

Sex Distribution and Psychiatric Features of Child and Adolescent Conversion Disorder Across 2 Decades

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Background: Earlier research suggested female predominance in adult conversion disorder, and the strong association between conversion disorder and experiences of being abused is well known. However, the data for child and adolescent populations are limited. In Taiwan, the dramatic increase in child abuse may have some impact on the features of child and adolescent conversion disorder. This study aimed to compare the demographic characteristics, psychiatric comorbidity, and experiences of being abused in Taiwanese children and adolescents diagnosed with conversion disorder in psychiatric consultations across 2 decades.

Methods: Retrospective and consecutive chart reviews were conducted for child and adolescent patients (<20 years old) who were newly diagnosed with conversion disorder in psychiatric consultations at Taipei Veterans General Hospital from 1987 to 2006. The first group included patients who were diagnosed between 1987 and 1996 (the first decade), and the second group included patients who were diagnosed between 1997 and 2006 (the second decade).

Results: A total of 42 patients diagnosed with conversion disorder were included in this study. Nineteen of the 42 subjects were diagnosed in the first decade (from 1987 to 1996), and 23 in the second decade (from 1997 to 2006). There existed among patients a tendency toward an increasing number of male subjects ($p < 0.05$), suffering more abuse ($p < 0.05$), and higher prevalence rates of depression and dysthymia comorbidity ($p < 0.05$) in the second decade compared to the first.

Conclusion: The sex distribution in conversion disorder might have significantly changed over the past 2 decades. There is an increasing need for screening and interventions for psychiatric comorbidity and experiences of being abused in children and adolescents with conversion disorder. Because of the small sample size of our study, further studies that include multiple study sites and a larger number of patients are needed before a firm conclusion can be drawn. [*J Chin Med Assoc* 2009;72(9):471–477]

Key Words: abuse, conversion disorder, psychiatric comorbidity, sex distribution

Introduction

Conversion disorder is classified as a somatoform disorder according to the classifications of the *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition (DSM-IV), and characterized by neurological sensory or motor symptoms, in which known medical explanations cannot explain or fail to fully account for the severity of the patient's impairments. The diagnostic

criteria require a physical examination, an appropriate investigation and judgments to prevent misdiagnosis of an organic illness. Symptoms of conversion disorder vary and cause significant stress or disability.^{1,2} Patients with conversion disorder often experience involuntary symptoms, and the courses of the illness are intermittent.³ Reported prevalence rates of psychiatric comorbidity in conversion disorder are high. Anxiety and depression are the most commonly reported psychiatric



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comorbidities among patients with conversion disorder. Earlier studies showed that 15.7–32.0% of patients with conversion disorder also had major depression; and 24.0–37.2% of patients with conversion disorder had anxiety disorder.^{4–7} In addition, medically unexplained somatic symptoms, such as pains and fatigue, are seen as clinical features associated with principal conversion symptoms.⁸

The etiology of conversion disorder remains controversial. The accumulated research literature suggests that some factors, for example, sex, psychological distress, family conflicts, early trauma, socioeconomic status, proximal home environmental disadvantages and social environments, may play critical roles.^{4,5} A strong association between stressful life events and conversion disorder has been demonstrated since the 19th century,⁹ and the impacts of stressful life events on patients, changing with time, also need to be understood. Earlier research found a female predominance in conversion disorder, and it has been suggested that this phenomenon reflects a higher prevalence of sexual abuse among women compared with men.¹⁰ However, a later study argued that different types of abuse may have an equivalent impact on both sexes.¹¹

The onset of conversion disorder is generally from late childhood to early adulthood. Thus, conversion disorder in children and adolescents is of great importance in pediatric, psychiatric and consultation liaison practice.^{4–6,12} Most studies on conversion disorder have discussed and focused on adult populations with a majority of females. Recently, attention has been drawn to the characteristics of children and adolescents diagnosed with conversion disorder, which are different from those of adult populations.^{8,13,14} However, data for children and adolescents diagnosed with conversion disorder in Taiwan are rare.

