Depression is common in Parkinson’s disease (PD), with approximately 40% of patients meeting DSM criteria for some form of a depressed mood disorder (Slaughter et al., 2001; Cummings et al., 1992). One hypothesis is that depression is a consequence of neuroanatomical changes associated with the degenerative process that occurs in PD. In support of this view are findings that PD patients have higher rates of depression than patients with other chronic, physically disabling diseases such as arthritis (Ehmann et al., 1990; Cantello et al., 1986). However, other researchers have not replicated this effect (Brown, & Marsden, 1986). One weakness of the studies thus far is the failure to include a movement-disordered comparison group.

**OBJECTIVE:** Is the high prevalence of depression in PD also found in other movement disorders affecting basal ganglia circuitry, or is it uniquely higher in PD?

**MEASURE**

**Beck Depression Inventory** (Beck, 1978)
- Total Depression score (21 items)
  - 2 subscores: Somatic subscore; Cognitive/Affective Subscore
- Cutoff for depression: score > 14; Maximizes sensitivity & specificity for presence of depression in PD (Leentjens et al., 2000)

**RESULTS**

- **Analysis:** Repeated Measures ANCOVA covarying for age, sex, and symptom duration. Main Effect of Subscale (Somatic > Cognitive/Affective; (F(2, 386) = 2.63, p = .07 ), no other effects

**DISCUSSION**

- Depressive symptoms may be common in movement-disordered populations and not unique or specific to Parkinson’s disease.
- One possible explanation is that non-motor basal ganglia circuits are similarly affected in PD, ET, and dystonia.
- Our study highlights the need for appropriate comparison groups when studying both motor and non-motor symptoms in Parkinson’s disease.
- Future studies should incorporate use of DSM-IV clinical diagnoses, which would allow for comparison of specific diagnoses across groups. Differences in functional disability (i.e., ADL’s) should also be evaluated due to possible effects on mood.
- It is important for health care providers to be aware that depression may be a common comorbidity across movement disorders, and not limited to PD. As such, movement disordered patients should be routinely screened for depression and offered treatment options, as appropriate.

**RESULTS (cont)**

**BDI Symptoms Most Frequently Endorsed** (collapsed across groups)

- Symptom % Endorsement
  - Fatigue 80%
  - Difficulty Working 70%
  - Loss of Pleasure 60%
  - Sleep Disturbance 57%

**BDI Symptoms That Differed Across Groups**

- Health Worry PD > ET
- Difficulty Working PD > ET
- Appetite Loss PD > Dystonia

**PARTICIPANTS**

<table>
<thead>
<tr>
<th></th>
<th>PD</th>
<th>ET</th>
<th>Dystonia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age*</td>
<td>69.5 (10.3)</td>
<td>61.8 (15.9)</td>
<td>58.3 (15.9)</td>
</tr>
<tr>
<td>% Men*</td>
<td>59.5</td>
<td>61.3</td>
<td>40</td>
</tr>
<tr>
<td>Education</td>
<td>14.4 (3.1)</td>
<td>14.0 (2.5)</td>
<td>14.4 (2.8)</td>
</tr>
<tr>
<td>Duration*</td>
<td>7.9 (6)</td>
<td>14.8 (15.4)</td>
<td>10.2 (11.0)</td>
</tr>
<tr>
<td>UPDRS motor</td>
<td>30.9 (14.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hoehn-Yahr</td>
<td>2.9 (2.8)</td>
<td></td>
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</tr>
</tbody>
</table>

Convenience sample from UF Movement Disorders Clinic, all PD were idiopathic; *significant differences among groups

**PARKINSON’S**

- Due to dopaminergic depletion; resting tremor, slowness, rigidity, masked facies

**ESSENTIAL TREMOR**

- Action & postural tremor; familial, often of hands, cerebellar-thalamic? Most common neurologic movement disorder

**DYSTONIA**

- Sustained tonic contractions causing abnormal postures; 3rd most common movement disorder

**ABOUT THE MOVEMENT DISORDERS**

**PARKINSON’S**

**ESSENTIAL TREMOR**

**DYSTONIA**