

## The mind is sick, the body cries out: a review of childhood conversion disorder

### Review Article

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Received: November 7<sup>th</sup>, 2011

Accepted for Publication: December 2<sup>nd</sup>, 2011

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### INTRODUCTION

The 4<sup>th</sup> edition of Diagnostic and Statistic Manual (DSM) describes a conversion disorder as characterized by the presence of one or more neurological symptoms that cannot be explained by a known medical or neurological disorder, and which is initiated or exacerbated by psychological factors.<sup>1</sup> It was first recorded as a class of psychiatric disorders in 1980 in the 3<sup>rd</sup> edition of the DSM.

Epidemiological data on the prevalence of conversion disorder is generally sparse. This may have arisen partly from the fact that conversion disorder was not properly recognized as a distinct mental disorder until it was properly defined in 1980 in the 3<sup>rd</sup> edition of DSM. An approximation of the prevalence of conversion disorder could be made from data on unexplained neurological symptoms which have been found to be as high as 30-60% in neurological settings, but the exact fraction of these symptoms that were due to conversion disorder is not known.<sup>2-4</sup>

Though conversion disorder has been described as the most common of the childhood somatoform disorders, its exact prevalence among children is not known but it appears to vary with the population studied.<sup>5</sup> For instance, conversion disorder is thought to be rare before the age of 10 years, though child psychiatrists have reported a prevalence of 1-3% among patients under their care.<sup>6,7,8,9</sup> Conversely, prevalence rates that are as high as 10% have been reported among children attending neurological clinics.<sup>10</sup> Also, prevalence rates as high as 15%-30% have been found among child psychiatric patients in developing countries like India.<sup>10,11</sup> This is in keeping with the common view that socio-economic and cultural influences in developing countries encourage the presentation of children with an apparent 'medical' condition like conversion disorder for help than those with other childhood psychiatric disorders. This, thereby, leads to a fictitiously high prevalence of childhood conversion disorder in such regions.<sup>12</sup>

Another possible explanation is the fact that rural abode and lower socio-economic status,

which are more common social circumstances in developing countries like India and Nigeria, have been linked with higher prevalence of conversion disorder.<sup>13,14</sup> Surprisingly, childhood conversion disorder is hardly ever listed among diagnosed childhood psychiatric disorders in Nigerian mental health settings. This may reflect missed diagnosis or misdiagnosis.

The diagnosis of childhood conversion disorder has been described as difficult, complex and problematic and a lot of the subtle signs, like the Hoover's Sign (increased power of hip extension in the affected leg on contralateral hip flexion) and 'La Belle Indifference' (a relative lack of concern about the nature or implication of the symptoms), that have been used to differentiate it from pure neurological disorders, have been found to be of limited clinical use.<sup>15,16</sup> Furthermore, limited knowledge of Paediatric Neurology by Child Psychiatrists, and knowledge of Child Psychiatry by Paediatric Neurologists, have been suggested as contributory factors to misdiagnoses and missed diagnoses of childhood conversion disorder.<sup>17</sup> Therefore, in a country like Nigeria, where the duo of Child Psychiatry and Paediatric Neurology as fields of Medicine are still at the rudimentary level, it is expected that recognition and diagnosis of childhood conversion disorder may be poor.

In addition, stigma and prejudice associated with mental disorders in this environment may influence caregivers for children with mental disorders (including conversion disorder) to present more in Paediatric clinics or in more culturally acceptable but unorthodox care centres like religious homes, herbalists and diviners. In fact, studies in Nigeria have established that 30-50% of children seen in Child Psychiatry clinics were referred from Paediatric Neurology clinics, and that more than a third of attendees of Child Psychiatry clinics had sought help from

other sources including traditional and religious homes before presentation.<sup>18,19,20</sup> Childhood conversion disorder is associated with significant impairments across multiple domains of functioning, underscoring the importance of the disorder.

This work is a selective review of childhood conversion disorder aimed at stimulating interest and providing information on recent advances on this mental health problem.

## AETIOLOGY

### *Psychodynamic Theories*

The most challenging diagnostic aspect of conversion disorder is probably the concept of the psychological mechanism. This is because it is still poorly understood how the 'psychic' phenomena translate to physical symptoms. Pierre Janet, in her autohypnosis theory of conversion disorder, viewed the disorder as a form of hypnotic state in which dissociation of cognitive, sensory and motor processes become adaptive in the context of an overwhelming traumatic experience.<sup>21</sup>

Alternatively, in the view of Sousa *et al*, the dissociative state can serve as a form of secondary gain in a hypothetical model, whereby the symptom serves to resolve the conflict and the gain obtained served to perpetuate the illness.<sup>22</sup> This model has gained popular acceptance even among contemporary authors.<sup>23,24</sup> Furthermore, conversion disorder is thought to be associated with a dissociative phenomenon characterized by inhibition of conscious (voluntary) information processing, while unconscious information processing is still intact.<sup>23</sup> Patients with conversion limb paralysis, for instance, typically show no voluntary ability to use the limb, whereas involuntary motor functions like tones and reflexes, remain intact.

