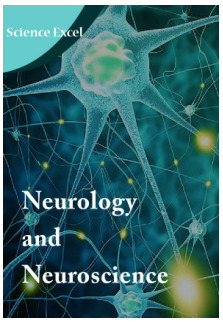
Neurology & Neuroscience

Case Report



ACE's High, Chronic Homelessness & Binaural Sound: A Case Report

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Abstract

Through RESET Therapy (RT), a binaural sound-based nonverbal intervention, clinicians have found a key to unlock and process long-term memories of trauma, pain, addiction, and chronic stress. To bring this support into daily life, the sound-based mobile application Resolve-It! was developed for iPhone and Android. This digital tool serves as a dynamic extension of the therapeutic framework, allowing users to address acute triggers and sudden stressors in real time at home or work. By utilizing this immediate intervention, individuals shift from a reactive state into active agents of their own stabilization.

To rigorously evaluate the clinical efficacy of this sound-based protocol, a targeted initiative was implemented with a chronically homeless volunteer at the Salvation Army Shelter of Hope in Hickory, North Carolina. The resulting case report directly substantiates the established therapeutic framework proposed by trauma expert Bessel van der Kolk. According to his paradigm, sustainable trauma remediation depends entirely on three milestones: learning to tolerate and understand somatic signals, regulating the autonomic arousal system, and restoring purposeful action rather than remaining paralyzed by profound helplessness.

Ultimately, the outcomes observed in this case report exemplify the core mechanics of psychological resilience. By consistently engaging with the RT protocol, the participant demonstrated a profound capacity to transform adverse experiences into a powerful catalyst for personal growth. This clinical evidence highlights how targeted auditory intervention and intranasal infrared light can successfully rebuild the physiological and cognitive infrastructure necessary for long-term trauma recovery, leading to healthy, adaptive functioning.

Introduction

It is estimated that in 2026, 771,480 persons experienced homelessness on a given night in the United States, as specified by the Department of Housing and Urban Development (HUD) statistics. This number corresponds to approximately 23 of every 10,000 Americans, who are inclined to be located in urban regions and coastal states. For example, California accounts for approximately 24% of the U.S. homeless population. Approximately half of the unhoused are unsheltered, while roughly 327,000 individuals reside in emergency or transitional shelters [1].

Studies reveal that 90 to 99% of homeless adults have experienced one or more traumatic events in their lifetime. Childhood trauma that involves emotional abuse, parental substance use, or neglect has been identified in 90% of the homeless population. Furthermore, more than half of those surveyed identified four or more incidents of childhood trauma through their endorsement of the Adverse Childhood Experiences Inventory (ACE). Additionally, 72% experienced physical or sexual violence in their lifetimes [2].

A 2026 review of traumatic experiences that include post-traumatic stress disorder (PTSD) found that exposure of this type severely affects and negatively alters brain function. Neuroimages taken in resting-state trauma-exposed persons sought to identify specific neural signatures from trauma-related alterations.

> "*These studies highlighted alterations in specific brain networks, such as the default mode network, salience network, and central executive network, in individuals with traumatic experiences and PTSD. Common findings included alterations in the medial prefrontal cortex and the subcortical regions involving the amygdala and the hippocampus in individuals with PTSD [3].*"

Further insight into the neural foundation of trauma-related consequences has been identified. It is now recognized that trauma considerably alters cognitive function through the consequent change of the nervous system in a chronic state of hyperarousal. This shifts brain activity from high-level thinking

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processes toward that of basic survival instincts. The consequent effects reduce attention span, impair memory abilities, slow information processing, and diminish executive functions, which include the ability to rationally plan and to engage in reality-based decision-making. Specifically, when trauma occurs, the brain undergoes structural and chemical changes that impair daily cognitive function [4-5].

Additionally, trauma often causes individuals to disengage from their bodily awareness in order to avoid physical or emotional pain, making it difficult to understand internal cues before they manifest as intense anxiety or panic attacks. This is also referred to as dissociation, a psychological mechanism in which one's mind disconnects from one's thoughts, feelings, memories, or sense of identity. It can exist on a spectrum that ranges from mild, everyday experiences to severe, disruptive conditions caused by trauma or heightened levels of stress.

Traumatized individuals often find themselves "stuck" in a fight, flight, freeze, fawn, or collapse state. The fawn response is infrequently discussed, which involves a tendency to appease others to avoid conflict or further trauma. Individuals with this issue struggle to set boundaries, say no, or prioritize their own needs. Learning to regulate arousal involves the restoration of the body to a balanced state (homeostasis), thereby allowing the prefrontal cortex (responsible for logic and decision-making) to function properly. Indeed, trauma can trick the brain into the belief that it is helpless. Learning to engage in deliberate restorative actions can break this cycle and teach the brain to alter or avoid situations that induce threat.