According to data provided by the Taiwan Fund for Children and Families, the number of victims of child abuse increased from 425 in 1989 to 977 in 1993; as a result of such epidemiologic data, the issue of child abuse started to receive public policy attention.¹⁵ Later, the Domestic Violence Prevention Act was enacted from January 1997, and the Child Welfare Bureau Ministry of Interior R.O.C (CBI) was established in 1999. Since then, both children's mental health and welfare have received more attention from the public and government than before. Those who have been abused and have suffered are encouraged to ask for help, while those who have witnessed abuse are educated to speak out.¹⁵

However, child abuse in Taiwan appears to be worsening. The official number of newly reported cases

of child and adolescent abuse increased from 2,553 cases in 2002 to 9,963 cases in 2006, and is continuing to increase.¹⁶ It is also possible that the numbers are an underestimation.^{15,16}

As conversion disorder is strongly associated with experiences of being abused,^{6,11} and somatic expression of distress was found to be a more acceptable means of seeking help,¹⁷ it is hypothesized that this dramatic increase in child abuse may have some impact on the phenomenon and psychiatric features of child and adolescent conversion disorder. Since accumulating data indicate that the number of victims of child abuse in Taiwan has increased dramatically (from 425 cases in 1989 to 9,963 cases in 2006),^{15,16} the main purpose of this study was to examine whether or not the psychiatric features of child and adolescent conversion disorder in psychiatric consultations have changed over the past 2 decades.

Methods

Retrospective and consecutive chart reviews were conducted for patients who were newly diagnosed with conversion disorder during psychiatric consultations at Taipei Veterans General Hospital. In order to compare the demographic characteristics, psychiatric features, and stressful life events of children and adolescents with conversion disorder in psychiatric consultations across 2 decades, the subjects were divided into 2 groups according to the time of their diagnosis. The first group included subjects who were diagnosed between 1987 and 1996 (the first decade); the second group included subjects who were diagnosed between 1997 and 2006 (the second decade).

The chart records of the psychiatric consultations of these subjects provided valuable information, including demographic data, chief complaints, present illnesses, mental status examinations, family psychiatric histories, psychiatric diagnosis according to the DSM, and the possible precipitating and perpetuating factors of their psychological symptoms. Most patients were admitted to the neurological or pediatric departments, and psychiatric consultations were requested for them when no neurological basis for their symptoms was found. Inclusion criteria for this study were: age < 20 years; meets DSM-III-R or DSM-IV criteria for conversion disorder. According to the clinical judgment of the treating physicians and qualified child psychiatrist after physical examinations and investigations, conversion disorder was diagnosed.

Four principal symptoms clustered by DSM criteria were identified in our study: (1) motor symptoms or

deficits, including lower-limb weakness, weakness of all 4 limbs, unsteady gait, paraplegia, paralysis; (2) sensory symptoms or deficits, including blindness, tunnel vision, limb numbness; (3) seizures or convulsions, including syncope, myoclonic seizures, generalized tonic-clonic seizures, complex partial seizures—all without the characteristic electroencephalographic changes that accompany an epileptic seizure; and (4) mixed symptoms of more than 1 category.

For categorical measures, between-group proportional differences of subjects between the 2 decades were analyzed using Pearson's χ^2 test. For small sample sizes, Fisher's exact test was used in the analyses of categorical data. For continuous measures, between-group comparisons were analyzed using the Mann-Whitney rank test because of the small number of subjects. For all comparisons, the level of significance was set at $p \leq 0.05$. SPSS version 13.0 (SPSS Inc., Chicago, IL, USA) for Windows was used for all statistical analyses.

Results

From year 1987 to 2006, a total of 42 patients were eligible for study inclusion. Nineteen of 42 subjects were diagnosed with conversion disorder in the first decade (from 1987 to 1996), and 23 subjects were diagnosed in the second decade (from 1997 to 2006).

Demographic background

In the first decade, females outnumbered males 5 to 1. Sixteen (84.2%) subjects in the first decade were female, while only 3 (15.8%) were male. However, of the 23 subjects in the second decade, 12 (52.2%) subjects were male and 11 were female (47.8%). There was a significant difference in sex distribution ($p < 0.05$) across the 2 decades.

The mean ages at onset of conversion disorder among subjects in the first and second decades were 13.63 years (range, 7–18 years) and 14.03 years (range, 8–17 years), respectively. The mean ages at referral among subjects in the first and second decades were 13.74 years (range, 7–18 years) and 15.44 years (9–20 years), respectively. Among subjects in the first decade, 4 (21.1%) were elementary school children, 8 (42.1%) were in junior high school, and 7 (36.8%) were in senior high school. Similarly, among the 23 subjects in the second decade, 6 (26.1%) were elementary school children, 9 (39.1%) were in junior high school, and 8 (34.8%) were in senior high school. Conversion disorder was rare in subjects younger than 7 years old. There were no significant differences in

the variables of age at onset, age at referral, and education level between the 2 decades.

