Psychogenic Nonepileptic Seizures: A Historical Perspective

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Abstract

Psychogenic nonepileptic seizures have been documented, if not recognized, for over 2000 years. Conventionally, the term hysteria has been used successfully used to describe patients with nonorganic or medically unexplained convulsions. Therefore, the history of psychogenic nonepileptic seizures is closely woven within the texture of hysteria. It is possible to identify a progressive shift from the ancient concept of a female malady caused by an allegedly wandering womb to a neurological disorder that dominated the clinical practice of Victorian physicians in England and, most importantly, Charcot's school in France. Freud's contribution was essential to the development of individualized etiological models within the psychological framework. Over time, causation shifted away from the uterus to the brain, and then to the mind, but was never fully elucidated. The paradigm shift that led from psychodynamic psychiatry to biological psychiatry was accompanied by the operationalization of diagnostic criteria. Historical developments were also mirrored by changes in the terminology, which have led to the recent dismissal of the term hysteria, among a few other medical labels. Psychogenic nonepileptic seizures are currently categorized as functional neurological symptoms, and remain a mysterious, although relatively common, neuropsychiatric condition at the borderlands between epileptology and psychiatry.

Keywords: Conversion, convulsions, dissociation, history, hysteria, psychogenic nonepileptic seizures

Ancient Times

Psychogenic nonepileptic seizures are self-limiting episodes of abnormal movement, sensation, and/or behavior that resemble epileptic seizures but do not have a neurologic origin.[1] Based on the suspicion of epileptic seizures, patients presenting with these symptoms are typically referred to neurology services in the first instance. Their care pathways after the diagnosis of epilepsy have been ruled out often require the involvement of mental health services.[2-4] Unlike epileptic seizures, psychogenic nonepileptic seizures are not caused by abnormal brain electrical activity and are not accompanied by any characteristic electroencephalographic changes. Instead, they are thought to be of psychological origin, by means of unconscious mechanisms. Different etiological models have been proposed for the different types of functional (as opposed to organic) neurological symptoms, including psychogenic nonepileptic seizures.[5-7] Over time, the proposed etiological models have encompassed supernatural influences upon the body, consequences of malfunctioning reproductive organs, bodily expression of painful emotions involving traumatic memories, and cognitive distortions through attention and predictive biases.[8,9] Psychogenic nonepileptic seizures have always been central to the evolving history of hysteria, which can be traced back to the earliest medical texts from Egyptian and Greek cultures.[10-12] The term "hysteria" stems from the Greek term for womb, as the origin of functional symptoms (thought to be found exclusively in women) was to be found in the wandering womb.[13] According to early theories, the female organ, being frustrated by lack of proper use, leaves its anatomical position and travels around the body ending up in anomalous body locations, where it causes hysterical symptoms. Hippocrates argued that in women, "the womb is the origin of all diseases," whereas Plato's *Timaeus* viewed "the womb as an animal: voracious, predatory, appetitive, unstable, forever reducing the female into a frail and unstable creature."[12]

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At the time of the Roman empire, Aulus Cornelius Celsus (25 BCE-50 CE) adopted the notion of the wandering womb. He claimed that "Sometimes this affection deprives the patient of all sensibility, in the same manner as if she had fallen in epilepsia. Yet with this difference, that neither the eyes are turned, nor does foam flow from the mouth, nor are there any convulsions: there is only a profound sleep."[14] Galen (129–210) accepted that the womb was the organ from which hysterical symptoms derived and held that sexual deprivation could cause the disorder, therefore advocating intercourse for the married, and marriage for the single, as valuable therapeutic strategies.[15]

