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Integrating Polyvagal Theory with OT Practice

Introduction

Polyvagal theory is a framework that has gained attention among health practitioners and trauma therapists in the last three decades. It is a trending topic among various health professions, and the evidence base has grown significantly in recent years. Occupational therapists are qualified to treat aspects of their client's physical and mental well-being, so frameworks such as polyvagal theory can be largely helpful in structuring treatment for patients with a range of health concerns. Polyvagal theory bridges physiological and psychological client factors, which lends well to the holistic values of occupational therapy. This theory can also be paired with other psychosocial-based frameworks to create a well-rounded plan of care. Polyvagal theory is an important framework for all rehab therapists to know about, as it can be used to inform practice for many patients.

Section 1: Basics of Polyvagal Theory

References: 1, 2, 3, 4, 5

Polyvagal theory was developed by a neuroscientist named Stephen Porges in 1994. The aim of polyvagal theory is to help people understand the brain-body connection in order to more effectively inform their responses to everyday stressors and adverse experiences alike. This theory offers an explanation for the ways in which the autonomic nervous system assists people in surviving. The autonomic nervous system (ANS) controls the involuntary functions of the body, including blood pressure, metabolic activity, sweating, breathing, and heart rate. By keeping these processes running at a steady pace, the ANS helps the body maintain homeostasis.

The autonomic nervous system does this by operating through two branches: the sympathetic nervous system (SNS) and the parasympathetic nervous system (PNS). Both of these systems make up the body's "fight or flight" response by either spiking internal functions due to rousing external stimuli or allowing internal functions to operate at baseline due to the absence of rousing external stimuli.

Polyvagal theory, however, proposes a slight modification by stating that fight or flight responses are blended with emotion and have developed over time as evolutionary responses. For example, the polyvagal theory states that people feel the safest when their ANS is regulated and functioning well. When someone's body is at homeostasis, this allows them to interact with others more freely. On the other hand, someone's physiological state can also limit their socialization and emotional well-being. Polyvagal theory also posits that the ANS is closely intertwined with the evolution of facial gestures, emotion expression, and verbal communication.

Polyvagal Principles

There are three defining principles of polyvagal theory. The first is the **hierarchy of the ANS**, which includes various vagus nerve branches that relate to different degrees of threats:

- ANS relaxation: activation of the ventral vagal pathway of the parasympathetic nervous system
    - Affect/emotions: high engagement, relaxation, curiosity, creativity, hopefulness

    - Signs/symptoms: normal resting heart rate, normal muscle tone. This state is called the social engagement response, as it's activated when someone feels safe and connected to others.

- ANS mobilization: activation of the sympathetic nervous system
    - Affect/emotions:
        - When someone feels safe > high activity levels, playfulness, motivation, a state of feeling energized
        - When someone does not feel safe > stress, anxiety, fear
    - Signs/symptoms: increased resting heart rate, increased blood pressure, greater release and flow of hormones, increased muscle tone. This state is called the fight or flight response, as it's activated when someone must decide whether to fight a threat in front of them or run from it.
- ANS immobilization: activation of the dorsal vagal pathway of the parasympathetic nervous system
    - Affect/emotions:
        - When someone feels safe > tranquil, in a dream state, meditative, blissful
        - When someone does not feel safe > unhappiness, loneliness, hopelessness, feelings of depression
    - Signs/symptoms: low heart rate, low energy levels, low muscle tone. *This state is called the collapse response, as it's activated when someone is so overwhelmed they feel powerless or become numb and disconnected from their environment.

When someone's body is in between ANS mobilization and immobilization, they commonly experience signs and symptoms associated with the freeze state of defense. When someone is in between ANS immobilization and relaxation, they are likely to be sharing intimate moments with someone or even enjoying quiet time with one or two other people. Someone between ANS relaxation and mobilization is likely to be playing sports, dancing, actively playing with others, or performing in some way. A person may experience one mode at a time, but it's just as common for someone to have a blended (or hybrid) presentation, especially when they are switching between modes. This combination of factors lends support to the idea of behavior and emotion as an ever-changing continuum based on whether someone feels safe or threatened. The next principle of this theory (neuroception) helps explain how someone switches between these modes, as it takes place just outside of someone's conscious awareness.