A specific emotion-related region of the brain affected is the amygdala, which is responsible for the detection of threats. This alteration results in a constant scan process for danger that leads to extreme distractibility and an inability to focus on non-threat tasks. The shift also produces diminished activation of the prefrontal cortex that is responsible for impulse control, logic, and rational thought. The hippocampus, part of the brain that theorizes and stores memories, can also be negatively affected by chronic stress hormones. Disruption in this region of the brain can lead to difficulty in the capacity to distinguish past traumatic events from present ones, memory gaps, and mental fog. Cognitive disruptions of this type often resemble attention deficit hyperactivity disorder (ADHD).

Resilience

A Google Scholar search for "resilience" in 2026 yields approximately 4.1 million to 4.3 million results. Despite this extensive inquiry, little is known about the mechanisms that sustain or produce this adaptive ability. Different fields of study and disciplines have explored the concept, which ultimately led to the emergence of a multisystemic perspective [6]. Traditionally, the U.S. Department of Health and Human Services (2015) defines individual resilience as:

". . . the ability to withstand, adapt to, and recover from adversity and stress. In other words, resilience can manifest as maintaining or returning to one's original state of mental health or wellbeing or reaching a more mature and well-developed state of mental health or wellbeing through the use of effective coping strategies" [7].

In contrast, the provided example [8] exemplifies a more recent multisystemic approach:

"Resilience is the capacity of a system, enterprise, or a person to maintain its core purpose and integrity in the face of dramatically changed circumstances. In human physiology, resilience is the capacity to adaptively overcome stress and adversity while maintaining normal psychological and physical functioning."

A psychological framework for the development of mental toughness and the ability to cope with adversity is known as the 5 Cs of resilience. These pillars, often used to coach others, include challenge, commitment, confidence, control, and connection. The perspective that obstacles can lead to growth rather than being insurmountable threats exemplifies the challenge aspect of resilience. The maintenance of dedication to specific goals provides a sense of purpose and embodies commitment. The cultivation of confidence by focusing on self-worth and capabilities involves developing an internal trust system. Attention to factors one can influence, rather than stress developed over events one cannot change, epitomizes control. Finally, the ability to develop an extended social network that includes family, friends, and mentors characterizes the connection aspect of resilience [9].

Building on this perspective and redefinition of resilience, a recent study will be briefly discussed related to PTSD subtypes based on dysfunctional neural networks that have unique signatures. A group of 271 veterans (10% female) who completed resting-state MRI and neuropsychological tests underwent whole-brain functional connectivity analyses between brain functioning, PTSD symptoms, and cognition. At the basic network level, the severity of PTSD symptoms was associated with:

". . . reduced negative coupling between the limbic network (LN) and frontal-parietal control network (FPCN), driven specifically by the dorsolateral prefrontal cortex and amygdala Hubs of Dysfunction. . . The obtained data suggest that weakened executive functioning, alongside dysfunctional limbic regulation, likely represents a neurocognitive subtype of PTSD" [10].

This psychologist's clinical observation is that, regardless of the cortical networks involved, pairing a selective binaural frequency that resonates with an existing impaired trauma circuit has a normalization effect on the involved circuitry. This uniquely tuned-in association alters the memory reconsolidation process, which disconnects and frees the participant from the limbic-driven trauma memories. When this phenomenon occurs, resilience appears to re-emerge as it had prior to the participant's traumatic experiences.

When PTSD occurs due to childhood factors, an opportunity becomes available for the development of more functional coping mechanisms that can replace dysfunctional reactions. Thus, the author concludes that resilience is a characteristic of an intact, properly functioning neuronal system in contrast to a trauma-induced dysfunctional network. Experientially, all project participants, chronically homeless adult volunteers housed at the Salvation Army Shelter of Hope in Hickory, North Carolina, described limited benefits derived from prior psychotherapies and pharmacotherapies for PTSD or other disorders.

"For example, for prolonged exposure—the gold-standard PTSD treatment—nonresponse rates range from 25% to 60%, with dropout rates reaching 50%. Similarly, few medications have been found to ameliorate PTSD, with small effect sizes. Military veterans, a highly trauma-exposed population, benefit even less from existing treatments and have higher attrition rates [11]."

Treatment Modality

Reconsolidation Enhancement by Stimulation of Emotional Triggers (RESET Therapy - RT) is a remediative treatment that uses resonant binaural sound/beats to disrupt the restoration process of targeted trauma memories. The intervention obstructs the negatively hyperaroused emotional and somatic aspects of trauma from being restored into long-term memory. The memory is selectively 'lit up' (triggered) in the brain's emotionally sensitive regions through the participant's intentional focus. The aim is to identify a resonant frequency associated with the disturbance in memory. The transformative nature of RT derives from the discovery around the turn of the century (2000) that interference with the memory reconsolidation process can facilitate alteration of long-term stored emotional memories [12]. The term 'target' is used in RESET Therapy and suggests that the investigators will aim to turn off the 'switch' in the brain that produces the PTSD symptoms [13].

