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Further Evidence of Behavioral Interventions for Tic Disorders: A Reply to Theule and Colleagues

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Abstract

We were delighted to read the letter by Dr. Theule and colleagues (Theule et al., 2016) commenting on our meta-analysis of behavior therapy for Tourette Syndrome (TS) (McGuire et al., 2014). We welcome this discussion, and were interested to learn of their related meta-analysis on psychosocial treatments for tic disorders. This commentary addresses the similarities and distinctions between these two meta-analytic investigations, and concludes with recommendations regarding the future of treatment research for TS.

Dear Dr. Schatzberg:

We were delighted to read the letter by Dr. Theule and colleagues (Theule et al., 2016) commenting on our meta-analysis of behavior therapy for Tourette Syndrome (TS) (McGuire et al., 2014). Theule and colleagues (2016) presented a related meta-analysis on psychosocial treatments for tic disorders. While our meta-analysis focused on behavioral interventions targeting tic severity (habit reversal training, HRT; comprehensive behavioral intervention for tics, CBIT), Theule and colleagues (2016) included several different types of psychosocial interventions (e.g., HRT, CBIT, cognitive behavioral therapy, parent

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management training, etc.) in their meta-analytic evaluation and examined both change in treatment over time (pre-post) and between treatment conditions for tic severity and tic frequency. Theule and colleagues (2016) replicated our primary finding that behavioral interventions are efficacious for individuals with tic disorders, but noted several differences. Although they identified attenuated treatment effects among studies with greater co-occurring ADHD, Theule and colleagues did not find age to moderate treatment effects. Interestingly, they examined the association between treatment effects and specific therapeutic components included in three psychosocial interventions. These results suggested that treatment effects had a positive relationship with contingency management, but a negative relationship with psychoeducation.

Historically, psychotropic medications like antipsychotics and alpha-2 agonists have been the primary treatment options for individuals with TS. Although efficacious (Weisman et al., 2013), they are often accompanied by an adverse side effect profile that can limit tolerability (Scahill et al., 2006). The meta-analytic work by Theule and colleagues (2016) contributes to a growing body of research demonstrating that behavioral interventions are an efficacious and safe alternative to psychotropic medications for TS (McGuire et al., 2015b). On a related note, there has been increasing concern about replicable findings in psychological science that highlights the importance of replicating empirical work (Open Science Collaboration, 2015). Thus, in light of the findings from both meta-analyses (McGuire et al., 2014, Theule et al., 2016), researchers and clinicians can be confident when stating the benefit of psychosocial interventions like behavior therapy for individuals with tic disorders.

Notably, Theule and colleagues raised several points of distinction from our meta-analytic evaluation. For instance, Theule and colleagues did not identify the small positive association between age and treatment effects. As the selection criteria and included studies were different between our two reports, these differing results are not surprising. Specifically, we included only studies that evaluated behavioral interventions targeting reductions in tic severity and *a priori* selected primary outcome measures. In contrast, Theule and colleagues examined a variety of psychosocial interventions for tic disorders some of which did not directly target tic severity (e.g., parent management training), and collapsed across multiple outcome measures to calculate treatment effects. Additionally, Theule and colleagues examined the association of treatment effects with specific intervention components. They identified that treatment effects were positively associated with contingency management, and negatively associated with psychoeducation. While evaluating key therapeutic components in psychosocial interventions is important, conducting a component analysis using meta-analytic techniques can be challenging. For instance, the number of sessions per component is often not reported in published reports. Moreover, during psychotherapy sessions multiple components can be employed within a single session. Thus, this finding may be complicated by the dose and/or duration of each therapeutic component. Given these complexities, caution is suggested in determining the clinical relevance of these associations.

Taken together, these two meta-analytic investigations highlight the benefit of psychosocial interventions like behavior therapy for individuals with TS. However, their findings and the studies included in these two meta-analyses inadvertently identify several shortcomings in

the literature and highlight possible directions for future research. First, these two metaanalytic investigations primarily focused on the efficacy of interventions for individuals with TS. Some individuals with TS may exhibit a robust response to psychosocial interventions, whereas others may experience a more modest benefit or no benefit at all. Thus, there is a need to move beyond evaluating efficacy and include metrics of treatment response. Treatment response refers to a clinically meaningful response exhibited by a patient to an intervention. For individuals with TS, a positive treatment response has been suggested to correspond with a 25–35% reduction in tic symptom severity (Jeon et al., 2013, Storch et al., 2011). As tics wax and wane over time, this personalized approach to evaluation can help identify specific characteristics associated with robust responses to intervention for TS. Second, the evidence-based interventions examined within these meta-analyses infrequently result in tic remission. Therefore, even when receiving evidence-based care, an individual with TS must continue to endure tics. Absent from these meta-analytic studies and from most of the trials included within them were ratings of quality of life. Given the chronicity of TS, quality of life may serve as an important outcome measure for any psychosocial or pharmacological intervention. Indeed, current practice parameters suggest taking quality of life into consideration when making treatment recommendations (Murphy et al. 2013). Notably, more recent psychosocial (McGuire et al., 2015a, Storch et al., 2012) interventions have begun to recognize the importance of quality of life and have included it as a treatment target and outcome metric.

In summary, replication reports like the one completed by Theule and colleagues serve to provide confidence in initial findings and offer new perspectives. We are excited by the work of Theule and colleagues, and hope that it encourages other researchers to further consider the efficacy of TS treatments, and dedicate attention to novel approaches and interventions to expedite and/or enhance therapeutic outcomes for individuals with TS.

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