The second is **neuroception**, which is the ability of the ANS to assess if a situation (and the person in that situation) is in danger. Porges refers to neuroception as the body's surveillance system. He also suggests that neuroception happens continually, but remains just outside our conscious awareness. Despite this, the physiological responses that result from neuroception are something we notice. This allows our brain to efficiently recognize and reflexively respond to possible threats without using much higher level thinking, which is better used for other tasks. While the process of neuroception can switch someone's autonomic nervous system between the above three states, the body's ability to do this is also dependent on their capacity for resilience. In the context of polyvagal theory, resilience refers to a person's long-term flexibility in terms of nervous system states. During neuroception, a resilient nervous system is more attuned to safety cues while a less resilient nervous system tends to be more biased toward threat detection. If someone's nervous system continually sends danger cues when they are actually safe or vice versa, their neuroception abilities are considered to be

poor. This commonly happens with people who have experienced intense trauma or severe hardship, as these typically result in hypervigilance and risky behavior, which further impairs the nervous system.

Coregulation is the last main aspect of polyvagal theory, which involves the intertwining of two people's emotions and physiological responses via the synchronization of their autonomic nervous systems. This theory posits that such a union happens during social interactions. Interestingly enough, polyvagal theory suggests this takes place during much of someone's socialization throughout their life – not just with those they are especially close to. Such a biological process is necessary on a large scale for people to form a community, which - from an evolutionary perspective - is required for our survival. People rely on this level of emotional closeness to pick up on safety cues from people around them as well as from other aspects of their environments. Polyvagal theory also emphasizes coregulation as being a reciprocal process of comfort and understanding, which helps calm the nervous system. After someone learns to coregulate with safe and trusted figures around them, they can then use that knowledge to help with their personal regulation over time.

Polyvagal Assumptions

In addition to the three main polyvagal principles, there are several assumptions set forth by this theory. Polyvagal theory operates based on a phylogenetic hierarchy, which means that primitive systems within the autonomic nervous system are reflexively activated when the more sophisticated systems in the body do not work properly. This theory also emphasizes the reciprocal nature in which the brain and body interact with one another. Many people learn about the brain sending signals that inform the body's actions, but polyvagal theory emphasizes how the brain relies on signals from the body just as much to process information.

Polyvagal theory also notes that neural pathways are continually repurposed for the sake of regulating the autonomic nervous system. This helps the development of neural circuits that promote safe socialization.

All of polyvagal theory also operates using top-down and bottom-up methodologies, as both are integral in the threat detection and response process. Both forms are found within various body systems, and polyvagal theory states that the ANS relies on both to do its job. Another assumption focuses on the role of socialization as a potential neuromodulator. When given the proper amount of safety, comfort, and interaction, socialization can both calm and optimize bodily responses. Lastly, polyvagal theory uses a more unique indicator of cardiac vagal tone as a way to measure crucial bodily functions and overall well-being. Respiratory sinus arrhythmia (RSA), also known as high-frequency heart rate variability, can be used to gauge someone's health status. RSA offers insight into the cyclical heart rate changes that take place while someone breathes. Someone can measure RSA using an electrocardiogram (ECG or EKG), and this is often recorded for the sake of clinical studies focused on physiology and behavior. A good way to estimate RSA without an ECG is by listening to the shortest heart period while inhaling and subtracting that figure from the longest heart period during exhalation. The main principles of polyvagal theory along with the aforementioned assumptions offer a glimpse into how the theory works. We will offer greater detail about polyvagal theory's connection to the occupational therapy field in coming sections.

Section 1 Personal Reflection

Based on what you just learned, in what way does coregulation relate to sensory regulation?

Section 1 Key Words

Homeostasis - The process all living things go through to keep their internal mechanisms working at a steady rate and ensure their survival; an example is sweating to lower body temperature when it's too high and shivering to raise body temperature when it's too low

Resilience - Someone's capacity for recovering from any kind of difficulty; in relation to the nervous system, this means someone's ANS can shift between modes with relative ease in response to environmental changes

Section 2: OT Assessment with a Polyvagal Foundation

References: 6, 7, 8, 9, 10, 11, 12, 13

In order to complete a thorough OT assessment using polyvagal theory as a foundational basis, therapists must understand how the autonomic nervous system works and what body functions it controls.

