 2004) interlinks with the establishment of a mindful attitude for both the client and therapist.

The aim is to demonstrate how important it is to complement traditional talking cures with a mindful approach which focuses on describing how the body expresses, in the here and now, past traumas and developmental injuries.

Chapter 2: WHY EMBEDDED RELATIONAL MINDFULNESS?

As the name suggests, Embedded Relational Mindfulness is a therapeutic approach which focuses on our brain capacity to achieve a mindfulness state, and on the therapeutic relationship, to heal traumatic wounds.

2.1 The Role of the Therapeutic Relationship

To fully appreciate the role that a good therapeutic relationship plays in trauma treatment, is to theorize the mind to be an embodied process that regulates the flow of information and energy within our nervous system and between people (Siegel, 1999). Three main elements play an important role in this definition: regulation, relationships and the nervous system. In this context, the mind is not the brain and its synaptic activities, but a process that emerges from the brain and interpersonal relationships. The mind is only one part of a complex system in which elements interact with each other. The mind interacts with brain and relationships, in a non-linear fashion, it emerges from them and at the same time recursively regulates them. This interaction happens in the form of energy, where mind, brain and relationships are only different aspects of it, different ways of looking at the same reality. The connection between people and the brain is physical, it happens through a movement of energy having an impact at the synaptic level. When people speak, kinetic energy is produced, which is then transformed by the eardrum in electrochemical energy which in turns activates synaptic activity. The reshaping of the neurons' activities happens throughout the entire body not just in the head. The brain is therefore embodied, it refers to the entire nervous system. The brain can be seen as the shape that this flow of energy takes as a result of people interaction. Relationships instead are the sharing of this flow of energy (Siegel, 1999).

One direct consequence of this model is that the brain is shaped by relationships through the regulatory process of the mind. Brain and mind are in a continuous state of development and experiences directly shape neuron connection and brain circuits responsible for mental processing: memory, emotion and awareness. The mind continually shapes itself in the response to changes in

energy and new information that our organism perceives coming from the environment. Therefore, the mind is not local to the individual, it is a shared process, a process that is constantly changing to regulate relationships and body responses (Siegel, 1999).

Given the neuroplasticity of the brain and the ever-changing fluctuation of mind and relationships, all of them can be intentionally tilted towards health. A healthy mind is a mind which is integrated. Integration is a principle which links different parts into a functional whole, while differentiation refers to the separation and specialization of different parts that belong to a system. Linkage is the connection between these parts. As a system grows, several parts tend to specialize in different roles, but to make the system work efficiently it is essential to link them so that the whole is more of its parts. Different circuits in the brain, each of them responsible for processing a different type of emotion, need to be integrated for healthy living. Mind, brain and relationships need to be integrated. Integration is a movement towards health, it brings about vitality, flexibility and adaptability. The mind regulatory process works well in an integrated system. Blocks to integration cause rigidity and chaos (Siegel, 1999).

Two main factors influence integration: awareness and interpersonal relationship. The ERM therapeutic map outlines the skill required to leverage on these two factors to move towards a healthy mind (Ogden, 2015a).

2.2 The Role of Mindfulness and Awareness

Another core aspect of the mind, in addition to its regulatory function, is its capacity to be aware. Awareness is the capacity of the mind to know, it is the sense of knowledge of something. The mind, as a process of regulation, is wider than consciousness. Regulation happens whether people are aware of it or not, the mind is always monitoring and changing brain activity and interpersonal connections. However, most of the regulatory processes are outside awareness, but once they come into consciousness, control over them can be attained. This capacity to observe and control is what makes

awareness useful to achieve integration and hence facilitate a movement towards a healthy mind and good relationships (Siegel, 1999).

An aware mind has the capacity to choose what to pay attention to. Awareness allows the practice focal attention - the capacity to be deliberately aware of something. Attention is defined as the mind's ability to regulate the flows of information and energy and it can be conscious or not conscious. Focal attention is a conscious activity of the mind that allows us to monitor and control brain reactions and interpersonal relationships and gives us the ability to reshape them. It empowers the client during a therapeutic encounter (Siegel, 1999).

Mindful awareness is a special type of awareness that ERM leverages on to improve mental health and relationships. To fully appreciate its importance the triune brain theory of Mclean (1990) will be quickly reviewed.

