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Case Report

Chasing Bodily-Self Ghost: Interoception-Aided Hypnosis in the Treatment for Depersonalization-A Case Study

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Abstract

This paper aims to introduce a relatively novel approach for Hypnosis to treat Depersonalization-derealization Disorder (DPRD). Depersonalization is conceptualized as a disrupted interoceptive process disorder. Based on this conceptualization, Hypnotic intervention is tailored to counter the flawed process. It is exemplified by a case of a young man suffering from depersonalization disorder who couldn't bear looking at himself in the mirror. The hypnotic intervention used in this case is then explained by predictive coding theory.

Keywords

Depersonalization; hypnosis; core transformations

1. Introduction

Depersonalization-Derealization Disorder (DPRD) is a dissociative disorder manifested in perceptual alteration of bodily self and environment [1]. The primary reported symptoms clusters

are dogmatization, namely disconnection of own body, and de-affectualization, which is experienced as limited emotional reactivity. Hence, the client may also inform of detachment from world derealization.

While nearly 25% of healthy people in the US report experiencing brief episodes of depersonalization, this phenomenon is more common among clients suffering from previous medical conditions, such as epilepsy and migraine, or psychiatric disorders, such as PTSD, anxiety, panic, and depression [2, 3]. The prevalence of DPRD as a primary and chronic disorder ranges between 1%-2.4% of the general population [3]. Its prevalence among the psychiatric outpatient population is 5% [2]. 31-66% of sufferers report lifetime prevalence [3].

The knowledge about DPRD is minimal. There are no known causes and trajectories. No known medical laboratory test also leads to a prolonged course of correct diagnosis [2]. In addition, only a few clinicians know its prevalence among the populations mentioned above [4].

Depersonalization can be induced by hypnosis and inflict changes in pain perception. An fMRI study in which hypnotic induction of depersonalization in healthy adults reduced pain response in sensory and affective brain areas [5]. This study indicates that the dissociative aspect of depersonalization is tied to hypnotic phenomena.

Hypnosis is closely tied to dissociation. The idea that dissociation plays a role in hypnosis has been around for over 100 years. According to dissociation theories, hypnosis should effectively change unpleasant or undesirable aspects of consciousness and modify maladaptive mechanisms [6]. The link between hypnosis and dissociation is often examined in terms of executive monitoring and metacognition, with the belief that the disruption or separation of these processes explains why some people are highly susceptible to suggestion [7]. Research has consistently demonstrated that people with dissociative tendencies, such as dissociative identity disorder, conversion disorder, or posttraumatic stress disorder, tend to be more susceptible to suggestion [8].

Furthermore, hypnosis is particularly useful in the treatment of dissociative disorders. By utilizing hypnosis, which targets the underlying mechanisms that led to the disorder, therapists can manipulate and redirect these processes for therapeutic purposes. A typical example of such treatment is hypnosis's use in conversion disorder, where dissociative paralysis is reversed by hypnotic suggestion [6].

A newer way of clarifying the relationship between Hypnosis and dissociation relies on the concept of *Interoception*. This concept is tied to depersonalization [9], further demonstrated in the following lines. It also illuminates the rationale for using hypnotic suggestions to treat DPRD.

Recently, several researchers proposed that presence disorders, such as DPRD, are due to deficient interoceptive processes [9, 11]. Interoceptive processes include awareness, sensitivity, accuracy, and emotional evaluation of internal processes [12, 13]. Interoception refers to the sensation and the representation of the body's inner state. And include various sources of information to be processed, like proprioception, nociception, and viscероception [12]. Body self-consciousness is formed with sensation and representation of information external to the body, namely exteroception. Thus, physical and environmental sensory signals are tied together to create a multi-sensorial integration of the body for itself and in space [13, 14].

Neurophysiological evidence relating to the autonomic nervous system (measured by galvanic skin response and heart rate) supports the assumption that interoceptive disruption underlies DPRD. For instance, DPRD clients show different galvanic skin responses (GSR) to anxiety-inducing stimuli than normal. DPRD clients have elevated GSR baseline, reflecting chronic stress [15]. People

