

# Psychogenic unresponsiveness: a functional neurological disorder on the border zone between neurology and clinical psychology

**Keywords:** non-epileptic events, unresponsiveness, coma, functional neurological disorders, neurology, psychiatry, clinical psychology

## Introduction

Some psychiatric disorders are characterized by alteration in consciousness. An unresponsive patient poses a diagnostic challenge. Psychogenic unresponsiveness is a condition where patients appear unresponsive despite having retained and normal brainstem reflexes, muscle tone, and deep tendon reflexes. These patients do not follow verbal commands or engage in verbal communication. We report a patient with psychogenic unresponsiveness and review the relevant neurological and psychiatric literature.

## Case report

A previously healthy 18-year-old male, presented with 4-week history of recurrent episodes of sudden loss of consciousness and unresponsiveness lasting on an average about 1-2 minutes with spontaneous return to baseline. The episodes were not accompanied by convulsive movements, loss of bladder tongue or tongue bite. There was no relevant prior medical or neurological history. He had undergone evaluation for the above episodes. MRI brain epilepsy protocol was reported normal. Video-EEG was carried out for characterization of above episodes. During the EEG multiple typical events were captured during which the patient suddenly became unresponsive and his hands dropped to the side. There was no response to verbal commands. When the hand was passively lifted and dropped on the face, it tended to fall on the side. During the unresponsive episodes, EEG background remained organized, symmetrical and continuous with a well-defined posterior dominant rhythm of 10 Hz indicative of psychogenic unresponsiveness.

## Discussion

Over the years, psychogenic unresponsiveness (PU) has been well described in medical literature. An entity similar to psychogenic unresponsiveness appears in the middle of the first millennium BC.<sup>1</sup> In psychiatric disorders, PU has been noted in conditions like schizophrenia, dissociative disorders and conversion disorder. The patient appears unresponsive with the underlying etiology psychological rather than an organic neurological condition.<sup>2,3</sup>

Psychogenic unresponsiveness can manifest in various ways, such as catatonia (patient becomes immobile or unresponsive); psychomotor retardation (characterized by slowed movement and speech); fugue states (patient forgets their identity and may wander away); panic attacks (leading to a frozen or disconnected state); dissociation (patient feels detached from reality); and psychological nonepileptic seizures (PNES). PNES resemble epileptic seizures but are triggered by emotional stress. They present with out-of-phase convulsive or

thrashing movements of the extremities, side-to-side movements of the head, verbalization during the ictal event, pelvic thrusting and unresponsiveness.<sup>4</sup> Wyllie et al. report that approximately one-third children and adolescents with PNES had an accompanying mood disorder including major depression, bipolar disorder and dysthymic disorder.<sup>5,6</sup>

The diagnosis of PU remains clinical. A patient with PU typically has a normal neurological examination with retained brainstem reflexes, deep tendon reflexes, down going plantars during the event. They may respond to deep painful stimuli such as sternal rub. One useful sign to detect PU is the hand drop sign/test. In coma attributable to a general medical or neurological (organic) condition or the direct effects of a substance (drug intoxication), the hand tends to fall on the face, whereas in psychogenic coma it is noted that the hand tends to fall to the side.<sup>7</sup> Normal EEG during the episode helps to confirm the diagnosis of PU. Other clues manifest themselves in the patient's eyes. There may be active resistance to passive eyelid opening, and both eyelids may close quickly when the lifted upper eyelid is released. If the clinician strokes the eyelashes gently, both eyelids may flutter. Eye movements, tend to be rapid and jerking. Bell's phenomenon, or rolled-back eyes deviated in a particular direction (usually away from the examiner), is also a manifestation of psychogenic coma. Examination of body movements and muscle tone may also reveal subtle signs of psychogenic coma. Patients may display active resistance when muscle tone is assessed. In bed, a patient may change his or her position or make voluntary out-of-phase movements.