Within this context, change is perceived as arising from a deep sensory shift that restores brain circuitry to a homeostatic balance. Through the RT intervention, harmful worldviews, such as distrust of others, are transformed into more adaptive potential. In a sense, one might think of it as a type of brain plasticity. A unique feature of RT is that, because it is nonverbal, the participant is spared shame and vulnerability associated with potentially embarrassing self-disclosure to a relative stranger. While still considered experimental, RT therapy is rapid in its change effects and requires fewer treatment sessions than conventional psychotherapies.

The use of a uniquely tuned-in binaural sound/beat designed to resonate with an individualized aberrant trauma brain circuit rapidly remediated Post-Traumatic Stress Disorder among 8 combat veterans who participated in a pilot study [14-17]. Based on these results, the primary study author hypothesized that the restoration of the neuronal network system among these veterans, one of whom had experienced PTSD for over 50 years, reactivated a resilience factor that was previously absent due to the trauma-induced condition. In this article, the aim is to further explore this phenomenon by focusing on the restoration of cortical function in individuals with a history of chronic homelessness.

Resolve-It!

Smartphone ownership currently stands at around 91% among U.S. adults, which exceeds the 81% mark recorded around 2015. Nearly 98% of Americans own some form of mobile phone, and about 60% of the global population now owns a smartphone [18]. The National Institute of Mental Health (NIMH) perceives that apps offer a readily available entry into mental health care, thereby engaging clients at a younger age in treatment. [19]. A 2021 study on homelessness revealed that smartphone availability changed participants' behaviors and outlooks, that includes their self-health management.

> "*People experiencing homelessness used the tools on a smartphone to make decisions, take action, solve problems, and use the resources—skills necessary for fulfilling tasks required for effective self-management. Further, consistent access to smartphone technology and transportation empowered participants to meet the requirements for the attainment of social needs*" [20].

With regard to the current study, the author intends to implement an auxiliary treatment instrument called 'Resolve-It' to facilitate an active treatment process for the selected participant. Resolve-It! delivers binaural sound via an iPhone or Android device owned by the participant. As described earlier, aberrant neuronal networks are remediated by modifying stored long-term memory via memory reconsolidation. In this research, a significant variable is the development of self-control in an individual who typically lacks emotional self-regulatory abilities.

This objective will be accomplished through immediate access to the iPhone/Android app, which includes being trained in its proper use. Resolve-It! is intended to be introduced early in the treatment process, following the initial RESET Therapy phase, thereby allowing the participant to develop mastery of self-management skills. The application is designed to use separate, independent volume controls and sound generators for each ear. The Volume Sliders are measured in decibels (dB) that range from 0 to 100.

The sound intensity depends on the phone's Volume Sliders control level. In contrast, the primary left ear Frequency Slider ranges from 25 to 500 Hertz (Hz). The secondary right ear Release Slider sets itself to the frequency selected by the user, then creates an additional 20 Hz range. For example, if a Primary Frequency (left ear) is identified at 380 Hz, the secondary (right ear) range will extend from 380 to 400 Hz. When the frequency and offset placements are properly identified by the psychologist or trained participant, a rhythmic, pulsating sound will be noticeable midway in the mind. This is referred to as the resonant frequency or binaural beat. Resolve-It! is available at no cost through the Apple or Google Play Store.

Figure 1: Resolve-It!

Photobiomodulation (PBM)

The energy from a light source is placed near the skin, thereby permitting photons to penetrate the surrounding tissue to depths mainly determined by irradiance (mw/cm2) and wavelength (700-1300nm). The resulting stimulation induces changes that alter molecular and cellular processes in the affected tissue. A series of physiological reactions in damaged and diseased tissue accelerates healing, including tissue regeneration and neuronal and synaptic dissemination, thereby decreasing inflammatory responses, reducing pain, conferring neuroprotection against further damage, and normalizing cellular metabolism. [21].

A recent study of patients with cognitive impairment investigated the effects of a single treatment with near-infrared photobiomodulation. A visual memory span test was administered to both the treatment and sham groups before and after stimulation. Significant improvement was noted on the memory span test only in the treatment group. [22].

Improvements have been noted with PBM in attention, memory, and learning among aging adults. [23-24]. In another study, Transcranial PBM using red and/or near-infrared light was systematically searched for using keywords from 1967 to 2020. Thirty-six studies were selected, all of which reported positive results. The authors noted initial reports of positive effects and no adverse effects among participants. [25]. Among participants in the proposed RESET Therapy study, those who evidence significant cognitive impairment on pre-treatment screening tools will have PBM added to their treatment regimen.

Figure 2: *Vielight - Model MIP 655-810*

Case Report

6/15/2026: Tess is a 53-year-old unmarried Caucasian female with two biracial children: a 28-year-old son who lives independently and a 13-year-old daughter who resides with her in her current Salvation Army Shelter of Hope placement. She perceives herself as being the black sheep in her prejudiced family of origin. "I don't do drugs. I don't drink," which highlights her pride in her choices despite feeling alienated due to her family's racial prejudice and substance use issues. Tess reported over a year of homelessness linked to a difficult living situation that involved financial exploitation and social isolation.

