Book Club Study Guide: The Body Keeps the Score

by Bessel van der Kolk, MD

Trauma Research Foundation

Part One: The Rediscovery of Trauma

1. Lessons from Vietnam Veterans

3 Salient Points:

- 1. Soldiers' reactions to traumatic experiences following the war demonstrate the undeniable connection between mind and body.
- 2. In order to overcome trauma, one must move past the physiological impact of trauma on the body and train the brain to recognize when it is safe.
- 3. Trauma responses are often an "invisible illness." Those suffering in the aftermath of trauma may appear successful but be struggling immensely.

In this chapter, Van der Kolk reflects on the ways in which beginning his career as a staff psychiatrist at the Boston Veterans Administration Clinic pushed him to consider the traumatic responses he observed throughout childhood within his family of origin. On his first day at the clinic,Van der Kolk meets Vietnam veteran, Tom. Tom presented as highly successful (i.e., married, two kids, employed as a lawyer), but on the inside he was deeply struggling and unable to move past his wartime experiences. Meeting Tom led Van der Kolk to begin his journey into understanding the complex enigma that is trauma. In these early years of Van der Kolk's career, he conducted studies with Tom and other veterans at the clinic to better understand their experiences in Vietnam.

Trauma Research

One major finding was the loss of a sense of self that results from trauma. Some people may feel shame or guilt over how they responded to a traumatic experience in the moment. They may feel as though pieces of them that once existed prior to the traumatic event are gone forever. In speaking with veterans, Van der Kolk also discovered how trauma survivors can experience emotional numbing. They may struggle to connect with others in interpersonal relationships and may feel devoid of feeling all together. Additionally, intrusive flashbacks and nightmares were common among the veterans, highlighting the ways in which survivors are forced to relive the painful details of their trauma(s) over and over again. These can be extraordinarily challenging to treat because they come on without warning and there is no clear cut end in sight. Van der Kolk also emphasizes the loss of imagination and how this impacts quality of life.

Individuals impacted by trauma may see their trauma in everything around them, keeping them trapped in the past and unable to see a future past their suffering. Van der Kolk also speaks to the lack of recognition for post-traumatic stress disorders in veterans and others who had suffered abuse during childhood. At the time, textbooks made occurences of travesties such as childhood sexual abuse seem extremely rare. In reality, Van der Kolk was hearing story after story from patients who had survived these experiences. In particular, Van der Kolk describes a textbook that described incest as potentially adaptive rather than having serious negative consequences. Thankfully, we now have a much better understanding of trauma, its impact, and technology that allows us to examine the effects of trauma on the brain. We have also discovered the deep connection between mind and body. One may be able to talk about their trauma and feel as though they are ready to move past it, but the body keeps the score. We must teach our bodies to shift from a place of, "I am not safe" to "I am safe," in order to overcome the physiological consequences of trauma.

Discuss ion Questions:

- 1. In talking about the case of Bill, Van der Kolk paraphrases a quote from Freud: "I believe this man is suffering from memories" (p. 15). Oftentimes, trauma symptoms are mistaken for other mental health conditions. How do you think the fields of counseling and psychiatry can better prevent these harmful mistakes from continuing to occur?
- 2. Why is it pertinent that we treat both body and mind in survivors of trauma?
- 3. During this time period when Van der Kolk was learning from Vietnam veterans and becoming aware of the lack of knowledge available in the field, why do you think society turned a blind eye to the realities of trauma (especially for the veteran population)?

2. Revolutions in Understanding Mind and Brain

3 Salient Points:

- 1. Psychiatric diagnoses are uncertain and most human suffering stems from lack of acknowledgement of past heartbreaks and losses.
- 2. The pharmacological revolution changed the way that we approach mental health treatment and non-chemical approaches to treatment are often overlooked.
- 3. Traumatized people may engage in re-enactments and this re-exposure to stress may have an anxiety relieving component.

Van der Kolk was a medical student and young doctor as the medical approach to treating mental illness evolved. He reflects on how little we knew about the etiology and treatment of mental illness at this time. As an attendant on the research ward at Massachusetts Mental Health Center (MMHC), Van der Kolk often spent night shifts conversing with patients looking to share their stories with an empathic listener. Through these conversations, he learned that many of the patients on the ward had a past riddled with horrific traumatic experiences, yet these experiences were rarely discussed by the doctors treating them. For example, many patients received diagnoses of schizophrenia due to their reports of hallucinations.

Trauma Research

Van der Kolk was a medical student and Van der Kolk began to question whether or not these accounts of hallucinations may actually be jumbled pieces of real memories. At this time, researchers discovered chemical components of mental illnesses and began experimenting with using psychopharmacological medicines to treat patients. Van der Kolk shares about his first experiences administering antipsychotic drugs to patients and the optimism he and his colleagues had at the time that these drugs could be the answer to mental illness. He continued to follow new research emerging in the field that informed his work with trauma survivors. For example, Maier and Seligman's study on learned helplessness in dogs helped him understand why traumatized individuals stay trapped in the fear of what is known rather than face the unknown. Maier and Seligman also shared their observations of increased production of stress hormones in these dogs.

This helped other researchers discover the role cortisol plays in PTSD responses in humans. Van der Kolk also documented his patients' experiences with reenactments and connected this idea back to Freud's descriptions of "the compulsion to repeat." Finally, Van der Kolk reflects on this time period and what he has come to learn about psychiatric medications since those early years in his career.

He shares that psychiatric medications tend to put a bandaid over a gaping wound - they help with symptoms, but they deflect our attention away from the root cause of one's issues. As the prescribing of psychiatric medications continues to rise in the U.S., the idea that we could modify our physiology by means other than drugs remains underexplored. By paying more attention to the capacity we have to heal ourselves by other means, we may be able to shift approaches to treating trauma.

Discussion Questions:

- 1. In what ways might we shift our inner equilibrium and physiology without the use of medication?
- 2. What thoughts do you have about traumatic reenactments and the purpose they may serve for trauma survivors?
- 3. How does our use of the DSM correlate with the brain-disease model and the "four fundamental truths" it overlooks?

3. Looking into the Brain: The Neuroscience Revolution

3 Salient Points:

- 1. Flashbacks activate the right hemisphere of the brain and deactivate the left hemisphere.
- 2. Trauma has physical effects on the brain similar to those of stroke survivors.
- 3. Even if one is able to talk about their trauma, the body holds onto the physical manifestation of the event.

As brain-imaging technology improved in the 1990s, our understanding of trauma evolved. Van der Kolk and his colleagues completed a study in which participants laid inside a brain scanner while a pre-recorded script of their traumatic experience played. As participants listened to their recordings, images of their brains were captured and physiological responses were recorded. For example, one participant was a woman named Marsha who had been in a car accident 13 years prior in which her 5-year-old daughter and unborn baby were killed. While the account of her experience played, her blood pressure increased, her breathing became shallow, and her heart began beating faster and faster. Following the study completion, brain scans for all eight participants showed activation in the limbic area (the home of the amygdala), the visual cortex, and Broca's area.

