Phenomenology of Psychogenic Movement Disorders in Children
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INTRODUCTION
Psychogenic movement disorders (PMDs) are heterogeneous disturbances of motor function that are not fully explained by organic conditions and which occur in association with underlying psychiatric disease.

While the mean age of patients with PMDs is 37 to 50 years in most case series,1-4 conversion disorder—including PMDs—may arise during childhood. Indeed, conversion disorder affects 2-15% of children attending outpatient pediatric neurology clinics.5,6 Despite these observations, surprisingly little has been published regarding the frequency and phenomenology of PMDs in children.

METHODS
We reviewed the medical records of all 54 children (<18 years), 42 girls and 12 boys, diagnosed in the Baylor College of Medicine Movement Disorders Clinic with a PMD between 1988 and 2008. Video recordings were also reviewed to confirm clinical findings as needed. The association between age at onset and gender was determined using Fisher's exact test. The association between psychogenicity and movement disorder phenotype was determined using chi-square analysis. A two-tailed p-value <0.05 was considered significant.

RESULTS
Population
Of all patients diagnosed with a PMD in our clinic, 5.7% were <18 years old. Of 1,722 children seen in our clinic, 54 (3.1%) had a PMD as per Fahn and Williams criteria.2 The mean age at symptom onset was 14.2 years (± 2.11, range 7.6-17.7 yrs.), and the mean symptom duration preceding evaluation was 11 months (± 12, range 0.5-48 m.). 78% of patients were girls, but the female preponderance was significant only in patients ≥13 years (P = 0.019).

Phenomenology N (%)*

<table>
<thead>
<tr>
<th>Phenomenology</th>
<th>N (%)</th>
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<tbody>
<tr>
<td>Tremor or shaking</td>
<td>35 (65)</td>
</tr>
<tr>
<td>Dystonia / fixed dystonia</td>
<td>23 (43) / 6 (11)</td>
</tr>
<tr>
<td>Myoclonus or jerking</td>
<td>20 (37)</td>
</tr>
<tr>
<td>Astasia-abasia &amp; gait disorders</td>
<td>12 (22)</td>
</tr>
<tr>
<td>Convergence spasm</td>
<td>6 (11)</td>
</tr>
<tr>
<td>Disrupted speech</td>
<td>4 (7)</td>
</tr>
<tr>
<td>Athetosis</td>
<td>1 (2)</td>
</tr>
<tr>
<td>Apraxia of eyelid opening</td>
<td>1 (2)</td>
</tr>
</tbody>
</table>

*Cumulative frequencies exceed 100% since 36 (67%) children had multiple PMD phenotypes.

Distribution N (%)

<table>
<thead>
<tr>
<th>Distribution</th>
<th>N (%)</th>
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<tbody>
<tr>
<td>Symmetrical</td>
<td>22 (41)</td>
</tr>
<tr>
<td>Asymmetrical</td>
<td>32 (59)</td>
</tr>
<tr>
<td>Dominant &gt; nondominant</td>
<td>28 (88 of asymm.)</td>
</tr>
<tr>
<td>Nondominant &gt; dominant</td>
<td>4 (12 of asymm.)</td>
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Psychogenic dystonia comprised 10% of our clinic’s total (organic and psychogenic) pediatric dystonia population, while PMDs accounted for 27% and 32% of children with tremor and myoclonus, respectively.*

In 28 (52%) patients, comorbid anxiety, depression or persistent irritability was reported by the child or parent. Three (6%) children had a history of suicidal ideation, and 2 had a history of suicidal gesture or attempt. Associated somatic or neurological complaints were documented in 49 (91%) children.

DISCUSSION
The mean age of our patients at symptom onset was 14 years; all but 10 children were 13 or older, and no child was younger than 7. This data suggests that PMDs are either more common during adolescence or that PMDs in younger children are short-lived and do not require referral to a subspecialty clinic.

Girls comprised 78% of our PMD cohort, which is consistent with data regarding gender differences from both adults with PMDs5,6 and children with conversion disorder in general.10,15 Studies of conversion disorder in children show that the degree of female preponderance increased after adolescence.10,16,17 Our work supports this finding: we found no gender discrepancy in children age 12 years or less, compared with a female-to-male ratio of 5.3 to 1 in children age 13 years and older.

In adults, the most common PMD phenotype is either tremor1,3,18,19 or dystonia,2,4 followed by myoclonus and gait disorders. Data regarding the most common PMD phenotypes in children are sparse, but tremor, myoclonus, dystonia and gait disorders all have been reported. In our PMD cohort, two-thirds of children exhibited multiple phenotypes, the most common being tremor followed by dystonia and myoclonus. Psychogenic dystonia accounted for a significantly smaller proportion of total dystonia patients (organic plus psychogenic) when compared with tremor and myoclonus. Convergence spasm was seen in only 11% of our PMD cohort but is a noteworthy feature because it is rarely due to an organic process.20 In patients whose PMD exhibits clear laterality, the dominant side is usually affected, which is in contrast to psychogenic sensory disturbances and weakness which may preferentially affect non-dominant limbs.21

REFERENCES