On the administered psychometric instruments, Tess exhibited a clinical profile characterized by high developmental trauma burden, severe post-traumatic symptomatology, and a highly structured, albeit pathological, behavioral adaptation. Specifically, her endorsement of 7 out of 10 items on the Adverse Childhood Experiences (ACE) Questionnaire indicates significant exposure to complex relational trauma during critical developmental windows, anchored by the profound betrayal of childhood sexual abuse. This historical foundation directly correlates with her presentation on the Posttraumatic Stress Disorder Checklist (PCL-6), where her total score of 59 substantially surpasses the clinical threshold of 33/34, placing her squarely within the severe range for Post-Traumatic Stress Disorder.

While her score of 3.5 on the Brief Resilience Scale (BRS) technically falls within the statistically normal range, this apparent psychological elasticity must not be misconstrued as healthy intrinsic homeostasis; rather, it reflects a deeply entrenched, compulsive over-adaptation. In the context of her extensive trauma history, this functional adaptation is highly indicative of an automated "Fawn" survival response, wherein Tess relies on pervasive interpersonal placation and chronic people-pleasing behaviors as a primary, subcortical defense mechanism to mitigate perceived threats and maintain relational safety.

She further discussed her challenging family background, which included her father's alcoholism and abandonment, and her mother's struggle to support the family. Tess shared her experiences of trauma, which include childhood abuse and domestic violence, which contribute to her current mental health struggles. Additionally, she reports assault on numerous occasions and having experienced four concussions.

She also reports the presence of anxiety in social situations, saying that, "I shut myself off," which indicates her tendency to withdraw when she feels overwhelmed. Additionally, she mentioned bad dreams related to her past traumas and a history of suicidal ideation, which includes a past attempt with a gun about fifteen years ago. She was psychiatrically hospitalized on one occasion for two weeks.

When asked, Tess identified herself as a chest breather and said she was open to learning an alternative approach that would likely reduce her stress. She was consequently provided with instruction in diaphragmatic (belly) breath procedures. Brief practice produced a sense of relaxation within her. She agreed to repeat this type of breath practice for five-minute periods several times daily, with the objective of ultimately implementing it fully within several months of practice.

The RESET Therapy approach was discussed with her as a means to assist her with a more viable way to cope with reality and to develop the means to find alternatives to her current homeless situation. She expressed openness to this novel treatment that focused on bodily sensations and subconscious processes rather than the verbalization of trauma experiences. She understands that Phase One of the treatment consists of her first four half-hour sessions designed to have her physically experience and mentally understand the RESET Therapy method. With the psychologist's guidance, Tess was able to download the Resolve-It! app and test its functionality and ability to produce sound on her Android phone. She further agreed to use the app when we next meet, with a focus on her messiness trigger.

In preparation for the next treatment session, she was asked to develop a trigger list of matters that negatively activated her. Tess included items that ranged from mild (2-3), moderate (4-7), and severe (7-10). In the mild range, she added that she was sensitive to mess around her and to someone she doesn't know getting too close. Under moderate, she is triggered when someone jerks their body near her or when sudden loud noises occur. Under severe, she lists that she is strongly triggered when two or more people talk to her simultaneously or when crowds develop near her.

On **6/22/2026**, Tess was provided with the Beck Anxiety and Depression scales. Her psychometric profile reveals a highly distressing clinical presentation characterized by co-

occurring, severe manifestations of both anxiety and depression, necessitating immediate, intensive therapeutic intervention. Her BAI score of 45 falls comfortably within the severe anxiety range, signaling profound autonomic hyperarousal, subjective panic, and debilitating somatic distress.

Concurrently, her BDI-II score of 29 places her at the threshold of severe depression (range 29–63), indicating significant cognitive-affective despair, anhedonia, and neurovegetative impairment. This high-level comorbidity drastically elevates her risk for functional impairment, emotional dysregulation, and potential suicidal ideation, as severe anxiety frequently exacerbates the subjective distress of a depressive episode.

Tess shared a complex history of mental health challenges that include PTSD, dissociative disorder, depression with a prior hospitalization, past self-mutilation behaviors, and obsessive-compulsive disorder. She described present physical health issues such as rheumatoid arthritis, mixed connective tissue disease, fibromyalgia, lupus, muscular dystrophy, and emphysema that contribute to her overall physical distress. Despite these challenges, she expressed improved mood and no current thoughts of self-harm. She stated, "I just recently went to church with somebody I met," which suggests a positive shift in her social connections.