An unexpected step forward was documented in the second half of the II century, with Aretaeus of Cappadocia, one of the greatest medical scholars of Greco-Roman antiquity.[16] Aretaeus demonstrated his admiration of Hippocrates by writing in the dialect of Ionic Greek and by including Hippocratic aphorisms and quotations in his own work an eight-volume treatise titled *On the causes, symptoms and cure of acute and chronic diseases*.[17] In his work, Aretaeus differentiated epileptic seizures and hysterical seizures. He argued that hysterical seizures are related to movements of the womb and are characteristically sensitive to psychological factors. Specifically, he described a provocation maneuver that could assist clinicians in the differential diagnosis: "Therefore to discern whether the one who falls to the ground be a lunatic or an epileptic, make this test. Utter these words into the ear of the subject: "Depart daemon, and go forth, because Effimolei commands thee." If he be a lunatic or a demoniac, he immediately becomes dead, for nearly an hour. When he rises, ask him any question whatever and he will give the answer. If he does not fall when he hears the words then you will know that he is an epileptic".The differential diagnosis between epileptic and psychogenic nonepileptic seizures was also important for its treatment implications, as Aretaeus is credited to be the first physician to recommend trepanation for the treatment of refractory epilepsy.[18] Overall, Aretaeus' outstanding work reveals the prescientific acumen of antique Medicine and stands as a milestone in the history of diagnostic medicine. During the Enlightenment, Aretaeus was highly praised, as shown by remarks cited in Moffat's edition of his work: [19] "His accuracy is so great that you would imagine he painted and did not write, you would think you did not feed the eyes with an empty picture, but that you were present with the persons afflicted, beheld their various labors, heard their cries, groans and sighs, that you felt yourself affected with horror, and moved with pity, in proportion to the distresses with which they were affected." In the XIX century, Sir William Osler, one of the fathers of modern medicine, wrote that the art of observation had come to a standstill in modern times as compared with the work of Aretaeus.[20]

From the Middle Ages to the Renaissance

It would not be an overstatement to argue that religious thought dominated the middle ages. It is therefore hardly surprising that for over a millennium, the views on hysteria conflated with those on witchcraft. The best-known treatise on witchcraft, titled *Malleus maleficarum* (usually translated as the *Hammer of witches*), was written by the Catholic clergyman Heinrich Kramer and first published in Germany in 1486.[21] In this book, the presence of seizures was included among the signs of witchcraft, with crucial repercussions. Witchcraft first became a statutory crime in 1541, marking the beginning of a 200-year period of witch-hunting and persecution.[12]

Interestingly, vivid portrayals of convulsions (of both epileptic and nonepileptic nature) have been identified in Italian Renaissance art. The development of perspective was part of a wider trend toward realism that characterized Renaissance painting following its development between the XIV and the XV centuries in Florence. For example, in the last masterpiece painted by Italian Renaissance artist Raphael (1483–1520), *The Transfiguration* (1516–1520), the representation of a convulsing boy is seen by neuroscientists as indicative of an epileptic seizure associated with ictal epileptic strabismus.[22] By synchronizing Christ's transfiguration on Mount Tabor and the boy's epileptic seizure at the foot of the mountain, Raphael demonstrated a significant correspondence between Christ and the epileptic boy, thus revealing the epileptic seizure as a symbolic representation of a transcendent event. This would be consistent with the text of the Gospels, where the metamorphosis caused by the epileptic seizure is used as a simile for Christ's transfiguration through suffering, death, and resurrection.[23] Conversely, other paintings such as *The healing of the possessed woman* (1509–1510), a fresco by Florentine painter Andrea del Sarto (1486–1530), portray convulsing subjects with the hallmarks of psychogenic nonepileptic seizures [Figure 1].

In general, episodes of mass hysteria mainly characterized by motor abnormalities (dance-like movements and convulsions) were relatively common throughout the Middle Ages. During these outbreaks, groups of people of different sizes – sometimes reaching several hundred – would display exaggerated movements and convulse until they dropped exhausted. Many episodes were noted in relation to the

