Journal of Anxiety Disorders 24 (2010) 924–930

Contents lists available at ScienceDirect

Journal of Anxiety Disorders

The Emotion Dysregulation Model of Anxiety: A preliminary path analytic examination

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ARTICLE INFO

Article history:
Received 5 March 2010
Received in revised form 16 June 2010
Accepted 17 June 2010

Keywords:
Anxiety
Emotion dysregulation
Family
Temperament

ABSTRACT

Both temperamental (e.g., behavioral inhibition) and environmental (e.g., family emotional environment) factors are associated with etiology and maintenance of anxiety; however, few studies have explored mechanisms through which these risk factors operate. The present study investigation of a developmental model of anxiety (i.e., the Emotion Dysregulation Model of Anxiety; EDMA) that hypothesizes that emotion dysregulation is the mechanism through which temperamental and emotion parenting variables relate to anxiety. Emerging adults ($N = 676$, M age = 19.5) retrospectively reported on behavioral inhibition and emotion parenting factors in childhood, and current emotion regulation skills and symptoms of anxiety. Results of path analyses provide initial support for the EDMA. Emotion dysregulation fully mediated the relationship between behavioral inhibition and anxiety and partially mediated the relationship between family emotional environment and anxiety.

Given the impairing nature of anxiety (Woodward & Ferguson, 2001), research has attempted to identify factors related to the etiology and maintenance of these disorders. Research suggests that genetic factors account for a small percentage of variance in anxiety and that environmental factors play a critical role (Eley, 2001; Kendler, Neale, Kessler, Heath, & Eaves, 1992). Importantly, risk factors for anxiety disorders (ADs) are thought to have both genetic and environmental influences. In particular, temperamental factors (e.g., behavioral inhibition) and environmental variables (e.g., family emotional environment) have been strongly related to anxiety (Biederman et al., 2001; Caspi, Henry, McGee, Moffitt, & Silva, 1995; Hibbs et al., 1991; Muris, Bogels, Meesters, van der Kamp, & van Oosten, 1996; Stubbe, Zahner, Goldstein, & Leckman, 1993; Suveg, Sood, Comer, & Kendall, 2008; Suveg, Zeman, Flannery-Schroeder, & Cassano, 2005).

Despite strong relations between child temperament, family emotional environment, and anxiety, relatively scant research has examined these variables in tandem and little is known about the specific mechanisms by which such effects operate. The goal of this study is to address such gaps in the literature by collectively examining the influence of child temperament and family emotional environment on anxiety levels, and examine emotion dysregulation as a mechanism of effect. Specification of mechanisms through which temperamental and family environment variables influence anxiety has the potential to contribute to the refinement of etiological models of anxiety and the development of more focused prevention and intervention programs.

Using an emotion regulation framework, this study conducts a preliminary investigation of a model, the Emotion Dysregulation Model of Anxiety (EDMA), which examines the impact of both temperamental (behavioral inhibition) and environmental (family emotional environment) variables on current anxiety levels. Behavioral inhibition is a temperamental style characterized by reticence towards new people and situations, withdrawal, and high reactivity to novel stimuli (Garcia-Coll, Kagan, & Reznick, 1984). In the mediational EDMA, high child temperamental reactivity (measured via behavioral inhibition) is expected to contribute to emotion dysregulation because high reactivity likely impedes the use of helpful emotion regulation strategies, thus making adaptive emotion regulation difficult (Suveg, Payne, Thomassin, & Jacob, 2009). For instance, a child in the midst of a tantrum is likely to have greater difficulty implementing emotion regulation strategies to help himself calm down.

Empirical research suggests that arousal beyond a certain level may interfere with an individual's ability to respond adaptively in an emotionally evocative situation (i.e., engage in adaptive emotion regulation; Bradley, 1990; Calkins, 1994; Cole, Michel, & O'Donnell-Teti, 1994). Therefore, the ability to modulate arousal is likely to result in more constructive methods of responding to an emotionally arousing event (Saarni, Mumme, & Campos, 1998). Further, prolonged arousal may cause physiological changes at the biochemical or neuronal level that may ultimately sensitize the individual to respond in maladaptive ways (Bradley, 2000; Bremner & Vermetten, 2001).

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doi:10.1016/j.janxdis.2010.06.018

The EDMA also proposes that a family emotional environment characterized by general truncated emotional expressivity and high levels of expressed negative affect will influence emotion dysregulation through a failure to appropriately socialize the emotion understanding and regulation skills that are necessary for emotionally competent functioning. Dunsmore and Halberstadt (1997, p. 53) suggest that the "overall frequency, intensity, and duration of positive and negative emotional expressiveness in the family is important in the child's formation of schemas about emotionality, about expressiveness, and about the world." Youth who are not exposed to facilitative emotional environments are not likely to develop the emotion regulation skills that are necessary to successfully negotiate stressful emotional situations (Denham, Mitchell-Copeland, Strandberg, Auerbach, & Blair, 1997). Additionally, research suggests that negative emotions tend to produce greater levels of arousal than positive emotions, thus requiring greater resources to regulate (Bradley, 2000; Cacioppo, Berntson, Larsen, Poehlmann, & Ito, 2000).