McLean suggested that the brain can be divided into three difference complexes – the pre-frontal cortex, the limbic brain and the reptilian brain. These three brains have different functions and organization. The oldest of the three, from an evolutionary perspective, is the reptilian brain, which is also the first to develop anatomically. The reptilian brain is mainly responsible for sensorimotor processing that is for the processing of body sensations.

The limbic or mammal brain is typical of mammals, reptiles have not developed it during the evolutionary chain. The limbic brain relates to emotions. These mammal and reptilian complexes are subcortical, their process is mostly unconscious, and they are active at birth. The infant is mostly a sub-cortical creature and is largely unregulated by cortical control (Schoore, 2015).

The pre-frontal cortex sits at the top of this triune hierarchical structure, it is the last to anatomically develop in humans and the earliest in term of evolutionary progress. The pre-frontal cortex is responsible for rational thinking, language and narrative and it can exert control on the lower level structures. The controlling power of the pre-frontal cortex can interfere with emotional and sensorimotor processing of the emotional and reptilian brain, interfering with the self-healing process

of our body. As an example, this control function may not allow a person to feel grief or can make the body work harder and harder even if it is tired (Ogden, 2015b).

Levine (1997) points out that while this structure is powerful enough to control and stop the natural healing bottom-up processing coming from the body, it is not so powerful to prevent the basic animal defence mechanism of flight/fight/freeze engaged by the reptilian brain when danger is perceived by the organism.

Danger can be perceived through the five senses, with a conscious effort of the pre-frontal cortex, or it can be neurocepted (Porges, 2004). Neuroception is the unconscious capacity of the human organism to feel danger even before it comes into awareness. As the danger comes under the radar of the body, active or passive defences are set in place. The organism contracts, enters into an orienting response and, through a process of reaction and inquiry, evaluates the next steps (Levine, 1997). This contraction brings about the production of energy and such energy can become frozen in the body when a person is not successful to fight or flight from the dangerous situation. Traumatic symptoms, according to Levine, stem from the fact that the pre-frontal cortex does not allow the natural discharge of energy, regulated by the sub-cortical structures, to happen. During traumatic events, the Broca area, located in the pre-frontal cortex and responsible for processing thoughts and feelings into language, goes offline (Van der Kolk, 2015, p. 43). This makes trauma pre-verbal and difficult for people to tell the story of their trauma. Therefore, it is necessary to expand the traditional talking cure with a new way of processing trauma through the body.

The neocortex, in addition to its control function, has also the capacity to observe. Segal et al. (2013) define mindfulness as the capacity of paying attention to and on purpose to things as they are in a non-judgmentally way, in the here and now. In this state of mind, attention can be cast on aspects of experiences as they are without wanting them to be any different from what they are. It is an intentional and purposeful act of focusing on the here and now, rather than an automatic ruminative thinking response to emotional triggers. People cannot be mindful of past or future events, but only of what is happening in the here and now (Kurtz, 1990). Mindfulness is about directly being aware of

what is happening, rather than just thinking about it, it is a direct connection to our senses (Segal et al., 2013). Mindfulness is a non-judgmental observation of present moment experiences. This non-judgmental attitude allows things to be, rather than wishing them to change in order to match some external or internal standard.

Siegel (1999) highlights how this act of focusing has the ability to reshape our neuron's pathways and relationships. A mindful state allows the mind to enter a watching mode and to release the control function of the neocortex over the subcortical structures of the limbic and reptilian brain. This in turn facilitates the innate capacity of the body to self-heal. Several studies have described how the practice of mindfulness activates areas of the prefrontal cortex associated with emotional regulation, memory processing and learnings (Creswell, Way, Eisenberger, & Lieberman, 2007; Hölzel et al., 2011; Siegel, 2007).

ERM is a therapeutic map that helps the therapist to unleash the power of mindfulness in the context of a therapeutic relationship.

Chapter 3 – EMBEDDED RELATIONAL MINDFULNESS THERAPEUTIC MAP

ERM is a therapeutic map which sets guidelines for the use of mindfulness in a therapeutic environment. The suggestions it offers apply to both traumatized and non-traumatized patients.

3.1 Mindfulness to Maintain a Dual Focus

During a session, the therapist must maintain a dual focus of the client's narrative and the five-building blocks of the internal experience of the client and himself (Ogden, 2015a).