The ANS is just one part of the peripheral nervous system, which is responsible for all of the body's involuntary functions. This includes heart rate, digestion, breathing rate, sexual arousal, blood pressure, urination, defecation, swallowing, salivation, and blinking (since this most often occurs reflexively). While these processes largely take place outside of our conscious control, we do have some degree of control over them. For example, when we feel the urge to urinate, we can hold it until we safely get to a bathroom. Since many of these functions are major aspects of our survival, the ANS is always active to some extent.

PNS and SNS

As we mentioned earlier, the ANS is made up of the sympathetic nervous system and the parasympathetic nervous system. These are what is referenced in the fight or flight mechanism, as they have opposite functions. When the body is presented with a high level of acute stress, the SNS kicks in and prepares for a response to imminent danger. The SNS does this by increasing heart rate and blood pressure to boost nutrients being sent to the muscles, relaxing the airways to improve breathing, dilating the pupils to make way for light, stimulating sweat to regulate body temperature, and increasing glucose production to offer energy for the body's cells. All of these are needed to help someone spring into action. The SNS also slows the function of less relevant body systems that will not help someone in the moment, such as digestion. The parasympathetic nervous system, on the other hand, helps the body relax after a stressful situation and allows it to return to baseline. The SNS causes a major spike in certain bodily functions along with a decrease in others, since this allows the body to prioritize survival. The PNS works to conserve the body's energy by returning all bodily functions back to how they typically operate. Some examples of this include slowing the heart rate, increasing digestive secretions while relaxing digestive muscles, returning sexual responses to normal levels, triggering metabolic activity, decreasing pupil size, and dilating blood vessels. Each of these processes allows the body to reenter its resting state in the absence of imminent threats.

Vagus Nerve

The vagus nerve is another important structure that should be included in the assessment process. This nerve is the main structure in the PNS and is the 10th of 12 cranial nerves. The role of the vagus nerve is to control involuntary functions, many of which we mentioned above. But the vagus nerve is also in close contact

with the gastrointestinal system and forms a union called the gut-brain axis. As with many nerves in the body, the vagus nerve has a dorsal and a ventral branch. You may remember seeing a brief overview of the branch's functions when we discussed the hierarchy of the ANS as part of polyvagal theory's principles.

The dorsal branch of the vagus nerve helps someone "freeze" when faced with danger or significant stress. Someone whose dorsal branch is overly active may feel faint as a result of the sharp drop in blood pressure. The ventral branch of the vagus nerve is more closely related to someone's social function and ability to engage with others. This part of the vagus nerve helps someone pick up on cues from people around them to feel more at ease and slow their bodily functions. When the ventral vagus nerve is not functioning properly, someone may have difficulty managing feelings of anxiety and depression because their body is constantly in a sort of survival mode. Because the ventral vagus nerve interacts with the trigeminal and facial nerves, someone with an overly active ventral vagus nerve may experience a flushed or overly hot face, clenched or otherwise tense jaw, and teeth grinding. They may also feel more sensitive to touch, temperature, or pain on and around the face if the ventral vagus nerve is too active.

In order to test the function of the ventral vagal nerve, a therapist should use the uvula as an indicator. Ask the patient to open their mouth and say "ah" three times, then use a tongue depressor or a gloved hand to flatten the tongue and improve the view of the uvula. If the uvula deviates to either side and does not rest symmetrically in the middle of the throat, this indicates dysfunction of the ventral vagus nerve.

