

# Functional Neurological Disorder in Adults

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## ABSTRACT

Functional neurological disorder (FND) is a heterogeneous group of disorders with limitations in one or more neurologic systems without a structural or anatomic cause. Elements of diagnosis, evaluation and management are similar between children and adults though diagnostic considerations can be more complex with suspected FND in adults. This article will focus on issues specific and relevant to adults.

**KEYWORDS:** Functional neurological disorder, FND, adult

## INTRODUCTION

As referenced in other articles in this issue, functional neurological disorder (FND) is a disorder in neurologic functioning without a corresponding structural or anatomic deficit. Patients may present at any age, but the peak incidence is in the 4th decade of life, with a strong female predominance. The essential elements of diagnosis, management, and pathophysiology are similar between children and adults; however there are aspects pertinent to diagnosis and management in adults.

## DIAGNOSIS

Motor weakness or dysfunction is a common presenting symptom encountered in adult medicine and the most frequently encountered presentation in FND. Diagnostic consideration for adult patients presenting with sudden loss of motor function is lengthy and includes critical “don’t miss” disorders that are less common in children. For example, stroke, intracranial bleeding, tumors and multiple sclerosis (MS) are a greater concern in adult patients. As a result, imaging such as CT or MRI is an important and common tool used for diagnostic clarity in many scenarios, including assessment for acute infarct and MS. Similar to FND, patients with MS may exhibit findings that don’t correlate with clear dermatomal patterns, making use of highly sensitive MRI essential. Highlighting the importance of advanced imaging, studies estimate that approximately 8% of all hospital admissions for suspected stroke are FND and not

infarcts.<sup>1</sup> Movement disorders, another type of FND presentation, can be mistaken for similarly presenting common diagnoses in adults such as Parkinson’s disease.<sup>2</sup> Again, while there may be evidence of FND on the initial evaluation, CT/MRI evaluation would be considered standard of care prior to concluding the evaluation process. Similar to strokes, FND is diagnosed in approximately 15% of new patients presenting to some movement disorder clinics.<sup>3</sup>

Patients with underlying structural neurologic disease or primary neurologic diagnoses may also develop functional neurological disorder.<sup>4</sup> Theories suggest that primary neurologic illness may be the inciting factor that alters neurocircuitry leading to manifestation as FND with adults at particular risk based on chronicity of illness. For example, functional seizures can occur in the setting of epilepsy where seizure patterns may appear to be similar to the epileptic seizure.<sup>4</sup> Video EEG and diagnostic features can be helpful to clearly differentiate between functional versus epileptic seizures and avoids miscategorizing changes in frequency or appearance as medication breakthrough or failure.<sup>4</sup> FND can also co-exist with multiple other common conditions in adults, such as anxiety/depression, chronic pain, and irritable bowel syndromes, where the clinician may have difficulty distinguishing new symptoms as worsening of the primary condition versus FND-related, impacting decisions on medication management, evaluation, and diagnostic clarity.<sup>5,6</sup>

As adult patients undergo evaluation for complex diagnoses, they may be subject to unnecessary and potentially harmful interventions, with subspecialty collaboration important to minimize these risks. Particularly challenging are patients presenting with stroke-like symptoms as multiple medical encounters and unnecessary, potentially harmful assessments or interventions may be employed before reaching an ultimate diagnosis of FND. One study describes a series of 79 patients who were given thrombolytic therapy and were eventually diagnosed as having FND.<sup>7</sup> It is unknown how many more patients may have received thrombolytic therapy and suffered intracranial bleeding – their final diagnosis would reflect hemorrhagic conversion, and not FND. Pathognomonic features and rule-in signs can be helpful in diagnostic accuracy and avoiding risks associated with unneeded testing or treatment.

## COSTS

An estimate of medical care costs for adult patients demonstrating signs and symptoms of FND were more than one billion dollars per year in the US for combined Emergency Department and inpatient hospitalizations.<sup>8</sup> This review also found that healthcare costs were increasing faster for FND than for other neurologic disorders on a per-patient basis. Additionally, quality of life (Quality Adjusted Life Years or QALY) was significantly affected above and beyond economic factors identified above. Patients with FND identified poorer quality of life compared to patients with structural neurologic disease and have 2.5 times the mortality of the general population.<sup>9</sup>

The longer the duration between symptom onset and FND diagnosis or initiation of treatment, the worse the outcomes as measured by disability determination and work absenteeism.<sup>10</sup> There is evidence that treatment in children/adolescents leads to higher rates of remission than in adults.<sup>11-13</sup> In a retrospective analysis, up to one-third of adult patients with FND had received or were applying for disability benefits.<sup>10</sup> These findings reinforce the importance of early and accurate diagnosis and initiating treatment to improve functionality and outcomes.

How the diagnosis is conveyed to the patient/family appears to have a major impact on the long-term outcome. One study on functional seizures in adults indicated that after a “satisfactory” diagnosis of functional seizures was made (did the neurologist indicate that symptoms were real and treatable, as well as referral to psychiatry/therapy versus not) resulted in a 31% reduction in healthcare utilization and costs compared to an almost tripling of costs in the population with an “unsatisfactory” manner in the two years after the diagnosis was presented.<sup>14</sup> Much of these additional costs were driven by a 75% increase in inpatient days for additional investigations compared to baseline.

The COVID-19 pandemic caused multiple healthcare disruptions throughout the world. The pandemic was associated with increased stress, social isolation and disruption of normative routines. Rates of FND were increased after the onset of the pandemic. Several studies saw a 60–200% increase in FND as the cause of movement disorders in the year following the outbreak in both children and adults.<sup>15-17</sup> Several articles examined the impact of COVID-19 on patients with pre-existing diagnoses of FND and found minimal change in their symptoms, suggesting that the increase in cases are truly new diagnoses, not pre-existing patients with worsening of symptoms.<sup>18,19</sup> Additionally, several authors have looked at whether there is linkage or overlap between symptoms of long COVID and FND, but currently there is no clear consensus.<sup>20,21</sup>

## CONCLUSION

Many features of FND in adults mirror those of children. Due to the complexity and frequency of structural and anatomical neurologic disorders in adults, diagnostic and management considerations differ for adults. Early and accurate diagnosis of FND with initiation of evidence-based treatments can minimize disability and costs.

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### Disclosures

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