To pay full attention to the client story and its emotional responses is standard to many psychotherapy approaches and the techniques of mirroring, paraphrasing and summarizing (among others) are used to convey to the client a therapist empathic understanding of their story, congruence and the therapist unconditional positive regard (Culley & Bond, 2011). While this is important, there is a risk for the client to remain entangled in his story, rather than being aware of how this story is unfolding in the present moment of his experience.

To avoid the risk of the client being overwhelmed by the narrative, the therapist needs to monitor and direct the client's awareness toward the five-building blocks of internal experience, which are cognitions, emotions, five-sense perceptions, movements and body sensations (Ogden, 2015b).

Cognitions are thoughts, theories and interpretations that a client makes about himself and the world around him and they play an important role in maintaining feelings. The five-sense perceptions are internally generated sensory reminders of some experience. In PTSD, for example, they can be experienced as intrusive thoughts, auditory hallucination, flashbacks. Movements are any action of the body, which could be a macro action, a change in posture or moving a leg, or a micro action such as the tiny movement of an eye or finger. Body sensations are what the organism perceives through the interoceptors, a branch of the somatic nervous system (SNS), which is responsible for gathering information from inside the body and carrying it to the Central Nervous System. Interoceptors contribute to the sense of self, are responsible for the vestibular and proprioception sense and help

identify emotions and evoke memories. Body sensations change as a consequence of any alteration in chemical reactions or electrical and muscular activities in our body (Rothschild, 2017).

The five-building blocks interact and fluctuate in relation to each other. A tough “I am in danger” can generate a contraction of the lower abdominals and limbs, which in turn might evoke a flashback.

In ERM the focus on therapy becomes the continuous monitoring of these fluctuations in the 5-building blocks, not the content of the story. This is to minimize re-traumatization (Ogden, 2015b).

3.2 Mindfulness to Direct Client Awareness

Another important distinguishing characteristic of ERM is its directness. Some traditional meditation techniques request the meditator to maintain his focus of attention on an object of interest - this could be the sound of a bell, a mantra to be repeated, the rising and falling of the belly when breathing, the light of a flame. Other traditional techniques are instead based on choiceless meditation in which there is no specific object to focus on - the reality is seen as a single whole unfolding in the present (Segal et al., 2013).

ERM differs from both these traditional mindfulness practices - focused and choiceless awareness. The therapist, in ERM, by paying attention to the five-building blocks, first contacts the client by noticing what is happening and then he directs the client’s awareness to a specific part of what the client is experiencing. This specific part, one of the five-building blocks, is not predefined at the beginning of the session, as it happens in focused practices, but it comes out of the therapeutic relationship. This act of guided purposeful attention by the therapist is what distinguishes ERM from other practices. The other difference is that mindfulness in ERM is not a solitary practice, as it is in traditional approaches, but both the client and the therapist maintain a mindfulness attitude throughout the session (Ogden, 2015a).

The need to restrict the awareness to a specific building block during a therapeutic session arises from the fact that an unrestricted focus could drive the client towards the many distractions that can take

place in the present moment (Ogden, 2015b, pp. 32–33). For example, an emotion could trigger client arousal and make him overwhelmed by his body responses or thinking patterns. This is especially important with regards to the traumatized client. The therapist, by wisely restricting the focus of the client's attention to one of the building blocks, can help stabilize him. Odgen and Minton (2000) suggest bringing the client's attention to his feet and their contact with the ground to help him stabilize, while Rothschild advocates the use of the Sensory Nervous System (SNS) and in particular the use of its exteroceptor branch to ground the client (Rothschild, 2017).

3.3 Mindfulness to Continuously Monitor the Level of the ANS System

Mindfulness should also be used to continuously monitor the level of arousal of the client's Autonomic Nervous System (ANS). This will ensure effective use of the therapy in both the short and long term and it will avoid, or at least minimize, the risk of re-traumatization. The therapist is also responsible for monitoring his own level of arousal to maintain presence during the therapeutic work (Ogden, 2015a).

The importance of monitoring the ANS for trauma treatment can be explained by the work of Porges (Porges, 2011) on the polyvagal theory and reframed with the idea of window of tolerance for self-regulation (Siegel, 1999).