Assessments Based on Polyvagal Theory

In addition to OT-specific assessments based on a patient's presenting concerns, there are a range of other assessments that are structured on aspects of the polyvagal theory. These include:

- Body Perception Questionnaire (BPQ)
    - This self-report is used to determine how often someone experiences bodily stress reactions related to the ANS. Research shows that a higher score on the BPQ means someone is more likely to have a history of trauma and adverse experiences.
- The Neuroception of Psychological Safety Scale (NPSS)
    - This self-report takes a look at all sensations someone experiences, including those that are bodily, emotional, and social. This scale measures the connection between these sensations and someone's ability to feel safe.
- The Body-Brain Center Sensory Scales (BBCSS)
    - These scales measure any concerns someone has related to digestion, ingestion, and sensory function. There is a self-report scale along with a caregiver version to account for anyone who is not able to complete the form themselves. This assessment covers some of the main senses (audition, vision, and touch) along with selective eating habits, other issues relating to ingesting food, and digestive concerns.
- Purpose in Life Scale (PIL)
    - This scale is a bit different from the others in its focus. The PIL uses a Likert scale to determine how much purpose someone has in their

life, which may be affected by difficulties with the ANS. There is a short and long form, both of which can be used to determine concerns related to life purpose and sense of meaning.

Another way to structure an OT assessment based on the polyvagal theory is to include specific questions in the process of obtaining an occupational profile. Therapists might want to directly ask patients to describe how they feel in social situations, what their instinctual responses are to challenges, and what sensations they feel the most when they stop and check in with their body. Therapists can also use their judgment and functional observation skills to monitor how patients respond to problems within a clinical setting. Other questions can cover someone's emotional connections with friends and family, such as asking how easily they connect with those they know and those they have just met. Therapists can also gain more information on how effectively someone brings themselves back to their resting state after becoming stressed along with what they do to help that process.

Therapists may also want to ask patients about their general sense of well-being in terms of descriptors. If an OT wants to delve into this area more, there are specific assessments that can help. Some of these outcome measures include:

- RAND 36-Item Health Survey (also known as the 36-Item Short Form Survey)
- Health-Related Quality of Life Scale (HRQOL-14)
- MicGill Quality of Life Questionnaire
- Global Quality of Life Scale
- Iowa State University's Well-being Assessment
- Beck Depression Inventory (BDI)

- Geriatric Depression Scale
- Hamilton Anxiety Rating Scale (HAM-A)
- Generalized Anxiety Disorder Scale (GAD-7)
- Patient Health Questionnaire (PHQ-9)
- Clinician-Administered PTSD Scale for DSM-5 (CAPS-5)
- PTSD Symptom Scale Interview (PSS-I)
- Davidson Trauma Scale (DTS)
- Impact of Event Scale-Revised (IES-R)
- Modified PTSD Symptom Scale (MPSS-SR)
- PTSD Checklist for DSM-5 (PCL-5)
- Short PTSD Rating Interview (SPRINT)
- Late-Onset Stress Symptomatology (LOSS) Scale
- Moral Injury and Distress Scale (MIDS)
- Posttraumatic Maladaptive Beliefs Scale (PMBS)
- Life Stressor Checklist (LSC-R)
- Trauma History Screen (THS)

Section 2 Personal Reflection

What other areas might an OT need to assess in order to determine the state of a patient's autonomic nervous system?

Section 2 Key Words

Gut-brain axis - A two-way communication pathway that allows the gastrointestinal tract to communicate with the brain using hormones and nerves (called the enteric nervous system); this means that someone's cognition, emotion, and immune function are closely intertwined with their digestive function

Section 3: OT's Approach Using Polyvagal Theory

References: 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30

There are many ways in which OTs can use polyvagal theory to structure sessions in a way that enables improved patient outcomes. Let's use an example to illustrate exactly how this works.

Case Example

In this scenario, an occupational therapist working in an outpatient therapy clinic begins treating a 24-year-old woman who recently was in a car accident. She was discharged from the hospital 3 days ago and her extremities will be in casts for another 4 weeks as she recovers from a fractured humerus, elbow, and wrist. Upon reviewing the patient's medical records, the OT learns that this patient was combative, fearful, and minimally motivated during many hospital-based therapy sessions and nursing care. She made enough progress to be discharged, but she still has a lot of health concerns so she was referred to outpatient for continued services. Her doctor also referred her to a mental health professional out of concern for her adjusting to life after the accident, but the patient declined this.

