

Functional neurological disorders: from past to present

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Summary

Functional disorders are a frequent challenge in neurology as their pathophysiology remains elusive and absolute diagnostic criteria are lacking. The main categories of functional disorders in neurology comprise functional movement disorders, pseudo-seizures, functional neurological deficits, psychogenic pain, and functional neuropsychological deficits. Although misdiagnoses have been frequent in the past, organic disorders are rarely missed in more recent research. Positive criteria for functional disorders may thus be helpful for an accurate diagnosis and must be preferred over mere exclusion of organic causes.

Key words: functional disorder; psychogenic; somatoform disorder; somatization; conversion disorder; hysteria; misdiagnosis

The concepts of psychogenic bodily symptoms

The concept of psychogenic disorders with somatic manifestation is as old as humanity itself. The terms used to describe them varied over time and include “hysteria”, “conversion disorder”, “functional disorder”, “somatisation”, “somatoform disorder”, “psychogenic disorder”, “medically unexplained symptoms”, “non-organic symptoms”, and “functional symptoms”. Similarly, the concepts for the pathophysiological explanation of psychogenic bodily symptoms have varied over time. The old Greek idea of a wandering uterus compressing different organs and body parts as the cause of symptoms gave the name to “hysteria”. However, the old Greek concepts of hysteria as well as the humoralism of four distinct bodily fluids postulated organic causes for the observed signs and symptoms. The concept that psychological factors could produce bodily symptoms is rather recent. One of the first authors to address the topic was the French Pierre Briquet in his 1859 monograph on hysteria [1]. The concepts he laid out there, however, merely emphasise the predisposition that lead to certain symptoms and are not their actual cause. Hysteria is conceptualised as a combination of a number of (variable) signs and symptoms but not as a pathophysiological entity. The purely descriptive diagnostic entity of somatisation disorder according to the Diagnostic and Statistical Manual of Mental

Disorders [2] follows this approach. In contrast to this, it was revolutionary when Freud and Breuer 1895 postulated a truly psychogenic mechanism as the cause for bodily symptoms [3]. The Freudian concept of hysteria with psychological conflicts being converted into somatic manifestations was the basis of conversion disorder. Somatisation disorder and conversion disorder, which nowadays no longer carries the psychodynamic explanation in the definition of the DSM-IV-TR, are both somatoform disorders, the current psychiatric entity used in the DSM-IV-TR for psychogenic bodily symptoms. We will here use the term “functional disorders” because it does not have a pejorative connotation and emphasises the clinical problem of impaired function.

Functional disorders must be distinguished from two other non-organic problems. The first, malingering: is the intended and fully conscious fakery or simulation of a medical problem. It is rare and mostly occurs in the context of a secondary benefit. Unlike to malingerers, patients with functional disorders are typically not consciously aware of the non-organic nature of their problem. The second differential diagnosis are the factitious disorders in which patients inflict injuries on themselves or close others (“by proxy”) to elicit signs and symptoms. In contrast to malingering, factitious disorders are a mental illness.

Interestingly, the concept of functional (i.e. psychogenic) bodily symptoms has abetted the body-soul dichotomy which still prevails in daily clinical practice in spite of the availability of a more integrative theoretical approach in an – albeit criticised – bio-psycho-social concept of medicine [4, 5]. While psychiatrists, mainly psychoanalysts had a great influence on the notions on functional disorders during most of the 20th century, functional disorders have become a field of prolific research in neurology, neurophysiology, and neuroimaging in the last few decades.

Functional disorders in neurology – a diagnostic challenge

Functional disorders can occur in virtually every domain of neurology. They can be grouped into five broad categories:

- functional movement disorders
- functional seizures (pseudo-seizures)
- functional neurological deficits (psychogenic palsies)
- functional (psychogenic) pain
- functional neuropsychological deficits

In the absence of absolute markers and criteria to ascertain the diagnosis of a functional disorder, diagnosis remains a

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Table 1 Criteria suggesting a functional disorder (modified after Lang [12]).

By history	Abrupt onset Static course, absence of factors influencing the severity of the symptom Spontaneous remissions, inconsistency over time Precipitated by minor (inadequate) trauma Psychiatric comorbidity Pain proneness, history of abuse (Adler et al. [16]) History of previous diagnosis of functional disorders Multitude of unexplained signs and symptoms and undiagnosed conditions Health profession Secondary gain (esp. pending litigation or compensation) Primary gain Refusal of a psychogenic explanation of the symptom Dramatic description of the symptom, use of emotional adjectives rather than descriptive terms ("like a fiery sword cutting through my flesh" instead of "very severe burning pain")
By examination	Inconsistent clinical findings (e.g. normal reflexes in flaccid palsy) Suggestibility Absence of symptom when patients think they are unobserved Variability depending on distraction and execution of specific tasks Variability in space of the core symptom over time (e.g. palsy changing from one limb to another) Variability in type of the core symptom over time (e.g. palsy changing to tremor) Inadequate emotions with the patient ("la belle indifférence") Inadequate emotions with the interviewer (counter-transference) Bizarre, grotesque semiology
By therapeutic response	Response to placebo Absence of response to appropriate medications Remission with psychotherapy Disappearance during somatic illness

major challenge. Moreover, functional and organic causes for a semiologically similar clinical manifestation often co-exist in one and the same patient: e.g. pseudoseizures in epileptic patients. As a result, epidemiological research on functional disorders is extremely difficult and has so far led to variable results. Also a result of the diagnostic difficulties is the attention that has been given to the frequency of misdiagnoses of functional disorders. To misdiagnose an organic disease as functional is generally considered a grave and blameful error exposing a physician's insufficient knowledge. Surprisingly this is in stark contrast to missed psychogenic diagnoses which rarely leads to an attack on a doctor's reputation.

Slater's critical statement "*the diagnosis of 'hysteria' is a disguise for ignorance and a fertile source of clinical error*" reflecting the high percentage (38%) of diagnostic errors discovered by his seminal research [6] mirrors findings that had already been made almost 30 years earlier [7]. Certain neurological disorders with, sometimes dramatic manifestations that may vary over time and with psychological stress, have been particularly prone to be misdiagnosed as psychogenic: e.g. dystonia has been mistaken as a psychogenic problem in a quarter to half of the patients in several early studies [8–11]. This emphasises the need for positive criteria for functional disorders and the uncertainty of psychogenic diagnoses by exclusion. Therefore, attempts have been made to define functional disorders using positive criteria (table 1) [12]. Diagnoses of functional disorders based on such positive argumentation have resulted in fewer errors in more recent publications [13–15]. However, these criteria cannot take into account the pathophysiology of the symptoms – as it still remains elusive – and therefore, the diagnosis of functional disorders remains at risk for errors.

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