



ORIGINAL RESEARCH PAPER

Psychiatry

FUNCTIONAL VS. NON-FUNCTIONAL MOVEMENT DISORDER: A CLINICAL DILEMMA

KEY WORDS: Functional Movement Disorder, Drug-induced Movement Disorder, Extrapyramidal Symptoms, Hyperkinetic Disorders

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ABSTRACT

Background: Movement disorders encompass a broad spectrum of hyperkinetic and hypokinetic conditions. Distinguishing functional movement disorders (FMD) from non-functional (organic) movement disorders is often challenging due to overlapping clinical features. **Aim:** To assess the clinical characteristics and diagnostic patterns of patients presenting with various movement disorders in a tertiary care psychiatric setting. **Methods:** A cross-sectional, hospital-based study was conducted at the Department of Psychiatry, Navi Mumbai, including 50 patients aged 18-65 years with involuntary movements. Patients were classified into FMD and non-FMD groups based on DSM-5 criteria. Detailed clinical evaluations included assessments of psychiatric history, medical comorbidities, substance use, and family history. **Results:** Of the 50 patients, 15 (30%) were diagnosed with FMD, 29 (58%) with non-FMD, and 6 (12%) exhibited overlapping features. Extrapyramidal symptoms (37%) and alcohol withdrawal seizures (20%) were the most common non-FMDs. A significant gender difference was observed, with females predominantly affected by FMD and males by non-FMD. Rare etiologies like mercury poisoning, subacute sclerosing panencephalitis, and psychiatric conditions presenting with movement symptoms were identified. **Conclusion:** The study highlights the clinical complexities in differentiating FMD from non-FMD. Early diagnosis and multidisciplinary management are critical to improving outcomes. Awareness of overlapping features and rare causes can reduce misdiagnosis and guide effective treatment strategies.

INTRODUCTION

Movement disorders are clinical syndromes with either an excess of movement or a paucity of voluntary and involuntary movements.

They are broadly classified as hyperkinetic and hypokinetic. Among the hyperkinetic movement disorders the line between functional and non-functional (organic) movement disorders is often blurred.^[1]

Functional movement disorder (FMD) is a subtype of functional neurological symptom disorder (conversion disorder)^[2,3,4]. Patients with FMD have neurologic symptoms that are incongruent with known neurologic disease but are nevertheless genuine and cause distress and psychosocial impairment^[2].

Though the symptoms in FMD mimic neurological disorders, they are not consciously produced and are involuntary, distinguishing them from malingering or factitious disorders^[1,4].

FMD accounts for up to 33% of movement disorders, but they are often misdiagnosed, leading to delay in treatment and rehabilitation^[2,3].

Over time, more emphasis has been placed on physical examination signs to guide diagnosis and use of evidence-based treatments^[3,4].

Functional neuroimaging has shown abnormal connectivity between motor control regions and emotion-processing areas like the amygdala and insula^[3].

The two diagnostic pillars of FMD are inconsistency and incongruity^[2].

Psychiatric comorbidities like depression, anxiety and personality traits are commonly associated but not necessary for diagnosis^[1,6].

Positive Signs For Diagnosis of Functional Movement Disorder Are^[3]:

- Variability

- Distractibility
- Enhancement with attention
- Motor inconsistency
- Incongruity
- Suggestibility

Some Clinical Tests Usually Performed are^[2]:

- Hoover's sign: On hip flexion of contralateral limb, weakness of hip extension of affected limb returns to normal.
- Whack-a-mole sign: on suppressing a moving body part, movement in another body part occurs.

Treatment of FMD requires a multidisciplinary team approach. Psychoeducation of the patient and the family plays a very important role in management. Cognitive behaviour therapy, Occupational therapy, Physiotherapy are some of the non-pharmacological modalities of treatment. For the associated psychiatric comorbidities, antidepressants and anxiolytics are usually started^[1,3,5].

Among the non-functional movement disorder, an important subclass is drug induced movement disorders (DIMDs). Commonly referred to as extrapyramidal symptoms (EPS) representing a variety of iatrogenic and clinically distinct movement disorders, including akathisia, tardive dyskinesia, dystonia and drug induced parkinsonism^[6].