Before beginning the evaluation, the OT explained what it would entail so the patient knew what to expect. The patient made little eye contact and simply

nodded in response to this information. The OT implemented her therapeutic use of self to build rapport and form a trusting patient-provider relationship. As such, the OT spent much of this first session speaking with the patient about her emotional adjustment since the accident. The OT disclosed that she once was in a car accident and was very worried about returning to driving again or even being a passenger in a car. The patient stated she is terrified to even be around other people or get dressed on her own, let alone think about transportation. The OT validated these feelings and expressed an understanding of them along with a commitment to work together to get her back to a new normal.

The OT asked the patient what her biggest concerns and goals are. The patient said lowering her pain, as she reports Visual Analog Scale (VAS) levels of 9/10 on an ongoing basis. The patient also expressed a strong desire to have a quiet date night at home with her boyfriend without focusing on the accident, asking for his help with something, or being anxious. She mentioned not wanting to be too reliant on him and being worried that he will leave her. The OT asked the patient about other social supports in her life and she mentioned not having very many. The OT briefly discussed support groups as an option for not only gaining more assistance, but getting it from those who may have a similar trauma history. The patient seemed somewhat interested, but said she'd need more time to think about it.

The OT then led the patient through an exercise to test her self-awareness. The OT asked the patient to describe any sensations or emotions related to how her body feels when she is in pain, at rest, or is around other people. The patient engaged in this exercise, but struggled a lot and stumbled over her words. This led the OT to believe her trauma is impacting many more areas of her life than she initially let on. After engaging the patient in a few more exercises along with discussion to determine her sensory regulation skills, the therapist educates her about several self-regulation strategies to help manage stress responses, including deep

pressure, gentle touch (incorporated into soft tissue massage once her fractures have healed more), meditation, deep breathing, and the use of affirmations, mantras, and other words of wisdom to offer reassurance.

The OT leads her through some of these techniques during their first session and the patient reports feeling positively about meditation, as it was something she has always wanted to try. The OT formed some goals related to this and gave her more information about steps to follow when practicing this technique at home. Better regulation leads to better performance, which means this patient is more likely to remain motivated for therapy and achieve her goals.

In summary, these are some of the most essential concepts to keep in mind when structuring OT sessions based on polyvagal theory:

- Incorporate therapeutic use of self whenever possible to build rapport and establish a solid patient-provider relationship
- Thoughtfully use self-disclosure to enhance trust between patient and provider
- Follow principles of trauma-informed care
    - Prioritize patient safety in both provider practices and clinic settings
    - Remain understanding of the patients concerns
    - Encourage peer support
    - Emphasize patient-identified goals
    - Offer patients choices and expression of self whenever possible
    - Acknowledge patients' gender identity, culture, personal experiences, and trauma history

    - Avoid retraumatization in the form of crossing boundaries, asking patients to retell their story unnecessarily, etc.
- Testing and developing self-reflection skills to help patients understand sensations present due to ANS activation
    - Interoception and biofeedback processes can also be woven into this treatment in the form of specific awareness training techniques and relaxation strategies
- Emphasizing choice and activity pacing in the process of building self-regulation skills
    - Deep pressure
    - Meditation
    - Deep breathing
    - Use of affirmations, mantras, and words of wisdom
    - Gentle touch

OT Modalities Based on Polyvagal Theory

The above case scenario offered a good look into the basics of structuring OT treatment according to polyvagal theory. However, there are a range of other treatments that may be of use during different situations. These include some of the following:

- Client education about the ANS mechanisms and how to calm the body's stress response
- Social skills training

    - When working with children, including the family is essential. Therapists should also be sure to address social skills across all contexts.
    - Social skills training should be addressed to some extent with anyone who displays ANS concerns. However, this may especially be essential for people who have anxiety disorders, depression, schizophrenia, Autism Spectrum Disorder, and related conditions.
- Resilience building
    - Therapists should identify each patient's window of tolerance and focus on building resilience skills in an effort to widen this window over time.
    - For children, "How does your engine run?" and similar visually-focused tools can be of help.
    - Principles of Dialectical Behavior Therapy (DBT) can also be helpful, as this treatment approach teaches radical acceptance, distress tolerance, and interpersonal effectiveness. DBT is the cornerstone treatment for individuals with Borderline Personality Disorder (BPD), but can be effective for anyone with a history of trauma.
- Emotion regulation
    - Therapists should help patients identify their triggers and work to manage them in an effort to restore or establish function.
- Trigger identification
    - There are several modalities that can be used in this skill area, but this generally involves learning what makes someone feel unsafe and structuring the environment to avoid those stressors whenever

possible. If it's not realistic to entirely remove triggers from the environment, grading someone's exposure and related responses is indicated.