The polyvagal theory schematizes the ANS as composed of three neural circuits which relate to five different emotional and behavioural states. Its name is due to the poly function of the Vagus nerve.

The first neural circuit described by the theory is the social engagement system (Rosenberg, 2017). This system is composed of five cranial nerves: CN X, VII, IX, XI and the ventral Vagus branch of CN X. CN X has also an additional and separated dorsal branch which has a different effect on behaviour and emotion. The Social Engagement System nerves innervate both the supra-diaphragmatic visceral organs of the heart and lungs and the muscle of the face and skin. They all originate in the brain stem and are all anatomically integrated with each other. Good blood flow in this area is fundamental for their correct functioning. This nervous circuit is engaged when our

organism is physically healthy and safe. It supports emotions of joy, love, friendship and relaxation and promotes the social activities of sharing and support. When this system is active people don't feel the need to change anything or do anything, they just relax and enjoy (Rosenberg, 2017).

However, when danger is perceived either consciously or unconsciously other circuits are activated. Such activation can be as simple as a traumatic reminder that sets the body's defensive mechanisms up for fight/flight/freeze.

The spinal sympathetic chain is the second nervous circuit and it supports the visceral organs and muscle activities in fight or flight. When the Sympathetic Nervous System (SNS) is activated, muscles tense up, blood pressure needs to rise to pump more blood in the tense muscles and the heart rate increases. Typical emotions of this state are anger and fear. Fight behaviour can manifest as physical or verbal aggression, abuse, sarcasm and flight behaviours show as avoidance of people, situations and places. In neurophysiological terms, stress can be defined as a state in which there is the chronic activation of the spinal SNS in response to a state of danger to an internal or an external event, real or imagined. It is mobilization with fear. It is a state in which the nervous system does not go back to a relaxed state (Rosenberg, 2017).

The third circuit of the ANS is the dorsal branch of the Vagus nerve. It originates in the dorsal motor nucleus of the brain stem area and is neuro-anatomically separated by the ventral Vagus. It supports the functions of the sub-diaphragmatic visceral organs. It is a state of immobilization with fear. A surge in activity of this branch of the nervous system is activated when faced with imminent death, physical abuse and violence such as rapes, tortures or other extreme dangers. It can result in a severe form of dissociation and out of body experiences. Chronic activation of the dorsal branch (as opposed to a surge) is associated with emotions of hopelessness, mild dissociation, apathy, depressive moods, inability to set and pursue goals, lack of energy, lack of clarity and productivity, lethargy and an overall reduced joy of living. Eyes appear dull, there is a lack of prosody and facial expression is unchanging. Muscles appear flaccid, blood pressure is low and its flow withdraws from the limbs to go to the visceral organ to maintain a minimal activity. Hands and feet are cold. Blood flows in the

pre-frontal cortex are reduced too. In physiological terms, a depressive state can be defined as a chronic activation of the dorsal Vagus nerve (Rosenberg, 2017)

A fourth distinct state is one of playful fight, which is characterized by the simultaneous activation of both the sympathetic nervous system and the social engagement system. This is mobilization without fear in which people have friendly competitions (Rosenberg, 2017).

The last state is one of intimacy in which both the ventral Vagus and the dorsal Vagus are activated. It is a state of immobilization without fear and it supports emotion of calmness, love and intimacy (Rosenberg, 2017).

These three circuits form a hierarchical system that is phylogenetically ordered with the newest one in terms of evolution, the social engagement system, sitting on the top and the oldest one, the dorsal Vagus, sitting at the bottom. Once activated, the newest circuit can inhibit the older ones. Activation of the social engagement system can help the client come out of stress or a depressive mood. Activation of the sympathetic chain can alleviate a chronic activation of the dorsal Vagus and lift a person out of a depressive mood. Prior to polyvagal theory, depression and depressive behaviour did not have a physiological model in terms of the function of the ANS. This theory relates depression to chronic activation of the Dorsal Vagus Branch (Rosenberg, 2017).

From a therapeutic perspective, it is important to note how the social engagement system can downregulate both the hyper and hypo arousal of the ANS.

To fully appreciate the importance of the continuous monitoring of the ANS it is necessary to introduce the concept of the window of tolerance and the role it plays for emotion regulations (Siegel, 1999).

3.4 The Window of Tolerance

The window of tolerance is the range in which emotional arousal can be integrated without disruption to the system (Siegel, 1999).

