Psychometric Properties of a Self-Report Instrument for the Assessment of Tic Severity in Adults With Tic Disorders

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The gold-standard measure of tic severity in tic disorders (TD), the Yale Global Tic Severity Scale (YGTSS), is a semistructured clinician-administered interview that can be time consuming and requires highly trained interviewers. Moreover, the YGTSS does not provide information regarding frequency and intensity of specific tics because all motor and all vocal tics are rated as a group. The aim of the present study is to describe and test the Adult Tic Questionnaire (ATQ), a measure for the assessment of tic severity in adults, and to report its preliminary psychometric properties. The ATQ is a brief self-report questionnaire that provides information regarding frequency, intensity, and severity of 27 specific tics. In addition, the ATQ produces total frequency, intensity, and severity scores for vocal and motor tics, as well as a global total tic severity score. Results showed that the ATQ demonstrated very good internal
internal consistency (analysis verified a two-factor structure for phonic discriminant validity (Leckman et al., 1989; Storch 2005). The measure possesses satisfactory temporal stability and displays adequate convergent and discriminant validity (Leckman et al., 1989; Storch et al., 2005). In addition, a confirmatory factor analysis verified a two-factor structure for phonics and motor tics with acceptable internal consistency for each factor (Storch et al., 2007).

Nevertheless, administration of the YGTSS is relatively time consuming (approximately 20 to 25 minutes) and requires a highly trained, experienced interviewer in order to ensure accurate and reliable use of the measure (Chang, Himle, Tucker, Woods, & Piacentini, 2009). In addition, the YGTSS does not provide information on individual tics. That is, tic scores on the YGTSS pertain to all motor and vocal tics, but do not provide information pertaining to specific tics (e.g., intensity of blinking versus intensity of grunting). Thus, there is a need for a psychometrically sound, brief self-report measure for the assessment of tic severity in adults with tic disorders (TD) that would correspond to the need for a rapid clinical assessment. Such a measure would facilitate high-resolution measurement of treatment progress, allowing clinicians to assess the impact of treatment on specific tics that may improve more than others, including specific information regarding improvement in frequency or intensity. In addition, such an instrument would enable assessment of tics in online studies, an increasingly prevalent methodology (Gosling & Mason, 2015). Notably, self-report methodology is susceptible to a number of biases (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), including relying on the level of patient awareness. However, even in clinician-administered settings, clinicians rely in part on patient awareness; that is, not all tics present during the interview and actual tics may not be observed in, or affected by, interview settings (Conolea & Woods, 2008).

A few self-report measures assessing global tic severity are available. The Tourette Syndrome Symptom List (TSSL; Cohen, Dettor, Young, & Shaywitz, 1980) is a 35-item scale assessing phonic and motor tics and TS-related behaviors over the past week on a 5-point Likert scale. The Tic Symptom Self-Report (TSSR; Scahill, Leckman, Schultz, Katsoyvich, & Peterson, 2003)—a revised version of the TSSL—is a 40-item self-report measure, in which 20 items tapping phonic tics and 20 items tapping motor tics are rated on a 0–3 Likert scale. However, psychometric data for these two measures are not available (for a review of assessment measures for TD see McGuire et al., 2012). Other self-report scales for adults with tic disorders may be either too specific, such as the Premonitory Urge to Tic Scale (PUTS; Reese et al., 2014), assessing subjective awareness of urges preceding tics; or too general, such as the Motor Tic, Obsessions and Compulsions, Vocal Tics Evaluation Survey (MOVES; Gaffney, Sieg, & Hellings, 1994), which incorporates items tapping OCD symptoms.

The clinical presentation of tics is complex and dynamic, as tics fluctuate and change in frequency, intensity, and form over time (Lin, et al., 2002; Peterson & Leckman, 1998). In addition, tic severity is influenced by a multitude of situational state-dependent factors (for a review see Conelea & Woods, 2008), such as settings (Goetz, Leurgans, & Chmura, 2001), social interaction (Piacentini et al., 2006), stress (Eapen, Fox-Hiley, Banerjee, & Robertson, 2004), and anxiety (Silva, Munoz, Barickman, & Friedhoff, 1995), making clinical assessment challenging.

The dynamic, complex, and interactive nature of tics accentuates the need for psychometrically reliable measures for the assessment of tics in adults, tapping the number, type, intensity, and frequency of tics. The most widely used measure for the assessment of tic severity is the Yale Global Tic Severity Scale (YGTSS; Leckman et al., 1989), a clinician-administered semistructured interview assessing tic severity and impairment over the previous week. The YGTSS includes a symptom checklist for motor and phonic (vocal) tics. As a group, all motor and all vocal tics are then rated for their number, frequency, intensity, complexity, and interference on a 0–5 Likert scale (separately for vocal and motor). Scores can then be summed to reflect motor tic severity (0–25), phonic tic severity (0–25), and combined tic severity (0–50). There is also a separate tic-related impairment scale ranging from 0–50. The YGTSS demonstrates excellent internal consistency (α = .92 – .94; Storch, et al., 2005). The measure possesses satisfactory temporal stability and displays adequate convergent and discriminant validity (Leckman et al., 1989; Storch et al., 2005). In addition, a confirmatory factor analysis verified a two-factor structure for phonic

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