Trauma Research

Van der Kolk describes the significance of what was observed in Broca's area, a region of the brain responsible for speech. The scans showed that trauma's impact on this brain region mimicked the effects of a stroke. Additionally, the stimulation in Brodmann's area 19 within the visual cortex demonstrated how the brain recreates trauma as if it were taking place in the present moment. This study also highlighted important differences between the right and left hemispheres of the brain. The right side of the brain is "intuitive, emotional, visual, spatial and tactual," while the left is "linguistic, sequential, and analytical." (Van der Kolk, 2014). The scans from this study demonstrated how flashbacks activate regions on the right side of the brain and deactivate regions on the left.

This explains why traumatized individuals react to sounds, smells, sights, and touch as if they were happening in the present. The left side of the brain is effectively "shut down" and the person loses all awareness that they are safe in the present moment. Van der Kolk also discusses how those survivors can become stuck in fight or flight mode. Increased levels of stress hormones in the body lead individuals to become perpetually stuck in this state. This can negatively impact the body in a multitude of ways, such as physical illnesses that one may attempt to manage with medications, alcohol, or drugs. These new insights helped Van der Kolk recognize that trauma could not be resolved by repeatedly rehearsing the details of the experience and ignoring the physiological impact of the experience - the body keeps the score.

Discussion Questions:

- 1. Given what you know about flashbacks, why wouldn't repeatedly talking about a traumatic experience resolve symptoms?
- 2. How might constantly elevated stress hormones impact an individual?
- 3. After reading this chapter, how would you explain individuals' seemingly "big responses" to stimuli in their environment - such as hearing a certain song or smelling a certain scent?

Part Two: This is Your Brain on Trauma

4. Running for Your Life: The Anatomy of Survival

3 Salient Points:

- 1. When someone is experiencing symptoms of PTSD, they are likely trapped in their reptilian brain.
- 2. Successful treatment of trauma requires bringing brain structures that were "damaged" during the traumatic experience back online.
- 3. Individuals respond to trauma in different ways and effective treatment necessitates an understanding of how an individual has been impacted.

Van der Kolk opens this chapter with the story of 5-year-old Noam, who witnessed the first passenger plane crash into the World Trade Center from the windows of his first grade classroom. Noam demonstrated incredible resiliency when he shared a drawing of the incident the very next day. He drew the people he witnessed jumping from the windows of the World Trade Center, but he added a trampoline at the bottom of the buildings to save them. Noam escaped the ruins with his family, all of whom were unscathed. For those who were unable to take action during a traumatic experience, the brain can continue to secrete stress hormones. They were not afforded the opportunity to take action in the way that Noam did, so they continue to relive their suffering. The brain is organized in a bottom to top manner. Therefore, the brain stem houses the most primitive part of the human brain, known as the reptilian brain.

Trauma Research

This part of the brain is responsible for many basic human needs, such as eating, sleeping, breathing, hunger, peeing, and pooping. Dysfunction in these areas can occur as a result of unresolved traumatic experiences. Above the reptilian brain is the limbic system, which is responsible for emotions and interpretation of danger. This part of the brain is shaped in early infancy by interactions with one's caregivers. Together, the reptilian brain and the limbic system form the "emotional brain." The top layer of the brain is known as the neocortex. All mammals have this, but human beings are distinguished for having frontal lobes. These structures allow us to plan, have a sense of time and context, control impulses, and demonstrate empathic understanding for others. Cells in the cortex, known as mirror neurons, also allow us to pick up on each other's emotional states and intentions. Van der Kolk also uses the metaphor of "the cook and the smoke detector" to describe the functions of the thalamus and the amygdala in the brain.

The thalamus takes our sensations and passes them onto the amygdala and the frontal lobes. The amygdala is the smoke detector, alarming us to anything pertinent to our survival and releasing stress hormones when deemed necessary. When these alarm systems malfunction we may interpret information incorrectly, leading to problems in our relationships and overall functioning.

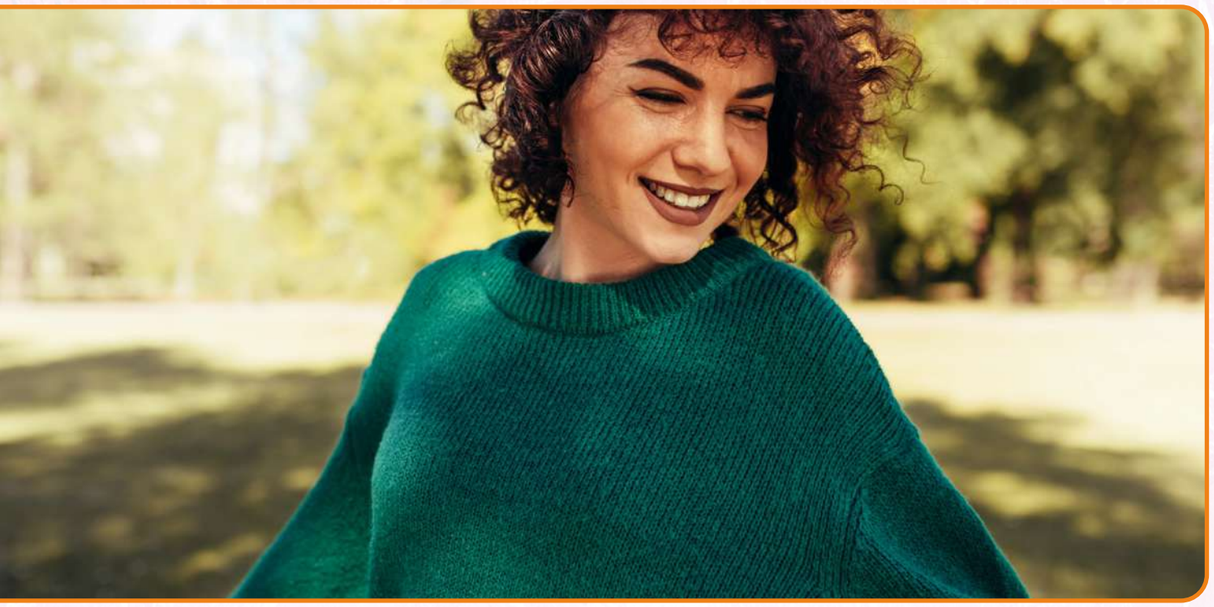
Van der Kolk describes the frontal lobes, specifically the medial prefrontal cortex (MPFC) as the watchtower. In other words, this part of the brain decides if the smoke alarm going off is notifying us of real danger or not. In a normally functioning brain, the frontal lobes can recognize what is going on, make accurate predictions, and aid us in the conscious decision making process. Those suffering from PTSD are dealing with a damaged smoke detector and watchtower. Their limbic system may continue to tell them that everyday scenarios are matters of life and death.

Van der Kolk also shares the story of Stan and Ute Lawrence who were the thirteenth car in an eighty-seven car pileup. Dr. Ruth Lanius performed fMRI scans on Stan and Ute to determine the best approaches to treatment with them. Stan's brain showed significantly more activation on the right side of the brain and depicted the amygdala in overdrive. On the contrary, Ute's brain scan showed decreased activation in almost every area of the brain. She responded to the car accident in a vastly different way even though she was sitting right next to her husband in the car.

