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Original Research

Characterization of Patients with Functional Syndromes and Paradoxical Response to Hypnotic Relaxation

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Abstract

Hypnotherapy is effective for treating functional symptoms; however, some studies describe a paradoxical response to hypnotic relaxation. We hypothesized that functional patients who: 1) are aware of a stressful antecedent event and 2) recognize that stress is causing or exacerbating their symptoms would have reduced symptom-severity with hypnotic relaxation,

whereas patients who do not perceive a stressful antecedent and do not recognize stress as causing symptoms, would more commonly experience paradoxical response (PR) of increased symptom intensity. In this retrospective analysis, records between 2013-2017 were obtained from the Functional Neurology Clinic (FNC) in Soroka Medical Center, Israel. Patients with functional disorders who underwent a three-session hypnotic relaxation course were included. Ninety patients participated. Patients with low stress awareness exhibited significantly higher PR rates during the first session and throughout the three-session treatment. Specificity of PR as a criterion for lack of insight was 90%. For functional patients who find themselves at an impasse and are resistant to considering psychological etiologies, understanding PR to hypnotic relaxation may serve as a gateway to facilitating psychological treatment.

Keywords
Functional somatic syndrome; hypnosis; hypnotic relaxation; relaxation-induced anxiety; paradoxical response

1. Introduction

Functional disorders refer to a state of physical illness manifesting in somatic complaints not fully explained by organic factors. There is often a prominent emotional component to these physical symptoms [1]. The prevalence of somatic disorders in primary care is nearly 33% [2]; however, their underlying mechanisms are still poorly understood. The DSM–5 distinguishes between different types of functional disorders. Conversion disorder (CD), or functional neurological symptom disorder (FNSD), is defined as one or more symptoms of voluntary motor or sensory dysfunction that do not correspond to a recognized neurological or medical condition and conflict with neurological findings. In contrast, somatic symptom disorder (SSD) is defined as one or more somatic symptoms that disrupt daily life, and are accompanied by excessive thoughts, feelings, behaviors, or health concerns [3]. The DSM–5 takes a phenomenological approach, which purposefully does not address the mechanisms underlying these disorders. While creating uniformity in the diagnostic process, this approach does not take etiological factors into account. It provides little insight as to which treatments may be appropriate for similar, but different, disorders, such as CD and SSD [4].

Functional disorders are often difficult to diagnose, with patients undergoing extensive diagnostic processes and enduring expensive and unpleasant medical tests and treatments, sometimes involving iatrogenic harm [5]. As hard as it is to distinguish between organic and functional disorders, it can be even more difficult to delineate the subtle differences between different functional disorders. Even after extensive diagnostic procedures, nuances in relation to the nature of differing psychological disorders, such as CD vs. SSD, are often overlooked. Therefore, understanding the unique characteristics of different functional disorders is essential for achieving an accurate diagnosis, improving and adapting appropriate treatments, saving valuable resources, and preventing the frustration of medical staff and patients [6].

To better understand and identify differences between disorders such as CD and SSD, it may be helpful to observe how patients with different diagnoses respond to mind-body treatments, such

as hypnotherapy. Hypnotherapy is a successful treatment for functional disorders. During hypnosis, patients are in a suggestible state, allowing direct access to the unconscious mind while the conscious mind is distracted or latent [7]. Clinical hypnosis can be divided into two types: symptomatic and hypno-analytic. Symptomatic hypnosis involves constructed suggestions aimed at redirecting the patients' attention to alter their perception and achieve a specific clinical goal, such as reducing pain or anxiety [8-10]. Hypno-analysis uses hypnotherapy to probe the patient's unconscious motives or fears, as well as elicit cathartic emotional experiences [11].

Current literature supports the efficacy of symptomatic hypnotherapy to lower pain intensity and reduce symptoms of somatization, depression, and anxiety, especially in somatic symptom disorders, such as irritable bowel syndrome [12, 13] or fibromyalgia [14]. However, some patients feel increased symptoms with hypnosis, rather than relief. This is termed relaxation-induced anxiety, or paradoxical response.

