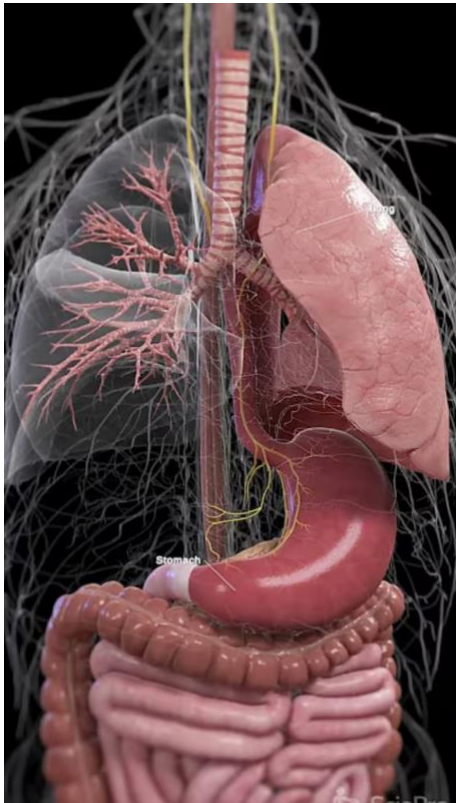


Opinion article dutch journal GZ-Psychologie 23-4 by Tineke Smit:



Opinion article Dutch journal GZ-Psychologie No. 4 2023, Tineke Smit, translation:

The polyvagal theory, a strongly grounded model

In the Dutch journal GZ-Psychology 2023 No. 1, you can read the opinion article “How a complex trauma therapy turned out to be a strong story” by professor of psychology Bart Verkuil. Psychiatrist Tineke Smit responds from her personal experience with and research on the polyvagal theory, ‘to contribute as a clinician to correct transfer of information and to keep the discussion going’.

Polyvagal theory (PVT) is a neurophysiological model that is rapidly gaining popularity due to its great value in clinical practice. The model accelerates the therapeutic process. The PVT describes the interaction between body and psyche through the nervous system. In the consulting room, we can now monitor at the level of nerves how a client is stressed, or how he or she shuts down, by following signals of facial expression, voice, stiffening or skin color change. These are autonomous, non-conscious physical reactions that can be noticed by client and therapist before mental signs become aware. Some clients, despite successful treatment (EMDR, exposure, schema, etc.) still experience impeding physical reactions, such as palpitations, intestinal distress or noise hypersensitivity. When clients begin to better

understand these physical reactions, any form of therapy proceeds more successful. From this perspective research has been conducted in multiple fields for over 30 years, with remarkable results (see stephenporges.com). Proper understanding of PVT requires thorough study. I appreciate that Verkuil has delved into this theory and has described one aspect of the PVT. I agree with him in that we should be careful in an oversimplified translation of the model, which happens in the field. However, his article lacks essential aspects already previously published in peer-reviewed publications on the PVT. I do not recognize his suggestion that Porges is increasingly “writing less stellar”, this is unsubstantiated.

SCIENCE OF SAFETY

The PVT calls itself a “science of safety”. Safety is familiar to everyone. Less known is how this safety is subconsciously communicated through our voice, facial expression and motor skills and how this affects our interaction with others. Through neuroception, an unconscious surveillance system, among others in the temporal lobe, we anticipate signals of safety or lack of safety¹. Only when we feel safe we can fully focus on work, creativity, education and social connections. This also applies to the interaction between client and therapist, neuroception is the vehicle here.

There are several inaccuracies in Verkuil's opinion article: The PVT is at its core neither a trauma model nor a form of therapy. Porges developed his model in heart/lung physiology and sound. The PVT focuses on how mammals' central and autonomic nervous systems relate to survival, reproduction and to a successful social-emotional life. It describes how our nervous system unconsciously directs our behavior to respond energy wise as efficient as possible to different situations. It explains how social contacts can be triggers of safety or unsafety and how our body already reacts without us being aware of it. The flight/fight response to stress is an example of the body's autonomic response. It is a protective response and recognition of this takes the faulty self-blame away of “why didn't I resist or have a rebuttal”. It was neuroception that triggered the autonomic response. In short, trauma is not the core of the model as Verkuil claims.

Dana has given the PVT a clinical translation with the three principles of the ladder of autonomic hierarchy, co-regulation and neuroception². She made thus autonomic (un)safety reactions understandable. I experience the value of this translation in my clinical practice, as in the above example with faulty self-blame. Clients experience relief and the explanation provides tools for improved self-management within the treatment. Common symptoms, such as abdominal pain or noise hypersensitivity, now have a place in my integrative clinical picture. Before I studied PVT, I ignored these symptoms, not knowing how to understand them. Each individual is different. Verkuil cites in his opinion article general conclusions like “woman show more often a dorsal reaction” or “clients with posttraumatic stress remain stuck in dorsal reactions”. These general remarks about application of the PVT are incorrect. I share his concern about these incorrect and overly simplistic interpretations. A human being is a too complex being to pin down with such simplicity. As with any treatment form, also those mentioned within the trauma guideline treatments, incorrect application takes place.

This unfortunately also happens with the PVT [and was the reason to start an polyvagal institute in the Netherlands].

I will now explain my rebuttals to Verkuil's three claims of criticism³ GZ-Psychologie 2023-1:

EVOLUTION

Claim Verkuil 1: "Research shows that this new vagus is not at all new and is not unique to mammals."