predisposed to an out-of-body experience tended to own the rubber hand (the Rubber Hand Illusion creates the feeling of body ownership toward a rubber hand [16]) even when sensory congruence was not synchronous. Therefore, suggesting out-of-body experience is related to disruption of sensory integration that leads to impaired body ownership feeling [15]. Other studies [17, 18] measured interoceptive accuracy in the DPRD population. They found either decreasing accuracy over time in the heartbeat detection task or impaired ability. The heartbeat detection task commonly measures interoceptive ability by asking participants to count their heartbeats without using other body parts (e.g., hands) or devices [17, 18]. Other indices of heartbeat processing (such as Heartbeat-Evoked Potentials) support the assumption of disrupted sensory integration and interoceptive process. Heartbeat-Evoked Potentials (HEPs) are brain reactions originating from the insula to the heartbeat 200-500 ms after the heartbeat [19]. The insula is hypothetically involved in interoceptive processes and the creation of bodily awareness. Researchers hypothesize that HEPs amplitude differences between intercepted and exteroceptive heartbeat (simulated through earphones) designate interoceptive awareness levels. The higher the amplitude difference, the more interoceptive awareness it is. DPRD participants show a lesser amplitude difference than healthy adults [20].

Evidence shows that impaired interoceptive processes may be an underlying mechanism of DPRD. There is some evidence that interoceptive processes are trainable [21]. That suggests a new pathway for therapy with DPRD clients.

Recently, some efforts have been made to explain the relationship between Hypnosis and interoceptive processes [22, 23]. It seems that these relations are yet unclear [21]. However, Jamieson [23] illustrated several pathways that, theoretically, can explain hypnotic phenomena according to the predictive coding model [24, 25]. The predictive coding model assumes that the neurophysiological organization of the brain is set as a statistical machine. For adaptation, the brain infers sensory information meaning apriori, holding expectations about the meaning of sensory information based on previous experience. The inferred expectations are statistical. Further explanation of the model is beyond the scope of this article.

However, it is noteworthy that Jamieson [23] suggests hypnotic suggestions can either change or disrupt the predictive process. As presented in the following section, this effect can be reversed by using suggestions to enforce an efficient predictive process that strengthens the sense of body ownership and body agency disrupted by DPRD. In other words, the following case presentation highlights 1) the contribution of describing DPRD as a disruption of an interoceptive process to paving psychotherapeutic treatment; 2) hypnotic suggestion as an interoceptive intervention. Intervention processes are detailed delineating how hypnotherapeutic intervention targets interoception alteration.

Hypnosis is considered an altered state of focused attention and heightened suggestibility induced by either formal ceremonial induction or therapeutic communication. Rich clinical and scientific work documentation explores the *psychophysiological* relation between mind and body. That work demonstrates the various applications of suggestive communication to alter physiological states [26-31]. The Ericksonian approach, used in this report, facilitates a hypnotic state by directing attention toward internal processes and exploring different coping methods [26]. While attention is drawn to the narrowed aspect of body occurrence, dissociation occurs between global awareness and internal processes. This systematic dissociation creates a hypnotic state. In the same vein, Watkins and Watkins [30] relate physical sensations (such as headaches) as a signifier of an internal

struggle between two ego states. Ego states are a personification of evolved defense coping mechanisms [30]. A healthy psyche is comprised of ego states. Some take an executive role, and others are activated when called by a situation. They represent personal history and lessons learned through life experiences. Hypnosis allows accessing and communicating with them using parts language by first attending to physical sensations [30-32].

2. The Faceless Gentleman in the Mirror

Dan was referred for symptoms of DPRD following military service in a combat unit. He exhibited severe symptoms measured by the Cambridge depersonalization scale (the clinical cut-off point is over 113) [33]. Dan served two years in a combat unit after graduating high school. He experienced good physical and mental health as a kid and teenager, except when he suffered the loss of a close friend who committed suicide in high school. Dan was enthusiastic before he was drafted to combat service. He did routine patrols for most of his military service time without actual contact with the enemy. Therefore, the initial difficulty came by surprise in the last months of service. At first, he was examined by his unit physician. When no physical evidence explained his complaints, he was referred to a military psychiatrist who diagnosed DPRD and prescribed SSRI medication.

Dan was reluctant to take the prescribed medication and sought psychotherapy. In the first session, Dan was quiet and nearly didn't make any eye contact. He spoke in a lowered voice and seemed detached. He narrated his military service story and clearly described his symptoms. The rest of the session discussed the psychotherapy course and the medical alternatives. The next session discussed the Cambridge depersonalization scale results and psychoeducation about depersonalization and body awareness (interoception While discussing body awareness, Dan received an explanation about the autonomic nervous system and the polyvagal theory. The polyvagal theory designates different activation patterns and triggering situations for the two branches of the Vagus nerve. The Vagus nerve has a dorsal branch responsible for the known parasympathetic missions: rest and digest. The Vagus nerve's ventral branch is newer from an evolutionary perspective and is responsible for social engagement [34]. Dan received the following explanation: *"you have three parts inside your body made of neurons* (the two Vagus branches and sympathetic nerve) ... *each part is responsible for different behavior and is connected to a different set of bodily sensations and memories".* Using the same terminology, depersonalization experiences were described as a lack of communication between other parts-*"the part responsible for monitoring time refuses to speak with the part responsible for movement ... and the part responsible for bodily sensations don't speak with the headquarter part... for that reason, you feel weird."*.

