

Applications of Aromatherapy in the
Treatment of Traumatic Dissociation

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Post-traumatic stress disorder (PTSD) is a serious and costly mental disorder that can develop after an individual experiences a traumatic event. The *Diagnostic and Statistical Manual of Mental Disorders: DSM-5* defines the experience of a traumatic event to be an “exposure to actual or threatened death, serious injury or sexual violence” (271). In the United States alone, 70% of the adult population has experienced at least one traumatic event by this definition. Approximately 20% of these individuals have or will develop the symptomology of PTSD. This means that at any one point in time, PTSD affects 8% of the entire adult, American population. To put that percentage in perspective, it equates to over 24 million people dealing with trauma at one time. From a financial perspective, treatment costs are staggering. The total estimated annual costs for the treatment of anxiety disorders is over \$42.3 billion. PTSD is one of the anxiety disorders within this estimate, but it is disproportionately expensive in that 50% of all outpatient mental health services are utilized by this population. (“PTSD Statistics”) Because there is no single treatment modality that works for all and in an effort to reduce financial burden, recent research has begun investigating practical, holistic approaches for adjunct treatment. Where there is mounting evidence for the efficacy of meditation, yoga, and acupuncture in the treatment of PTSD, little research has been done in the area of aromatherapy. With the recent advancements in the understanding of the neurobiological underpinnings of PTSD, it is possible to make positive use of aromatherapy blends in conjunction with traditional treatment. Aromatherapy may be particularly beneficial in the treatment of traumatic dissociation, an aspect of PTSD, which does not typically “markedly respond to standard pharmacological interventions” (Lanius, Paulsen, and Corrigan, 472).

Traumatic dissociation can be defined as “a disruption of and/or discontinuity in the normal integration of consciousness, memory, identity, emotion, perception, body representation, motor control, and behavior” (DSM-5, 291). Symptomatically these disruptions can be segmented into two categories: intrusions and loss of function. Intrusive symptoms include intrusive memories, voices, emotions, cognitions, and behavior patterns. Symptoms in the category of loss of function include amnesia as well as loss of higher cortical functions, motor control,

and somatosensory perceptions. (Lanius, Paulsen, and Corrigan, 22) These symptoms and their resulting states not only have the ability to disrupt all areas of psychological functioning, but they can last anywhere from a few seconds to several hours or even days (DSM-5, 275). The onset of a dissociative state can also be extremely rapid, leaving little time to intervene and alter course. In order to reverse or prevent such rapid state transitions, it is important to understand the roles and interplay of the autonomic nervous system, endogenous opioids, and the thalamus in the context of dissociation.

The autonomic nervous system is comprised of two opposing but complementary systems: the sympathetic nervous system (SNS) and the parasympathetic nervous system (PNS). Neither system typically activates without the other, but rather together they function in a model of accelerator and brake. In a typical threat scenario, the SNS activates in order to prepare for a fight or flight response. (Lanius, Paulsen, and Corrigan, 85) This causes an increase in heart rate and blood pressure as well as triggering a cascade to release adrenaline and cortisol (Dechen, 45). Simultaneously, the PNS also activates causing analgesia through the release of endogenous opioids. The heightened activity combined with the reduction in sensation of pain provides a chemical path for successful attack or escape. However, if the threat is overwhelming and inescapable, the PNS becomes dominant, overriding SNS activation. In this shift, endogenous opioids flood the system causing blood pressure, respiration, heart rate and metabolic decreases while simultaneously causing a numbing sensation. (Lanius, Paulsen, and Corrigan, 85) At the extreme, bradycardia, cataplexy, immobility, and paralysis can occur. With prolonged, repeated or severe trauma, PNS activation can come to dominate over SNS activation leading to hypoarousal without hyperarousal because of exacerbated responses to endogenous opioids. From this standpoint, the dissociative symptoms of loss of function can be viewed as “an opioid-mediated state of parasympathetic activation resulting in energy conservation and social withdrawal.” In short, the opioid flood produced by the PNS dominance creates the numbness and “profound detachment” that are the hallmarks of dissociation. (86)

Endogenous opioids do more than facilitate numbness and withdrawal. They also have a direct impact on the thalamus (15). In general, the thalamus can be thought of as a sensory switching station. It receives and processes sensory information, relaying it to the cortex. The cortex sends information back down again through the thalamus to regulate lower brain structures (10). High levels of arousal and endogenous opioids cause alterations in sensory processing in the thalamus (17). The thalamus, as a relay, effectively behaves like a circuit breaker. To protect both higher and lower brain structures from extreme arousal or opioid flooding, thalamic down-regulation occurs resulting in decreased sensory input and a decreased experience of emotion. Over time, thalamic deafferentation occurs. The net effect is that the reptilian brain structures become the base of operation, leading to impulsive and aggressive behaviors. (344)

Smell is the only sensory modality with processing pathways that do not travel solely through the thalamus, however. Olfactory pathways are directly connected to the limbic system and amygdala, then to other lower brain structures. Attention to scent has been also shown to increase neural connectivity specifically between the thalamus and the cortex. This means that scent has the potential to counteract thalamic down-regulation and deafferentation as well as override the dissociative response (454). However, since olfaction evokes strong emotional reactions (Dechen, 27), it can also be the most profoundly triggering as it is extremely sensitive to trauma cues (Bobinchock). For this reason, applying aromatherapy to the treatment of traumatic dissociation should be done with great care.