Inside the window of tolerance, the pre-frontal cortex is active and so are its important integrative functions of emotion and sensations coming from the subcortical activities. The activation of the higher cortical functions, with the use of mindfulness and focal attention, allows for flexible and adaptive behaviour. In addition, rational thinking and self-reflection, help to keep emotional arousal within the windows of tolerance, keep the system in balance and pave the way to insights.

Outside the windows of tolerance, prefrontal cortex activities are shut down. The links to the subcortical function of the limbic and reptilian brain are functionally blocked. The Integrative functions of thoughts and self-reflection cannot occur, rational thought becomes impossible and flexibility is impaired. A client outside the window of tolerance finds himself controlled by its emotions and body sensations. Feelings are intense, emotion dysregulated, and action tends to be impulsive. The organism is in a state of rigidity and chaos. The mind tends to reinforce its maladaptive patterns and the risk of re-traumatization is high (Siegel, 2007).

The width of the window of tolerance varies from individual to individual as well as in time. Several factors influence it. Physical factors such as hunger, tiredness, coldness or emotional balance can have a great influence. The context in which they arise, and the client's own personal history, are also of great importance. A difficult situation can be more bearable with the help of friends or relatives as opposed to coping with it in a hostile environment.

Rothschild (2017) presents a model which helps to monitor the ANS based on the polyvagal theory and the windows of tolerance. Monitoring of the ANS can be performed by direct observation of body movements and reactions and by asking the client about his internal emotional and physical state. For example, the therapist can check if the client has a shallow or deep breath, he can assess the colour of the skin tone, look at the client's eyes to see if the pupils are dilated or contracted. The therapist can also ask the client to check the heart rate, the level of muscle tension or ask him to feel the warmth or coldness of his feet and hands.

A client is within the window of tolerance when the social engagement system is active or there is a slight engagement of the sympathetic nervous system for readiness (Rothschild, 2017). This is the status that healthy people and animals go through every day, gentle swings between calmness and alertness.

Towards the upper edge of the windows of tolerance and outside of it, the social engagement systems turn off and there is a stronger activation of the sympathetic chain. As this happens, the pre-frontal cortex goes offline and integration work becomes very unlikely. The therapist must be on the lookout for tense muscles, fast breathing, dilated pupils, pale skin hue, cold hands and feet. The most likely emotions would be rage or fear. The therapist needs to try to bring the client back into the window of tolerance by activating the social engagement system. For example, he could use focus on breathing or any of the five senses, or some other grounding techniques to facilitate the process (Rothschild, 2017).

Moving up the ladder of arousal, the next step is hyper-freeze, which is a state of mobilization with fear and very high activation of the SNS. It is a state in which the client is frozen with terror. Dissociation may arise and integration work becomes impossible. There is a serious risk of re-traumatization (Rothschild, 2017).

Making a further step up, there is the state of hypo-freeze, characterized by a surge of the dorsal vagal activity. This is a state of medical emergency and is rarely manifested in a therapeutic environment. This is usually the state in which patients in an emergency room of a hospital are in because of a dangerous accident. Nevertheless, if some traumatic reminder brings the client to this state a call for medical support may be required (Rothschild, 2017).

At the bottom end of the window of tolerance is a state of depressive mood, driven by the chronic activation of the dorsal Vagus. The therapist must look for a change in the heart rate from normal to slow, shallow respiration, small pupils and heavy lids. Likely emotions experienced by the client

would be grief, sadness, shame. The client looks withdrawn. Pre-frontal cortex might or might not be accessible and integration work is unlikely (Rothschild, 2017).

This act of noticing changes in the ANS in both the client and the therapist himself requires a mindful attitude during the therapeutic hour. It is important for the therapist to be able to bring the client to the edge of the windows of tolerance. In this state, the client can simultaneously experience, safety and emotion dysregulation. This will allow safe emotional and sensorimotor processing and an expansion of the windows of tolerance. The therapist also needs to be aware when the client goes past the windows of tolerance and help him to down-regulate his emotional response (Ogden, 2015b).