Figure 1: Details from Italian Renaissance paintings *The Transfiguration* (1516-1520) by Raphael (1483-1520) [*left*] and *The healing of the possessed woman* (1509-1510) by Andrea del Sarto (1486-1530) [*right*]: the portrayed subjects are thought to display an epileptic seizure and a psychogenic non-epileptic seizure, respectively

spread of diseases, such as the plague, especially in closely knit social groups, often united by religious belief. These phenomena emphasized the imitative nature of many hysterical afflictions and the powerful roles of social/cultural pressure and emotional contagion in their pathogenesis. Incidentally, a similar phenomenon has been recently described during the covid-19 pandemic, involving functional tic-like behaviors that have been linked to social media exposure.[24]

From the Wandering Womb to the Nervous System

The Renaissance paved the way to the scientific revolution. In the same year (1543), Nicolaus Copernicus (1473–1543) replaced the Ptolemaic concept of a geocentric universe with his heliocentric theory described in *De revolutionibus orbium coelestium*, whereas Andreas Vesalius published his illustrated treatise of anatomy *De humani corporis fabrica*.[25] It could be argued that a similar revolution occurred in the portrayal of hysteria and psychogenic nonepileptic seizures.

In 1602 a memorable trial took place, in which a woman called Elizabeth Jackson was accused of bewitching a 14-year-old girl called Mary Glover, who had developed a constellation of medically unexplained symptoms, including hemiparesis, aphasia, and episodes of prolonged convulsions.[11,12,26] A year later, Edward Jorden (1569–1632), the English physician who had defended Elizabeth Jackson, published a treatise titled *A briefe discourse of a disease called the suffocation of the mother*. This treatise was aimed at counteracting the widespread belief that symptoms such as those displayed by Mary Glover were due to possession by some supernatural power. Jorden's account was the first English book on hysteria and psychogenic nonepileptic seizures. Like Aretaeus, Jorden recognized the multifaceted nature of the hysterical symptoms, the link to the female sex, and the importance of "perturbations of the mind" in the cause of the disorder. Moreover, Jorden's opinion about the involvement of the brain, accounting for sensory and motor symptoms, marked the beginning of the shift of psychiatric symptoms away from the uterus to the brain.

English physician and neuroanatomist Thomas Willis (1621–1675) published his *Cerebri anatome* in 1664 and is credited to have coined the term "neurology."[27] The influence of Willis on the development of medical thought cannot be overestimated. Willis strongly rejected the traditional concept of the wandering womb: "The former opinion, although it plead antiquity, seems the less probable, for that the body of the womb is of so small a bulk, in virgins, and widdows, and is so strictly tyed by the neighboring parts round about, that it cannot of itself be moved, or ascend from its place, nor could its motion be felt, if there were any: As to that vulgar opinion, or Reason taken from the vapors, we have often rejected it as wholly vain, and light." Instead, he was one of the first influential authors to espouse the central importance of the brain. Willis argued that "this passion comes not from the vapors rising into the head from the uterus or spleen, nor from a rapid flow of blood into the pulmonary vessels, but has its origin in the brain itself." He was led to this conclusion by his postmortem examinations and his clinical observations of the disorder in prepubertal and senile women, as well as by the irreconcilable fact that he observed hysteria in men.[28]

Like Willis, Thomas Sydenham (1624–1689), also referred to as the "English Hippocrates," acknowledged the existence of male hysteria, which he called "hypochondriasis."[29] In his own words: "Several men also, who lead a sedentary life and study hard, are afflicted with the same […] yet upon comparing the hypochondriac complaints, which we judge to rise from obstructions of the spleen and other viscera, with these symptoms, which seize hysteric women, we find a great similitude between them […] This disease is not more remarkable for its frequency, than for the numerous forms under which it appears, resembling most of the distempers wherewith mankind are afflicted."

It was only in the XVIII century that the wandering womb of Antiquity was confirmed to be an anatomical impossibility, thanks to the work of the great Italian physician Giovanni Battista Morgagni (1682–1771), author of the classic *The seats and causes of diseases investigated by anatomy* (1761). Morgagni's authoritative work provided considerable support to Willis' conclusion that in cases of hysteria, "the chief disorder is in the nervous system, as it is called."[11] With the advent of the enlightenment, the once heretical idea had become a common place.