Volume 14 Issue 5 - 2024

Kunzang Chuskit,<sup>1</sup> Deeksha Parthasarthy,<sup>2</sup>  
Nitin K Sethi<sup>3</sup>

<sup>1</sup>Clinical Psychology Intern, Daulat Ram College, University of Delhi, India

<sup>2</sup>Clinical Neuropsychologist, Pushpawati Singhanian Research Institute, India

<sup>3</sup>Department of Neurology, New York-Presbyterian Hospital, NY and Pushpawati Singhanian Research Institute, India

**Correspondence:** Nitin K Sethi, MD, MBBS, FAAN, PSRI Hospital, New Delhi, India, Email [sethinitinmd@hotmail.com](mailto:sethinitinmd@hotmail.com)

**Received:** September 5, 2024 | **Published:** September 23, 2024

Neurological conditions such as stupor and coma result from organic or metabolic/toxic damage to brain regions responsible for maintaining consciousness, particularly the brainstem and its associated networks (reticular activating system). From a neurological perspective, stupor and coma are organic impairments in the level of consciousness during which the patient has a complete or partial absence of awareness of self and the environment. These states exist along a continuum from full wakefulness to deep coma, and are often graded using standardized tools like the Glasgow Coma Scale (GCS).

In contrast, unresponsiveness in psychiatric conditions is primarily influenced by psychological factors rather than structural brain damage. Psychiatric presentations may include muteness, immobility, and characteristic motor disturbances, such as catatonia, which involves resistance to movement, rigid postures, and abnormal posturing. Catatonia is frequently associated with mood disorders or psychosis, attributable to dysfunction in neurotransmitter systems. Conversion disorder is the older terminology for Functional Neurological Disorder (FND), which is a neuropsychiatric entity in which psychological stress translates into neurological symptoms. Involuntary psychogenic alteration of physical functioning limited to neurological symptoms is characteristic for this disorder, once an organic etiology has been ruled out. Dissociative disorders, particularly fugue states, also reflect an altered state of consciousness. A diagnosis of psychogenic unresponsiveness as a psychiatric entity will also have to be differentiated from malingering or a factitious disorder. The former could result due to the patient looking for a secondary or material gain from being sick, while the latter is motivated by an internal gain such as seeking attention or coping with stress. At the same time, a diagnosis of psychogenic unresponsiveness due to a functional neurological disorder is often passed off as malingering or feigning symptoms by untrained clinicians or family members, not realizing that the symptoms in FND patients are genuinely experienced, often due to excessive interoceptive monitoring, impairments in the sense of agency, and (sometimes) partial decrements in voluntary bodily control.<sup>8</sup> Thus, a psychiatric diagnosis based on extensive history, appropriate psychodiagnosics, therapeutic interview, and differential diagnosis is warranted alongside a confirmatory neurodiagnostic evaluation.

Our case highlights the diagnostic complexity associated with psychogenic unresponsiveness, a functional neurological disorder (FND). Once the diagnosis of PU is confirmed by ruling out organic etiology, the patient should be referred to a psychiatrist or a clinical psychologist for further evaluation and to determine the underlying psychopathology. Psychological factors such as stress, interpersonal conflicts, adverse childhood experiences, maltreatment, emotional neglect, and sexual abuse are usually linked to FNDs. Environmental stressors like traumatic life events and social adversity can also worsen the signs and symptoms of FNDs.<sup>9</sup>

FNDs such as PU are a complex issue in India where there are close ties among the members of family and social networks with cultural, spiritual, and religious correlates often complicate the diagnosis. The family and patient must receive education regarding the nature of the psychological symptoms and support. Bhatti et al.<sup>10</sup> report that in broad population samples, FNDs are reported in 3-11 cases per 100,000. The female-to-male patient ratio for FNDs is 2:1 in adult populations, and can reach 10:1. This disorder typically begins in late childhood or after the age of 35. FND is a common problem in Indian children. Rohatgi et al.<sup>11</sup> reported scholastic psychosocial stressors to be the predominant cause in children presenting with FND signs and symptoms, followed by family problems.

Treatment of PU as a consequence of FND requires a multidisciplinary approach. Neurologists, psychiatrists, psychologists, and other allied health professionals collaborate to provide sound clinical care to such patients. Once a negative workup has been obtained and life-threatening causes have been ruled out, the nature of the episode(s) must be explained to the family. Caution should be exercised against suggesting that the patient is “faking” their symptoms.<sup>12</sup> After a neurological workup, most patients are referred to a psychiatrist or a clinical psychologist and often respond to appropriate and timely psychotherapeutic interventions and psychotherapy. The more common psychotherapeutic approach to the management of FND is Cognitive Behavioural Therapy. It includes exploring and identifying the behaviours and cognitions that cause and maintain the symptoms. The goal is to increase the patient’s awareness of their symptoms being caused by maladaptive thoughts and behaviours. As research grows on the psychological treatment and management of FNDs, more novel intervention programs are being proposed. Kozłowska et al. (2023) have proposed evidence-based mind-body interventions for children and adolescents with functional neurological disorder that utilize a seven step therapeutic process to ensure successful treatment. The novel intervention program includes sleep intervention, mind-body formulation, physical therapy, mind-body regulation strategies, attendance at school, family intervention, and managing comorbid concerns.<sup>13-15</sup>