On **6/30/2026**, Tess was provided with a Montreal Cognitive Assessment (MoCA) due to her earlier report related to four concussion experiences. The additional intervention was provided at this point to avoid contamination of findings related to her prior use of binaural sound. The MoCA is a brief 30-item test used to detect mild cognitive impairment, assessing short-term memory, executive functions, and visuospatial abilities through a series of tasks administered in about 15 minutes. On this instrument, Tess earned a score of 17, placing her in the Moderate Range of cognitive impairment. Consequently, she was provided with a photobiomodulation (PBM) intranasal infrared device (Vielight - Model 810) to use for the next month.

The unit works by directing light energy through the nasal passage into the brain, targeting damaged brain cells directly through a thin layer inside the skull. Once inside, the light stimulates the damaged regions and changes how injured cells function. This non-invasive light initiates a vital reaction that restores energy production in injured brain cells, a process that is usually disrupted after a traumatic brain injury (TBI).

By boosting cell energy and increasing blood flow to injured areas, the technology stimulates the brain to repair its own nerve networks and grow new tissue. Ultimately, this process calms harmful brain swelling, protects surviving brain cells from secondary damage, and improves sleep, mood, and daily thinking skills. It also triggers a series of natural reactions that accelerate healing, regrow tissue, and repair nerve connections. Eventually, this technology also reduces inflammation, lowers pain, protects cells from further damage, and restores normal tissue health.

Tess reported distress related to a compulsive need to clean triggered by perceptions of messiness, initially rating her level of disturbance as ten out of ten. The Subjective method of RESET Therapy was implemented, with Tess warned to avoid putting positive matters into the sound. She monitored her heart rate, muscle tension, and sweat gland activity as the psychologist slowly adjusted the Frequency Slider until she waved, which indicated an elevated distress level.

The psychologist then slowly adjusted the Release Slider after instructing Tess to wave when the stress level reduced. After her second wave, she received five minutes of psychologist-provided RESET Therapy. Tess noted a reduction in urgency, saying, "It's not like I have to hurry right now and clean it because it's a mess." She also reported a decrease in her distress level from 10 to 8 after the five-minute subjective experience. She agreed to further develop a hierarchy of stress triggers to guide her future treatment.

7/07/2026, Tess reported increased improvement in her anxiety regarding her clean fixation on having to immediately fix messy things, rating her distress level at a 5, where she had previously rated it at 8. Psychoeducation was provided regarding subconscious processing referred to as "Mikey's Way," which is involved in automatic ideomotor reactions. A pendulum was used to demonstrate the subconscious mind's ability to respond nonverbally. Tess was informed that this procedure must be used only to identify resonant sound frequencies for treatment.

Tess successfully implemented the initial stage of the procedure, which addressed test questions such as identifying her appropriate birthday, which initiated pendulum movement. The psychologist adjusted the Frequency Slider with Tess holding the pendulum as instructed. After pendulum movement with the Frequency Slider, the Release Slider was utilized in a similar manner. After identifying settings with this ideomotor methodology, eight minutes of binaural beats were provided. Tess perceived a greatly reduced trigger reaction to imagined messiness, reporting a 2-level reduction after eight minutes of sound exposure. She expressed excitement about the potential that this new treatment offers, saying that she prefers the Mikey's Way option.

7/16/2026: ***(Tess)*** My doctor put me on a new medication called Fanapt for my bipolar manic phase and for sleep issues. I just started it yesterday. I noticed fewer mood swings.

(Doc): We'll continue with the sound treatment. You're now in Phase Two, where you will learn to self-treat, and I'll be here to support and coach you. There are aspects I want you to know about it. 'The name you chose for your subconscious mind, 'Alice in Wonderland,' has learned that she can be free of the traumatic memories that have been with her since childhood.

She may try to release some of this material in your dreams or at other times. You can stop it, or you can let her release, whatever you choose. In this second phase, which covers our next four-half-hours, I'm your coach, and you will adjust the Release-It! app's sliders using the pendulum on your own. When we finish, you will take all the assessment tests I gave you again to see how much you've changed.

(Tess): I noticed that I'm more assertive with other people. Another thing that's happening is that I can say no and stick to it.

(Doc): That's a wonderful way to protect yourself. That's what my research is for. Let's do another treatment and don't make your target too hard.

(Tess): My target is when somebody I don't know gets too close.

(Doc): I want you to imagine it and, of course, it's important that you feel it. Now that you have brought up the program, move the Frequency Slider with 'Alice in Wonderland' to guide you, and then adjust the Release Slider all by yourself. You're to imagine that someone's too close that you don't know, and you'll get to feel it. Then you will have Alice move the pendulum when she internally connects with the uncomfortable sensation. Then, leave the sound on for ten minutes. After the ten minutes were

complete, Tess was asked, "What number would you give it when you started and when you finished?"

(Tess): Probably a 10 when I began and a 6 when I stopped.

(Doc): So, it's coming down. RESET Therapy is effective for you, especially when you learn to do it on your own. From now on, you can take up to 15 minutes if you like. Any questions about what we're doing?

(Tess): No. Actually, I'm starting to understand it more.