A paradoxical response (PR) to relaxation has been reported anecdotally as early as 1975 in a case report describing the use of transcendental meditation [15, 16]. It has since been described as relaxation-induced anxiety, especially in patients with generalized anxiety disorder [17, 18]. Another study compared heart rate variability in those with panic disorder, generalized anxiety disorder, social anxiety disorder, and obsessive-compulsive disorder, and found that high-frequency heart rate variability may be an indication of PR [19].

However, despite the increasing popularity of mindfulness and meditation research [20], there is a lack of literature concerning PRs. To our knowledge, there is currently no literature documenting paradoxical responses to hypnotic relaxation in patients suffering from *somatic symptoms*, rather than anxiety. However, this phenomenon is regularly observed in clinical practice. Patients exhibiting low insight typically present with diminished levels of anxiety and stress. In contrast, those with heightened insight are consciously attuned to their stressors and more aware of their emotional state. However, even though it is challenging to communicate psychological etiologies to patients lacking insight effectively, this does not mean that these patients are not experiencing anxiety. Instead, when adverse emotional responses are not conscious, they are channeled outwards in other ways, for example, via a "conversive" paradoxical response during hypnotic relaxation where presenting symptoms increase in intensity.

1.1 Current Study

The objective of the current study was to test whether there are characteristic differences in patient response to hypnotic relaxation. We hypothesized that patients who have high stress awareness (HSA), defined as: 1) awareness of a stressful antecedent event and 2) recognition that stress is causing or exacerbating symptoms, would be less likely to experience a paradoxical response to hypnotherapy, reporting the reduction of stress or symptom intensity during hypnotic relaxation. In contrast, we hypothesized that patients with a low stress awareness (LSA) would be more likely to exhibit a paradoxical response, reporting the enhancement of stress or symptoms.

To better illustrate this point, two imaginary cases will be provided. These cases do not represent actual patients, though they are representative of the kind of clinical cases the authors see regularly. The purpose of bringing these cases here is to distinguish between high and low insight patients. In case 1 – exemplifying HSA – the patient might present with chronic tension-type headaches. They may be distressed and concerned about the headaches, but are simultaneously aware and able to

acknowledge that their symptoms are connected to stressful life events. For example, a university student whose headaches become more frequent and severe when studying for exams. In case 2 – LSA – the patient presents with little to no awareness regarding any connection between their symptoms and emotional or stress-inducing events in their lives. For example, a patient with chronic lower back pain who does not see a connection between their pain and stress or inner conflict, even though their pain may get worse every time they go to work or have a public speaking event. They will likely attribute the pain to a situational factor, such as not sleeping well the night before or an uncomfortable chair in the office – disregarding the emotional component.

2. Methods

This retrospective study was conducted with the guidance of the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist[30].

2.1 Study Population

After obtaining approval from the SUMC Helsinki Committee (0242-16-SOR), electronic medical records (EMR) of all patients treated at the Functional Neurology Clinic (FNC) at Soroka University Medical Center (SUMC), Beer Sheva Israel, between October 9, 2013 - December 17, 2017 were obtained. The FNC is a multidisciplinary outpatient service dedicated to helping people with functional disorders [5]. Patients over 15 with referrals to the FNC were eligible for inclusion. Patients were excluded if they did not have pre-/post-relaxation responses recorded or did not speak Hebrew (as doctor-patient communication was considered a highly influential factor for this study).

2.2 Measures

2.2.1 Demographic Questionnaire

Demographic data were extracted from a seven-item self-report survey that all patients completed during their first FNC visit. The survey provided descriptive information (e.g., gender, age, marital status, and education level).

2.2.2 Study Procedure

The treatment protocol for patients assigned to the FNC included a diagnostic session and a three-session hypnotic relaxation course by a senior neurologist (Y. E.). The diagnostic session was dedicated to anamnesis and clinical examination. At the same time, the three-session hypnotic relaxation course was aimed at teaching patients auto-hypnotic techniques for reducing the intensity and severity of their symptoms. The hypnotic relaxation exercises analyzed in this study were based on the FNC's treatment protocol and included three sessions, each lasting approximately 20 minutes. The hypnotherapeutic exercises focused on breathing techniques, hypnotic relaxation, guided imagery for visualizing a safe place, and positive post-hypnotic suggestions regarding general feelings of well-being. An example of the base script can be found in Appendix 1 and the three-session protocol is described by Ezra et al. in a previous study which used the same protocol and found that patients who chose such techniques to treat tension-type

headaches reported more symptom relief and had greater treatment compliance than those who chose amitriptyline [21]. All the relaxation sessions were conducted by Y. E. in a standardized manner, using this protocol.