*Biological factors*

A pertinent question is whether there is biological evidence to back up the psychological postulations. The lack of understanding of the neural mechanism by which psychological stressors can unconsciously result in physical symptoms has been suggested as an important reason for the ongoing controversy surrounding the diagnosis of conversion disorder<sup>25</sup>. Several neurobiologists have made a foray into the complex field of the neurobiology of conversion disorder with a view to finding answers to this question, with varying degree of success.

Marshall *et al*, after performing positron emission tomography (PET) on a young girl with conversion disorder who presented with a left-sided paralysis, noted that when preparing to move her unaffected left leg, there was activation of the left lateral premotor cortex and both cerebellar hemispheres relative to the resting state.<sup>26</sup> This, was postulated to, suggest a readiness to move. However, when the patient attempted to move her affected leg, the right premotor and primary sensori-motor cortex failed to activate normally, but there was increased activation in the right anterior cingulate and right orbito-frontal cortices. It was hypothesized that inhibitory pathways involving the orbito-frontal cortex and anterior cingulate may disconnect the premotor areas from the primary motor cortex, preventing the patient's conscious intention from being translated into action.

This was thought to explain the apparent suppression of volition or will in the face of intact neuronal competence as seen in conversion disorder. Similarly, consequent upon their discovery of an increased orbito-frontal activation in conversion symptoms, Vuilleumier *et al* posited that the basal ganglia and thalamus occupy a strategic position in neuronal circuits to modulate

sensory and motor signals and may thus, affect conscious sensory processing or willed action.<sup>27</sup> This theory is consistent with the proposed role of cortical-subcortical circuits in volition.<sup>28</sup>

*Risk factors for childhood conversion disorder*

Beyond the complex and sometimes over-ambitious biological postulations, the most pertinent question that may aid further understanding of childhood conversion disorder appears to centre around the question: What determines who comes down with conversion disorders among children exposed to similar stressor?

It is possible that childhood conversion disorder is a product of a complex interaction between personal vulnerabilities and psychosocial stressors which may then activate an underlying cognitive predisposition as postulated by Hammen and Rudolph in their stress-diathesis model of childhood mental disorders.<sup>29</sup> Genetic factors play an important role in the aetiology of childhood conversion disorder as the disorder appears to run in families, but, very little is known about the mode of genetic transmission.<sup>30</sup> Family history of conversion has been reported among patients with conversion disorder, suggesting that having a family member with conversion disorder may increase the risk.<sup>31,32</sup>

Marshall *et al*, in a controlled study of children of parents with somatoform disorders (like conversion disorder) found higher scores on abnormal health cognition among them than in controls.<sup>33</sup> This finding gave further credence to the suggestions of Crane and Martin that mechanisms for inter-generational transmission of such disorders are likely to be multiple and that they may include interactions between genetics, parental psychopathology, family stresses and parenting style.<sup>34</sup> These findings also support the hypothesis that the mechanisms of

transmission in conversion disorder may include parental modelling and reinforcement of illness behaviours.<sup>33,35</sup> Modelling may also explain the fact that conversion disorder in children sometimes manifests with mimicry of a neurologic disorder that they have seen in a close family.<sup>36</sup>

#### *Psychological stressors in childhood*

To aid further in-depth understanding of childhood conversion disorder, it may also be pertinent to know what constitutes a psychological stress to a child. Adverse family and environmental factors are known to be the most common psychological harbinger of conversion disorder in children.<sup>37,38</sup> In a study examining psychosocial stressors among children with conversion disorder in India, Shirma *et al* divided these factors into family, school and psychosexual factors.<sup>32</sup>

#### *Family factors*

Dysfunctional family, which may arise due to emotional/physical absence of parents, physically abusive parents, parental discord or parental psychopathology have been cited as a common precipitating factor in children with conversion disorder.<sup>32,39</sup> Sharma *et al* found a 40% prevalence of 'family stress' among a cohort of children with conversion disorder in India.<sup>32</sup> Recent death of a family member was another family factor associated with the diagnosis in the same study. Physical abuse has also been implicated as a precipitating or aggravating factor in childhood conversion disorder.<sup>31</sup> Parental psychopathology is a well-known psychological stressor among children generally and its role has been established also in childhood conversion disorder.<sup>40,41,32</sup> Griffith *et al*, while looking at family dynamics in conversion disorder theorized that pseudo-seizures represent a family comorbidity related to inadequate psychiatric care for another family member with mental illness.<sup>42</sup>