Enlightenment and Positivism

In the XVIII century, the mechanistic notions of "animal spirits" moving speedily or slowly through the delicate network of tubes or fibers that made up the brain and nervous system achieved a wide currency.[11] Such a reductionist approach was epitomized by Nicholas Robinson, one of the governors of London's oldest madhouse, Bedlam, who in 1729 wrote "I deny that all the Thoughts themselves can ever start from a regular Way of Thinking, without inferring, at the same Time, a Change in the Motions of the Animal Fibers […] it's impossible that the Mind can suffer and the Body be unaffected at the same Time […] Every Change of the Mind, therefore, indicates a Change in the bodily Organs; nor is it possible for the Wit of Man to conceive how the Mind can, from a chearful, gay Disposition, fall into a sad and disconsolate State, without some Alterations in the Fibers, at the same Time."

In 1720, Catherine Walpole, the 16-year-old eldest daughter of Sir Robert Walpole (later to become the Whig grandee and Prime Minister), became very ill. Her afflictions included anorexia, faints, pain, and swelling, as well as what looked like psychogenic nonepileptic seizures.[30] The young woman was sent to Bath, like many of the jeunesse dorée of her generation, to partake of the waters. Catherine became one of the most famous patients of Scottish physician George Cheyne (1671–1743), who specialized in dietary problems and nervous diseases and supervised her treatment until her

death in 1722.[31] According to Cheyne, hysteria was a disease affecting "the People of Condition in England […] of the liveliest and quickest natural Parts, whose Faculties are the most bright and spiritual, whose Genius is most keen and penetrating, and particularly where there is the most delicate Sensation and Taste." Cheyne eloquently argued: "Since our Wealth has increas'd, and our Navigation has been extended, we have ransack'd all parts of the Globe to bring together its whole Stock of Materials for Riot, Luxury, and to provoke Excess […] sufficient to provoke, and even gorge, the most large and voluptuous Appetite." In addition to "the Moisture of our Air, the Variableness of our Weather," the true sources of England's unwanted prominent position in the realm of nervous disorders were "the Rankness and Fertility of our Soil, the Richness and Heaviness of our Food, the Wealth and Abundance of the Inhabitants (from their universal Trade), the Inactivity and sedentary Occupations of the better Sort (among whom this Evil mostly rages), and the Humor of living in great, populous and consequently unhealthy Towns." According to Cheyne's theory, the "English malady" was essentially a badge of honor, rather than of shame: "If Nervous Disorders are the Diseases of the Wealthy, the Voluptuous, and the Lazy and are mostly produc'd, and always aggravated and increased, by Luxury and Intemperance […] there needs no great Depth of Penetration to find that Temperance and Abstinence are necessary toward their Cure." Cheyne's theory that to be nervous was a mark of superior sensibility was enthusiastically endorsed by Scottish author James Boswell (1740–1795), who wrote a whole series of autobiographical columns under the pseudonym "The Hypochondriack," boasting there that "we Hypochondriacks may console ourselves in the hour of gloomy distress, by thinking that our sufferings mark our superiority." Apparently, he had not been deterred by the injunction of his close friend Samuel Johnson (1709–1784): "Do not let (Cheyne) teach you a foolish notion that melancholy is a proof of acuteness."[11]

In the era of positivism and mechanistic explanations, the nervous system was conceived of as a network of hollow pipes, through which fluids flowed in a hydraulic system or-as Cheyne had suggested-as "Bundles of solid, springy, and elastick Threads or Filaments (like Twisted Cat-Guts or Hairs)," a series of fibers or strings. Scottish physician Sir Robert Whytt (1714–1766), the discoverer of reflex activity in the nervous system, recognized that the mind could cause actions not appreciated by consciousness.[12] Building on his experimental studies of the nervous system, he developed the idea that hysteria was indeed a disorder of the nerves. In his book *On nervous, hypochondriac, or hysteric diseases* (1764), Whytt acknowledged that "The colors of the chameleon are not more numerous and inconstant than the varieties of the hypochondriac and hysteric disease." According to him, "Horrible or unexpected sights, great grief, anger, terror (occasioning) the most sudden and violent nervous symptoms (might) throw a person into hysteric fits, either of the convulsive or fainting kind."