To explore the role of aromatherapy in the therapeutic context, a volunteer was enlisted to make use of various blends. Michelle, a physically healthy and active thirty-seven year old woman, has a history of physical, emotional, and sexual abuse and is presently in active therapy for PTSD. Michelle was particularly interested in the potential of aromatherapy as a tool for grounding as previously it had been suggested to her that she make use of ammonia based smelling salts for the same. She had been leery of using such harsh chemicals even on an as needed basis, but had not found a “safety net” to “bring her back to reality” in the event of a period of

dissociation. In the intake interview, Michelle described her dissociative episodes as either being flashbacks to previous traumatic events or outright “losses of time” where she was unable to recall either portions of or complete days. In her description of the onset of her dissociative episodes, it became clear that she is prone to hypoarousal without first experiencing symptoms of hyperarousal. She does not typically experience shortness of or shallow breath, or elevated heart rate prior to or at the start of these episodes. She most often experiences a loss of physical sensations coupled with general numbness just before she “loses time.” However, there are also times during which she does not experience, or is not aware of, any physical changes prior to dissociating. At the conclusion of the intake, we also discussed a long list of potentially triggering scents that she described overall as “woody.” These included fir, pine and cedar as well as others.

As a result of Michelle’s apparent PNS dominance in her experience of dissociation, I chose to cross-reference essential oils that are both known to have a positive effect on trauma, shock and stress with those known to be stimulating to the autonomic nervous system. Much like ammonia smelling salts shock the system back to consciousness by reengaging the SNS (“Smelling Salts”), these blends would attempt to do the same from a more natural, holistic standpoint. In addition to this stimulation, I also cross-referenced essential oils known to contain linalool. Linalool is known to act on opioid receptors (de Sousa, 2236) potentially preventing endogenous opioids from binding and causing the numbness associated with dissociation. Because Michelle’s dissociative episodes had two different degrees of onset, one with physical sensations and one without, I created two blends to address the needs of both.

The first blend was comprised of lemon (*Citrus limonum*), peppermint (*Mentha piperita*) and frankincense (*Boswellia carteri*). Lemon was chosen for its qualities as a stimulant, having a chemical constituent of linalool, and because it is said to help produce clarity of thought (Sellar, 101). Peppermint was also chosen for its stimulant capabilities, and because, similar to ammonia smelling salts, it can irritate mucous membranes triggering the inhalation reflex (Sellar, 136). Peppermint is said to be helpful for alleviating limb numbness and shock, both

qualities observable in dissociation (Sellar, 137). Frankincense was chosen for its “soothing effect on the mind” and its calming effect in relation to “obsessional states linked to the past” (Sellar, 72). Frankincense is not stimulating, but this blend was intended to be used in episodes where Michelle was able to recognize the beginning of a dissociative episode.

The second blend also was comprised of lemon and peppermint, but the third component was nutmeg (*Myristica fragrans*). Nutmeg is an extremely powerful stimulant that has the potential to revive an individual from fainting. It also contains linalool. However, “prolonged use may overexcite the motor nerves” (Sellar, 125). For this reason, this blend was designed for emergency use in the event that the dissociative episode occurred without warning. This blend was given to the individuals supporting Michelle so that they could suggest its usage or administer it in the event that Michelle was unable to do so herself.

Both blends were blended in a 5/4/3 drop ratio to ensure a top note of lemon and middle note of peppermint, while allowing for base notes of frankincense and nutmeg. They were administered via an aromatherapy inhaler in order to ensure the fastest absorption and effect as possible. This was crucial in order to provide an immediate grounding effect and relief.

These blends proved effective for Michelle in managing her dissociation both in the context of her therapy sessions and in life in general. In a three-month follow up, she reported that she was able to carry the primary blend and make use of it to avoid “falling into losses of time.” In the context of her therapy sessions, she was able to use both the primary blend and the “emergency” blend to work through talking about a particular traumatic event on the anniversary of the event itself. She reported in that instance being “able to remain present for the first time ever” in thinking about it and recounting it.

While Michelle is just one individual, the results here have shown that aromatherapy may be a significantly helpful adjunct treatment for traumatic dissociation. More research and case studies in this area could only aid in the search for cost effective, sustainable, simple and holistic treatments for this disorder that effects so many.

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