A Neurologically-Informed Explanatory Case Study for Somatic Quieting

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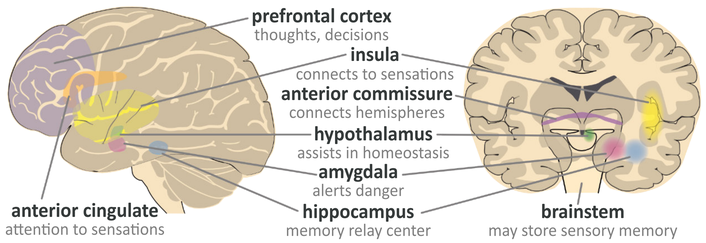
Abstract

This explanatory case study illustrates the psychological intervention of somatic quieting, a natural process of the autonomic nervous system. The intervention works by using passive emotion regulation, which is unlike emotion regulation such as behavior control. The study looks at a client who after four months no longer met the criteria for major depressive and generalized anxiety disorders, as diagnosed at the outset of therapy. A neurological review posits how interoception facilitates somatic quieting. Further research of the efficacy of somatic quieting intervention may provide evidence that the process is an invaluable tool for psychotherapy, especially brief therapy, as well as for other helping professions. The intervention offers possibilities for alleviating stressors of the modern human condition, such as COVID and civil unrest, and also reducing burdens occasioned by the shortage of mental health professionals.

Figure 1.

Sagittal view and coronal cross-section of brain.



Note: Parts of the brain are responsible for many functions. Listed are parts likely activated in somatic quieting. Integration may occur by engaging conscious attention (anterior cingulate) to sensations (via insulae) without sensorimotor control.

Introduction

Somatic quieting is a process of the nervous system by which emotions regulate passively. A child who rides a bicycle may fall off, temporarily terrified as the bike loses balance. After some time while the nervous system regulates itself (somatic quieting), the child finds courage or motivation to get back on the bicycle, and then rides as if the fall never happened. Passive emotion regulation contrasts active emotion regulation during which feelings and behaviors are controlled. In somatic quieting, emotions calm without cognitive control of the emotions, theoretically engaging the autonomic nervous system. With talk therapy, a somatic quieting intervention can effectively and efficiently reduce the intensity of hyperaroused emotions and emotions with negative valence.

This case study begins with a review of literature to support a hypothesis of how somatic quieting may alter emotion and then highlights pre- and post-test results of the first 28 sessions of an adult diagnosed with major depressive disorder and generalized anxiety disorder. A transcript illustrates an example of one of several somatic quieting interventions, which aided in reduction of anxiety and depressive symptoms. The discussion brings back neurological discussion and proposes the hypothesis of how somatic quieting works to change emotion response.

Background

Emotion described as bodily sensations is not a new concept. Paul MacLean (1970) as cited by Dalgleish et al. (2009) developed a model for human emotion from an evolutionary perspective proposing "that emotion experiences involve the integration of sensations from the world with information from the body" (p. 357). Recent studies support one concept of the somatic quieting approach that emotions become "stuck" when — during a severely stressful or traumatic event — sensations unconsciously experienced remain imprinted on the nervous system (Bechara & Damasio, 2005; Tozzi, 2014). Sensory input is obtained unconsciously through the right hemisphere via the right amygdala (Gainotti, 2020) and may remain as imprints hypothetically on the brainstem (Bechara & Damasio, 2005). Xue et al. (2022) studied neurophysiological reactions on students from the plains of China who briefly lost consciousness at university in the altitude of oxygen-light Tibet, evidencing that mental states are affected by loss of consciousness. Decreased executive function may have adverse effects on the nervous system in the presence of stress-induced stimuli; whereas orienting attention (or ability to focus) mitigates the effects of stress. In moments of lost consciousness, sensory information is unable to integrate as an emotion experience. Instead, the sensory imprint left behind forms negative perceptions of emotions (Kragel et al., 2021) and then tries to assert itself whenever a reminder triggers a reliving of the sensations, which can appear as behavioral disorders.