Reflex theory had created a new way of re-emphasizing the connections between women's reproductive organs, their brains, and their propensity to be hysterical, especially among popular physicians in Victorian England [Figure 2].

London-based general practitioner Robert Brudenell Carter (1828–1918) endorsed the notion of "reflex action," as well as "reflex irritability," which provided a novel way to account for women's heightened susceptibility to hysterical symptoms. According to him, women, who possessed a large and complicated reproductive system, were far more susceptible than men to the predominance of reflex action over rational thought. From puberty onward, the maturation of a woman's body produced a major alteration in her reproductive organs, which were intimately linked to her peripheral nervous system and her brain.[32] Therefore, she was "obedient to a special law […] The victim of periodicity, whether coitus or masturbation." The activity of the nervous system was interlinked with the function of the reproductive system: "Improper excitement of the imagination (creates) nervous excitement and vascular turgescence of the uterine organs (which) determine the character of the mental disorder, elevating certain of the moral sentiments, or of the intellectual manifestations to a state of extravagance." Robert Brudenell Carter divided hysteria into two main forms: Simple, which was manifest essentially as psychogenic nonepileptic seizures, and complicated, which included a constellation of hysterical symptoms originating from the primary convulsion, the "fons et origo mali."

Another Victorian physician, Isaac Baker Brown (1811–1873), immediately saw the relevance of these theories to his own private practice.[33] He argued that the source of his patients' hysteria and nervous complaints was to be found in the "peripheral excitement of the pudic nerve," or female masturbation. By invoking masturbation as a cause of hysteria and other forms of insanity, Baker Brown justified his extensive practice of clitoridectomy.[34] He published two popular books outlining his theories: *On some diseases of women admitting of surgical treatment* (1854) and *On the curability of certain forms of insanity, epilepsy, catalepsy, and hysteria in females* (1866). Specifically, he argued that

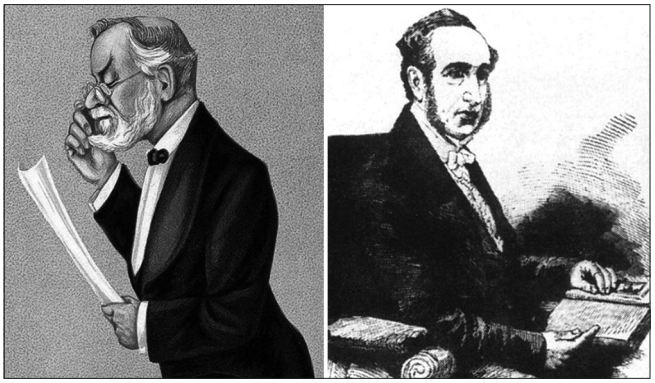

Figure 2: . Portrayals of Victorian physicians: Robert Brudenell Carter (1828-1918) [*left*] and Isaac Baker Brown (1811-1873) [*right*]

loss of nerve power as a result of masturbation was followed successively by "hysteria, spinal irritation, hysterical epilepsy, cataleptic fits, epileptic fits, idiotcy (sic), mania, and finally death." To "destroy such deep-seated nerve irritation," Baker Brown proceeded at once to "a surgical test, by removing the cause of excitement," the woman's clitoris. Shortly after his publications, Baker Brown's reckless conduct and preference for lay approval over the opinion of his professional peers turned the London medical elite against him, as the lights of the Victorian physicians began to fade.[35]

Charcot's School: The Hysterical Circus of the Salpêtrière

The Salpêtrière hospital originally was a vast warren of buildings on the edge of Paris that king Louis XIV had made into "the Versailles of Pain." French physician and celebrity Jean-Martin Charcot (1825–1893) is credited of turning the Salpêtrière from a place to store the stigmatized and unwanted to a "Temple of Science."[36,37] While Charcot's most famous hysterical patients were women, he personally insisted, as Willis and Sydenham had already done in the late XVII century, that hysteria was not solely a female malady: on the contrary, it could be diagnosed and detected among men [Figure 3].[38,39]