DIMDs can significantly impair daily living activities, social functioning, and medication adherence, leading to disease relapse and rehospitalization. They can present in three forms based on timing: Acute (hours to days), Subacute (weeks), Tardive (months to years)^[6].

Most common agents implicated in DIMDs are - First generation antipsychotics like Haloperidol, Chlorpromazine; antiemetics like metoclopramide, prochlorperazine^[6].

Aim

To assess patients referred to the department of psychiatry with different types of movement disorders.

Study Site

Department of Psychiatry in a Tertiary Health Care Centre in Navi Mumbai.

Study Design
 Hospital based, cross sectional study.

- Sample Procedure**
 - Study was conducted after the ethics committee approval.
 - Informed written consent was taken from the patients prior to the study.
 - Our study sample comprises of patients with different types of movement disorders.
 - Patients who fulfilled the following inclusion criteria were selected.

- Inclusion Criteria**
 - Patients presenting with involuntary movements.
 - Age group of 18 to 65 years.

- Exclusion Criteria**
 - Age group less than 18 years

METHODOLOGY
 50 patients who were referred to psychiatry department, in both inpatient and outpatient setting were examined. As per DSM-5 criteria^[7], cases were broadly segregated into FMD and non FMD.

Differentiating features between these groups were age of onset, sex, psychiatric history, family history, medical history and compliance with medications, history of addictions and mental status examination were assessed and compiled.

Sample Size
 50 patients were examined and observed for this study.

Tools of Assessment
 Diagnostic and Statistical Manual 5 (DSM 5) criteria for diagnosis of functional movement disorders^[7].

RESULTS
 A total of 50 patients were included in this study of whom 15 (30%) were FMD and 29 (58%) were non FMD. Out of 50 patients, 6 patients (12%) had overlapping features both FMD and non FMD in the form of previous history of seizure disorder.

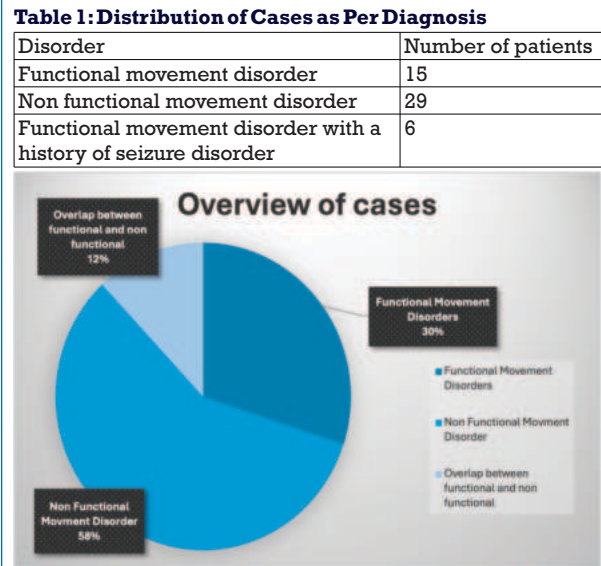


Figure 1 : Overview of Cases as Per Diagnosis

Table 2: Distribution of Non-functional Movement Disorders

Non functional movement disorders (Total patients: 29)	
Extrapyramidal symptoms	11
Alcohol withdrawal seizures	6
Seizure disorder	4

Huntington's disorder	1
Parkinson's Disease	1
Mercury poisoning	1
Subacute sclerosing panencephalitis	1
Rabies	1
Titubation in a case of depression/ anxiety	3

Among the non FMD, substance withdrawal seizure (20%) and extrapyramidal symptoms (37%) remain the most common hyperkinetic movement disorder.