(Doc): You're doing great with this process!

7/23/2026: ***(Tess)***: I had a dental procedure today and had three teeth pulled. It doesn't hurt, but it's just now starting to swell on my face. I used the Resolve-It! app before the dental visit, and it really helped with the pain both before and after the extractions.

(Doc): Wow, that's wonderful!

(Tess) I also got my ID, and I will submit apartment applications on Monday. Also, I will go to Social Security on Friday to get my card and have my daughter's replaced. I went to see my regular doctor, and they are thinking about taking me off oxygen during the day, but they want me to still use it at night.

(Doc): Sounds like you have a positive framework for getting on with your life. Good for you! How's this treatment doing for you? Are you using it on your own?

(Tess)Resolve-It! got me up, and I'm able to do what I need to do each day. At night, I sit down, put my earbuds in, and do it for 15 minutes while my daughter is playing and stuff. And then I make sure I don't have to argue with anyone. I've worked on other matters too. It's gotten to the point where I don't have any problem talking to people. I can sit there and have a conversation with them, and I'm not scared.

(Doc): Sounds like change to me.

(Tess): I've got a bit more to work on emotionally. I know I'm not there yet, but I'm sixty-five to seventy percent there.

(Doc): I'm impressed. You've done wonderfully. You're not the same person I first met.

(Tess): A lot of people say that I'm kinda different because I talk more, and I'm more confident. I'm able to handle myself better in situations. Resolve-It! just seems to turn things around. I can say no when I have to, but I'm still able to say yes.

(Doc): That's assertive; you've been able to model a different person for your daughter, haven't you? Because that's what she will pick up on: how you behave, not what you say. Cool! How's your sleep?

(Tess): It's good. I went to sleep last night about eight o'clock and didn't get up till almost six.

7/30/2026: ***(Doc)***: So, how are you doing with this sound therapy?

(Tess): Talk therapy is like reliving it over and over again and not getting anywhere. With this approach, it triggers events in my mind, and when I'm done, I don't have any negative feelings for it. I did it before I went to the dentist, and it helped me handle the pain. They would have had to put me under if I hadn't used the sound.

(Doc): You said you had about thirty percent left to change, so what's involved in the thirty percent?

(Tess): I want more patience with people, to understand more, and to be able to tolerate more people. At the shelter, they're asking me more questions, and I'm able to answer them without getting irritated.

(Doc): From my perspective, you're doing great, although you still have some deep-rooted stuff to address.

(Tess): I didn't think I was doing that well.

(Doc): You are, but I want you to get to that stuff that still keeps you in the trauma group.

8/04/2026: ***(Tess)***: I'm doing treatment on my own now, and It's good. I did it on Saturday and on Sunday.

(Doc): Today, I will ask you to talk about the kind of therapy you had when you were a child.

(Doc): I had talk therapy and group therapy. I had mostly just twenty-minute talks with somebody, and then I'd be out the door quickly. I had a lot of problems when I was younger. My parents were constantly fighting, and I had a lot of problems with my father. With him, I had verbal abuse and neglect. His brother molested me when I was younger. My father held that against me and thought it was my fault.

(Doc): How old were you when it happened?

(Tess): I was eight.

(Doc): Oh goodness. And your dad held that against you? Have you ever gotten over that?

(Tess): I think I have, but I don't want to deal with him in any way.

(Doc): Your last test results say that you still have some emotional poison inside of you. Any idea what it is?

(Tess): I kinda do. It's more relationship-wise. If I don't feel safe or secure, I back off and avoid them.

(Doc): I want to clear out that poison and do a session with you now. This one will be a little different. I'd like you to have Tess steer the boat and take you to where the healing needs to happen.

(Tess): After engaging in self-treatment, Tess noted: At first, I thought it was really tense, and then it got lighter. At first, my father came in and beat me with a belt; I felt a slap across my face for eating a sandwich, calling me a whore just like your mama, and handcuffed me to my bed.

(Doc): Really? Oh, wow. Was he drinking at that time?

(Tess): He was drunk and was smacking me across the face at the dinner table.

(Doc): I'm amazed you're still able to function. What number would you give it when you started?

(Tess): It really made a ten level at the beginning. Right now, it's, like, four.

(Doc): You asked her to take you deep because we don't want to deal with the surface stuff anymore.

(Tess): He put me in a child's home because he didn't want me. He'd kidnapped me from my mom and put me in a children's home. I was there a month and a half before my mama found me. We had to stay in one awful room, like a barn. One level was for girls; the other level was for boys.

(Doc): So, your dad just stuck you in there? What was the reason?

(Tess): He tried to aggravate my mama. When he handcuffed me to the bed, I told him that the next-door neighbor raped me, and he didn't believe me.

(Doc): Please release that deep stuff because it comes to you through you. I believe that you will do well from this point on because you're trying to improve yourself.

(Tess): There are a lot of people who say that since I've been here, they've seen a lot of change and more confidence.