Individuals like Stan may benefit from a top-down regulation approach to treatment. This allows them to regain control over the watchtower and recognize that their trauma is in the past and they are currently safe in the present moment. Individuals like Ute are likely to benefit more from a bottom-up approach. This helps individuals become better in-tune and aware of their bodily sensations. Treating trauma necessitates helping individuals improve mindfulness skills, particularly their capacity to feel fully present in each moment.

Discussion Questions:

- 1. What is the difference between top-down regulation and bottom-up regulation?
- 2. How might we utilize mirror neurons to facilitate our interactions with individuals who are dysregulated or experiencing overwhelming emotions?
- 3. In what ways might treatment for Stan and Ute look different?



5. Body-Brain Connections

3 Salient Points:

- 1. Almost all mental health challenges stem from difficulty forming reciprocal, healthy relationships and/or arousal regulation.
- 2. If the Dorsal Vagal Complex (DVC) is activated, individuals are at the point where they disengage, collapse, or freeze. They may feel numb while in safe situations and become energized by danger - awareness is shut down.
- 3. In order to re-establish a sense of safety and improve judgment, trauma treatment must consider how trauma is encoded in the body as well as the brain.

Van der Kolk presented our modern day understanding of trauma in juxtaposition to what scientists throughout history observed as early as the 19th century. Charles Darwin's observations allowed him insight into the function of emotions and behavior long before we had the knowledge and terminology that we do in the field of psychology today. He proposed that animals experience emotions in order to take action, with the goal always being restoration to physical equilibrium and safety. However, he also noted that animals who engage in safety-seeking behaviors and avoidance tactics for prolonged periods of time can experience negative consequences, such as problems engaging in mating activities. Additionally, Darwin shared how the heart, brain, and gut were interconnected and inseparable. Ivan Pavlov's studies with dogs led him to make major contributions to our current understanding of trauma responses.

Trauma Research

Pavlov gifted us with many of the methods utilized in modern day cognitive behavioral therapy treatment. Additionally, when his basement laboratory was flooded, he observed significant changes in the behavior of the dogs who were in crates downstairs as the water rose. These observations led us to understand the concept of learned helplessness, which is crucial to our understanding of trauma responses. Van der Kolk also reviewed the major functions of the autonomic nervous system (ANS) and the sympathetic nervous system (SNS) before introducing us to the work of Stephen Porges. Porges proposed Polyvagal theory which emphasized the importance of social relationships in trauma treatment and recommended new approaches to arousal regulation. Van der Kolk speaks to the importance of this theory in understanding how critical it is that we connect with others. He shares that almost all mental health problems stem from difficulty forming reciprocal, healthy relationships and/or challenges with arousal regulation. Additionally, Van der Kolk describes trauma survivors as individuals who find themselves "chronically out of sync" with others. Reciprocal human connection that provides a sense of safety can moderate the impact of stress and trauma.

However, trauma can interrupt our capacity to form these types of relationships because our nervous system has an altered perception of risk and safety. Porge's theory defined three different physiological states regulated by the ANS: social engagement, fight or flight, and freeze or collapse. When we reach the freeze or collapse stage, the vagus nerve is running the show. Threats to our social connections or safety activate changes in the ventral vagal complex (VVC), and if the situation persists then the ultimate emergency system, the dorsal vagal complex (DVC), takes over. The collapse and disengagement that can occur after the DVC is activated are characteristic of the immobilization we see in many trauma survivors. Traumatized individuals are typically either too numb or too hypervigilant to enjoy life's pleasures and the bonds of intimate relationships. In order to discern safety and appropriately respond to genuine threats, the individual needs to have experiences that restore this physical safety. Therefore, Van der Kolk pushes us to reconsider our approaches to treating traumatized individuals and how we can create more supportive environments within society. In order for the mind to heal, we must engage the body as well.

Discussion Questions:

- 1. Speak about the connections between Darwin, Pavlov, and Porge's theories and how our understanding of trauma has developed over time.
- 2. In what situations may a traumatized individual's judgement and assessment of the situation be altered?
- 3. How might Porges approach treatment with a person who identifies consistent experiences of dissociation?

6. Losing Your Body, Losing Yourself

3 Salient Points:

- Individuals with histories of chronic trauma often experience difficulty registering incoming sensory information, as well as their own internal states.
- In order to heal from trauma, we have to find ways to reactivate the self-sensing system.
- Trauma survivors can experience chronic feelings of being unsafe inside their own bodies. Due to this, they tend to ignore their gut feelings, numb their awareness, and hide from themselves.

Van der Kolk opens this chapter by introducing us to his patient, Sherry. Sherry's story illustrates the ways in which trauma survivors can lose their connection to their bodies, effectively losing themselves in the process. Many of the individuals that Van der Kolk worked with were unable to feel entire areas of their bodies. His colleague, Ruth Lanius, conducted a study to determine what happens in the brains of trauma survivors when they are thinking about nothing in particular. She found that people turn inward and pay attention to themselves. The group of "normal" participants showed activity in regions of the brain responsible for self-awareness, while the participants with histories of chronic trauma showed dramatically decreased activity in these regions. This study revealed that trauma survivors may shut down the areas of the brain that register terror. However, this also prevents them from registering the emotions and sensations that form the basis of who they are and their sense of self-awareness.

Trauma Research

This creates a divide between one's sense of self and sensory experiences. Van der Kolk also presents another study that was conducted by Damasio and colleagues in the year 2000. His study found that negative emotions are able to change areas of the brain responsible for receiving nerve signals from the gut, skin, and muscles. Therefore, one's basic bodily functions are impacted when negative emotions are recalled. Brain scans demonstrated how recalling an emotional event from the past led individuals to re-experience the visceral sensation felt during the original events. This illustrates how those stuck in the loop of reliving traumatic experiences live in a state of paralysis. Their minds and bodies are constantly aroused, which leads many to develop unhelpful coping methods, such as dissociation and freezing. Ignoring or misinterpreting messages from the body leads to an inability to understand what is actually harmful or dangerous.

Without an ability to regulate oneself internally, survivors are more likely to turn to external methods of regulation, such as drugs and alcohol. Trauma survivors must work to regain a sense of agency in their lives. To re-establish one's sense of awareness they need to know what exactly it is that they're feeling. Van der Kolk presents the Greek word alexithymia, which describes not having words for feelings. Ruth Lanius and Paul Frewen conducted a study with people with PTSD who were dealing with alexithymia. They found that decreased activity in self-sensing areas of the brain correlated with people being more out of touch with their feelings. Additionally, depersonalization is discussed which occurs when one loses their sense of self. All of these findings emphasize the need for a recovery process that focuses on familiarity and the capacity to befriend one's bodily sensations. Only through connecting with one's self does the human being cultivate their capacity to connect with others.

Discussion Questions:

- 1. What did the studies discussed in this chapter tell us about our current approach to the treatment of trauma?
- 2. How might we help individuals to independently recognize experiences of loss of self-awareness and depersonalization without access to medical technology (i.e., brain scans)?
- 3. How did reading the second part of this book shift your understanding of trauma?