#### *School factors*

School difficulties are another factor that can constitute the psychosocial problem precipitating conversion disorder in children. Borderline intellectual functioning, improper schooling, school phobia and the fear of examinations have been described as common precipitating factors for childhood conversion disorder.<sup>32,36</sup>

#### *Psychosexual factors*

Psychosexual problems, like problems with relationships and sexual abuse, as a precipitant of conversion disorder are common among older children and adolescents and should be considered in every case, and may occur months or years after the sexual or physical abuse had occurred.<sup>39</sup>

## CLINICAL PRESENTATION AND DIAGNOSIS

### *Diagnosis*

The diagnosis of conversion disorder is purely clinical, using the DSM as a guide. In the fourth edition of the DSM, the diagnostic criterion for conversion disorder requires that the patient has one or more symptoms or deficits affecting a sense organ or voluntary movement that suggest a neurological or general medical disorder.<sup>1</sup> The diagnosis also requires that the onset or worsening of the symptoms was preceded by conflicts or stressors in the patient's life. Other pertinent factors to consider before the diagnosis of conversion disorder can be made include the fact that the symptoms were not being faked and that they could not be fully explained by a neurological disorder. There is, however, no separate diagnostic criterion for childhood conversion disorder and as such, the DSM guideline is usually adapted for children, putting their age in context.

### *Differential Diagnoses*

Pseudo-neurologic symptoms in conversion disorder, unlike in other closely related

disorders, are not feigned. It represents an externalization of a psychological stress which the sufferer conceptualizes as real. Pure malingering is however very rare in pre-adolescent children. Childhood conversion disorder must also be differentiated from childhood factitious disorder (usually presenting in proxy) in which symptoms are feigned with an aim of relishing the attendant sick role. Also, in neurologic settings, multiple sclerosis, myasthenia gravis, periodic paralysis, myopathies, polymyositis and Guillain-Barre Syndrome may be confused with conversion disorder and vice-versa

#### *Clinical Variants*

Childhood conversion disorder may present in different forms and some of the documented variants of presentation include pseudo-paralysis, pseudo-sensory syndromes, pseudo-seizures and pseudo-coma. Others are psychogenic movement disorders that can mimic myoclonus, parkinsonism, dystonia, dyskinesia and tremors. Pseudo-blindness is one of the most common forms of conversion disorder related to vision, and placing a mirror in front of the patient and tilting it from side to side can often be used to determine pseudo-blindness, because humans tend to follow the reflection of their eyes. Pseudo-diplopia, pseudo-ptosis and hysterical aphonia are also possible presentations of childhood conversion disorder. Additional symptoms may include pseudo-chorea, pseudo-ataxia, globus hystericus (difficulty in swallowing) and astasia-abasia (the inability to stand or sit upright but an ability to move the legs when lying down or sitting). For further review of the phenomenology of conversion disorder readers can read Section 15 (Chapter 186) in *The Merck Manual of Diagnosis and Therapy*.<sup>43</sup>

Pseudo-seizures, currently described as psychogenic non-epileptic seizures (PNES) is

by far the most common presentation, and can appear as convulsive type, hystero-epilepsy (including the classic arc-de-cercle-opisthotonic posture), atonic drop attack, or unresponsiveness with complicated automatic behaviour. It is a distinct form of presentation in conversion disorder with some distinguishing socio-demographic factors when compared with other motor conversion symptoms. For instance, some workers have reported that patients with PNES are younger, more likely to have borderline personality traits or a lower perception of parental care, and to report sexual abuse, compared with patients with other motor conversion symptoms.<sup>44</sup> In fact, these differences have raised the question of whether patients with PNES and those with other motor conversion symptoms should be in a single diagnostic category of conversion disorder.<sup>44</sup>

In some studies, PNES have been reported to account for between 25-50% of clinical presentation of childhood conversion disorder.<sup>45,46,36</sup> They resemble sudden convulsive events but are not associated with electroencephalographic (EEG) evidence of a seizure, and they do not follow the typical pattern of a seizure disorder. Other distinguishing features between PENS and true seizures include the observation that unlike the latter, the former do not occur during sleep, last several minutes, have a gradual onset and are not associated with objective loss of consciousness. Furthermore, patients with PENS hardly have post-ictal confusion or post-ictal amnesia and they show avoidance behaviour that prevents them from injury.