Response to treatment was documented at the end of each session by means of a clinical interview. Patients were asked to rate the severity of their symptoms on a scale of 0-10 (0 = no symptoms, 10 = most severe) pre- and post-hypnotic relaxation. When symptom severity increased after hypnotic relaxation, the response was defined as paradoxical. When the symptom severity remained unchanged or decreased, the response was defined as non-paradoxical.

The current study's initial analysis consisted of an in-depth review of patients' first visits to the FNC performed jointly by a neurologist and a medical psychologist. The purpose of this analysis was to divide the patients into two groups: 1) high stress awareness, and 2) low stress awareness. Patients were placed into these groups based on the following criteria:

(1) The existence/non-existence of perceived stressful events, exposure to prolonged stress, or exacerbation of the known organic illness (e.g., widespread headaches following migraine), which could be reasonably related to the physical symptoms.

(2) Having insight regarding the relationship between the physical symptoms and stressful life events. This second criteria (i.e., insight) was assessed via patients' responses to the following three questions: 1) What do you think affects your symptom(s)? 2) To your knowledge, does stress exacerbate your symptom(s)? 3) Do you agree with the doctor's explanation regarding the relationship between stress and physical symptom(s)? Patients who answered yes to *any* of these questions were considered to have some degree of understanding as to the relationship between their emotions and their symptoms. This was considered as having insight.

In total, patients who were positive for *either* of these two criteria (i.e., they were either aware of a stressful event being a contributing factor or had some level of insight regarding the relationship between their emotional state and their symptoms) were considered to have high stress awareness (HSA). In contrast, patients who rejected both the involvement of a stressful event and any connection between their emotional state and their physical symptoms, were considered to have low stress awareness (LSA).

According to these criteria, a known symptom exacerbated by life stresses would be Group 1 (HSA). Group 2 (LSA), would manifest as an onset of symptoms in response to a life event that is not perceived as a stressful event.

2.3 Data Analysis

Patient characteristics were analyzed with descriptive statistics. Chi-square was used to compare categorical variables. Statistical significance was set at $p < 0.05$. Data analysis was performed using SPSS software (version 23.0).

2.4 Ethics Statement

Statement of Ethics: The study was conducted according to the guidelines of the Declaration of Helsinki, and ap-proved by the Institutional Review Board (or Ethics Committee) of Soroka Medical Center (protocol code 0350-16, 2022). Patient consent was waived due to an exemption by the IRB.

3. Results

3.1 Demographics and Descriptive Statistics of the Groups

Ninety EMRs were analyzed throughout this study. Sixty patients (66.7%) were female, with an average age of 45 years (range 16-78). Most patients suffered from functional disorders involving pain (e.g., headaches, body aches), while the rest reported non-painful functional disorders (e.g., non-epileptic seizures, limb paralysis). There were no significant between-group differences regarding age (HSA: mean = 46.78, SD = 15.81; LSA: mean = 40.24, SD = 19.28), p = 0.12; gender (p = 1.00); marital status (p = 0.07) and education level (p = 0.37) (Table 1).

Table 1 Demographic data.

Characteristic, n (%)	**LSA** N = 21	**HSA** N = 69
Sex		
Male	7 (33)	23 (33)
Female	14 (67)	46 (67)
Age		
16-35	10 (48)	20 (29)
36-55	4 (19)	27 (39)
56-78	7 (33)	22 (32)
Marital Status		
Married	8 (38)	40 (58)
Divorced	3 (14)	14 (20)
Single	10 (48)	15 (22)
Education Level		
Unmentioned	4 (19)	21 (30)
High school	10 (48)	16 (23)
Bachelor's degree	2 (10)	11 (16)
Master's degree	2 (10)	5 (7)
PhD degree	0 (0)	1 (1)
Other	3 (14)	15 (22)
Diagnosis		
Painful		
Headache	8 (38)	26 (38)
Body pain	2 (9)	13 (19)
Headache and Body pain	4 (19)	12 (18)
Non-painful		