Part One: The Rediscovery of Trauma

7. Getting on the Same Wavelength: Attachment and Attunement

3 Salient Points:

- 1. Our primary attachment bond has the capacity to influence mental health across the lifespan, and the quality of one's caregiving experiences is critical in the prevention of mental illness.
- 2. Through our primary attachments in early-childhood, we develop the tools we need to develop into contributing members of society. These include: self-awareness, impulse control, empathy, and self-motivation. 3. In what ways might treatment for Stan and Ute look different?
- 3. How did reading the second part of this book shift your understanding of trauma?

Attachment research has uncovered pertinent truths that aid in our understanding of the long-term impact of trauma.Van der Kolk and his colleague, Nina Fish-Murray, created a set of test cards specifically for children and conducted a study based on the tenants of Henry Murray's Thematic Apperception Test (TAT). They showed the cards to a group of children from The Children's Clinic at the Massachusetts Mental Health Center and to a control group. The children in the control group lived in poverty and areas of the city where they were exposed to significant community violence, but they had not experienced abuse like the children at the center had. The children's responses to the cards demonstrated that abused children live in a world in which they are surrounded by triggers.

Trauma Research

Images of innocuous situations, such as two smiling children watching their father repair a car, evoked stories from the abused children filled with horror and grim outcomes. Van der Kolk also noted that the abused children became dysregulated and aroused as they told these stories. Children need a secure base that allows them to make their way in the world. They come to understand how to care for themselves through the ways others care for them. Those who grew up with a primary caregiver that was attuned to their own needs and the needs of his or her child are more likely to experience healthy attachment as an adult. Alternatively, children whose caregivers abused or neglected their needs are conditioned to give up in the face of challenges they experience in their adult lives. Finally, Van der Kolk highlights how simply becoming aware of the attachment patterns in our lives is not enough to shift the impact that they have on us. We must work to restore synchrony and find new approaches to connecting with others.

Discussion Questions:

- 1. Reflect on your own attachment patterns and how these have impacted your life. Discuss with the group if you feel comfortable.
- 2. Discuss the ways in which attachment influences us from the moment we are born into this world.
- 3. How was having an identified caring, loving adult a protective factor for the children in the control group of Fish-Murray and Van der Kolk's study?

8. Trapped in Relationships: The Cost of Abuse and Neglect

3 Salient Points:

- 1. The work of recovery from trauma takes ample time and patience in order for what lies underneath the symptoms to emerge.
- 2. Every individual has their own perspective on the world and how it functions, and this worldview has the power to impact our relationships for the entirety of our lives.
- 3. Trauma is not stored in memory as one, cohesive narrative and during treatment it often emerges as fragmented pieces of information.

In this chapter, we meet Vander Kolk's patient, Marilyn. Marilyn sought out treatment after an incident with a man named Michael who she had just begun seeing. She had invited Michael to her apartment for the first time and they fell asleep while watching TV. In the middle of the night, Marilyn felt Michael's body against hers in bed and she lost all control over her actions. She attacked him, which caused him to flee and left her feeling humiliated and confused. She shared that she had lost control with men like his in the past and drew a family portrait depicting a terrified child trapped in a cage and surrounded by several terrifying figures. One of the figures had a giant penis protruding into the cage she was trapped within. However, when she described her childhood to Van der Kolk, Marilyn stated that "it must have been happy."

While Van der Kolk was working with Marilyn, she was also diagnosed with an autoimmune disease that required immediate intervention. Van der Kolk and his colleagues from Massachusetts General Hospital (Scott Wilson and Richard Kradin) conducted a study to investigate the immunology of women who had experienced incest. The study found that the women who had survived incest had abnormalities in their CD45 cells, which are the "memory cells of the immune system." The control group of non-traumatized women did not display these abnormalities. This study once again highlighted the immense impact trauma has on both mind and body. Van der Kolk also describes how his work his work with Marilyn and other survivors helped him understand that many patients need assistance reconstructing the inner map of the world. For example, Marilyn's childhood led her to develop an inner map that depicted men as monsters and women as weak and untrustworthy. This impacted all of Marilyn's relationships within her adult life and prevented her from engaging in healthy, reciprocal relationships with others. Our inner maps of the world are encoded in our emotional brain. Therefore, treatment of trauma and reconstructing this inner map involves reorganizing this component of the central nervous system.Trauma survivors often feel unsafe in their own bodies and treatment involves a slow and steady journey to identify one's memories and how they have manifested in the body. Survivors demonstrate incredible strength and resilience in this process of healing.

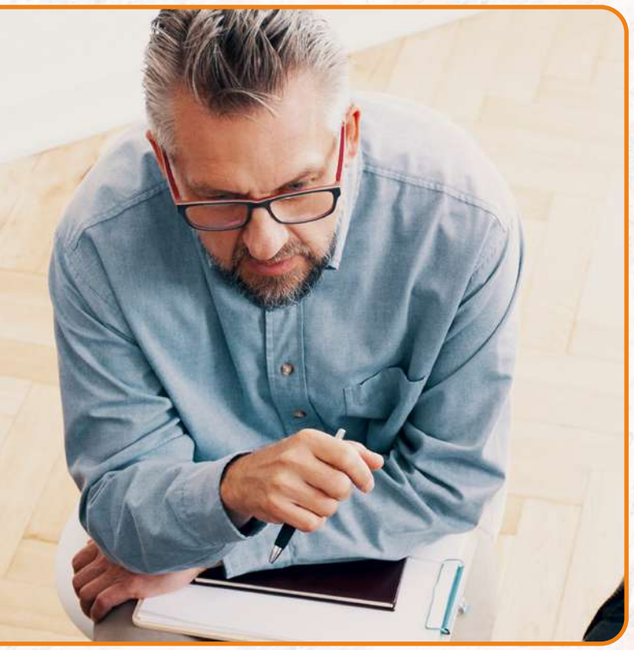
Discussion Questions:

- 1. Think about behaviors you have witnessed in loved ones or people you have worked with. Are there ways in which you can now see how their inner map of the world may have impacted their past behaviors?
- 2. The study on the immunology of incest survivors emphasized the connection between mind and body. Why do you think this is a connection that is still widely ignored in modern medicine and psychology?
- 3. How might you educate others about the mind-body connection and the ways in which past events leave an imprint on both?

9. What's Love Got To Do With It?

3 Salient Points:

- 1. Adverse Childhood Experiences (ACES) contribute to several of the leading causes of death in the United States.
- 2. The child abuse epidemic is the leading public health problem in our country.
- 3. Diagnostic labels do not always serve the best interests of the patients who receive them.



The Diagnostic and Statistical Manual of Mental Disorders (DSM) was developed so mental health professionals had a systematic, accepted manual of psychiatric diagnoses to guide treatment. Since its creation, it has become a powerful instrument impacting the world in a variety of ways. However, the weight of a psychiatric diagnosis is oftentimes overlooked. Once someone receives a diagnostic label, it is likely to follow them for life and have a significant impact on how they view themselves. Van der Kolk highlights how diagnoses are often "mere tallies of symptoms," painting a picture of the person as a problem that needs to be fixed. There is a glaring fissure between what patients are experiencing and what diagnoses they receive. Van der Kolk collaborated with Judith Herman and Chis Perry to study personality disorder diagnoses and trauma in the lives of patients.