Also, PENS usually occur in the presence of a significant witness and can be provoked or abated by suggestion. In addition, post-ictal rise in serum prolactin and creatinine kinase levels as well as intra-ictal epileptiform EEG are uncommon in pseudo-seizures. Although

recent advances in video-EEG monitoring have improved the ability of experienced epilepsy specialists to correctly distinguish PNES from epilepsy, access to epilepsy experts and comprehensive epilepsy monitoring centres remains limited for many patients.<sup>47</sup> With EEG video monitoring performed by an epileptologist, PNES can be diagnosed with almost a 100% reliability.

#### TREATMENT

Children with conversion disorder, most often, present to the Paediatrician or Primary Health Care Provider or Family Physicians because the presentation is almost always seen as physical.<sup>36</sup> Such children usually undergo varying degrees of medical work-up depending on their presenting symptoms and the level of expertise of and facilities available to the health provider. Early and appropriate treatment of conversion disorder is associated with a better clinical outcome and cannot be done by a single healthcare specialty.<sup>48</sup> A Paediatrician or Family Physician who encounters conversion disorder in a child will do well to institute a multi-disciplinary approach involving Child Psychiatrists, Mental Health and Community Nurses, Child Psychologists and Social Workers.

#### *Patient and Family Education*

Patients with conversion disorder benefit from education and support which can be readily provided by the Paediatricians or Primary Care Physician. Patient and family member education should initially focus on their initial belief that an undiagnosed medical condition is responsible for the symptoms. This should involve explanations on the complex interplay between emotional stress and physical state of the body. The main role of these physicians may include providing education about conversion disorder while carefully excluding other medical conditions as well as attending to the views of the patient and family members.

Rigorous attempts should be made to exclude a medical condition at presentation and follow-up because up to one-third of children with conversion disorder could have organic explanations for their symptoms.<sup>3</sup>

It is important to know that the patient/family members tend to resent suggestions that the illness is not real or that it is of psychological origin. Therefore, while educating the patient and family members, attending physicians should note that focusing on psychological views alone may be seen by patients and family members as suggesting that organic aetiology is implausible and that the physician is merely playing on a diagnosis of exclusion. Hence, the use of a concurrent organic-psychological approach may be the best approach.

#### *Referrals*

Appropriate referrals should be made to Child Psychiatrists if the symptoms persist or there are serious psychological issues that require expert handling. However, an initial multi-disciplinary approach to management will usually eliminate the need for a special referral.

#### *Psychological Treatments*

Modalities employed by Child Psychiatrists and Psychologists to treat conversion disorder may include psychodynamic techniques, group and family therapy, and pharmacotherapy. Psychodynamic techniques are geared towards helping the child gain insight into the interplay between unconscious conflicts and physical symptoms, and behavioural modifications are also popular psychological interventions in conversion disorders. The rationale behind this treatment approach is that symptoms of conversion disorder are viewed as a learned maladaptive behaviour.<sup>49</sup> The treatment goal in behavioural modification is to reduce unwanted behaviours and strengthen desired ones.<sup>50</sup> This can be done by ignoring (rather

than punishing) the conversion symptom (e.g. abnormal gait, paralysis) while rewarding desired behaviours (e.g. normal gait).

Family therapy should focus on encouraging the family to openly communicate about the diagnostic tests or medical diagnosis that they are contemplated. For further review of psychodynamic techniques in the management of childhood conversion disorders readers may refer to Gooch *et al.*<sup>51</sup>

#### *Pharmacologic Treatment*

Pharmacologic treatments are mainly used for the treatment of psychiatric co-morbidities like depression and anxiety which are often associated with childhood conversion disorder.<sup>39</sup> Anti-depressants are still the mainstay of pharmacologic treatment of depression and anxiety, though there had been a lot of hue and cry over the dangers of increased risk of suicide with the use of anti-depressants in children and adolescents.<sup>52,53</sup> However, when clinical response was factored with the reported increased risk of suicide and suicidal ideation, studies have found that the benefit of indicated use of anti-depressants in children and adolescents outweighs the risks.<sup>54,55</sup> The author is, however, of the opinion that these controversies call for continued caution and vigilance in the use of anti-depressants for children and adolescents.

#### **PROGNOSIS**

The prognosis of childhood conversion disorder is highly favourable. Follow-up studies indicate an eventual full recovery in 85-97% of children, with most recoveries coming up within the first 2 weeks of treatment, though 20-25% will relapse within a year.<sup>56</sup> The early recognition and prompt intervention are often associated with early and complete recovery. Good prognostic features include a recent onset of symptoms, mono-symptomatic manifestation and good pre-morbid functioning.<sup>56</sup> Patients with

clearly identifiable stressors, acute onset of symptoms, and without treatment delay, have the best prognosis, whereas epileptiform conversion symptoms like pseudo-seizures have a poorer prognosis.<sup>56</sup>

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