(Doc): Well, you're taking to the treatment like a fish to water.

(Tess): Well, I know. It's awesome.

Discussion

The implementation of RESET Therapy (Reconsolidation Enhancement Stimulation of Emotional Triggers) as the primary therapeutic modality directly accounts for Tess's highly robust treatment trajectory. By utilizing targeted sound frequency stimulation to disrupt and down-regulate the hyper-excited acoustic startle response, RESET Therapy successfully targeted her core neurological trauma loops. This precise intervention facilitated the rapid reconsolidation of traumatic memories, shifting them from affective, high-distress states to cognitive, processed memories.

The 30-point reduction observed on the Posttraumatic Stress Disorder Checklist (PCL) represents a highly significant clinical milestone, as it far exceeds the established minimum clinically important difference (MCID) of 5 to 10 points. This substantial drop provides strong objective evidence that RESET Therapy successfully disrupted the chronic trauma loops driven by an overactive amygdala, effectively down-regulating the patient's severe hyperarousal and avoidance behaviors.

By targeting these core survival mechanisms, the intervention facilitated a rapid shift toward neural regulation. Ultimately, this profound symptomatic relief is reflected in her post-treatment score of 29, which officially drops her below the typical diagnostic threshold and strongly suggests that Tess has achieved partial clinical remission.

Tess's 11-point increase on the Montreal Cognitive Assessment (MoCA) signifies a profound clinical shift from moderate cognitive impairment to normal cognitive functioning. This leap from a baseline score of 17 to a post-treatment score of 28 is highly unusual for degenerative conditions, suggesting that the intranasal near-infrared therapy actively targeted and alleviated reversible neurocognitive deficits.

By delivering 810nm light energy directly to the nasal vasculature and prefrontal cortex, the Vielight Model 810 likely stimulated mitochondrial function, enhanced localized blood flow, and boosted cellular energy production (ATP) in compromised neural networks. Clinically, an improvement of this magnitude implies that Tess transitioned from experiencing noticeable daily challenges in memory, executive function, and focus to a state where her processing capacity and mental clarity are fully restored to a healthy baseline.

Also at baseline, Tess was administered the Beck Anxiety Inventory (BAI), achieving a score of 45, which correlates with the Severe Anxiety Range (scores 26-63). High levels of autonomic arousal, subjective distress, and somatic symptoms consistent with the clinical threshold of severe anxiety characterized this initial presentation. Following the RESET Therapy treatment protocol, Tess's post-treatment score decreased to 20, shifting her into the Moderate Anxiety Range (scores 16–25).

A comparative analysis reveals a 25-point reduction, demonstrating a statistically significant and clinically meaningful downward trajectory. This sharp decline signifies a robust therapeutic response, reflecting substantial mitigation of physiological somatic symptoms, improved emotional regulation, and enhanced daily functional capacity. However, continuing maintenance therapy may be indicated to stabilize the remaining mild symptoms.

Conclusions

Bessel van der Kolk's criteria related to the extinguishment of trauma effects on the brain appear to have been accomplished by this participant. Tess is clearly learning to tolerate her body's internal signals (interoception) and can take decisive, purposeful actions after experiencing a lifetime of helplessness. The core somatic and neurobiological shifts required to reverse trauma have been successfully demonstrated in this participant. Tess achieved these milestones through a targeted bottom-up somatic intervention that altered faulty brain networks. She has transitioned from dissociating from her body to successfully confronting and tolerating her internal physical signals. This directly counters the trauma-induced hyper-reactivity of her amygdala, which created an instinctive primary protective response pattern in her.

Additionally, she has mastered diaphragmatic breathing, thereby learning to manually calm her autonomic nervous system. This shifts her physiology away from a chronic, survival-driven fight-or-flight state toward balance by providing a constant source of oxygen to her brain. Finally, Tess has successfully overcome a lifetime of trauma-induced paralysis. She achieved this by utilizing an Android-based binaural sound application called Resolve-It! to initiate decisive, purposeful action.

Remarkably, these profound neurobiological gains were accomplished within a concise total timeline of eight one-half-hour treatment sessions of direct contact with the primary therapist. This highlights the rapid efficacy of pairing somatic pacing with modern neurological tools. Before this intervention, Tess presented with a complex clinical profile rooted in severe, chronic developmental childhood trauma. This developmental condition was further compounded by a history of multiple traumatic brain injuries (TBI's). This combination produced severe autonomic dysregulation, executive dysfunction, and profound somatosensory distortion.

Tess's primary former survival mechanism manifested as a severe, chronic fawn response. She habitually abandoned

Table 1. *Pre/Post Inventory Scores*

Name	Pre-treat Score	Category	Post-treat Score	Category
PCL-5	59	PTSD	29	Sub Threashold
BRS Resilience	3.5	Normal	3.7	Normal
MoCA	17	Moderate	28	Normal
Beck Depress	29	Moderate	13	Minimal
Beck Anxiety	45	Severe	20	Moderate

her own boundaries, safety, and physical cues to appease potential threats, resulting in a complete detachment from her own bodily needs. Furthermore, her history of multiple TBI's compromised her brain's executive functioning and structural resilience, worsening her emotional dysregulation and limiting her cognitive capacity to process trauma through traditional talk-based therapy.