Functional movement disorder	4 (19)	2 (3)
Abnormality of gait	1 (5)	1 (1)
Hemiparesis	0 (0)	2 (3)
Dystonia	0 (0)	1 (1)
Insomnia	0 (0)	1 (1)
Hyperventilation	0 (0)	1 (1)
Dizziness and giddiness (Vertigo)	0 (0)	1 (1)
Other specified forms of tremor	0 (0)	1 (1)
Non-epileptic seizures	1(5)	4 (6)
Sensory problem with the head	0 (0)	2 (3)
Sensory problems with limbs	1 (5)	2 (3)

LSA: low stress awareness; HSA: high stress awareness.

3.2 Paradoxical Response Measurement

A chi-square test of independence was performed to examine the relationship between group type and PR. Paradoxical responses were measured at the end of each session at two time points – after the first meeting and after the entire three-session course. The results showed significantly more PR among patients with LSA, who were more likely to report enhanced symptom intensity both during the first hypnotic session ($\chi^2(1) = 15.1$, $p < 0.001$, Nominal by interval Eta = 0.4) and after the entire three-session course ($\chi^2(1) = 6.4$, $p < 0.001$, Nominal by interval Eta = 0.2). The results revealed that 35.5% of patients with LSA demonstrated PR during the first session as opposed to 13.7% of HSA patients, while 51.8% of LSA patients demonstrated PR during the entire treatment course as opposed to 14.1% of HSA patients (Figure 1).

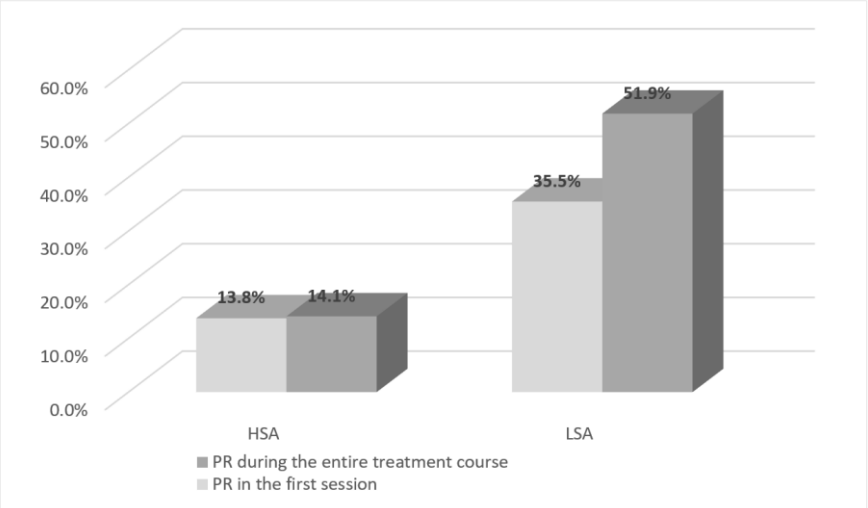

Figure 1 Paradoxical response to hypnotic relaxation. After the first treatment session, 35.5% of patients with low stress awareness experienced a paradoxical reaction to hypnotic relaxation, compared with 13.8% of patients with high stress awareness. After the third session, 51.9% of patients with LSA experienced PR compared with 14.1% of patients with HSA. PR (paradoxical response), LSA (low stress awareness), HAS (high stress awareness).

The PR determined the LSA group with a sensitivity of 57% and a specificity of 91% at the first session. In contrast, after the entire course of treatment, sensitivity and specificity were 76% and 90%, respectively. Corresponding PPV and NPV values at the first session were 67% and 88%, respectively. As for the whole three-session course, PPV and NPV values were 70% and 93%, respectively.

4. Discussion

4.1 Main Findings

The present study examined whether patients who have functional symptoms with LSA exhibit PR during hypnotic relaxation, when compared with patients with HSA. Patients were initially grouped as having LSA if they: 1) displayed a lack of insight into mind-body interactions and 2) did not perceive their symptoms as being caused by a stressful antecedent event. Patients were defined as HSA if they showed insight or perceived their symptoms as being caused by a stressful antecedent event. As hypothesized, patients with LSA experienced significantly more PR and were more likely to report enhanced symptom intensity after both the first and the entire three-session treatment of hypnotic relaxation as opposed to patients with HSA. Using PR as a criterion for LSA had a high rate of sensitivity and specificity, both after the first session and after the entire course of therapy.