Verkuil refers to Taylor and Grossman who, however, incorrectly quote from the primary source article by Porges^{3,4}. He confuses like they did the nonspecific heart-breathing rhythm (Verkuil calls it "heart rhythm") of reptiles with what Porges points to that of a specific coherent heart-breathing rhythm of mammals called RSA (Respiratory sinus arrhythmia). RSA is a tool for testing autonomic resilience. In ASD, for example, lower RSA is more often found which says something about reduced adaptive flexibility in heart-breath cooperation under stress^{4,5}.

In addition, Verkuil and Neuhuber quote an incomplete claim from Porges making it look faulty: "...myelinated nerve pathways that partly determine cardiac rhythm^{3,6}" In doing so, they erase part of Porges' text, namely where those nerve pathways stem from: in reptiles this is the dorsal motor vagus nucleus (DMX), in mammals the vagal ambiguous nucleus (AMB)^{4,5}. This is an essential addition.

Porges spoke of "new" and "smart" ventral vagus from the perspective of an evolutionary time frame of millions of years⁵. In the transition from the common ancestor of reptilians and mammals (with some exceptions like the lungfish), the new second fully functional vagus nucleus AMB emerged alongside the DMX nucleus. Is that fascinating? Yes. It offers the opportunity to downregulate signals of insafety, from reactions of fight/flight/freeze to a calm heart rate and breath⁴. Without this ventral vagus our heart has a much higher heart rate. This is "smart" because now seeking safety from conspecifics and therefore calming (via sounds, posture, facial expression) became possible as a response. In evolutionary terms, that is a huge broadening of the behavioral repertoire relative to reptiles that fight/flee or lie still. Porges no longer uses "smart" now because it suggests that the AMB would "do" something itself, when that is not true (Porges communication).

KRITIEK

Claim Verkuil 2: "The distinction between dorsal and ventral responses is incorrect"

Verkuil's reasoning is partly incorrect. Animal studies have shown that both vagus branches can cause cardiac slowing^{4,7}. The dorsal cardiac branch, with today's knowledge, does not appear to be active under normal conditions.

Part of Verkuil's reasoning does hold true and is incorrectly communicated on various platforms. By the "ventral vagus response," Porges understands a balanced para/sympathic

response resulting in well-being, growth and recovery. The ventral branch of the vagus is active and, in alternation with the sympathetic, dictates a flexible heart/breathing rhythm and, with four other cranial nerves, influences the movements of neck and facial muscles (facial expression, voice, hearing and chewing/swallowing function). Among the “dorsal vagus reaction,” Porges understands a weakening of the influence of the ventral vagus

branch and sympathicus and activation of the dorsal cardiac and abdominal vagus branches. This can occur in life-threatening situations. Consequences include shutdown, sham death, vasovagal collapse (fainting) with muscle tone drop and immobility, with decreased metabolism, slowed heart rate and respiration and abdominal pain with IBS symptoms⁵. (Porges spoke of different reactions in animals regarding prey or predators, communication Porges). A mixture of these responses follows the neurological functioning.

Verkuil's critique stimulates a closer look at the freeze phenomenon and the possible influence of the dorsal vagus branch. Not every stiffening response is a dorsal response. 'Freeze' is “probably” a response of the ventral branch⁶. 'Freeze' is clinically a layered phenomenon. Peers speak of a “hot” and “cold” freeze, from mild to severe, and this will represent different autonomic nerve activities. Research on this is needed. Fainting as a severe trauma response is an example of a cold freeze dorsal response. Reed⁷ described other examples in neonates in fetal distress/hypoxia with meconium loss and Porges wrote about sham death and freezing in rabbits^{4,8}.

Verkuil's assertion that Porges would claim the dorsal vagus nucleus as the causative agent of freeze is unsubstantiated. Porges describes the influence of the higher brain regions in several articles/books, e.g. “Freezing is coordinated by the PAG..” (periaqueductal gray in the midbrain)¹.

Claim Verkuil 3: “The role of the vagal nerve is exaggerated in the polyvagal theory.”

Neuhuber⁵ confirms the role of the vagus as “paramount”. Porges describes in his articles the cooperation of the vagus with the cortex/limbic system. The vagus “conveys,” or transports, information as an intermediate station; both from the higher brain layers to the body and vice versa^{1,4,5}. It is part of the corticobulbar pathways (from cortex to brainstem) and works closely with four cranial nerves that control face and neck. It connects to higher brain nuclei including the amygdala, hypothalamus, prefrontal cortex¹. Verkuil's claim is therefore unsubstantiated.

CLAIMS OF CRITICISMS REJECTED

With the above arguments, Verkuil's criticisms have been largely rejected. With current knowledge, the PVT is a strongly grounded and helpful model that sees the human being in his wholeness of body and psyche. The model enriches the arsenal to help the client even more fully. Of course, many questions remain to be answered, for example about neuroception. The PVT invites science to explore and duplicate new perspectives within the bio-psychological field. Leontiadis already applied this perspective and shows consequences in gastroenterology of traumatic stress⁹. With a curious yet critical eye, let us examine the contribution of the PVT.

AN ENRICHMENT FOR OUR TREATMENT PLATFORM

PVT, resulting in better client self-management, can be combined with any form of therapy, including EMDR. I remember the time when EMDR was maligned, even though it was practice-based effective. It had a long path of research before it was finally, and rightly, included in treatment guidelines. I cannot but conclude that PVT's now practice-based model is an enrichment to our shared treatment platform and look forward to further developments.

About the author

Drs. Tineke Smit worked for a long time as a child and youth psychiatrist in a mental health institution and since 2022 she has her own treatment practice. Her clientele includes not only youth in the regular field but also adults who often achieved insufficient psychotherapeutic results elsewhere. She is a boardmember of the foundation Polyvagaal Instituut Nederland (see website)

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