Hysteria was, he confidently declared, a disorder of the nervous system, not of the female reproductive organs. In 1882 Charcot had opened a ward for hysterical males at the Salpêtrière, the first accommodation for men that the vast hospital had ever made. Moreover, Charcot's female patients at the Salpêtrière were almost all drawn from the lower orders, in strike contrast to previous discussions on the alleged connection between nervous disorders and affluence, exemplified in Cheyne's remarks on the English malady. Overall, Charcot's emphasis on the prevalence of hysteria among men, and in general among people from the working classes, reflected the way in which his writings on hysteria departed from most prior orthodoxy. Charcot famously claimed that hysteria was a genuinely organic disorder of the nervous system. According to the "Napoleon of the neuroses," hysterical symptoms were "morbid states, evidently having their seat in the nervous system, which leave in the dead body no material trace that can be discovered:" a definition that resonates in today's general perception of functional neurological disorders.

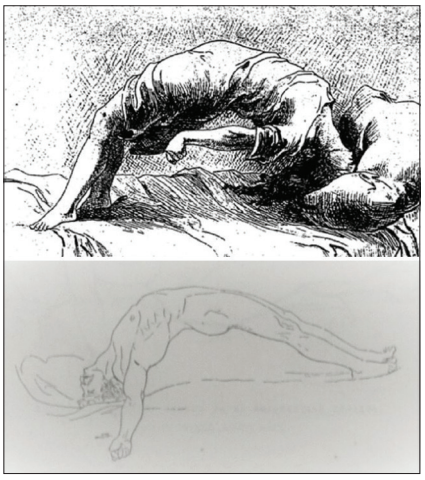

Figure 3: . Drawings of female [*above*] and male [*below*] subjects displaying the same type of psychogenic non-epileptic seizures (*arc-en-cercle*), from Charcot's school

Charcot was particularly fascinated by psychogenic nonepileptic seizures and provided the first complete description of what he called initially "hystero-epilepsy" and later "la grande hystérie" or "hystérie major."[12] According to Charcot, psychogenic nonepileptic seizures had four distinct stages, "four periods (that) succeeded each other in the complete attack with mechanical regularity." First, the epileptoid period, where the patient suffered fits. Second, the "period of contortions and grands movements," where the patient engaged in dramatic physical displays, often accompanied by cries and shrieks, and culminating in some cases in the adoption of an *arc-en-cercle* position, in which the patient bent backward into a seemingly impossible contortion, with only the back of the head and the heels still touching the ground. Charcot also referred to such bizarre manifestations as *clownisme*. Third, especially in female patients, the period where the patient adopted *attitudes passionelles*, posing as if being crucified, or in the throes of erotic ecstasy. Fourth, the final period of delirium, where the patient might experience hallucinations or delusions, which gradually subsided. Charcot insisted that the regular unfolding of the psychogenic nonepileptic seizures ("valid for all countries, for all epochs, for all races, and, in short, universal") lent weight to his contention that hysteria was an organic disease of the nervous system. In retrospect, it is likely that such regularity and universalism were manufactured, socially constructed by Charcot's assistants and their pliable specimens, though the *mise en scène* took place behind Charcot's back, and arguably without his knowledge.[11]

Perhaps the most famous single image of a hysterical patient is the 1887 painting by André Brouillet titled *Une leçon clinique à la Salpêtrière* ("A clinical lesson at the Salpêtrière"). In the painting, Charcot is presenting the case of Blanche Wittman (1859–1913), the so-called "queen of hysterics," to members of his neurological school [Figure 4]. Blanche had been admitted to the Salpêtrière in 1878 and remained there for 16 years, performing on command. Blanche, together with two other hysterical patients called Augustine and Geneviève, was at the center of Charcot's medical circus for a long time: their images famously featured in the *Iconographie photographique de la Salpêtrière* (from 1876), later to be succeeded by the *Nouvelle iconographie de la Salpêtrière* (from 1888).[40]