4.2 Comparison with Existing Literature

Several studies have described hypnotherapy for functional disorders, whereby anxiety levels and sympathetic arousal increased during progressive relaxation training in patients with generalized anxiety disorder as opposed to healthy controls [17]. Kim and Newman [18] surmised that these paradoxical responses may be because of increased negative contrast sensitivity, in line with the Contrast Avoidance Model, postulating that those with generalized anxiety disorder want to prevent a sudden rise in negative emotion, and so do not want to be euthymic, but instead prefer experiencing anxious affect [18].

PR with low feelings of anxiety and low insight may be in line with psychodynamic models, in which physical symptoms in conversion disorder (CD) are viewed as defense mechanisms considered to have a psychological role in resolving unconscious conflicts through bodily manifestations [22, 23]. Therefore, the attempt to reduce symptom intensity via relaxation may lead to therapeutic resistance and paradoxical amplification of symptoms, as it threatens patients' mental well-being by forcing conscious confrontation with intrapsychic conflicts. In this respect, PR in CD patients could be viewed as resistance to relinquishing their physical symptoms, which serves as a defense mechanism preventing them from coming face-to-face with unbearable conflict. This is in contrast to SSD, in which physical symptoms are not thought to have a psychological role. This is why, for SSD, symptom reduction via lowering the high sensitivity and hyperreactivity of the autonomic system and increasing the patient's sense of control is more effective [4].

Differences in response to hypnotic relaxation may be connected to the aforementioned differential diagnosis of SSD vs. CD. Patients with LSA may be diagnosed with CD, while HSA patients may be diagnosed with SSD. According to the previously proposed Four-Cluster Mind-Body Model [4], functional disorders can be divided into two clusters – conversion disorder (CD) and functional somatic syndromes (FSS) – corresponding to the DSM-5's SSD diagnosis. In our model, both CD and

FSS (or SSD) are characterized by the absence of organic findings but have different presentations and underlying psychological mechanisms (Table 2).

Table 2 FSS versus CD.

	Functional Somatic Syndrome (FSS)/SSD	Conversion Disorder (CD)
Antecedent event	Perceived as stressful	Not perceived as stressful
Lack of insight	Does not play a role (likely to be HSA) (psycho-biological conditioning)	Plays a role (likely to be LSA)
Affect	Anxious	Typical (la belle indifference)
Mechanism	Trauma or excessive stress	Conflict
Treatment	Cognitive Behavioral	Psychodynamic

If the difference between the two groups (LSA and HSA) is due to the corresponding diagnoses of CD and FSS/SSD, our findings would be consistent with Breuer and Freud [11, 23], whereby CD symptoms express unconscious conflict due to unacceptable drives. Similarly, McDougall [22] considered psychosomatic physical symptoms to be an expression of difficult emotions unconsciously expressed through the body of the patient. The distinction between CD and FSS/SSD is in line with Freud's classification of two types of neurosis that have different etiologies and treatment modalities. "Actual neurosis" is characterized by Freud as consisting of intense physical experiences, such as overwhelming anxiety. Freud treated this somatization as non-symbolic, wherein physical sensations have not gained access to the mind [24]. In contrast, "psychoneurosis" consists of a threatening and repressed emotional response converted into somatic symptoms [25]. This has been supported by studies that found an element of emotional arousal, such as anxiety and depression, accompanied by catastrophic thinking [16, 26], causing hyperalgesia and allodynia in people with FSS/SSD, while patients with CD experienced higher incidences of indifference [27] and alexithymia [28].

Pierre Janet noted his hysterical patients often expressed apathy regarding their condition, unlike non-hysterical patients who tended to express great emotional distress, and attributed this to La Belle Indifference, or the indifference of CD patients [29]. The current model maintains that this phenomenon can be viewed as poor insight. Because defense mechanisms are meant to keep distressing conflicts out of conscious awareness, CD patients have been found to have low insight regarding the emotional aspects of their symptoms when compared to FSS/SSD patients [4]. The strong correlation between low insight and paradoxical response in the present study further supports this view.