The intersection of childhood abuse and neurological insults left Tess trapped in a state of learned helplessness. Her nervous system oscillated between hyper-arousal and dissociative freeze states, leaving her unable to interpret or tolerate her body's internal signals. To address these deep-seated issues, treatment focused on a somatically focused intervention. Over the course of eight half-hour treatments, Tess successfully targeted and stabilized the neurobiological foundations of her traumas.

Implications

Applying the above clinical findings to a chronic homeless population highlights the critical need for trauma-informed care and specialized mental health services within the homeless housing system. Tess's high Adverse Childhood Experiences (ACE) score and history of severe PTSD reflect the profound, interlocking traumas, such as physical abuse, domestic violence, and traumatic brain injuries (TBIs), that frequently drive and perpetuate the chronic homelessness status. In a shelter or street outreach setting, untreated symptoms like social withdrawal, nightmares, and suicidal ideation often manifest as service refusal, mistrust of providers, or behavioral instability, which can lead to frequent psychiatric hospitalization or exclusion from housing programs.

However, the dramatic post-treatment reduction in PTSD symptoms in this participant demonstrates that even deeply entrenched, complex trauma remains highly treatable when appropriate interventions are provided. For individuals experiencing homelessness, integrating structured trauma therapies with immediate stable housing could drastically reduce emergency psychiatric crises, improve clinical retention, and provide the psychological stability necessary for long-term residential and social rehabilitation.

For this unhoused individual, a dramatic drop in anxiety (from Severe to Moderate) and depression (from Moderate to Minimal) suggests that appropriate mental health interventions can successfully alleviate severe psychological distress despite ongoing environmental instability. Furthermore, her stable resilience score reveals a profound clinical nuance: initial survival in high-stress environments often relies on exhausting, hyper-vigilant coping mechanisms like the "fawn" response. True clinical progress for a chronically homeless individual may not immediately raise their baseline resilience score. Instead, it transforms how that resilience is achieved, shifting the individual from a state of survival-driven compliance to genuine, assertive self-advocacy. This shift is vital for ultimately navigating a complex social service system and finally breaking the destructive cycle of homelessness.

Furthermore, applying these clinical findings to a chronically homeless population suggests a highly scalable, low-cost paradigm shift for addressing the profound intersections of complex trauma, executive dysfunction, and traumatic brain injuries (TBIs). Implementing brief, half-hour binaural sound-based interventions, as well as diaphragmatic breathing training, could provide these individuals with an immediate, self-directed means of manually downregulating their nervous system. It would also increase oxygenation to the prefrontal cortex to mitigate severe survival stress. Additionally, because scientific data demonstrates that over half of homeless individuals suffer from a lifetime history of TBIs, neurobiological tools like the Android-based binaural sound application present a revolutionary avenue for overcoming executive dysfunction and trauma-induced paralysis.

By replacing complex, long-term cognitive therapies with a rapid half-hour protocol, social service agencies could dramatically lower barriers to care for a transient population that often struggles with high dropout rates. Providing case managers with mobile neurological tools like Resolve-It! could help unhoused individuals transition out of debilitating freeze states, enabling them to take decisive, purposeful action to navigate housing applications, attend medical appointments, and break out of chronic cycles of displacement.

Post-Treatment Implications

Based on Tess's updated clinical profile, post-treatment strategies should focus on sustaining cognitive gains while continuing to aggressively target residual emotional distress. Given the exceptional recovery from moderate cognitive impairment to normal functioning on the MoCA, it is recommended that she implement cognitive maintenance activities, such as structured problem-solving tasks or stimulating community engagement, to help permanently solidify these neurological improvements.

To capitalize on the dramatic drop in PCL-5 scores, Tess should transition into a trauma relapse prevention framework. This involves identifying personal triggers, reinforcing newly acquired coping mechanisms, and establishing a proactive action plan to ensure she remains safely at the sub-threshold PTSD level. While depressive symptoms have successfully minimized, anxiety remains a prominent clinical hurdle that requires ongoing, specialized attention.

Future therapeutic interventions should emphasize targeted anxiety management, utilizing modalities such as Resolve-It! to downregulate Tess's residual moderate anxiety. These psychotherapeutic efforts can be powerfully supported by continuing deep breathing protocols or progressive muscle relaxation to directly target the physical symptoms of anxiety. Finally, because her resilience has shifted from a people-pleaser status to one of self-affirmation, Tess should actively leverage her resilience strengths as a psychological anchor and draw upon her newly developed durability to navigate the remaining steps of her recovery journey.

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