Charcot's show was not exempt from criticism.[11] Swedish psychiatrist Axel Munthe (1857–1949) was particularly harsh in his report after attending Charcot's public demonstrations of hysteria: "These stage performances of the Salpêtrière before the public of Tout Paris were nothing but an absurd farce, a hopeless muddle of truth and cheating. Some of these subjects were no doubt real somnambulists faithfully

Figure 4: *Une leçon clinique à la Salpêtrière* ('A clinical lesson at the Salpêtrière') by French painter André Brouillet (1887): Jean-Martin Charcot stands next to his patient Blanche Wittman, who is performing a psychogenic non-epileptic seizure of the swooning type, while being held by Joseph Babinski. On the back wall of the lecture theatre it is possible to see the image of a hysterical *arc-en-cercle*

Figure 5: Charcot as portrayed by Brouillet in *Une leçon clinique à la Salpêtrière* ('A clinical lesson at the Salpêtrière') was always present in Freud's office

carrying out in a waking state the various suggestions made to them during sleep-posthypnotic suggestions. Many of them were mere frauds, knowing quite well what they were expected to do, delighted to perform their various tricks in public, cheating both doctors and audience with the amazing cunning of the hystériques. They were always ready to piquer une attaque of Charcot's grande hystérie, arc-en-ciel and all, or to exhibit his famous three stages of hypnotism: lethargy, catalepsy, somnambulism, all invented by the Master." In a 1931 letter to *The New York Times Book Review*, Charcot's son, polar explorer Jean-Baptiste Charcot (1867–1936), who had himself been a formal student of his father at the Salpêtrière, published an emphatic rebuttal to such criticisms: "I can certify that (although Munthe) may have (incidentally) followed, like hundreds of others, some courses of Charcot, […] he was not trained by him and certainly never had the intimacy of which he boasts.[…] I was, myself, a student at the Salpêtrière then, and can certify that he was not one of his students and that my father never knew him. Everything he says about professor Charcot is false."

From Freud's Psychoanalysis to the DSM

In 1885–1886, Sigmund Freud (1856–1939) spent 5 months in Paris to study with Charcot.[11] During this time, he swiftly fell under Charcot's spell, and his interest in psychology crystallized [Figure 5].

Freud subsequently pursued his interest in hypnosis with Joseph Breuer (1842–1925).[41] According to Freud and Breuer, hysterical symptoms were related to traumatic ideas, absent from consciousness, which could be uncovered by the psychoanalytic method. The unconscious mind, riven with conflicts, converted energies into physical symptoms, the latter resolving the psychic tension. Conversion, a term used in an original way by Freud, referred to the psychologically converted physical symptoms. In their *Studien über Hysterie* (1895), subsequently published in English as Studies on hysteria (1937), Breuer and Freud famously claimed that "hysterics suffer mainly from reminiscences," memories that lingered in repressed form in the unconscious, only to return to the surface with a vengeance years later in the disguised form of hysterical symptoms (conversion). By the end of the XIX century, then, hysteria was a paradigm of psychoneurosis, with psychogenic nonepileptic seizures as one of its core manifestations.

Like Freud, Pierre Janet (1859–1947) studied under Charcot in Paris.[42] He first published the results of his research in his philosophy thesis in 1889 and in his medical thesis, *L'état mental des hystériques*, in 1892. Janet was one of the first people to allege a connection between traumatic events in a subject's past life and their present-day symptoms and coined the words "dissociation" and "subconscious."[43] Controversy over whose ideas came first, Janet's or Freud's, emerged at the 1913 Congress of Medicine in London [Figure 6].[11]

Before that date, Freud had freely acknowledged his debt to Janet, particularly in his work with Breuer. However, in his report on psychoanalysis in 1913, Janet argued that many of the novel terms of psychoanalysis were only old concepts renamed, even down to the way in which his own "psychological analysis" preceded Freud's "psychoanalysis," thus provoking angry attacks from Freud's followers. In recent times, with a renewed interest in the phenomenon of dissociation (for instance in the nomenclature of the World Health Organization's *International Classification of Diseases*), a revival of interest in Janet's dissociation theory has occurred.[44]