Psychoeducation's aim was twofold. First, there was a need to reframe symptoms in a meaningful way that would enable elaboration through the hypnotherapy process. Parts language facilitates the use of ego-state work during hypnotherapy [29]. Second, explaining the neurologic foundation of the symptoms using terminology that would demonstrate temporary symptom alleviation supports the client's hope he could recover.

The final part of the second session was dedicated to introducing simple physical exercises (such as the applied tension technique and heartbeat awareness), intended to amplify Dan's body awareness. Dan was instructed to perform these exercises at least once an hour daily. The following

four sessions were dedicated to monitoring his progress in implementing these exercises and establishing his use of part language when referring to body sensations.

As mentioned earlier, heartbeat awareness is hypothesized to be a deficient mechanism of DPRD. For that reason, Dan was instructed to listen to his heartbeats for 30 seconds using a stethoscope. He reported feeling intense in-body (associated) experience following his first encounter with the technique. Then that feeling was anchored to a specific way of touching his earlobe. We repeated this procedure of heartbeat listening with a stethoscope and then touching the earlobe to fortify the associative connection between earlobe touch and an in-body experience. Anchoring feelings to specific gesture are known as classical conditioning and is used in hypnosis for ego-strengthening [35].

In between sessions, Dan did alternate practice: three times of heartbeat listening and earlobe touch and then touching the earlobe twice without heartbeat listening. The alternate practice intended to use anchoring in-body experience to amplify interoceptive awareness and as a resource for later use.

By six sessions following therapy commenced, Dan reported a lower rate of depersonalization measured by the Cambridge depersonalization scale. Yet the level of depersonalization was clinically high (above the clinical cut-off point of 113). The techniques he practiced stabilized his condition. Dan was feeling better and started looking for a job. We concluded that it was a sign of progress and hope for further improvement.

The next phase of treatment was working through an ego-state protocol named: Core Transformation (CT) [36]. Conirae and Tamara Andreas developed the Core Transformation. The protocol was recently validated by research [37, 38]. The protocol is briefly described (refer to the original publication [35]) for further and detailed procedures. CT protocol consists of three stages: finding a core state (CS), resourcing a CS, and integration. In the first stage, the underlying chain of motives of the presented problem is explored. It begins with asking the client to identify eliciting experiences representing the problem. The underlying motives are explored using parts language until the client feels a core state (CS). The CS has marked physiological changes typical of a hypnotic trance – slowed breath, relaxed facial muscles, etc. The client may describe as well a sensation of serenity. Once the CS is reached, it is resourced and linked to the chain of motives in the second stage.

The second stage of CT is a form of ego-strengthening procedure. While deepening the CS experience, each motive is linked to the CS reversing the original exploration order. The last motive explored is the first to be enriched by the CS. This stage ends when the CS changes the eliciting experience of the presented problem. The third stage uses age regression and age progression of inner personified parts. The CS strengthens these parts.

CT usually begins with the client presenting a disturbing thought, feeling, or behavior. Its Originators described briefly possible implementation in other fields, including pain alleviation [30]. Nevertheless, as far as we know, it was not used with DPRD. The protocol was adapted to Dan's complaints. Dan mentioned that his self-reflection is estranged whenever he looks into the mirror. Namely, casual looking at a mirror before going outside or when he wakes up elicits an experience of depersonalization. We decided to use this eliciting moment to work with CT, implementing the Ericksonian principle of *utilization* [26]. According to this principle, daily experiences generate or deepen hypnotic trance.

Each CT session began with Dan looking in a concrete mirror to report on subjective units of felt depersonalization. Then we worked through the CT protocol. In between sessions, Dan kept practicing his prescribed exercises. Every bi-session, Dan completed the Cambridge depersonalization scale. After two months, Dan reported a subclinical level of depersonalization. A difference could be noticed upon Dan's stride into the office. He looked confident and showed positive affect. He received positive feedback in his new job as a security officer. Though this is a stressful job, he functioned very well. The level of depersonalization measured by the subjective units when looking in the mirror dropped close to zero.