    - One form is immersion therapy, which involves slow, graded exposure to sensations in a controlled environment to help normalize someone's ANS response to them. This is typically recommended for those with phobias.
    - Another type is systematic desensitization, which involves exposing someone to triggers while implementing relaxation techniques.

- Therapeutic activities that stimulate the vagus nerve
    - Slow, deep breathing techniques, including but not limited to box breathing, balloon breaths, alternate nostril breathing, and anchor breathing. For children, deep breathing may need to be addressed using other activities such as blowing bubbles through a straw, blowing on a pinwheel, and bumblebee breathing.
    - Mindfulness meditation, which can include the five senses exercise or any other type of meditation.
    - Somatic experiences, such as singing, dancing, laughing deeply, smiling wide, humming, Pilates, shaking, rocking, and soft touch from a familiar, trusted figure.
    - Cold water exposure
    - Arm hugs, which involve wrapping your hands around the upper arms and hugging yourself while deep breathing.
    - Acupressure, specifically tapping the collarbones with your fingertips on both hands.

- Yoga, specifically chest opening poses. One example includes sitting up tall with your shoulders back and looking over one shoulder as far back as you can while deep breathing. Once done, repeat with the other shoulder.
- Eye gaze exercises, which involve touching one ear to your shoulder and looking straight up at the ceiling while deep breathing until you feel pressure release from the chest. Once done, repeat with the other shoulder.
- Nervous system balancing, which is done by laying on your back (ideally on the ground) and lacing your fingers together to cradle your head from the base of the skull. While doing this, look to one side and maintain focus until you sigh, swallow, or yawn. This shows a release of some type of tension. Once done, repeat by looking to the other side.
- Gargling
- Chanting “om”
- Reading inspirational books
- Praying

Because of the principles of polyvagal theory, many experts feel this approach pairs well with Cognitive Behavioral Therapy (CBT), creative arts therapy, and Eye Movement Desensitization and Reprocessing (EMDR). Therefore, therapists who are trained in the use of these approaches can combine them as they see fit for use individually to support occupation.

It’s also important to mention that meaningful activity is considered to be a highly effective method of allowing the nervous system to feel safe. While this is typically

a cornerstone for all OT treatment, as it sets our profession apart from others, this should be especially highlighted when working with patients who demonstrate strong ANS responses. Meaningful activities are familiar, so they don't pose a threat to the nervous system. This is especially crucial if someone's nervous system is attuned to view many things as a threat.

In addition, therapists should monitor patients with ANS dysfunction closely over the course of the plan of care. This will help OTs feel prepared in the event they need to refer any patients to a mental health professional. This may be the case if their emotional concerns become too severe, they do not make enough progress toward their goals, or their concerns begin to extend beyond the scope of an OT's practice.

Section 3 Personal Reflection

What other principles of trauma-informed care can help a therapist structure treatment based on the polyvagal theory?

Section 3 Key Words

Window of tolerance - The optimal arousal zone through in which someone functions on a typical day

Section 4: Client Populations Suitable for Polyvagal Theory & Considerations for Practice

As you can imagine, there are many diagnoses and client populations who can potentially benefit from treatment guided by the polyvagal theory. These include but are not limited to patients with:

- A history of trauma
- Chronic pain
- Longstanding chronic conditions, especially anxiety disorders, depression, posttraumatic stress disorder (PTSD), and other mental health concerns
- Early childhood attachment disorders
- Sensory seeking behaviors
- Hypersensitivity to sensory stimuli, specifically when it leads to fear and avoidance behaviors regarding certain events, situations, or stimuli
- Concerns related to emotion regulation and interpersonal difficulties
- Impulsivity that leads to poor environmental awareness and safety concerns
- Autism Spectrum Disorder (ASD)
- Sensory Processing Disorder (SPD)

While aspects of the polyvagal theory can be beneficial for many patients who receive OT, therapists should also be aware of the criticisms it has received and how they can adapt their treatment with these in mind. One of the chief criticisms of this theory is the lack of supporting empirical evidence. This theory is mentioned in many research studies, however, its evidence base is still lacking. Many of these mentions are simply as rationale for studies focused on related modalities and not on the theory techniques itself. One reason for this (and another criticism of the theory) is that polyvagal concepts are vague, making it too difficult to test.

