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The trajectories of adolescent anxiety and depressive symptoms over the course of a transdiagnostic treatment

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ABSTRACT

Anxiety and depressive disorders commonly co-occur during adolescence, share multiple vulnerability factors, and respond to similar psychosocial and pharmacological interventions. However, anxiety and depression may also be considered distinct constructs and differ on some underlying properties. Prior research efforts on evidence-based treatments for youth have been unable to examine the concurrent trajectories of primary anxiety and depressive concerns across the course of treatment. The advent of transdiagnostic approaches for these emotional disorders in youth allows for such examination. The present study examined the separate trajectories of adolescent anxiety and depressive symptoms over the course of a transdiagnostic intervention, the Unified Protocol for the Treatment of Emotional Disorders in Adolescence (UP-A; Ehrenreich et al., 2008), as well as up to six months following treatment. The sample included 59 adolescents ages 12–17 years old ($M = 15.42$, $SD = 1.71$) who completed at least eight sessions of the UP-A as part of an open trial or randomized, controlled trial across two treatment sites. Piecewise latent growth curve analyses found adolescent self-rated anxiety and depressive symptoms showed similar rates of improvement during treatment, but while anxiety symptoms continued to improve during follow-up, depressive symptoms showed non-significant improvement after treatment. Parent-rated symptoms also showed similar rates of improvement for anxiety and depression during the UP-A to those observed for adolescent self-report, but little improvement after treatment across either anxiety or depressive symptoms. To a certain degree, the results mirror those observed among other evidence-based treatments for youth with anxiety and depression, though results hold implications for future iterations of transdiagnostic treatments regarding optimization of outcomes for adolescents with depressive symptoms.

1. Introduction

Anxiety disorders are the most prevalent psychiatric disorders in adolescence, with prevalence estimates of 10–21% in the general population in the United States (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003). Considered through the lens of DSM-IV (American Psychiatric Association, 2000), unipolar depressive disorders (i.e., major depressive disorder [MDD], dysthymic disorder) as a whole are also common mental health conditions, and become more prevalent during adolescence, as compared to earlier in development (Costello et al., 2002). Anxiety and depressive disorders commonly co-occur with one another in adolescence. Between 16% and 62% of youth with an anxiety disorder also meet criteria for depression, with the highest comorbidity rates found among treatment-seeking adolescents (Brady & Kendall, 1992; Ollendick, Shortt, & Sander, 2005). In addition, self-report measures of youth anxiety and depressive symptoms show moderate correlations with one another (e.g., $r = 0.34$), even after controlling for overlapping items on these instruments (Stark & Laurent, 2001).

In addition to their high comorbidity with one another, youth anxiety and depression share a number of biological, environmental, and psychological risk factors (for a more thorough review, see Garber & Weersing, 2010). For instance, behavioral inhibition in early childhood is a risk factor for the later development of both anxiety and depression (Kagan, Reznick, & Snidman, 1987), and both anxiety and depressive disorders are associated with neuroendocrine (Dahl et al., 2000; Weems, Zakem, Costa, Cannon, & Watts, 2005) and neurotransmitter dysregulation (Flores et al., 2004; Fox et al., 2005). In addition, high negative affect (NA) has shown to be a latent factor underlying all of the anxiety and

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depressive disorders (Brown, Chorpita, & Barlow, 1998; Trosper, Whitton, Brown, & Pincus, 2012).

Youth anxiety and depressive disorders also demonstrate similar responses to pharmacological and psychosocial interventions. For instance, both anxiety and depression are responsive to selective serotonin reuptake inhibitor (SSRI) medications (e.g., Treatment for Adolescents with Depression Study (TADS) Team, 2004; Walkup et al., 2008). Prior work with cognitive-behavioral therapy (CBT) trials have found "spill-over" effects onto comorbid anxiety or depressive disorders, regardless of the principal disorder. For example, anxiety-focused CBT has demonstrated positive effects on comorbid depressive symptoms (Kendall, Safford, Flannery-Schroeder, & Webb, 2004), and a meta-analysis of CBT for youth depression found effect sizes in anxiety symptom reduction (ES = 0.39) that were only slightly less than those for depressive symptom improvement (ES = 0.57; Weisz, McCarty, & Valeri, 2006).

Given their frequent comorbidity, shared vulnerability factors, and similar response to treatment, some (e.g., Barlow, Allen, & Choate, 2004) have advocated for a transdiagnostic or disorder-non-specific treatment approach that targets higher-order psychological factors common to the emotional disorders. Such an approach is hypothesized to allow for greater clinical flexibility and use with patients presenting with multiple emotional disorders, as well as reduce clinician burden in learning multiple, disorder-specific treatment manuals (McHugh & Barlow, 2010). As such, recent clinical research has focused upon the development and evaluation of transdiagnostic treatments that may effectively target anxiety and depressive disorders within a single protocol.