Clinical features of conversion disorder

The most common symptoms reported in the first decade were: motor symptoms in 9 (47.4%) patients; non-epileptic seizures or convulsions in 6 (31.6%) patients; sensory symptoms/deficits in 2 (10.5%) patients; and mixed presentations in 2 (10.5%) patients. Among subjects in the second decade, the most common symptoms were: non-epileptic seizures in 10 (43.5%) patients; motor symptoms/deficits in 9 (39.1%) patients; sensory symptoms/deficits in 1 (4.3%) patient; and mixed presentations in 3 (13.0%) patients.

There was no significant difference in subtypes of conversion disorder between the 2 decades. The time between symptom onset and diagnosis ranged from within 1 week to more than 2 years, without significant difference between the 2 groups.

Furthermore, medically unexplained somatic symptoms of pains, including headache, abdominal pain, low back pain, chest pains, dizziness and fatigue, were frequently reported with principal conversion symptoms. The rates of the subjects who reported medically unexplained somatic symptoms increased from 57.9% in the first decade to 65.2% in the second decade, although the difference was not statistically significant.

Psychiatric comorbidity

The psychiatric comorbidities are shown in Table 1. Based on our data, the most commonly reported psychiatric diseases in both groups were major depression and anxiety disorder. The prevalence rates of major depression and anxiety disorder in the first decade were 10.5% ($n=2$) and 26.3% ($n=5$), respectively. Similarly, the most common psychiatric comorbidities in the second decade were anxiety disorder (8.7%; $n=2$) and major depression (47.8%; $n=11$).

When these 2 groups were compared, it was found that the prevalence rate of major depression and dysthymia (chronic depression, but of less severity than major depressive disorder) in the second decade was significantly higher ($p < 0.05$) than in the first decade. No statistically significant differences were found in the prevalence rates of other psychiatric comorbidities between the 2 decades.

Stressful life events before the onset of conversion disorder

From clinical interviews, the stressful life events, which occurred before the onset of conversion disorder, are listed in Table 2. Stressful life events that were

Table 1. Prevalence rate of comorbid psychiatric diseases*

	Decade 1: 1987–1996 (n = 19)	Decade 2: 1997–2006 (n = 23)	p
Axis I psychiatric disorder	10 (52.6)	16 (69.6)	NS
Mood disorder			
Major depression	2 (10.5)	11 (47.8)	0.009 [†]
Dysthymia	0 (0)	7 (30.4)	0.01 [‡]
Bipolar disorder	1 (5.3)	1 (4.3)	NS
Anxiety disorder	5 (26.3)	2 (8.7)	NS
School phobia	3 (15.8)	1 (4.3)	NS
Generalized anxiety disorder	2 (10.5)	1 (4.3)	NS
Obsessive-compulsive disorder	1 (5.3)	0	NS
Posttraumatic stress disorder	0	1 (4.3)	NS
Attention deficit hyperactivity disorder	0	3 (13.0)	NS
Learning disorder	0	2 (8.7)	NS
Eating disorder	0	1 (4.3)	NS
Conduct disorder	0	2 (8.7)	NS
Axis II psychiatric disorder			
Mild mental retardation	1 (5.3)	2 (8.7)	NS
Cluster B personality disorder	1 (5.3)	2 (8.7)	NS

*Data presented as n (%); [†]Pearson's χ^2 test; [‡]Fisher's exact test. NS = not significant.

Table 2. Stressful life events before the onset of conversion disorder*

	Decade 1: 1987–1996 (n = 19)	Decade 2: 1997–2006 (n = 23)	p
Family issues	12 (63.2)	13 (56.5)	NS
Separation/loss experiences	4 (21.1)	8 (34.8)	NS
Family conflicts	7 (36.8)	7 (30.4)	NS
Health problems of family	1 (5.3)	0 (0)	NS
Psychiatric illness of family	1 (5.3)	3 (13.0)	NS
Parental substance use disorder	0 (0)	2 (8.7)	NS
Parental mood disorder	1 (5.3)	1 (4.3)	NS
Individual issues	11 (57.9)	13 (56.5)	NS
Personal health problems	4 (21.1)	4 (17.4)	NS
Academic stress	5 (26.3)	5 (21.7)	NS
Conflict with peers	3 (15.8)	4 (17.4)	NS
Sexual orientation	0	1 (4.3)	NS
Experience of being abused	2 (10.5)	11 (47.8)	0.009 [†]
Child abuse	2 (10.5)	8 (34.8)	NS
Victim of school bully	0	5 (21.7)	0.053 [‡]
Multiple stressful life events (≥ 2 stressful events reported)	6 (31.6)	15 (65.2)	0.03 [†]