The current edition of the *Diagnostic and Statistical Manual for Mental Disorders* (DSM-5) was published by the American Psychiatric Association in 2013,[45] updating the previous edition (DSM-IV-TR), which had been published in 2000.[46] In the DSM-5, Freud's conversion disorder was replaced by the concept of "functional neurological symptom disorder," which entails no assumptions about etiological mechanisms. This

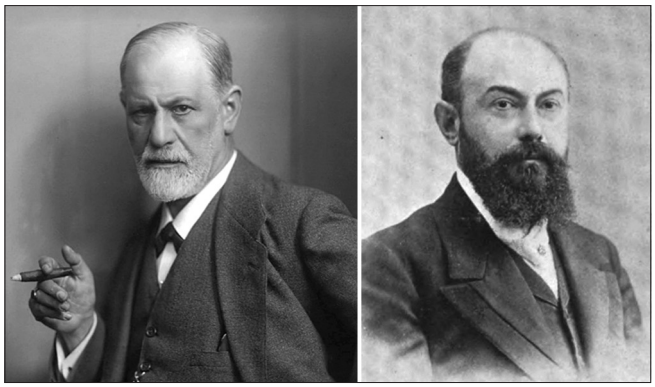

Figure 6: Sigmund Freud (1856-1939) [*left*] and Pierre Janet (1859-1947) [*right*]

shift is reflected by an ongoing debate about terminology since psychogenic nonepileptic seizures are currently referred to in the scientific literature by using a variety of names [Table 1].[47] Specifically, suggestions have been made about the opportunity of avoiding the term "psychogenic" and replacing the term "seizure" with "attack."[48,49]

Within the diagnostic category of "functional neurological symptom disorder," the DSM-5 lists the following criteria.[45] First, the patient has one or more symptoms of altered voluntary motor or sensory function. Second, clinical findings provide evidence of incompatibility between the symptom and recognized neurological or medical conditions. Notably, the International League Against Epilepsy complemented this criterion with neurophysiological investigations as art of a staged approach to diagnostic certainty encompassing possible, probable, clinically established, and documented psychogenic nonepileptic seizures.[50-52] Third, the symptom or deficit is not better explained by another medical or mental disorder. Fourth, the symptom or deficit causes clinically significant distress or impairment in social, occupational, or other important areas of functioning or warrants medical evaluation. The diagnosis of psychogenic nonepileptic seizures is clarified by the specifier "with attacks or seizures." Finally, other specifiers refer to the duration of symptoms (acute episode or persistent, i.e., at least 6 months) and to the presence of psychological stressors.

Despite premature claims about the disappearance of hysteria,[53-57] functional neurological symptoms continue to be seen on a regular basis in medical departments, with a preponderance of psychogenic nonepileptic seizures in epilepsy clinics and psychogenic movement disorders in movement disorders clinics.[58,59] Their pathophysiology is still far from being fully elucidated.[60] In Michael Trimble's expert words, "Video cameras have now replaced the silent ones of the Salpêtrière, and the latest technology has been employed to investigate cases. Charcot had the ovarian compressor and the thermometer, Freud had psychoanalysis; now, we have ambulatory monitoring, telemetry, and functional magnetic resonance imaging. Arguments about the underlying causes continue, almost with the same protagonists (a special neural state, suggestion, the role of compensation, malingering), and running a concomitant race, the sociological–historical perspective. But the patients continue coming."[12]

Table 1: Selection of terms referring to psychogenic non-epileptic seizures used in the scientific literature

Dissociative attacks / seizures
Functional seizures
Hysteroepilepsy
Non-epileptic attacks / seizures
Pseudoseizures
Psychogenic attacks / seizures
Psychogenic non-epileptic attacks / seizures

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There are no conflicts of interest.

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