Trauma Research

They found that a powerful factor that influenced long-term outcomes, particularly self-harm and chronic suicidality, was whether someone could identify a memory of feeling safe with somebody as a child. Additionally, the study demonstrated how the diagnostic criteria for PTSD do not necessarily fit the symptoms experienced by many complex trauma survivors. Van der Kolk and colleagues conducted a field trial and proposed a new trauma diagnosis for victims of interpersonal trauma for inclusion in the DSM-IV. They were shocked and saddened when the DSM-IV was released and this diagnosis was not included.

The famous Adverse Childhood Experiences (ACE) study also highlighted the need for this type of diagnosis. It revealed the commonality of traumatic experiences in youth and the impact these experiences continue to have across the lifespan. Dr. Robert Anda, one of the principal investigators on the ACE study, estimated that child abuse is the deadliest and most expensive public health issue in the U.S. He suggested that eradicating child abuse would reduce the occurence of many of the leading mental illnesses. Despite these findings, little has changed in our country.

Discussion Questions:

- 1. Why do you think the findings of the ACE study have had little effect on our county's understanding of mental health and approaches to mental health treatment?
- 2. What are some ways in which we might advocate for more change following these findings?
- 3. What are the advantages and disadvantages of diagnostic labels?

10. Developmental Trauma: The Hidden Epidemic

3 Salient Points:

- 1. We are still fighting to help our country understand the long-term, detrimental impact of traumatic childhood experiences.
- 2.Other countries may help us better understand how to address several of the social problems in the United States.
- 3. Diagnosis holds immense power in the treatment and recovery process.

Youth who experience complex trauma require a significant number of resources to support, but the systems in place are not set up to best support them. Oftentimes, their behaviors are contributed to bad genes and the social causes for their behaviors are overlooked. Van der Kolk summarizes the work of Stephen Suomi, who studies rhesus monkeys and whose work can help us understand the impact of parenting and environment on gene expression. This research shows that for children and monkeys, those with a genetic predisposition for depression are unlikely to express this gene if their parent or caregiver was attentive and attuned to their needs. Until the establishment of the National Child Traumatic Stress Network (NCTSN) in 2001, there was no organization dedicated to researching childhood trauma. The NCTSN found that the children they studied endured similar life experiences to the adults studied in the ACE study.

Van der Kolk also discusses the work he and colleagues did to push for the inclusion of a Developmental Trauma Disorder diagnosis in the DSM-V. This proposal was rejected due to their being “a lack of evidence” for adverse childhood experiences leading to disruptions in healthy development. Van der Kolk provides evidence from two of the studies referenced in the proposal. One was the Minnesota Longitudinal Study of Risk and Adaptation. This study found that parental behavior and caregiving interactions significantly impact the long-term mental health and wellbeing of youth. Additionally, Van der Kolk summarizes the 1986 study of the impact of sexual abuse on female development, conducted by Frank Putnam and Penelope Trickett. Putnam and Trickett found that the abused girls suffered from significant negative effects and their biology was also profoundly impacted. For example, the abused girls with incest histories sexually matured before their nonabused peers, putting them at increased risk for additional abuse. Finally, Van der Kolk comments on the lack of reliability and validity for the DSM-V and how inclusion of a Developmental Trauma Disorder diagnosis could significantly improve treatment approaches and aid in prevention efforts. Other countries emphasize social support and recognize the importance of helping families best support their children. The United States is one of the leading countries in terms of crime and incarceration. If we modeled ourselves after these other countries and focused more on the social problems impacting our population, it is likely we could drastically reduce the occurrence of mental illness.

Discussion Questions:

- 1. How might we shift the way our country addresses social problems to better serve the most vulnerable populations?
- 2. Why do you think the APA continues to deny the inclusion of a disorder addressing complex trauma experienced during key developmental years?
- 3. What are some ways we might continue to advocate for approaches that best serve all patients within the context of a broken system?

Part Four: The Imprint of Trauma

11. Uncovering Secrets: The Problem of Traumatic Memory

3 Salient Points:

- 1. The more arousing and adrenaline producing an event is, the more likely we are to remember it.
- 2. People may engage in reenactments of their traumatic experiences without awareness that this is actually what they are doing.
- 3. The mental health field's understanding of traumatic memories is fluid and ever-expanding.

In this chapter, Van der Kolk shares the story of Julian, a man who was sexually abused by Catholic Priest, Paul Shanley. Julian recalled repressed memories of this event from childhood when he heard about Shanley being investigated for the molestation of other young boys. The question of whether or not Julian's memories were credible was asked due to the complex nature of traumatic memory and disagreements in the field about the validity of repressed memories. Van der Kolk explains the differences between normal memory and traumatic memory based on his years of research and clinical work. He explains that how well we remember an event majorly depends on the emotions we felt at the time of the event and the personal meaning that event had to us. A poignant example of this is the memories that many adults have of where they were, what they were doing, what they saw, and how they felt on September 11th, 2001. If you were to ask someone to recall all these details about any other day of that year, they may have more trouble remembering if those days were not as significantly arousing.

Trauma Research

He references studies by James McGaugh and colleagues that demonstrated how memories are more precise depending on how much adrenaline was secreted at the time of the event. Additionally, studies referenced in previous chapters that involved brain scans of traumatized individuals showed that reactivation of a traumatic memory within the laboratory setting can shut down certain areas of the brain. Van der Kolk also summarizes the history of our understanding of traumatic memory. In looking at how past scientists thought about traumatic memories, it is clear that our knowledge is ever-expanding. Hysteria used to be viewed as a person experiencing witchcraft, demonic possession, an exorcism, and so forth. Through the work of individuals like Jean-Martin Charcot and Pierre Janet, we learned that this is not the case and hysteria relates to trauma.

For years people were hospitalized and labeled with inaccurate diagnoses or criminalized because we did not understand that some of their behaviors were examples of traumatic reenactments. People can dissociate from the memory of what actually happened to them leading to amnesia until specific triggers cause them to recall details of their traumatic experience. Van der Kolk explains that a solution to this problem of dissociation would be association, meaning the person needs to learn that the memory occurred in the past and they are safe in the present. In 2007, Shanley's attorney tried to overturn his conviction on the basis that repressed memories were based on "junk science." Approximately 100 leading mental health professionals backed-up these claims, showing that our knowledge in the field still needs to expand.

Discussion Questions:

- 1. Why do you think there continues to be disagreement in the field about the validity of repressed memories?
- 2. In what ways might we increase society's knowledge about memory, dissociation, amnesia and re-enactments?
- 3. Can you think of any examples in your own life or the lives of individuals whom you know that relate to any of the concepts discussed in this chapter?

12. The Unbearable Heaviness of Remembering

3 Salient Points:

- 1. Throughout time, many have attempted to bring greater awareness of trauma to others, which often resulted in backlash.
- 2. There is evidence to support the idea of repressed memories that may be recalled years or decades later.
- 3. Culture shapes the expression of traumatic stress.

In this chapter, Van Der Kolk reminds readers of the ways in which society avoided the effects of trauma resulting from wartime experiences. It was considered a weakness to be diagnosed with “shell shock” and some countries went so far as to ban the use of the word in medical documentation. Refusal to acknowledge and deal with the consequences of trauma led to continued war and contributed to the rise of fascism and militarism globally. Van der Kolk also reflects on how his experiences working with veterans changed over time due to the shifting cultural norms of society. He surveyed World War II veterans and found that they all scored positive on PTSD rating scales despite being seen by medical rather than psychiatric services. These men were hesitant to share their wartime experiences but understood that they could receive treatment for their somatic symptoms if they focused on those complaints.

