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Overgeneralized Beliefs, Accommodation, and Treatment Outcome in Youth Receiving Trauma-Focused Cognitive Behavioral Therapy for Childhood Trauma

C. Beth Ready
Adele M. Hayes
Carly W. Yasinski
University of Delaware

Charles Webb
State of Delaware Prevention and Behavioral Health Services

Robert Gallop
West Chester University

Esther Deblinger
Rowan University

Jean-Philippe Laurenceau
University of Delaware

Inhibition of fear generalization with new learning is an important process in treatments for anxiety disorders. Generalization of maladaptive cognitions related to traumatic experiences (overgeneralized beliefs) have been demonstrated to be associated with posttraumatic stress disorder (PTSD) in adult populations, whereas more balanced, accommodated beliefs are associated with symptom improvement. It is not yet clear whether (a) overgeneralization and accommodation are associated with PTSD treatment outcome in youth, or (b whether accommodated beliefs can interact with or inhibit cognitive overgeneralization, as has been demonstrated in research on behavior-based fear generalization. The current study examined the relationships between overgeneralized and accommodated beliefs, child age, and symptom reduction in a sample of 81 youth (age 7–17 years), who received Trauma-Focused Cognitive Behavioral Therapy. Overgeneralized and accommodated beliefs expressed during the exposure phase of treatment were coded in audio-recorded therapy sessions. Overgeneralization predicted (a) higher internalizing symptom scores at posttreatment, particularly for younger children, and less improvement over treatment, and (b) higher externalizing scores at 1-year follow-up and steeper symptom increases over this period. In contrast, accommodation was associated with (a) lower posttreatment internalizing symptoms and greater improvement over treatment, and (b) lower externalizing scores at 1-year follow-up, particularly for younger children. High levels of accommodation moderated the relationship between overgeneralization and worse symptom outcomes, except when predicting the *slope* of internalizing scores over treatment, and age did not moderate these effects. There were no significant predictors of child-reported PTSD-specific symptoms,

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Address correspondence to Adele Hayes and C. Beth Ready, University of Delaware, Department of Psychological and Brain Sciences, 108 Wolf Hall, Newark, DE 19716.

although PTSD symptoms did decrease significantly over the course of treatment and maintain 1 year after treatment.

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Research on behavioral fear generalization has historically focused on learned fear associations that spread across stimuli sharing perceptual (e.g., shape, color, sound) and contextual similarities. Fear learning and generalization in humans extends to higher-order thought processes, such as semantic, symbolic, and conceptual associations, which can also contribute to overgeneralization (e.g., Dunsmoor, Martin, & LaBar, 2012; Hermans & Baeyens, 2013).

Cognitive theories of PTSD share similarities with these more conceptual types of fear generalization, particularly given their emphasis on processing or "making meaning" of the traumatic experience and associated stimuli (e.g., Ehlers & Clark, 2000; Park, 2010; Resick, Monson, & Chard, 2014). Cognitive theories have long emphasized the role of exaggerated, global beliefs in PTSD, whereby conceptual associations from the traumatic experience (e.g., trusted individual perpetrates an assault) spread across people, places, and situations (e.g., "you cannot trust anyone but yourself"). This phenomenon is similar to the concept of "overgeneralization" in depression research, which involves the perception of broad, abstract, and global patterns (e.g., "I'm a failure") rather than discrimination of specific and isolated events (e.g., a small mistake at work in the context of overall good performance; Watkins, Baeyens, & Read, 2009). These cognitive theories also highlight the importance of balanced, "accommodated" beliefs as alternatives to overgeneralized thinking and as necessary for recovery and relapse prevention (e.g., Resick et al., 2014). Accommodated beliefs include concrete, factual information that can enhance discrimination between stimuli and increase specificity of trauma-related beliefs.

Cognitive overgeneralization processes might have implications for understanding fear generalization in humans and provide a useful framework for applied examinations of fear generalization in anxiety disorders. Such translational research in the context of treatment has been limited, especially with child populations. The present study examined the associations between cognitive overgeneralization, accommodation, and symptom change in a sample of youth engaged in Trauma-Focused Cognitive Behavioral Therapy (Cohen, Mannarino, & Deblinger, 2006) for PTSD.

Overgeneralization in Posttraumatic Stress Disorder

Cognitive theorists hypothesize that PTSD symptoms develop when individuals perceive their traumatic experiences to have broad implications about themselves, others, and the world, and there is little discrimination between specific traumatic experience(s), memories about the trauma, and nonthreatening or unrelated people, places, objects, situations, and activities (e.g., Ehlers & Clark, 2000; Moore & Zoellner, 2007; Park, 2010; Resick et al., 2014). Cognitive overgeneralization also includes overly global memories about traumatic events that are poorly elaborated, have little context specificity, and are organized around abstract, generalized themes (e.g., danger, helplessness, trust; Ehlers & Clark, 2000; Moore & Zoellner, 2007).

Thus, like fear generalization, overgeneralization of beliefs involves too little discrimination and specificity, and vague and abstract themes can easily spread across stimuli, contexts, and time frames. For instance, a sexual assault survivor who was physically restrained and threatened with a knife reports feeling terrified and helpless. Her fear might generalize to people who look like the assailant, people of the same gender, knife-related stimuli, and to movies with rape-related themes. The belief that she is helpless could similarly spread into overly general and abstract themes with thoughts such as, "I am utterly powerless" and "The world is dangerous, so I must never let my guard down." Both cognitive and behavioral treatments attempt to reduce overgeneralization by increasing context specificity of trauma memories to improve discrimination, increasing attention and awareness toward information that is inconsistent with maladaptive beliefs, and generating more realistic beliefs about self, others, and the world (e.g., Ehlers & Clark, 2000; Resick et al., 2014; Zalta et al., 2013).

The role of cognitive overgeneralization has received consistent support in the psychopathology and treatment literature on PTSD. In a review of research on overgeneralized autobiographical memories, Moore and Zoellner (2007) identified numerous studies showing that trauma-related overgeneralization is more strongly associated with PTSD symptoms than exposure to the trauma alone and that overgeneralization can differentiate those who develop PTSD from those who are more resilient (e.g., Ali, Dunmore, Clark, & Ehlers, 2002; Moore & Zoellner, 2007). In addition, such global negative beliefs mediate the relationships between traumatic experiences and PTSD symptoms (Elwood, Mott, Williams, Lohr, & Schroeder, 2009) and low social support (an established risk factor) and PTSD symptoms (Belsher, Ruzek, Bongar, & Cordova, 2012). Another set of studies reported that negative