*Data presented as n (%); [†]Pearson's χ^2 test; [‡]Fisher's exact test. NS = not significant.

reported by participants ranged from family or individual issues to abuse histories. Based on the results of this study, family issues were reported by 63.2% of the subjects in the first decade, compared to 56.5% of the subjects in the second decade, but the difference was not statistically significant. However, subjects in the second decade were less likely to come from intact

families and they had higher rates of parental substance use disorders. The family issues reported were identified as preceding stressful events, and included separation from parents, parental divorce, harsh parental discipline, miscommunication between parents and children, parental cancers, and parental psychiatric illness.

Individual issues included personal health problems, poor academic performance, conflict with peers, or homosexual orientation. Similarly, no significant difference between the 2 decades was found with regard to the individual issues reported by the subjects. Despite that, the percentage of subjects who reported experiences of being abused (i.e. child abuse, being the victim of school bullying) increased in the second decade when compared with the first decade. Moreover, we found that the number of victims of school bullying significantly increased from no cases in the first decade to 5 cases in the second decade; among them, 1 was a female subject and the other 4 were males.

Experiences of being abused ranged from childhood physical abuse by the father, being neglected by parents, sexual abuse by the father and brother-in-law, being victims of school bullying, to witnessing of parents' repeated suicide attempts. In addition, ≥ 2 stressful events were identified in 65.2% of the subjects in the second decade compared to 31.6% of subjects in the first decade ($p < 0.05$). These patients were defined as having multiple stressful life events.

It was also found that conversion symptoms do not always occur immediately after an apparent preceding stressful life event, but that they sometimes occur months or years after the event, or eventually after chronic family conflict. Most of the time, a complex of early and later stressful life events was reported. For example, 1 subject, who had onset of conversion symptoms in adolescence, reported recent academic stress and chronic conflicts with her primary caregiver, and disclosed a history of childhood sexual abuse history later. This "delayed onset" increased the difficulty in clarifying the exact duration of conversion symptoms.

Discussion

To the best of our knowledge, this investigation is a pioneer study that examined and compared the differences in demographic data, psychiatric features and personal experiences of Taiwanese children and adolescents with conversion disorder in psychiatric consultations across 2 decades. There were several major findings in this study, and they are discussed below.

First, while it is generally believed that females predominate in conversion disorder,^{4,18,19} we found that the number of male subjects increased ($p < 0.05$) from the first to the second decade. Studies of adult populations suggest that several variables, including genetic, physiological and psychosocial factors such as socialization process and cultural factors, contribute to sex differences in conversion disorder. The predominant

cultural emphasis, for example, has led to greater social acceptability of women who show discomfort than of men.²⁰ Additionally, illness-reporting and help-seeking behaviors, different responsibilities on the basis of gender roles, and role strains do play critical roles.^{21,22} However, these variables that were observed in adult populations might change over time and across cultures, and may not apply to pediatric and adolescent populations. As Knudson-Martin demonstrated, somatization of adolescent females was more related to family interactions, while somatization of adolescent boys was more strongly correlated with stressful experiences outside the family.²³ Our results echo recent findings, which revealed that significantly more male students than female students experienced school bullying, including being victims.^{24,25} The changing trends in types of stressful life events from conflicts within the family to being victims of school bullying may offer explanations about the sex distribution changes between the 2 decades. However, further research is suggested on whether or not school bullying is a causal factor that influences development of conversion disorder. Accumulating research now indicates that when and how the sex differences are the same or different at both biological and social levels may be important issues.²⁶⁻²⁸ Thus, whether or not previous etiologic models of conversion disorder, which were originally developed from studies of adult females, apply to child and adolescent male populations needs to be thoroughly explored. It might be important for future research to replicate the findings of this study.