4.3 Implications

Our findings suggest a new viewpoint in which clinicians could be encouraged to analyze symptoms of their patients' perceived stress and insight. This would help to distinguish between different functional disorders and select the appropriate treatment. Furthermore, paradoxical responses to hypnotic relaxation may serve as critical diagnostic indicators and can influence treatment choices. In this way, hypnotic relaxation can be a viable diagnostic tool for eliciting PR and advancing the clinical management of functional symptoms. This can be helpful in scenarios where LSA patients are reluctant to accept a functional disorder diagnosis. In such cases, PR may be

a helpful strategy in demonstrating the underlying relationship between symptoms and emotion, potentially enhancing patient receptivity to psychoeducational interventions. In terms of a broader approach, treatment of patients with HSA who do not experience PR can likely focus on stress management/reduction, while LSA patients, who do experience PR, may need to develop emotional awareness through psychotherapy [30]. This would translate into cognitive behavioral therapy (CBT), relaxation training, or pain reprocessing therapy (PRT) for HSA. At the same time, LSA patients would be treated via modalities such as emotional awareness and expression therapy, intensive short-term dynamic psychotherapy, internal family systems therapy, or analytic hypnotherapy.

Based on this, a clinical algorithm for diagnosing functional disorders might go as follows. A patient presents with somatic symptoms not explained by diagnostic test results. After a proper course of medical evaluation and examination, the physician is reasonably sure that the case warrants a functional diagnosis, but is not certain whether the correct diagnosis is CD or FSS/SSD and what form of treatment is required. After enquiring as to whether or not the patient is aware of triggers (situational, physical, or emotional) that exacerbate their symptoms, the physician empathically explains the way the mind and body interact to create physical symptoms and suggests attempting a course of relaxation training. Assuming the patient is amenable to trying, the physician begins inducing hypnotic relaxation, incorporating suggestions of calmness, empowerment, and self-control. After a short relaxation exercise, the physician debriefs the experience, specifically inquiring about the symptom's magnitude before, during, and after relaxation. When there are clear anamnestic connections between the symptoms and stressogenic events and when the relaxation exercise helps reduce symptom intensity, the physician may give an SSD diagnosis and proceed accordingly with the treatments mentioned above (CBT, PRT, etc.). However, if there is no awareness as to the clear triggers that exacerbate symptoms and the patient experiences PR, this may be a sign that a CD diagnosis is in order, where unconscious psychological issues are converted to bodily sensations. The physician can use the four-cluster model to illustrate this to the patient, using the PR experience to facilitate the patient's understanding of this relationship, suggesting that psychotherapy might be the most beneficial treatment for the physical symptoms.

Future studies are needed to explore the clinical and theoretical implications of these findings further. For example, self-report measures may help validate the assertion that patients' insight as to the role of stress in maintaining their symptoms is a critical factor in distinguishing CD from FSS. Although, to our knowledge, no one questionnaire has been specifically created to measure this theoretical construct, several self-report measures could help distinguish between HSA and LSA patients. Cognitive models have noted two central processes that can exacerbate symptoms: (a) catastrophic meanings given to symptoms and (b) non-beneficial causal attributions of symptoms [31]. Respectively, these can be measured by the following measures:

(a) Pain Catastrophization Survey (PCS) – The PCS was developed by Sullivan et al. [32] to measure catastrophizing thought processes related to pain. The questionnaire includes thirteen items assessing three sub-scales related to the theoretical construct of catastrophization: (a) magnification, (b) rumination, and (c) helplessness. Participants rate their agreement with items on a Likert scale of (0-4) from "not at all" to "very much" so that the catastrophization index ranges from (0-52) (Cronbach's $\alpha = 0.87$). Catastrophization can be measured using the entire questionnaire or by looking at sub-scales individually (Cronbach's α for sub-scales: magnification = 0.66; rumination = 0.87; helplessness = 0.78) [32].

(b) Symptom Interpretation Questionnaire (SIQ) – Causal interpretations were evaluated using the SIQ, a validated measure for assessing attributional styles regarding somatic symptoms [33]. The SIQ consists of thirteen items involving common symptoms. Respondents are asked to rate the way they would interpret each symptom if they were to suffer from it. Three possible interpretations are given, establishing three scales: a (a) somatic (Cronbach's α = 0.71), (b) psychological (Cronbach's α = 0.86), and (c) normalizing (Cronbach's α = 0.81) scale. Respondents are asked to rate each symptom-interpretation on a four-point Likert scale of "not at all" to "a great deal" [34].

