

Cognitive Vulnerability, Stress, and Symptom Specificity in Children and Adolescents

Randy P. Auerbach
Harvard Medical School

Benjamin L. Hankin
University of Denver

Given significant advancements in understanding, preventing, and treating affective disorders among children and adolescents, the prevalence of depressive and anxious disorders is unnerving. Approximately 20% of youth will experience a depressive episode by the age of 18 (Hankin et al., 1998), and nearly one in four Americans will experience an anxiety disorder across their lifetime (Kessler et al., 1994). For many youth, these disorders critically impact their developmental trajectory, contributing to a wide array of issues including but not limited to academic difficulties, interpersonal discord, risky behavior engagement, and physical health problems (e.g., Auerbach, Tsai, & Abela, 2010; Avenevoli, Knight, Kessler, & Merikangas, 2008; Schonfeld et al., 1997). In addition to the incalculable emotional toll, the direct and indirect financial burden associated with these disorders is staggering (depressive disorders: \$33 billion—Greenberg et al., 1999; anxiety disorders: \$46.6 billion—DuPont et al., 1996). Therefore, in response to such alarming data, researchers have sought to identify key etiological factors that underlie the onset and maintenance of affective disorders among youth.

To date, research suggests that stress and cognitive vulnerability factors play a prominent role in the development of both depressive and anxious disorders (e.g., Hankin & Abela, 2005). At the same time, the majority of such research has been conducted with adults, and given profound behavioral, cognitive, emotional, and developmental differences between older and younger individuals, research is warranted to examine the applicability of these models to children and adolescents. Moreover, as a field, it is important to continually refine our scientific approach to understanding these debilitating disorders, and consequently, the special section has included manuscripts from experts in the field that have: (a) integrated a multimodal approach to assessment (e.g., self-report, direct observation, cortisol, diagnostic interviews), (b) examined the behavioral interactions between mother–child dyads, and (c) included multi-wave, longitudinal designs (i.e., across months and years). Such a rigorous

Address correspondence to Randy P. Auerbach, Department of Psychiatry, Harvard Medical School, McLean Hospital, 115 Mill Street, de Marneffe, Room 240, Belmont, MA 02478. E-mail: rauerbach@mclean.harvard.edu; Benjamin L. Hankin, Department of Psychology, University of Denver, Frontier Hall, 2155 South Race Street, Denver, CO 80208. E-mail: ben.hankin@psy.du.edu.

methodological approach allows researchers to target critical gaps in our theoretical understanding of affective disorders.

The articles in the special section delineate the etiological pathway of both internalizing and externalizing symptoms. With respect to articles addressing internalizing symptoms, Lopez, Felton, Driscoll, and Kistner (this issue) utilize a multi-wave, prospective design to examine the tripartite theory in youth ages 7–14, and results suggest that brooding is associated with anxiety-specific vulnerability (i.e., shared negative affect and physiological arousal). Similarly, Oppenheimer and colleagues (this issue) examine both concurrent and longitudinal associations among rumination, excessive reassurance seeking, depressive symptoms, and anxious symptoms. Including data from two separate samples of youth, results indicate that whereas rumination is a specific vulnerability factor that potentiates depressive symptomology, excessive reassurance seeking seems to be a concomitant of negative affect common to both depressive and anxious symptoms. As a whole, these findings provide a wealth of insight about the temporal unfolding of these symptoms, and critically, highlight the importance of examining the association of different types of cognitive vulnerability, even within the rumination cluster, as it relates to the manifestation of symptoms.

Utilizing behavioral observation and hypothalamic-pituitary-adrenal axis assessment, the remaining internalizing symptom articles uncovered complex relationships between cognitive vulnerability and depressive symptomology. Tompson, Langer, and Davila (this issue) explored child–parent dyadic interactions to examine the impact on the development of cognitive vulnerability. Findings provided unique insight regarding the formation of depressogenic cognitive styles suggesting that while maternal behaviors, in particular expressed emotion and positivity, shape the development cognitive vulnerability factors, these relationships are also influenced by maternal depressive symptoms and the gender of the child. Calhoun et al. (this issue) collected cortisol samples before and after adolescents completed an interpersonally themed social stressor, and notably, hyporeactive cortisol was predictive of a re-emergence of depressive symptoms over the course of the follow-up period. As a whole, through the application of novel designs, each study advances our understanding of how cognitive vulnerability and depressive symptoms develop.