Second, this study found that the number of subjects who reported experiences of being abused significantly increased in the second decade. One reason for this may be that children and adolescents in the second decade, compared to their counterparts in the first decade, were more willing to report their experience after their public education about acting against abuse. However, it is more likely that our findings echo the official reports that show the rate of childhood abuse increasing dramatically. The number of children and adolescents who were in danger of being abused increased from 3,721 cases in 2005 to 23,299 cases in 2008.¹⁴ Thus, the increase in the number of subjects reporting experiences of being abused from the first to the second decade in this study may be attributable to changes in the possible risk of being abused, since some studies indicate that males present with somatic complaints just as females do if there exists a major disruption in their lives.^{27,28} Furthermore, although the sex of the victim may affect the nature of the abuse,^{29,30} any abuse will actually yield neurobiological changes in both sexes,^{31,32} and perhaps even more prominently

in males.³³ Thus, we speculate that the increasing incidence of abuse or distress may affect sex distribution and explain why the percentage of male subjects significantly increased in the second decade in this study. In addition, our results disclosed a complex of early and later acute and chronic stressful life events, which was also found in previous studies,^{8,34} which implies that conversion symptoms may be elicited by a combination of early and later stressful life events. Thus, every type of stressor might be a marker for other causal variables, and the interaction of different personal experiences increases the difficulty of clarifying the associations among conversion symptoms, early trauma and recent stressful events. However, there are some differences in the diagnostic criteria for conversion disorder between DSM-III-R and DSM-IV. One major change from DSM-III-R to DSM-IV has been the further removal of the etiological inference of the unconsciousness of symptoms. Also, the concept of DSM-IV in the distress-disability category has been broadened to include important areas of functioning to the individual; and DSM-IV diagnostic criteria removed the statement about the temporal relationships between the occurrence of stressors and conversion symptoms. These diagnostic differences may influence how professionals recognize the associated psychological factors. Further investigation is needed to explore the above issues.

Third, our results showed that the most commonly reported psychiatric diseases among children and adolescents with conversion disorder were major depression and anxiety disorder, a finding that is consistent with recent reports on the substantial overlap of conversion disorder with depression and anxiety.⁴⁻⁸ An interpretation of this finding might be that children and adolescents in the second decade were exposed to more psychological stressors and had the propensity to express them as conversion symptoms.^{4,5,15} Also, early stresses, chaotic family environment or parental illness may contribute to the emergence of child and adolescent psychiatric disorders such as depression and dysthymia.^{35,36} These are important avenues for further research. Our results also showed that the prevalence rates of major depression and dysthymia were significantly higher among subjects in the second decade than in the first decade. This significant difference might be due to sampling bias because of our small sample size. However, it is possible that our data are reflecting the trend that the prevalence rate of depression has increased with time.³⁷

Data collection was not easy for our researchers due to the limited number of children and adolescents with conversion disorder, and the process was time-consuming. Several limitations should be addressed.

Because of the methods used in this study, it is probable that only the more serious and complicated cases of conversion disorders were identified. The small sample size of our study was another limitation, which might partially explain why the prevalence rates of major depression and anxiety disorder among our subjects were not consistent with those of earlier studies.⁴⁻⁷ Different study design, sample selection and cultural factors might also have contributed to the inconsistent results. Moreover, this study did not use standardized clinical interviews and also lacked an evaluation of the reporting clinicians' clinical skills. However, all of the interviewers were child psychiatrists with professional qualifications, which suggest a certain level of competence in offering valuable information. Furthermore, the application of epidemiological methods to the investigation of mental health conditions in children and adolescents involves significant methodological challenges such as difficulties associated with the integration of multiple sources of information from family, patient, and clinicians. Also, the clinical presentations in this population are often complicated by comorbid psychiatric disorders and dysfunctional family systems. In addition to these limitations, because this study employed retrospective and consecutive chart reviews, the psychological impact of early trauma or recent stressful life events on subjects, and the severity of comorbid psychiatric disorders and medically unexplained somatic symptoms were not assessed by rating scales. There are many variables that may influence the stress effects and manifestations of depression and conversion symptoms, so further research is needed to explore the above issues.

In conclusion, the results of this study confirm the hypothesis that the sex distribution in conversion disorder has significantly changed over the last 2 decades. This study highlights the increasing need for screening and interventions for psychiatric comorbidities and experiences of being abused in children and adolescents with conversion disorder. Because of the small sample size of this study, further research that includes multiple study sites and a larger number of subjects is needed before a firm conclusion can be drawn. Socialization processes, lifestyles and psychosocial factors change enormously over time. Future research is needed to elucidate the biological vulnerabilities and risk factors for developing conversion disorder among children and adolescents. Gaining more knowledge about the changes in the psychiatric features of conversion disorder in a modern society like Taiwan is of great importance if we are to provide patients with better treatments.

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