

# Frequency of Neurological Disorders Misdiagnosed as Conversion Disorder in our Local Population

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## ABSTRACT

**Aims and Objectives:** To determine the frequency of Neurological Disorders, Misdiagnosed as Conversion Disorder in our local population

**Study Design:** Cross sectional study

**Place and Duration of Study:** Study was conducted at Psychiatry Department, Akhtar Saeed Medical College & Hospital, Lahore Pakistan, from June, 2021 to December, 2021.

**Data Collection:** After meeting the inclusion criteria 115 patients were enrolled. CT brain, MRI brain and EEG were carried out to assess neurological symptoms in patients admitted with a diagnosis of conversion disorder. Misdiagnosis was labeled as per operational definition. All the data analyzed on SPSS version 23.

**Results:** In this study the mean age was (27.03±11.95) years, male to female ratio was 0.36:1. The CT and MRI diagnosed abnormal finding in 7(6.1%) patients, while EEG was abnormal in 2(1.7%) of these 7 patients, resulting in neurological disorders being diagnosed in 7(6.1%) patients. Hence, in this study misdiagnosed cases were 7(6.1%).

**Conclusion:** This study concluded that frequency of Neurological Disorders Misdiagnosed as Conversion Disorder is 6.09% in our local population.

**Keywords:** Conversion Disorder, Neurological disorder, EEG, MRI, CT

## INTRODUCTION

Patients presenting with neurological symptoms, whether they be motor or sensory or mixed, may not always have an underlying pathology or disease process to account for them. Modern psychiatric classification system uses the term conversion disorder or dissociative motor/sensory disorder for isolated neurological symptoms which can neither be explained in terms of known mechanisms of pathology (1-3) nor are due to malingering.(4) Alternative terms for them include "psychogenic," "non-organic," "hysterical," "medically unexplained," and sometimes "functional" symptoms.

Conversion symptoms are related to voluntary sensory or motor functioning and are thus referred to as "pseudo-neurological." Motor symptoms include abnormal movements, gait disturbance, weakness & paralysis, aphonia, difficulty swallowing, and urinary retention. Sensory symptoms include anesthesia, paresthesia, deafness, blindness & tunnel vision and hallucinations.(5) There is usually some hesitation when it comes to making a diagnosis of conversion disorder, because of several previous studies that have peculiarly pointed out the unacceptably common misdiagnosis rates. Especially the highly influential study published by Elliot Slater in 1965 in the British Medical Journal, during follow-up, he found that more than half of individuals diagnosed with "hysteria" had clear-cut neurological or mental disorders. Hence Slater cautioned against the use of the diagnosis "hysteria" and said that "the diagnosis of hysteria is a disguise for ignorance and a fertile source of clinical error," and nothing more than "a delusion and a snare." (6) . Several studies have been published since the 1960s looking at the following occurrence of neurological disease in individuals diagnosed with "hysteria" or "conversion disorder," with rates as high as 25% reported.(7) However, according to a recent study, only approximately 4% of people are misdiagnosed.(8)

Regarding practical implications, Failure to make a positive conversion disorder diagnosis might have adverse consequences. The patient may be refused adequate therapy and care, which is dependent on convincing him or her that his or her symptoms are changeable and not caused by disease. Since the misdiagnosis rates seem to be unacceptably high in our population, because often neurological investigations, Like MRI & EEG are not deemed

necessary in the face of the apparent diagnosis of conversion, the aim of this study is to estimate the frequency of such misdiagnoses, especially when no recent studies are available in this regard. The results will emphasize the need for thorough investigation using modern brain imaging techniques, before labeling a patient with conversion disorder, and subsequently entirely changing the course of management accordingly.

## METHODOLOGY

This cross sectional study was conducted Psychiatry Department Akhtar Saeed Medical College & Hospital, Lahore, from June, 2021 to December, 2021. The estimated Sample size of 115 is calculated by 95% confidence level with 5% margin of error and taking expected percentage(19).

Patient age 12-65 years with diagnosed as conversion disorder with the help of history & mental state examination, on basis of ICD-10 criteria were included. Patients having conversion disorder along with a comorbid psychiatric illness e.g. depression (diagnosed using ICD-10 criteria) and having conversion disorder along with some physical illness (non- neurological) e.g. liver disease were excluded in the study . During depression the level of reactive oxygen species(ROS) became increased due to oxidative stress which may cause non neurological disorders in vital organs because of this liver diseases were excluded.

The demographic information (name, age, sex, registration number) was taken. CT brain MRI brain and EEG was carried out to assess neurological symptoms that are a variety of symptoms caused by structural, metabolic, or electrical abnormalities in the brain, spinal cord, or other nerves. Paralysis, weak muscles, shaky coordination, loss of feeling, convulsions, disorientation, pain, and altered degrees of awareness in patients admitted with a diagnosis of conversion disorder were few symptoms seen

Data was entered and analyzed using SPSS v 23.0. Age, duration of conversion disorder were presented as mean + SD. If data is not normally distributed, then median was calculated. Qualitative variables like gender, misdiagnosis were presented as frequency & percentage. Data was stratified for age and gender, and post stratification chi-square test was used with  $p < 0.05$  taken as significant.

**RESULTS**

In this study total 115 patients were enrolled. The mean age was 27.03±11.95 years with minimum and maximum ages of 12 & 60 years. There were 31(26.96%) male and 84(73.04%) female. According to this study the CT diagnosed abnormal finding in 7(6.1%) patients. MRI diagnosed abnormal findings in 7(6.1%) patients. ECG diagnosed abnormal findings in 2(1.7%) patients. Neurological disorders were found in 7(6.1%) patients. Misdiagnosed cases were 7(6.09%).