The Unified Protocol for the Treatment of Emotional Disorders in Adolescence (UP-A; Ehrenreich et al., 2008) is a developmental adaptation of the adult Unified Protocol (UP; Barlow et al., 2010), designed for adolescents ages 12–17 years old presenting with any primary anxiety disorder, unipolar depressive disorder, or their combination. The UP-A has theoretical roots in emotion regulation, cognitive science, and behavior modification, and distills common evidence-based techniques that cut across disorder-specific treatment manuals for youth anxiety and depression (e.g., psychoeducation, non-judgmental awareness, cognitive reappraisal, exposure, behavioral activation, etc.) within a singular protocol. The UP-A incorporates standard evidence-based principles within the broader function, context, and regulation of a range of positive and negative emotions (e.g., sadness, anger, fear). Therefore, it is theorized to positively affect how adolescents attend to, modulate, and experience emotions that cut across specific disorders. Similar to the UP, the UP-A targets five higher-order principles thought to be latent constructs underlying lower-order specific anxiety and depressive disorders: (1) increase present-focused awareness of emotions, (2) enhance cognitive flexibility, (3) prevent emotional avoidance and maladaptive emotion-driven behaviors, (4) increase acceptance of uncomfortable emotion-related physiological sensations, and (5) facilitate exposure to bodily and environmental triggers of emotional experiences (Barlow et al., 2010).

A prior open trial of the UP-A established initial efficacy, with subjects demonstrating significant pre-post reductions in clinician-rated diagnostic severity across anxiety and depressive disorder diagnoses (Trosper, Buzzella, Bennett, & Ehrenreich, 2009), and an immediate treatment (TX) condition of the UP-A has found to outperform an 8-week, treatment-delayed waitlist (WL) condition in clinician-rated diagnostic severity for the principal disorder, in a recently completed randomized controlled trial (RCT; Ehrenreich-May, Queen, Rodriguez, & Rosenfield, 2012). Analyses from this RCT also found that the presence of a depressive disorder did not moderate treatment outcomes in the UP-A (Ehrenreich-May et al., 2012), whereas many previous CBT trials for youth anxiety have found poorer outcomes for patients with comorbid depression (e.g., Berman, Weems, Silverman, & Kurtines, 2000; Ginsburg et al., 2011; O'Neil & Kendall, 2012).

To summarize, youth anxiety and depression are known to commonly co-occur with one another, share multiple vulnerability factors, and may be effectively treated with a unified treatment approach. However, despite their similarities, anxiety and depression have also shown to be distinct constructs. For instance, factor analytic studies with school-based (Crowley & Emerson, 1996) and clinical samples (Stavrakaki, Vargo, Boodoosingh, & Roberts, 1987) have found stronger support for two-factor models of anxiety and depression compared to single factor models. In addition, while both anxiety and depression are characterized by high negative affect, low positive affect has shown stronger associations with depressive symptoms than with anxiety symptoms (for more comprehensive reviews, see Anderson & Hope, 2008; De Bolle & De Fruyt, 2010). Given these important differences, a next step in investigating transdiagnostic treatment approaches is to examine the separate trajectories of symptom change for anxiety and depression over the course of treatment, in order to assess if they show similar or differential rates of change.

The present study examined the separate trajectories of anxiety and depressive symptoms over the course of the UP-A, and up to six months following the end of treatment, for adolescent subjects completing the UP-A as part of the open trial or RCT investigation. We used piecewise latent growth curve modeling (LGCM) to model these trajectories over two separate time periods: during the course of treatment ("treatment slope") and up to six months after treatment ended ("follow-up slope"). Piecewise LGCM is often recommended when examining change during treatment and follow-up, given likely non-linear change (Brown, 2004). Separate models were conducted for anxiety and depressive symptoms. Separate models were also conducted for self-rated and parent-rated symptoms, in order to examine informant differences in symptom change trajectories. Therefore, a total of four piecewise LGCMs were conducted.

2. Method

2.1. Participants

Participants were 59 adolescents (57.6% female), ages 12–17 years old ($M = 15.42$, SD = 1.71) who received at least eight sessions of the UP-A and completed at least one post-baseline assessment. Given the aim of the study was to examine separate trajectories of anxiety and depression symptom change for those completing the intervention, we decided to restrict analyses to those receiving at least 8 sessions as this represented the minimum dosage possible to be considered a treatment completer. This subsample of 59 participants was culled from a total sample of 67 participants who were enrolled in either the open trial or RCT investigation of the UP-A. Eight (11.94%) of the 67 participants that did not complete at least eight sessions of the intervention were part of the open trial ($n = 2$) or RCT ($n = 6$), respectively, and did not have any post-baseline assessment data. *T*-test and chi-square analyses revealed that those completing at least eight sessions ($n = 59$) did not significantly differ from those who dropped out prior to eight sessions ($n = 8$) with regard to age, gender, ethnicity, severity of principal diagnosis, depressive disorder comorbidity status, or baseline levels of anxiety or depressive symptoms (child or parent report).

Participants were evenly divided between Hispanic/Latino ($n = 26$; 44.1%) and White, Non-Hispanic ethnicities ($n = 26$; 44.1%). The remaining subjects identified themselves as having Black/African-American ($n = 2$; 3.4%), Asian-American ($n = 1$; 1.7%), and "other" ethnicity ($n = 4$; 6.8%). The median reported annual family income was $100,000 (SD = $80,000). The majority of