Neuroscience studies have increasingly been exploring the insulae, which are mediators for interoception, the basis of the somatic quieting intervention. Interoception connects the vagus and peripheral nerves to the insula wherefrom attention, perception, and cognition receive somatic signals (DeVille et al., 2018; Khalsa, et al., 2017). The peripheral nervous system, through which many sensations are felt, connects to the central nervous system by what physiologists call viscerosomatic convergence (Cervero, 1993). Viscerosomatic neurons' connection to the hypothalamus and cerebrum, or front of the brain (Burstein, 1987), and the hippocampi, may act as relays to cognition (Sahay et al., 2011). Recent studies suggest that bilateral and reciprocal connections from the prefrontal cortex (PFC) to the amygdalae and insulae via the anterior commissure mediate emotional responses (Gainotti, 2020; Craig, 2011; Morris 1999). Interoception utilizes the PFC to direct attention and it engages the anterior cingulate to feel the bodily sensations of emotion through the insula. Somatic quieting begins to occur when the client remains attentive to the sensations, or maintains interoception, as the client perceives sensations changing. As the sensations change passively, without cognitive force, the nervous system balances toward homeostasis, or calm.

Method

Subject: "Carlo" a 23-yo single, bi-sexual, Latinx male with a history of depression and anxiety since childhood. His mother had been diagnosed with borderline personality disorder. His stepfather died in a car crash eight months before beginning therapy.

Procedures: Full treatment consisted of more than 28 sessions over more than a year using primarily person-centered use of OARS and somatic quieting intervention using a protocol of Emotional Resolution®, or Emres®, developed by the Emotional Health Institute of San Francisco. The therapist used the intervention in six of the first seven sessions, and then in six of the following 21 sessions, as needed. The DASS-21 assessment was used before the initial session and after the 28th session.

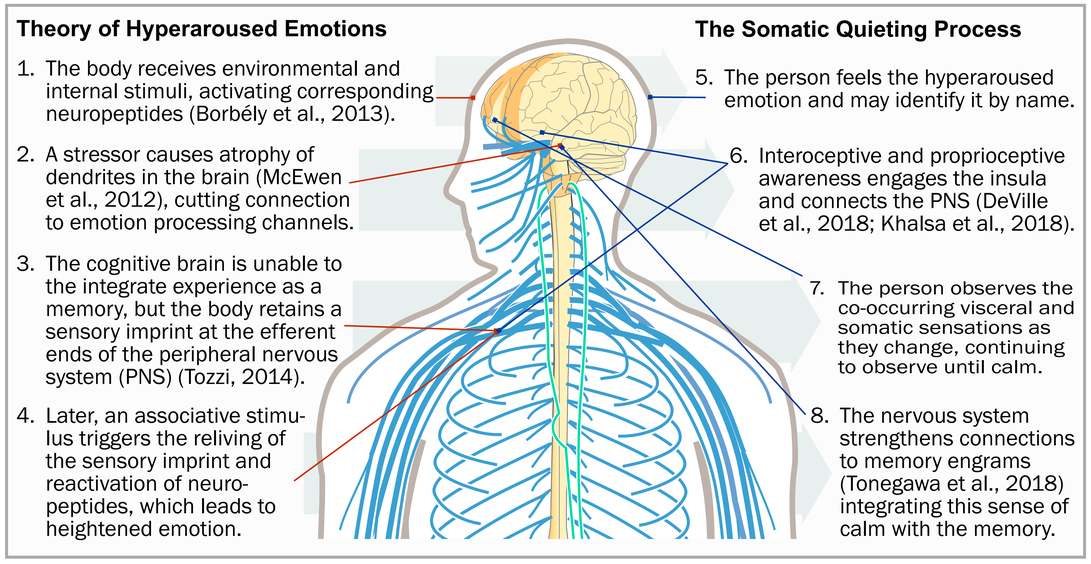
Transcript: Carlo relives a racial microaggression and engages somatic quieting. Carlo has been taught to do nothing except be aware of his body's sensations.