3.5 Mindfulness to Foster Relational Safety and Connection

ERM is not a solitary practice so the therapist needs to use mindfulness to maintain relational safety and connection with the client. Relational safety is at the core of any good therapeutic relationships and is more important than any choice of technique to facilitate healing (Geller & Porges, 2014). To evaluate conditions of safety, the nervous system continuously monitors the environment and activates areas in the brain which respond to stimuli of safety, danger or other life-threatening situations. This capability of our organism to assess safety, beyond our conscious awareness, is called neuroception (Porges, 2004).

The therapist by being mindful and fully present can promote a feeling of safety in the client. An open body posture, warm voice and soft eye contact are effective non-verbal ways to accomplish this.

The therapist, through presence, can activate the client's social engagement system and by doing so he can down-regulate his client's defensive system, gradually lifting him out of the fight/flight/freeze response. For any integration work the social engagement system needs to remain active.

Repeated therapeutic sessions, in which safety is transmitted and, most importantly, felt by the client, provide a continuous activation of the client's social engagement system which strengthens the client's

self-regulation abilities. As the therapy progresses, the client becomes calmer, more open and present, which in turn improves the therapeutic relationships (Geller & Porges, 2014).

The therapist can assess the client's perception of a sense of safety by paying close attention to the occurrence of specific somatic markers: a relaxed face, open posture or relaxed breathing (Geller & Porges, 2014).

Chapter 4: CONCLUSION

This essay has reviewed Embedded Relational Mindfulness (ERM) and its use as a therapeutic map in sensorimotor psychotherapy. ERM sets the guidelines for the use of mindfulness in the therapeutic room and highlights the importance of a safe relationship for the healing of trauma.

The use of mindfulness has been grounded with findings from the polyvagal theory, the triune brain model and the multidisciplinary approach of interpersonal neurobiology.

From a neurophysiological perspective impairment of the neuroception function seems to be among the most important factors affecting traumatized clients. A faulty neuroception can cause surges in the arousal of the Autonomic Nervous System, which can drive the client outside the windows of tolerance. Once outside the windows of tolerance, the client is taken over by the subcortical structures of the reptilian and limbic brain and little to no integration work can be accomplished. The ERM map gives suggestions of how to use mindfulness to continuously control the ANS and help the client to return to a safe state. Mindfulness is also used to facilitate therapeutic presence which in turn improves the communication of safety to the client and hence supports the activation of the social engagement system, a branch of the ANS that helps down-regulate arousal.

The importance of the therapeutic relationship is corroborated by interpersonal neurobiology which sees the mind as an element of a wider system composed of brain and relationships. In this context, the mind is not local to the individual but is a process that shapes the brain and relationships by regulating the flow of energy and information present in the system. Relationships can also, through a feedback process, shape the mind. A healthy and safe relationship will tilt the system towards integration and a healthy mind.

Integration seems to be another common factor that facilitates a movement towards a healthy mind. It is defined as an organizing principle that links different and specialized parts into a functional whole. Integration of mind, brain and relationships; integration of the reptile, limbic and pre-frontal complexes, integration of the three circuits of the ANS; these all seem to be a common theme for

successful therapy and an attitude of mindfulness is advised to promote a movement towards integration.

Given the importance of the social enjoyment system to regulate ANS arousal and the importance of integration for a healthy mind, it would be interesting to further research the effect on therapeutic success of widening the number of parts and functions to be integrated. For example, it could be insightful to conduct a study to measure the efficacy of expanding psychotherapeutic interventions with physical exercises, or other hands-on techniques to be practised outside the therapeutic room. An idea could be to run a controlled study to assess whether therapeutic yoga or craniosacral therapy, in conjunction with sensorimotor therapy, can yield better results for the treatment of PTSD as opposed to using only psychotherapeutic treatments.

Another way to leverage the concept of integration might be through a new definition of the body, which would allow the body to be extended beyond the limits of the skin. This new framework would blend nicely with several spiritual traditions from the East and could allow for a unified theory for psycho-spiritual work.

This essay, in addition to highlighting the importance of ERM in minimizing the risk of re-traumatization, also points towards integration among several psychotherapeutic approaches. Some ideas of the ERM therapeutic map could be used in conjunction with cognitive and exposure-based trauma therapies. Trauma-Focused Cognitive Behavioural Therapy could be, for instance, complemented with mindfulness of the client's and therapist's ANS system and be the subject of a randomized controlled trial study aimed at assessing the efficacy of the combined treatment.

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