Such measures could be helpful in future research regarding the exploration of concepts such as high and low insight regarding the emotional nature of physical symptoms and their relationship with treatment outcomes.

4.4 Limitations

The present study had several limitations. All non-Hebrew speakers were excluded from the current study, as doctor-patient communication was considered a highly influential factor. Over 95% of participants were Hebrew speakers. Secondly, the three questions used as criteria to distinguish between patients with HSA and LSA are not part of a previously validated measure, as to the best of our knowledge, there is no measure for this precise construct. Because this was a retrospective analysis, we did not compare treatment options and cannot make any inferences about the usability of hypnotic relaxation. As this study was a first exploration of this issue, an additional limitation was the small sample size, necessitating further studies with larger sample sizes to generalize to other populations. Differences between high and low insight patients were examined. However, no comparison was made to healthy controls, so it was impossible to determine whether PR patterns are unique to some functional disorders or can be generalized to additional populations.

5. Conclusion

In conclusion, our research attempted to contribute to a process-oriented view of functional disorders [3]. Paradoxical response to hypnotic relaxation could indicate a functional disorder, making hypnotic relaxation a valuable diagnostic tool in cases where diagnostic progress is hindered by patient resistance, thereby enhancing receptivity to psychoeducational interventions. Future studies should include randomized controlled trials focused on comparing treatments of functional patients with and without awareness to stress.

Appendix

Appendix 1. Example Relaxation Script

And now, we will begin to relax:

All of your muscles are relaxed. All of your muscles are at ease.

And now, if you like, you can imagine the familiar feeling, that same calming, relaxing sensation that you experience in the moments before you fall asleep. That same pleasant feeling of calm and peace spreads throughout your body and mind.

All of your muscles are relaxed. All of your muscles are at ease.

The muscles of your forehead and eyes are loose, comfortable, and relaxed.

The muscles of your mouth and your jaw are loose, comfortable, and relaxed.

Everything is comfortable, everything relaxed, everything at peace.

The muscles of your neck, both in front and in back, are loose, comfortable, and relaxed.

The muscles of your shoulders and your upper back – are loose, comfortable and relaxed.

Everything is comfortable, everything relaxed, everything at peace.

The muscles of your chest and lower back – are loose, comfortable and relaxed.

The muscles of your stomach and your hips – are loose, comfortable and relaxed.

Everything is comfortable, everything relaxed, everything at peace.

The muscles of your thighs and your legs – are loose, comfortable and relaxed.

The muscles of your arms and your hands – are loose, comfortable and relaxed.

Everything is comfortable, everything relaxed, everything at peace.

And now, you can focus on your breath. And you can feel how every time you breathe out, every time the air goes out, your body can feel more and more relaxed, more and more at peace, and more at ease. And with every breath, every time the air goes out, your body can feel more and more relaxed, more and more at peace, and more at ease.

And now, your body can begin to feel a sense of calm, a sense of peace, washing over it, making it feel loose, relaxed and at peace.

And from now on, every day that passes, every time you do this exercise, your mind will be able to feel more and more relaxed, more and more at peace, more and more at ease, with a greater and greater ability to control all physical sensations, to release all the stress and tension from your body and put a stop to any unpleasant experiences.

And your mind will now know, in its way, how to control, release, and relax. How to create positive sensations, feelings of calm, and empowerment.

And now I will count to 5. And when I reach the number 5, you will be able to wake up and feel more relaxed, more at peace, alive and awake.

1… 2… Your muscles regain their strength… 3… 4… you become fully awake… 5.

Author Contributions

Conceptualization, ZG and YE; methodology, ZG; investigation, ZG, OH, TE, YE; statistical analysis, EY, ZG and OE; resources, ZG, OH, OE, YE; writing, ZG, TE, OH, ME, YE; supervision, YE. All authors have read and agreed to the published version of the manuscript.

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Data Availability Statement

The data associated with the paper are not publicly available but are available from the corresponding author upon reasonable request.

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