Van der Kolk feared that this increased acknowledgement of trauma would lead to backlash, as had occurred several times in the past. In the 1990s, leading news sources began to publish on False Memory Syndrome claiming that there was no evidence to support that people may lose some or all memory of traumatic events. These articles also claimed that there was no evidence that trauma memories are encoded and recalled differently than ordinary memories. Van der Kolk provides evidence to the contrary and references the work of Dr. Linda Meyer Williams. Dr. Williams conducted a study with 206 girls between the ages of 10 and 12 who were interviewed in the emergency room following sexual abuse. 17 years after she interviewed these youth, she located 136 of them and re-interviewed them. 38% did not recall the incident of abuse described in their medical records while 12% stated that they had never been abused as children.

Additionally, examining the 16% of women who forgot their memories in the past but later recalled the abuse showed that recovered memories were accurate for all central facts of the incident. However, none of the recollections accurately matched every documented detail. This is not surprising because as soon as we have a memory our mind begins to make meaning of it, which can create shifts in what we remember. The challenge is that this is difficult to prove in scientific research because we cannot induce a traumatic experience in the laboratory setting. Van der Kolk and his colleagues at Massachusetts General hospital conducted a study to assess recall of traumatic memories versus ordinary ones. They found that benign memories (i.e., A life event that the participant feels they will never forget but is not traumatic) are typically organized, while traumatic memories are disorganized. Additionally, physical reactions to these two types of memories vary. Van der Kolk closes

Discussion Questions:

- 1. How does culture shape the expression of traumatic stress?
- 2. How would you explain the ways in which traumatic memories can be repressed and recovered to someone else?
- 3. Why do you think modern society remains hesitant to acknowledge the impact of trauma?

Part Five: Paths to Recovery

13. Healing from Trauma: Owning Your Self

3 Salient Points:

- 1. Trauma survivors often must learn to re-establish their connection with and control over the emotional brain.
- 2. We can directly train our arousal system through body-based therapeutic strategies.
- 3. Healing is not linear, and it is a lifelong journey.

The main challenge facing trauma survivors is regaining ownership of one's body and mind. In order to do this, they must re-establish and maintain control over their emotional brains. The emotional brain expresses itself through physical reactions, which suggests that therapy must integrate mind and body. Limbic system therapy allows us to access our emotional brain and repair the faulty, overactive alarm system that leads to many posttraumatic reactions. Van der Kolk provides an overview of several types of therapy and how each of these may allow us to become more aware of our inner experience, thereby accepting and befriending what is happening within. He shares that 80% of the fibers of the vagus nerve are afferent, which means we are able to directly train our arousal system through breathing, movement, and chanting. This knowledge has been widely utilized in Eastern medicine, but Western medicine still tends to view it as "alternative." A main component of regaining control over the mind is the practice of mindfulness.

Trauma Research

Van der Kolk shares how he encourages patients to pay attention to their physical sensations, label them, and notice how they can be changed through practices such as deep breathing. Mindfulness has been proven to have several positive effects on the physical body and brain. Another important factor in trauma recovery is support in the form of healthy relationships. Individuals need an anchor who can hold space for them to do this work, which often looks like a trusting therapeutic relationship. It is also important that individuals have a support network to lean on through the recovery process. In addition, Van der Kolk shares how he learned about the power of communal rhythms and synchrony after visiting a group for rape survivors in South Africa. Rhythm, chanting, and movement can help people regain a connection to their bodies and aid in the trauma healing process. Movement and touch are vital because when our emotions are held inside of us the body becomes physically restricted. Traumatized people often need to regain awareness of where their bodies are in space and what is outside of them. Finally, Van der Kolk shares how the work of body-based therapies can be used to recalibrate the emergency response system within the body. These therapies include sensorimotor psychotherapy and somatic experiencing. Before we had the understanding that we do today about the role the body plays in trauma, the focus was on integrating traumatic memories. This was often done through Cognitive Behavioral Therapy, medication, and desensitization techniques. Although this is still useful in trauma work, it is vital that we do not ignore the body-based work that must be done to fully integrate traumatic memories and heal one's connection to their physical body. Sometimes, medications can blunt emotions and make it difficult for one to truly connect with themselves. They may be useful in some cases and not in others. Van der Kolk ends this chapter by reminding us of his patient Bill from the VA. He shares the ways in which Bill's trauma healed, but was reactivated at times due to varying life events. Healing and progress do not always need to be linear. Healing from trauma is part of the ongoing, evolving journey of one's life. the chapter by sharing the story of a patient, Nancy, who woke up during a routine surgical procedure but was paralyzed and unable to speak due to anesthesia. Through reading Nancy's account of this horrifying experience, it is clear that her memories were disorganized and led her to have several visceral reactions to stimuli in her daily environment. She was only able to find healing when she shifted to a more holistic model of treatment.

Discussion Questions:

- 1. Were you surprised to learn about any of these forms of therapy and how they can heal trauma?
- 2. What was your biggest takeaway from this chapter?
- 3. How might you describe the process of healing from trauma to someone who knows nothing about this topic?

14. Language: Miracle and Tyranny

3 Salient Points:

- 1. If we cannot speak of something with another then we cannot tell it to ourselves.
- 2. There are two distinct forms of self-awareness: autobiographical and moment-to-moment.
- 3. Writing, art, music, dance, and other expressive therapies can help people connect with the language needed to communicate their suffering.

Van der Kolk discusses therapists' long history of utilizing talking about the event to resolve trauma. The problem is that trauma is quite difficult to put into words and it is often fragmented in our memory. We have to learn to put the pieces together so that the narrative of what happened to us can emerge. Van der Kolk shares a quote from John Bowlby, "What can not be spoken to the "[m]other cannot be told to the self." We need a safe space to be listened to and feel understood. One's self can be discovered through language and finding the words to express our experiences. When we are able to find words for things we previously did not have the words for, then we are able to truly share our deepest feelings. It is difficult to get in touch with these deep feelings, identify them, and share them with someone. This is where self-awareness development is key. Neuroscience research highlights two distinct forms of self-awareness: autobiographical and moment-to-moment. The former keeps track of the self across time, while the latter is our present moment awareness.

Trauma Research

There are several ways to access the inner experience and hone in on our self-awareness in regard to where we hold trauma within our bodies. Van der Kolk discussed the power of using writing to explore these feelings and increase awareness. Additionally, he explains how art, music, dance, and other expressive arts therapies can help those who have been traumatized communicate and work through their suffering. However, he references a study that showed that this mere expression was not enough and participants benefited most when their experiences were also translated into language.

Survivors must approach the process of finding language for their experience slowly because the brain becomes overwhelmed. The trauma memory physically changes the brain. For example, neuroimaging studies with trauma survivors show abnormal activation of the insula. This leads to activation of the amygdala (the part of the brain that triggers the fight/flight response) even when nothing is wrong. The constant activation and misfiring of these areas leads to alexithymia, which is an inability to sense and communicate what is going on around you. Once again, this points to how important it is for survivors to get back in touch with themselves and their bodies.