Table: 2 Data was stratified for age of patients. In patients aged ≤30years, 2 (2.6%) had misdiagnosis. In patients aged >30years, 5 (13.5%) had misdiagnosis. The difference was significant (p<0.05). Data was stratified for gender of patients. In males, no one (0%) had misdiagnosis. In females, 7 (8.3%) had misdiagnosis. The difference was insignificant (p>0.05). In CT scan 7(6.1%) , MRI 7(6.1%), and EEG 2(1.74%) abnormal levels are because of mental disorders were indicated in the individuals then normal ones.

In table 3 Distribution of Neurological Disorder were shown , In table 4 types of neurological disorders were shown which include paralysis, muscle weakness, poor coordination, seizure altered levels of consciousness, and confusion levels.

Table 1: Distribution of Age & Gender

		Frequency (%)
Age	Mean+ SD	27.03+ 11.95
Gender	Male	31(26.96%)
	Female	84(73.04%)

Table 2: Frequency distribution of diagnosis by CT, MRI, EEG

	Normal	Abnormal
CT	108(93.9%)	7(6.1%)
MRI	108(93.9%)	7(6.1%)
Electroencephalogram (EEG)	113(98.26%)	2(1.74%)

Table 3: Distribution of Neurological Disorder

	Yes	No
Neurological Disorders	7(6.1%)	108(93.9%)
Misdiagnosed	7(6.1%)	108(93.9%)

Table4: Types of Neurological disorders:

Types of neurological disorders	Observed
Paralysis	No
muscle weakness	Yes
poor coordination	yes
Seizures	Yes
altered levels of consciousness	yes
Confusion	yes

Table 5: Comparison of misdiagnosed stratified by Gender & Age

		Misdiagnosed		P value
		Yes	No	
Gender	Male	0(0%)	31(100%)	0.097
	Female	7(8.3%)	77(91.7%)	
Age (Years)	<30	2(2.6%)	76(97.4%)	0.022
	>30	5(13.5%)	32(86.5%)	

**DISCUSSION**

This study was done at Indoor & outdoor Psychiatry Department, Jinnah Hospital, Lahore to determine the frequency of Neurological Disorders Misdiagnosed as Conversion Disorder in our local population. Neurological disorders are diseases of the central & peripheral nervous system. In other words, the brain, spinal cord, cranial & peripheral nerves, autonomic nervous system & muscles. Neurological problems affect hundreds of millions of people around the world. Every year, more than 6 million individuals die as a result of a stroke; over 80% of these deaths occur in low & middle income nations. Any condition of the nerve system is referred to as a neurological disorder.(9, 10)

Conversion disorder is a very rare condition. Although the frequency in an individuals may be minor, misdiagnosis of major neurologic disorders as conversion disorder is a significant challenge in the field of medical mistakes. Physically sick patients with mental health issues are frequently referred to psychiatrists in general and teaching hospitals, and these referrals need different sets of therapeutic skills.(11) Patients referred for mental assessment from other departments might be diagnosed with a wide range of psychiatric conditions. These individuals might be a subset of mentally ill people that require a particular type of treatment and have different mental health requirements.(11)

In this study neurological disorders were found in 7(6.1%) patients. Hence, the misdiagnosed cases were 7(6.1%) in our population. Beginning in the 1950s, when conversion disease was misdiagnosed at a rate of about 30.0%, because of advances in diagnostic technologies & increased knowledge in clinical neurology, the diagnostic accuracy of conversion disorder has improved rapidly. The rate of misdiagnosis has remained at around 4% since the mid-1970s (even before the advent of MRI).(9)

Hankey GJ et al(12) did a study on Pseudo-multiple sclerosis: a clinico-epidemiological study reported, 8% of people with a diagnosis of multiple sclerosis were later shown to have conversion disease, showing that a misdiagnosis may occur in both directions. Multiple sclerosis misdiagnosis is common (5–10 percent),(13) with functional diseases being the most common final diagnosis, followed by migraine and non-specific white matter abnormalities on MRI.(14, 15)

Two examples of misdiagnosed brain tumours were described by Jones & Barklage,(16) one of which took place in an emergency room, and the authors noted the risks of diagnosing conversion disorder. In their psychiatric emergency room, they found three cases of possible conversion disorder, or 0.07 percent of all new symptoms, which is lower than the 0.23 percent and 1% frequency of conversion in previous studies they mention. However, in all three of their possible conversion cases, significant brain problems were misdiagnosed. (17)

In contrast, a study of 110 people misdiagnosed with multiple sclerosis as a result of numerous alternative conditions found that 33% of patients had their incorrect diagnosis for more than 10 years & 31% had extra morbidity as a result of misdiagnosis, The majority of the time, this is due to unnecessary immunomodulatory medication and therapeutic adverse effects.(14). Several studies have been published in previous studies, looking at the following incidence of neurological disease in people diagnosed with "hysteria" or conversion disorder," with rates as high as 25% reported.(18)7

In our study, patients with abnormal CT, MRI and EEG findings were referred to neurologist for further evaluation and it was confirmed that the said findings are not incidental, and are indeed indicative of neurological illness.

**CONCLUSION**

This study concluded that frequency of Neurological Disorders Misdiagnosed as Conversion Disorder is in 6.09% in our local population.

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