Therapy was not yet complete; we moved to explore via other hypnotic techniques for residual symptoms. Building upon what was achieved already, I offered a mentally imagined trip in the mirror; mirror-induced wake hypnosis. Dan was instructed to look at himself in the mirror and then, with eyes open, move mentally inside and merge with his reflection as if he was wearing a suit. Dan felt his heart beating faster than usual. When given a choice to move out or stay, he chose to stay and received a suggestion to thank the inner part responsible for heart rate acceleration and keep looking in the mirror. That led to abreactive memory of himself as a rejected kid in elementary school. The abreactive memory included the participation of two more conflicted inner parts. We used part negotiating techniques to achieve a resolution [26].

That kind of work lasted ten more sessions of the described mirror-induced wake hypnosis. Each session contained abreactive memories. During the elaboration phase of that hypnotic work, various other techniques, such as Timeline, random card picking, etc. Therapy progress was assessed by the degree of subjective body ownership sense.

It was nearly after months of work that Dan decided to share the content of his recurring dream. During the past months, Dan had a dream in which he woke in the morning, and when looking in the mirror, he saw himself as faceless. He had an awkward feeling about knowing the reflected image. As time passed, the recurring dream evolved. Dan struggled to uncover the blank part concealing the area where a face should have been. Only during the last sessions of mirror-induced wake hypnosis could he see a familiar face in the reflected image. Dan didn't recognize the face. It was wired. The image reflected was his own body with the face of a child. The face evolved every night. A few nights before he decided to share, he realized that the faces he saw were his as a child. After dreaming of himself once more, looking in the mirror and seeing his current face, he decided to share his dream. We further discussed his feeling and reflection on that dream. Yet, this moving sharing signified the end of that phase of therapy. The following sessions after this sharing accompanied his daily life events. The client whose treatment story is presented here gave his permission. Nevertheless, some details were changed to conceal his identity.

3. Discussion

This case exemplifies the use of Hypnosis for a stubborn and challenging disorder. Though treatment of DPRD with Hypnosis was already reported in the literature, conceiving DPRD as a disrupted interoception disorder paved the way to suggest tailored intervention. Earlier literature tied the treatment of dissociative disorders with Hypnosis by mere definition of Hypnosis as a dissociative phenomenon [5]. This case lays out the underlying processes of dissociation.

DPRD's underlying mechanism is yet to be understood. However, the hypothesized mechanism can lead to the research-informed therapeutic use of Hypnosis. DPRD can be characterized as a

deficient interoception disorder. The predictive theory and active inference model best explain interoception. The predictive coding model assumes that the neurophysiological organization of the brain is set as a statistical machine. For adaptation, the brain infers sensory information meaning apriori, holding expectations about the meaning of sensory information based on previous experience. Interoception is a prediction about the expected state of the body that is constrained by visceral sensations. Tsakiris [39,40] suggested that self-unity and stability are built upon interoceptive awareness. Thus, when interoceptive processes are disrupted, disorders such as DPRD, eating disorders, Alexithymia are manifested [40].

Hypnosis is a top-down process that has the potential to change sensorial information [18]. According to the predictive coding theory conceptualization, a hypnotic suggestion is aimed at altering apriori prediction to match the exterior or interior input, and interoception is, therefore, an auto-suggestion.

In the same vein, Dan's treatment consisted of several interoceptive components: interoceptive exercises, CT protocol, and, mirror-induced wake hypnosis. The interoceptive exercises were used to amplify his body awareness. By repeating the same exercises, the following sensations are easily predicted. CT protocol eliciting experience used a mirror. Looking in the mirror enables the multisensory experience of the body's self-identification [40]. The CT protocol used various suggestions to alter Dan's interoceptive process. This change was manifested in a continuous drop in depersonalization severity measured.

The last phase of the hypnotic intervention consisted overt use of hypnotic phenomena to elicit and change the interoceptive process. Mirror multisensory experience was used at this phase in a suggestion to gain more interoceptive sensorial information. That resulted in abreactive memories. These memories and the dream followed can be seen as verification efforts and predictive inferences construed by the interoceptive process. In other words, the abreactions and the dreams were the evidence for the change process-mending deficient interoception of depersonalization.

Finally, DPRD is one of a range of dissociative disorders and conditions. Uncovering the disrupted interoceptive processes in other dissociative disorders or conditions will lead to developing new hypnotic ways to treat dissociative identity disorder, dissociative amnesia, PTSD, panic disorder, etc. Some of which are already researched about interoception. Henceforth, interoceptive-informed Hypnosis can be used to further investigate dissociative disorders.

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Author Contributions

The author did all the research work of this study.

Competing Interests

The author has declared that no competing interests exist.

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