Discussion Questions:

- 1. What are your thoughts on moving away from therapy that is solely talk-focused?
- 2. Why is it important to help survivors reconnect with their physical bodies?
- 3. What makes having the words to communicate our stories so powerful?

15. Letting Go Of The Past: EMDR

3 Salient Points:

- 1. MDR utilizes eye movements to help survivors reconnect with their experience, notice how they feel, and what shows up in their bodies.
- 2. EMDR does not require trauma survivors to recount the details of their experience.
- 3. EMDR is a powerful tool that can create distance from one's present self and their trauma memory.

Van der Kolk opens this chapter by introducing us to David, a middle-aged man who experienced a brutal assault at age 23 that caused him to lose his left eye. He had haunting, fragmented memories of the event and his wife and son were experiencing the brunt of his rage. After 5 sessions of EMDR with Van der Kolk, he reported feeling a sense of inner peace for the first time in his life. Similarly to those of you who read the story of David, Van der Kolk found himself baffled by EMDR when he first heard about it through a Maggie, a psychologist who ran a halfway house for sexually abused girls. After seeing the ways in which EMDR helped Maggie resolve her own trauma, Van der Kolk sought training in this modality. Psychologist Francine Shapiro first developed the concept for EMDR when she was walking through a park in 1987. It took years of experimentation and research before the protocol was developed and could be taught to others.

Trauma Research

During his training, Van der Kolk discovered that one of the benefits of EMDR was that it did not require the survivor to recount the details of their experience. It integrates the traumatic material into memory and allows the person to distance their present self from the memory of the event(s). As Van der Kolk learned, the patient's internal process of healing is most important and hearing the details of what they experienced is not necessary. After training, he and his colleagues began studying the impact EMDR had on their patients. After a group of 12 patients underwent three sessions of EMDR, brain scans showed a significant increase in activity in the prefrontal lobe, in addition to more activity in the basal ganglia and anterior cingulate. Another study showed that EMDR had a greater impact on PTSD score reduction than Prozac or a placebo.

Some in the field still doubt the validity of EMDR because we do not have a full understanding of why it works. There is the thought that EMDR is related to the phase of sleep known as rapid-eye-movement (REM) sleep. This is the state of sleep during which dreaming takes place. Although there is still more to explore to better understand EMDR as a treatment for trauma, there is hope that it will continue to benefit survivors. the chapter by sharing the story of a patient, Nancy, who woke up during a routine surgical procedure but was paralyzed and unable to speak due to anesthesia. Through reading Nancy's account of this horrifying experience, it is clear that her memories were disorganized and led her to have several visceral reactions to stimuli in her daily environment. She was only able to find healing when she shifted to a more holistic model of treatment.

Discussion Questions:

- 1. What are your thoughts on EMDR not requiring individuals to share the details of what happened to them?
- 2. In what ways does EMDR change the physical brain and how is this beneficial?
- 3. What is the connection between EMDR and REM sleep?

16. Learning To Inhabit Your Body: Yoga

3 Salient Points:

- 1. Heart Rate Variability (HRV) is a biomarker that indicates the relative balance between the sympathetic and parasympathetic nervous system.
- 2. Yoga can be used to improve one's HRV.
- 3. Yoga can be a powerful healing tool, but it is important to remember that we must always take it slow and at a pace appropriate for each unique individual.

In this chapter, we meet Annie, a special-education teacher who endured horrific sexual abuse in childhood. She had been in treatment for years, but nothing helped. Annie was so disconnected from her body that she was unable to voice what she was feeling or thinking. Many trauma survivors are forced to become experts at self-numbing. Some turn to drugs and alcohol while others harm themselves or seek out dangerous situations, all in an effort to feel in control. In 1998, Van der Kolk learned about Heart Rate Variability (HRV), a biological marker that indicates the relative balance between the sympathetic and parasympathetic nervous systems. A well-balanced HRV allows one to be in control of minor upsets, calmly assess, and respond reasonably. Those with a history of trauma often have a poor HRV, which has a negative impact on thinking, feeling, and one's capacity to respond to stress. Van der Kolk wondered if there was a way for people to improve their HRV, and he learned that many claimed yoga could do so.

Trauma Research

At the time, there were no studies to support these claims so Van der Kolk and colleagues began to explore this question. They conducted a study with thirty-seven severely traumatized women who had attended years of therapy to no avail. Half of the participants in the study attended a yoga group, while the other half received dialectical behavior therapy (DBT). HRV was measured in each group and they found that the yoga group experienced better relationships with their bodies and improved PTSD arousal symptoms. The DBT group did not experience a change in arousal levels or PTSD symptoms. We now know that yoga can improve one's HRV and help those who have experienced trauma reconnect with their bodies.

Yoga consists of breathing exercises, postures, and meditation. Some of the postures can feel incredibly challenging because they place the body in a position that feels vulnerable and may be reminiscent of traumatic experiences. Over time, those who practice can start to feel more comfortable reaching a relaxed state through each pose. At the end of the chapter, we learn about the benefits Annie experienced from years of weekly yoga practice. She shared that she was able to reconnect with her body, better manage her feelings, become more tolerant of physical touch, and experience more intimacy and joy with her husband.

Discussion Questions:

- 1. How does yoga improve HRV?
- 2. In what ways does poor HRV negatively impact the nervous system?
- 3. Why is it important to be mindful of certain postures in yoga work? How would you make others more aware of this?

17. Putting the Pieces Together: Self-Leadership

3 Salient Points:

- 1. Trauma experienced early in life can lead one to split internally into various protective parts.
- 2. Therapy can help individuals move toward a place of mindful self-observation and compassion for each part of oneself.
- 3. Internal Family Systems Therapy (IFS) helps individuals piece themselves back together into a more cohesive, calm, confident whole.

Van der Kolk introduces us to his patient, Mary, a woman with a history of early abuse. He was surprised when she showed up to session one day, introduced herself as Jane, and presented with a seemingly different personality. This case is an example of dissociative identity disorder (DID), which occurs when the self splits into several parts internally and distinct identities emerge. When children are traumatized, they may come to see themselves as fundamentally unlovable. They create these different selves or parts to survive all that they have to endure. Therapy can help individuals to give up the extreme beliefs these inner selves hold and change their lives. Richard Schwartz developed internal family systems therapy (IFS), which can help people put these split off parts of themself together again. Each part within an individual functions to protect them from threat. However, this becomes a problem when the true Self can no longer be found. The Self is the undamaged essence of an individual that has been sheltered from the various protective parts that emerged to ensure survival.

Trauma Research

When individuals can identify their parts, how they feel about experiences in the past, and observe how each part protects them, they begin to practice mindful self-observation. Van der Kolk walks us through his treatment of a patient, Joan, who was engaging in numerous affairs and experienced an uncontrollable temper. Her parts included a promiscuous adolescent, a suicidal part, an aggressive childlike part, a prissy moralist, and an obsessive manager. Van der Kolk helped Joan identify each part, understand how each part functioned in an effort to "protect her," and to view each part from her compassionate, mindful Self. When individuals are undergoing this difficult work, firefighters will emerge in an effort to make the emotional pain go away.