Experts also argue the polyvagal theory offers too simplistic a view of the nervous system, as there are many ANS mechanisms the theory overlooks. This theory also omits parts of the interplay between the nervous system and other bodily

functions, which undoubtedly all have an impact on someone's stress responses. Some researchers feel polyvagal theory can be misused by diagnosing providers for the purpose of pathologizing patients with difficult emotions or behaviors. One of the most salient criticisms is simply that the theory is not as comprehensive or relevant in comparison to more evidence-based alternatives. Most researchers and clinicians instead look to the psychophysiological coherence model, the resonance frequency model, the neurovisceral integration model, and the biological behavioral model due to their proven reliability and accuracy in explaining nervous system functions. In addition, polyvagal theory principles contradict those of current social neuroscience, which is another much more widely accepted and evidence-based approach.

In summary, therapists should not necessarily shy away from using aspects of polyvagal theory in practice. There are many helpful strategies with a polyvagal basis that can be of help to patients with a trauma history, social skills deficits, and emotional concerns. However, therapists may need to make modifications to make this approach the most effective. One adjustment involves ensuring patient education focused on the nervous system is as accurate, yet simple as possible. Therapists should also aim to educate patients about the intended effect of each nerve stimulating activity and what to look out for. When in doubt, therapists should always turn to the research to ensure their incorporation of polyvagal theory is as evidence-based as possible.

Section 4 Personal Reflection

What other approaches (occupational therapy-based or not) pair well with polyvagal theory?

Section 4 Key Words

Pathologize - Viewing or treating someone as psychologically unhealthy

Social neuroscience - In a general sense, the study of the interplay between biological systems (such as the brain and the body) and behavioral/social factors

Section 5: Case Study

An adolescent patient presents to OT in an outpatient clinic. This patient has ASD and recently also received a diagnosis of ADHD. The patient reports minor concerns about fitting in at his new school, but his parents are very worried how he will fare since he had little to no friends at his old school and none in the neighborhood. The patient, however, does report a "good" relationship with his parents and two siblings, who often serve as sources of support for him. The family confirms family relations are not a big issue. The priorities presented by the family and patient include difficulty with social skills, impulsive behaviors, and low frustration tolerance across both preferred and non-preferred tasks. The patient's family reports he is interested in physical activity, but doesn't know where to start and is scared to ask for help.

1. What initial strategies might the OT want to explore with this patient and his family?

2. What aspect of treatment will be important to this patient's success?

Section 6: Case Study Review

This section will review the case studies that were previously presented. Responses will guide the clinician through a discussion of potential answers as well as encourage reflection.

1. What initial strategies might the OT want to explore with this patient and his family?

   Due to this patient's poor frustration tolerance, sensory regulation may be a big concern. This patient is likely to benefit from polyvagal strategies to calm and regulate the body. Since the patient's family reported a potential interest in physical activity, the OT can educate him on the use of Pilates and yoga to help stimulate the vagal nerve. If this is not successful, the therapist can move to smaller, more discreet strategies such as arm hugs, collarbone taps, eye gaze exercises, and deep breathing. Trigger identification is another relevant exercise for this patient, as avoiding these and teaching the patient to do the same can help improve motivation both in and out of theray.

2. What aspect of treatment will be important to this patient's success?

   In addition to learning new techniques to calm the nervous system, this patient will likely need help carrying them over across all contexts he frequents. This may necessitate family training so they know how to best support the patient, but it may also require the therapist to do some home visits to assist with carryover. Using information from the trigger identification portion of sessions, the OT can begin social skills training. This should also be addressed across settings with a particular emphasis on school, as this seems to be where the patient struggles the most. For the best outcomes, the therapist should collaborate with this patient's school-based OT (if he has one) to fully address concerns in this setting.

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