Therapist: Tell me again in present tense what happened, and raise your hand when you feel a shift.
Client: [Closes eyes.] I'm walking up the stairs. I get to the room. My co-worker's desk is right there. He looks at me [Raises hand] and says–
Th: What do you feel in your body right now?
Ct: Some tension in my head and in my back.
Th: Do nothing. [Pause.] Let the sensations change. [Pause.] Tell me about the changes as they happen.
Ct: My neck is loosening up.
Th: Let it change.
Ct: My shoulder is relaxing.
Th: Let it change.
Ct: My lower back is released.
Th: Let it change.
Ct: My forehead is relaxed.
Th: [Pause.] Now when you think about the situation, how do you feel?
Ct: Annoyed.
Th: I want to invite you to go back to the situation.
Carlo knows the drill and goes into the protocol.
Ct: I'm at my co-worker's desk. [Raises hand.]
Th: What sensations do you feel?
Ct: Tension in my forehead.
Th: What else?
Ct: And in my shoulders.
Th: Observe the sensations. Tell me about the changes.
Ct: My forehead's relaxing.
Th: Let it change.
Ct: My shoulder's relaxed.
Th: [Pause.] How do you feel about the situation now?
Ct: Indifferent, I guess.
Th: Indifferent. What does that feel like?
Ct: Not much. It doesn't really bother me.
Th: Okay. You can open your eyes.

VIDEO

Scan for video of somatic quieting interventions

Figure 2.



Results

Carlo's DASS-21 pre-test assessment resulted in "extremely severe" scores of 17 for depression and 11 for anxiety; his stress score was 16, or "severe". After 28 sessions, or 252 days, his scores were 3, 6, and 8, respectively. DASS-21 statements he previous reported as occurring almost always (a score of 3), were: "I found it difficult to work up the initiative to do things;" "I felt that I was using a lot of nervous energy;" "I was worried about situations in which I might panic and make a fool of myself;" "I felt down-hearted and blue;" "I was intolerant of anything that kept me from getting on with what I was doing;" "I felt I wasn't worth much as a person;" "I felt that I was rather touchy;" and "I felt that life was meaningless."

In the first session, Carlo was anhedonic, grieving the loss of his stepfather. He demonstrated interoceptive awareness and skill, easily identifying sensations in the body, separate from the brain's concept of emotion. During the 17th session, four months after beginning therapy, Carlo reported diminished symptoms. All but two of the 21 DASS statements he responded to with Never (0) or Sometimes (1). Only two of the statements he previously reported as feeling almost always he then reported as feeling often (2). By the 28th session, Carlo had endured struggles with his mother, losing his job, and starting a new job. Symptoms of anxiety increased to a moderate level but he reported mild to no depressive symptoms.

Discussion and conclusion

No two people will have exactly the same sensory experience for any emotion. Sensory memories come from different experiences, and how those sensations feel and change will also be different; though some sensations related to the physiological responses to fight, flight, or freezing, will be similar. Some sensations may not easily change, such as some traumatic experiences from childhood, as the author has observed, though the vast majority of her clients have responded well.

The somatic quieting intervention hypothetically reroutes signals alerting the amygdala, and can permanently alter an emotional experience to become calm (Figure 2). The insula, hypothalamus, hippocampus, and other parts of the brain may be working together to change associations of sensations to emotions and reduce painful experiences to memories without emotional charge.

The hypothalamus may play a significant role in the somatic quieting process. It not only has a role in the sensorimotor response to danger signals from the amygdala, but it also releases neuropeptides known as orexins to help the autonomic system reach homeostasis (Kuwaki, 2021). Interestingly, the same neuropeptides responsible for homeostasis, orexins or hypocretins, lack during loss of consciousness in narcolepsy. This brings to question whether loss of consciousness in general is associated with orexin abatement, possibly leading to "short-circuiting" connections to agents of autonomic regulation. Perhaps the somatic quieting intervention — by engaging left hemisphere attention to emotional-sensory imprints and connecting the right and left amygdalae and insulae (Gainotti, 2020) — reroutes signals that otherwise lead to dysregulated behavioral responses and is thus able to engage the hypothalamus for homeostasis.

Neuroscience research abounds in providing clues to how somatic quieting may be reducing anxiety, depression, and other conditions. A randomized controlled trial is undergoing as of the time of this poster, endeavoring to provide statistical evidence for its efficacy and thus encourage continuing study to understand more.

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Additional references are available. Contact: kiai@somaticquieting.org