The firefighters are the out-of-control parts that desperately try to protect the system, which leads to behaviors like bingeing, cutting, compulsive exercise, and so forth. When individuals are able to overcome the challenges these firefighters bring, they become ready to meet their exiles. Exiles are the parts of the self that we feel most ashamed of and which hold the memories, sensations, beliefs, and emotions associated with the trauma. In IFS, unburdening is the process through which the exiled parts are nursed back to health. The Self must have the courage to get closer to their exiles in order to let them go.

Discussion Questions:

- 1. What are your thoughts on how dissociative identity disorder (DID) develops as a protective response to trauma?
- 2. How can therapy be used to help patients find the exiled parts of themselves?
- 3. Discuss the case of either Joan or Peter and how you understood each component of IFS in the treatment process.

18. Filling in the Holes: Creating Structures

3 Salient Points:

- 1. Psychomotor therapy is a powerful form of therapy that allows protagonists to create structures in order to reweave their past experiences.
- 2. People benefit from “witness figures” who make statements that mirror their internal state.
- 3. Individuals may need to re-work the past in order to establish a sense of safety in the present.

We are introduced to psychomotor therapy in this chapter, which invites protagonists (the person experiencing the therapy) to create structures that resemble their past. Individuals invite others to play the roles of significant people in their lives and to play the role of the ideal, wished-for parents or caregivers they lacked. Van der Kolk learned about this modality through becoming a student of Albert Pesso and experiencing this form of therapy himself. The three-dimensional space that represents one’s inner world allows them to feel what they felt, visualize what they saw, and say what they were never able to say when the event occurred. We meet Maria, a woman who attended a workshop Van der Kolk conducted in California. The structure is created and the “witness figure” enters to be an accepting, non judgemental observer throughout the process. Van der Kolk acted as the witness figure for Maria as she moved through her story.

Trauma Research

This allowed her to feel seen and validated as she shared some of her most painful memories. She chose an individual in the room to portray the father whom she was terrified of and the mother who never protected her. After sharing what she needed to say to each of them, she scanned the room and chose an ideal mother and ideal father who offered her statements of support and told her what they would have given her if they had been there to protect her.

Through Maria’s story, we can see the magic of the structure unfold. People are placed in the trancelike container of the structure and are able to interact with those they need to confront without fear of getting hurt. In this way, psychomotor structures help individuals to reweave the past and find safety.

Discussion Questions:

- 1. If you are comfortable, discuss a personal structure you might create or a structure you could see someone you worked with creating.
- 2. What do you think is needed to create a space where people feel safe to create and interact within structures?
- 3. How do the concepts of psychomotor therapy relate to what you learned about internal family systems therapy in the previous chapter?

19. Applied Neuroscience: Rewiring the Fear-Driven Mind with Brain/Computer Interface Technology

3 Salient Points:

- 1. Trauma impacts the circuitry of the brain, but this circuitry can be changed through neurofeedback training.
- 2. Traumatized individuals have electrical activity in their brains similar to that of children with ADHD.
- 3. Much more neurofeedback research is needed in order to establish it as a potential treatment for psychiatric disorders.

In 1924, German psychiatrist Hans Berger recorded the brain's electrical activity for the first time. He later discovered that different brain-wave patterns reflect different mental activities. Studies since that time have found that slow-wave prefrontal activity is a biomarker for ADHD. This explains how those with ADHD struggle to gain control over their emotional brains, similar to trauma survivors. A study in 2000 by Alexander McFarlane and colleagues examined the brain waves of "normal" Australians versus those who had endured trauma. They found that traumatized individuals had more loosely coordinated brain waves and difficulty filtering out irrelevant information for the task at hand. They also had greater difficulty processing incoming information, which can help explain their difficulties engaging in daily life and learning from experience. In 2007, Van der Kolk met Sebern Fisher who was using neurofeedback with patients in her private practice.

Trauma Research

She showed Van der Kolk how neurofeedback provides the brain with a mirror of its own functioning, which allows the brain to make more of some frequencies and less of others. Neurofeedback can be used with trauma survivors to help rewire the brain circuitry patterns that define trauma. This is a powerful tool that enables the brain to stabilize, become more resilient, and become better able to make choices. Thus far, neurofeedback has been studied more widely for performance enhancement than psychiatric problems. Athletes have used neurofeedback training to help them win championships and Olympic events.

Additionally, over 36 studies have found that neurofeedback is as effective at treating ADHD as prescription medications. Another striking study was conducted with soldiers over a three-year deployment period to assess how their brain waves changed over time. Researchers found progressive decreases in alpha, which is associated with relaxation. They also found decreased frontal-lobe activity, therefore over time, the brains of the soldiers resembled that of children with ADHD. Neurofeedback has shown promise in treating both PTSD and addiction. Unfortunately, few studies have been conducted and much more research is needed to establish the limits and potential of this treatment.

Discussion Questions:

- 1. How do you think we can find ways to make knowledge about neurofeedback more accessible to the general population?
- 2. In what ways are the brains of children with ADHD and the brains of trauma survivors alike? How might you use this to help someone understand why trauma impacts them in the ways it does?
- 3. What are your thoughts on neurofeedback as a treatment for addiction?

20. Finding Your Voice: Communal Rhythms and Theater

3 Salient Points:

- 1. Communal ceremonies have been used throughout history for connection, support, and healing.
- 2. Acting allows individuals to embody their emotions and move through them.
- 3. Although more research is needed to understand how theater contributes to healing, it is powerful tool.

Van der Kolk opens this chapter by telling readers about his son, Nick, who experienced several health problems in middle school that led him to a place of isolation and self-hatred. He began doing improvisational acting classes and this gave him a chance to experience what it was like to be someone other than the person he had become. Van der Kolk describes acting as an experience of "using your body to take your place in life." He provides us with vivid depictions of times in history where communal ceremonies have helped communities heal in the wake of devastating traumatic events. There is very little research on how collective ceremonies impact the mind and brain and contribute to healing from trauma. Despite this, Van der Kolk was fortunate to witness this healing in action through his observations and work with various therapeutic theater groups.

Trauma Research

Urban improv is a program in Boston that runs a U1 violence prevention program in schools. They help students to observe and act out day-to-day problems that they may encounter. It was very successful with fourth-graders, but it seemed to have no impact on the eighth-graders who had experienced significantly more violence in their additional time on Earth. A new program was created that focused on the types of violence these youth had experienced. It was successful and allowed these students to make progress for the first time.

Van der Kolk also shares about the success of Paul Griffin's New York City Possibility Project, which encourages youth to embody the experience of the character they are playing and truly feel through emotions. Finally, we learn about the program Shakespeare in the Courts for adjudicated offenders. These programs encourage the actors to become more in-tune with their emotions, where they hold emotions in their bodies, and what memories they are associated with. Through theater, individuals find a powerful way to work toward healing.

Discussion Questions:

- 1. How is theater similar to the creation of structures in psychomotor therapy?
- 2. How does theater help individuals connect to their bodies?
- 3. How can we work to make therapeutic theater programs more accessible to youth in our local communities?

Trauma
Research