Despite the increased instances of FNDs, psychogenic unresponsiveness remains an obscurely researched area. There is a dearth of scientific evidence regarding a neurobiological hypothesis for the problem. Additionally, more studies are needed to establish standardized protocols for treatment and management of the disorder. Neuroimaging findings need to be translated into clinical practice for better understanding of FND and related issues.

## Conclusion

Psychogenic unresponsiveness is a multifaceted disorder that may be difficult to diagnose because it occupies the border zone of neurology and psychology. For its effective treatment, a thorough, multidisciplinary approach is necessary. Our case demonstrates the importance of a careful neurological examination to exclude potential organic causes and also the consideration of psychological factors when no physical etiology is established. Comprehending the psychological factors driving these events is essential for treatment. Treatment includes medical treatment (psychotropic drugs) but also educating both the patient and their family about the nature of the disorder, the reduction of secondary gains, and tackling of the cultural and social factors that may exacerbate the condition. Acknowledging and dealing with these complexities are important factors that ensure a successful outcome.

## Acknowledgments

None.

## Conflicts of interest

The authors declare no conflicts of interest.

## Disclosures

KC, DP and NKS report no relevant disclosures. The views expressed by the authors are their own and do not necessarily reflect the views of the institutions and organizations which the authors serve. All authors share the first author status.

## References

1. Wilson JK, Reynolds EH. Translation and analysis of a cuneiform text forming part of a Babylonian treatise on epilepsy. *Medical history*. 1990;34(2):185–198.
2. Lee S, Jeong J, Kwak Y, et al. Depression research: where are we now?. *Mol Brain*. 2010;3:8.
3. Xiang X, Fang J, Guo Y. Differential diagnosis between epileptic seizures and psychogenic nonepileptic seizures based on semiology. *Acta Epileptologica*. 2019;1:1–5.
4. Morgan LA, Buchhalter J. Psychogenic paroxysmal nonepileptic events in children: a review. *Pediatric Neurol*. 2015;53(1):13–22.
5. Lagorio I, Brunelli L, Striano P. Paroxysmal nonepileptic events in children: a video gallery and a guide for differential diagnosis. *Neurology: Clinical practice*. 2022;12(4):320–327.
6. Baslet G, Seshadri A, Bermeo-Ovalle A, et al. Psychogenic non-epileptic seizures: an updated primer. *Psychosomatics*. 2016;57(1):1–17.
7. Baxter CL, White WD. Psychogenic coma: case report. *Int J Psychiatry Med*. 2003;33(3):317–322.
8. Van Patten R, Bellone JA. The neuropsychology of functional neurological disorders. *J Clin Exp Neuropsychol*. 2023;45(10):957–969.
9. Mavroudis I, Kazis D, Kamal FZ, et al. Understanding functional neurological disorder: recent insights and diagnostic challenges. *Int J Mol Sci*. 2024;25(8):4470.
10. Bhatti S, Saran B, Kumar S. Unraveling the enigma: Exploring functional neurological symptom disorder. *Santosh University Journal of Health Sciences*. 2024;10(1):39–45.
11. Rohatgi K, Agarwal V, Singh S, et al. Longitudinal outcome of functional neurological disorder in children and adolescents in a tertiary care centre from northern india. *Asian J Psychiatr*. 2023;79:103332.
12. Ryznar E, Wilcox D. Functional coma: two case reports and a review of the literature. *Psychosomatics*. 2019;60(4):343–351.
13. Bryant RA, Das P. The neural circuitry of conversion disorder and its recovery. *J Abnormal Psychol*. 2012;121(1):289–296.
14. Hopkins A. Pretending to be unconscious. *Lancet (London, England)*. 1973;2(7824):312–314.
15. LaFrance WC, Gates JR, Trimble MR. Psychogenic unresponsiveness and nonepileptic seizures. *Handbook of Clinical Neurology*. 2008;90:317–328.