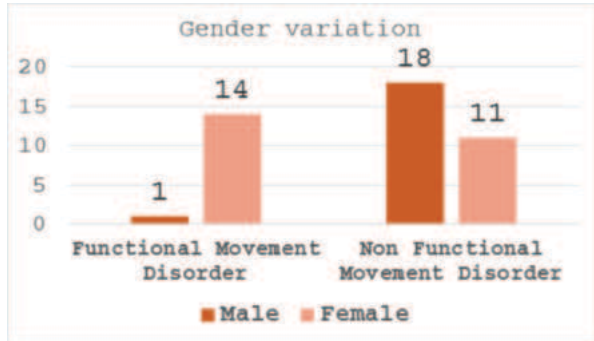


Figure 2 : Gender Variation of Functional and Non-functional Movement Disorder

In this study, Female sex had a disproportionately higher prevalence of FMD in our study group, whereas male predominance was seen in non-functional group.

- Case Vignettes**

A few cases that we observed in this study that we would like to highlight are:

 - A 38 year old male had a strong family history of Huntington's disease and presented with involuntary movements alongside psychotic features. MRI revealed bilateral caudate head atrophy, confirming Huntington's disease. Coexisting schizophrenia complicated the clinical picture, highlighting the overlap of movement and psychiatric disorders.
 - A rare case where hydrophobia, abnormal head and upper limb movements, and a recent history of dog bite pointed towards rabies encephalitis. This organic cause presented with hyperkinetic movements resembling some functional presentations but had a definitive infectious etiology.
 - A 46 year old male presented with ataxia, fluctuating speech, and orientation disturbances. A history of mercury exposure was elicited, with corresponding MRI and clinical findings. This case illustrates a rare toxic cause of movement disorder mimicking some functional features.
 - A 19 year old male presented with fluctuating orientation, posturing, and myoclonic jerks. EEG revealed periodic delta waves suggestive of SSPE (subacute sclerosing panencephalitis), a progressive viral encephalopathy. Early diagnosis was crucial due to its rapid progression.
 - A 24 year old female presented with generalized tonic-clonic seizures with posturing of the right hand, frothing, and unresponsiveness. MRI revealed a cyst in the left medial temporal region, raising initial suspicion of an organic lesion. However, prominent functional features with stressors and absence of consistent EEG findings led to a diagnosis of FMD with comorbid seizure disorder.
 - Several young female patients presented with typical FMD features — variable involuntary movements, unresponsiveness, frothing, but with normal investigations and significant psychosocial stressors in the form of family conflicts, interpersonal issues, emotional distress; strongly supporting functional etiology.

DISCUSSION
 This study compared the clinical characteristics between functional and non-functional movement disorders.

Our study comprised of 50 patients, 15 (30%) were diagnosed with FMD and 29 (58%) with non FMDs.

In a study by Lagrand et al., patients with hyperkinetic movements were differentiated based on clinical findings and history, out of 874 patients, 320 were diagnosed with FMDs and 554 with non FMDs^[8].

Among the 29 cases with non FMDs, most commonly observed cases were of extrapyramidal symptoms (11 cases) followed by alcohol withdrawal seizures (6 cases), followed by seizure disorder (4 cases).

However, rare cases such as mercury poisoning, subacute sclerosing pan encephalitis (SSPE) and patient with

depression or anxiety presenting with titubation could be easily misdiagnosed as FMDs^[6].

A significant finding of this study is the gender variation: Females had a disproportionately higher prevalence of FMD, while males dominated the non-FMD group. This aligns with findings by Baizabal-Carvallo et al., where 70% of FMD patients were women^[9].

The clinical overlap between FMDs and non-FMDs can lead to diagnostic uncertainty. Yu et al., reported a case of a 35-year-old female where functional and non-functional movement disorders coexisted^[10]. In our study, 6 cases had overlap of functional and non-functional movement disorders.

CONCLUSION

The current study describes differences in clinical characteristics and associated features between FMD and non-FMD patients. Through this observational study, we wish to highlight the importance of timely diagnosis and prompt intervention in patients with movement disorders for better understanding of illness and underlying psychopathology.

A multidisciplinary approach involving neurologists, psychiatrists, psychologists, and occupational therapists is critical. Psychoeducation, cognitive behavioral therapy, and physical rehabilitation form the cornerstone of treatment^[1,3,5].

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