The special section includes two articles that explore the role that cognitive vulnerability factors play in potentiating externalizing symptoms. Auerbach, Kertz, and Gardiner (this issue) prospectively examined the role of stress-reactive rumination, stress, anxious symptoms, and risky behavior engagement in adolescents. Results of time-lagged, idiographic analyses suggest that in boys, but not girls, stress-reactive rumination moderates the relationship between stress and anxious symptoms, and moreover, these symptoms then contribute to the onset of broad-based risky behavior engagement (i.e., precocious sexual behaviors, aggression, substance use). Similarly, Pechtel, Woodman, and Lyons-Ruth (this issue) explored data assessed over approximately 20 years, and found that maternal withdrawal at age 18 months predicted cognitive deficits at age 5. Such deficits then predicted the onset of substance use disorders (alcohol and cannabis) at age 20. While less research has examined the cognitive vulnerability–externalizing symptom link, this research is essential as risky behavior engagement has a profound impact on the developmental course during adolescence.

As a corpus, the articles included in the special section underscore the prominent role of cognitive vulnerability factors in the development of internalizing and externalizing symptoms. In doing so, the research highlights necessary mechanisms to target during the course of treatment. Early, effective treatment will help to alleviate many

of the mental and physical health issues as well as socioeconomic problems associated with depression and anxiety, and thereby, dramatically improve adolescents' capacity to remain on a healthier developmental course.

REFERENCES

- Auerbach, R. P., Kertz, S., & Gardiner, C. K. (2012). Predicting adolescent risky behavior engagement: The role of cognitive vulnerability and anxiety. *International Journal of Cognitive Therapy, 5*(3), 300-315.
- Auerbach, R. P., Tsai, B., & Abela, J. R. Z. (2010). Temporal relationships among depressive symptoms, risky behavior engagement, perceived control, and gender in a sample of adolescents. *Journal of Research on Adolescence, 20*(3), 726-747.
- Avenevoli, S., Knight, E., Kessler, R. C., & Merikangas, K. R. (2008). Epidemiology of depression in children and adolescents. In J. R. Z. Abela & B. L. Hankin (Eds.), *Handbook of depression in children and adolescents*. (pp. 6-32). New York: Guilford.
- Calhoun, C. D., Franklin, J. C., Adelman, C. B., Guerry, J. D., Hastings, P. D., Nock, M. K., & Prinstein, M. J. (2012). Biological and cognitive responses to an in vivo interpersonal stressor: Longitudinal associations with adolescent depression. *International Journal of Cognitive Therapy, 5*(3), 283-299.
- DuPont, R. L., Rice, D. P., Miller, L. S., Shiraki, S. S., Rowland, C. R., & Harwood, H. J. (1996). Economic costs of anxiety disorders. *Anxiety, 2*(4), 167-172.
- Greenberg, P. E., Sisitsky, T., Kessler, R. C., Finkelstein, S. N., Berndt, E. R., Davidson, J. R., et al. (1999). The economic burden of anxiety disorders in the 1990s. *The Journal of Clinical Psychiatry, 60*(7), 427-435.
- Hankin, B. L., & Abela, J. R. Z. (2005). *Development of psychopathology: A vulnerability-stress perspective*. Thousand Oaks, CA: Sage.
- Hankin, B. L., Abramson, L. Y., Moffitt, T. E., Silva, P. A., McGee, R., & Angell, K. E. (1998). Development of depression from preadolescence to young adulthood: Emerging gender differences in a 10-year longitudinal study. *Journal of Abnormal Psychology, 107*(1), 128-140.
- Kessler, R. C., McGonagle, K. A., Zhao, S., Nelson, C. B., Hughes, M., Eshleman, S., et al. (1994). Lifetime and 12-month prevalence of *DSM-III-R* psychiatric disorders in the United States: Results from the national comorbidity survey. *Archives of General Psychiatry, 51*(1), 8-19.
- Lopez, C. M., Felton, J. W., Driscoll, K. A., & Kistner, J. A. (2012). Brooding rumination and internalizing symptoms in childhood: Investigating symptom specificity in a multi-wave prospective study. *International Journal of Cognitive Therapy, 5*(3), 240-253.
- Oppenheimer, C. W., Technow, J., Hanking, B. L., Young, J. F., & Abela, J. R. Z. (2012). Rumination and excessive reassurance seeking: Investigation of the vulnerability model and specificity to depression. *International Journal of Cognitive Therapy, 5*(3), 254-267.
- Pechtel, P., Woodman, A., & Lyons-Ruth, K. (2012). Early maternal withdrawal and nonverbal childhood IQ as precursors for substance use disorder in young adulthood: Results of a 20-year prospective study. *International Journal of Cognitive Therapy, 5*(3), 316-329.
- Schonfeld, W. H., Verboncoeur, C. J., Fifer, S. K., Lipschutz, R. C., Lubeck, D. P., & Buesching, D. P. (1997). The functioning and well-being of patients with unrecognized anxiety disorders and major depressive disorder. *Journal of Affective Disorders, 43*(2), 105-119.
- Tompson, M. C., Langer, D. A., & Davila, J. (2012). Maternal behavior and cognitive vulnerability in early adolescence. *International Journal of Cognitive Therapy, 5*(3), 268-282.