In the EDMA, emotion dysregulation is hypothesized to emerge as the mechanism through which both high temperamental reactivity and family emotional environment influence anxiety levels. When individuals do not successfully negotiate emotion-provoking situations, they may choose maladaptive strategies (e.g., avoidance, aggression) to reduce their emotional arousal in the moment. Engagement in maladaptive emotion regulation leads to unsuccessful management of arousal, which in turn serves to maintain anxiety levels. Note that the EDMA proposes to examine both high temperamental reactivity (sometimes referred to as emotional reactivity in the literature) and emotion regulation. There is considerable debate regarding the relationship between temperamental reactivity and emotion regulation (see special issue of Child Development v. 75). For the purposes of this study, temperamental (emotional) reactivity is considered distinct from emotion regulation. As Rothbart and Sheese (2007) emphasize, temperamental reactivity refers to "responses to change in the external and internal environment, including a broad range of reactions . . ." (p. 332), whereas emotion regulation "is the modulation of a given emotional reaction . . ." (p. 333). Thus, emotional reactivity might be conceptualized as one's initial, unmodulated response to an emotion-provoking event, whereas emotion regulation involves the modification of the reactivity through a variety of means (e.g., cognitive interpretation of the arousal, use of distraction, support seeking). Though distinct, the constructs are related – when reactivity is high, regulation is likely to be difficult (Santucci et al., 2008). Temperamental reactivity will be assessed via a measure of behavioral inhibition because of the high reactivity associated with this construct. Research reviewed below provides a strong rationale and empirical foundation for testing the EDMA.

1. Links between high child temperamental reactivity and anxiety

Research drawn from various literatures supports the notion that individuals with anxiety disorders experience elevated levels of reactivity. Several studies by independent research groups have demonstrated links between behavioral inhibition (i.e., the tendency to display heightened physiological arousal and withdrawal when exposed to unfamiliar people, places, or situations) and anxiety problems (Biederman, Rosenbaum, Chaloff, Kagan, & March, 1995; Coplan, Wilson, Fohlick, & Zelenski, 2006; Kagan, Reznick, Snidman, & Gibbons, 1988; Muris & Meesters, 2002; Turner, Beidel, & Wolff, 1996). For example, Gladstone, Parker, Mitchell, Wilhelm, and Malhi (2005) examined the relation between self-reported childhood behavioral inhibition and lifetime anxiety disorders in a clinical sample of depressed adults ranging in age from 17 to 68 years. Retrospective reports of behavioral inhibition were related to lifetime rates of social phobia, specific phobias, and multiple anxiety disorders.

Research on the tripartite model of depression and anxiety also supports the notion that individuals with anxiety disorders are often restless or keyed up. Clark and Watson (1991) found that high physiological arousal was distinctly related to anxiety using an adult population, and subsequent research found support for the model with children (Jacques & Mash, 2004; Joiner, Catanzaro, & Laurent, 1996; Lonigan, Carey, & Finch, 1994). In a community sample of youth aged 6–17, Cannon and Weems (2006) found that physiological hyperarousal was distinctly related to anxiety symptoms – a finding that held for boys and girls of all ages in the sample used. Though it is not the case that physiological hyperarousal is necessarily temperamentally-based, research on the tripartite model nonetheless suggests that individuals with anxiety are often "keyed up," which may make regulation efforts difficult.

Collectively, much research supports the notion that individuals with ADs experience elevated temperamental reactivity, though there is less support linking the experience of high reactivity to emotion regulation difficulties. Our study will expand upon this research base by examining whether the relation between temperamental reactivity and anxiety can be accounted for by emotion dysregulation.

2. Links between family emotional environment and anxiety

In the EDMA, family emotional environment is expected to influence emotion dysregulation through a failure to appropriately socialize the emotion understanding and regulation skills that are necessary for adaptive emotion functioning. Suveg et al. (2005) found that children with an AD and their mothers independently indicated lower levels of family emotional expressivity in comparison to non-clinical children and their mothers (cf., Noguchi & Ollendick, in press). During discussions about times the child felt different emotions, mothers of youth with an AD discouraged the discussion of negative emotional experiences and used fewer positive emotion words during the discussion than did mothers of control children. Further, in contrast to mothers of non-clinical children who spoke the majority of the time, mothers of children with an AD used fewer words overall than their children during the emotion discussion. Additional research has provided commensurate findings. Hudson, Comer, and Kendall (2008) found that parents of youth with ADs were less warm than the control group when discussing certain emotions. In the context of a negative emotion scenario, parents of AD youth were more likely to respond to the youth with nonsupportive responses than were parents of the control children. Findings about fathers in particular were commensurate with those by Suveg et al. (2008a) and Suveg, Sood, Comer, and Kendall (2008) who found that fathers of AD children engaged in less explanatory discussion of emotion overall and exhibited less positive affect and more negative affect when interacting with sons than did fathers of non-clinical children.

Collectively, findings suggest that parents of youth with anxiety disorders may encourage the suppression or restriction of emotional expression through both direct (e.g., discussions regarding emotion) and indirect means (e.g., home emotional climate). AD youth's emotion learning may further be impeded by the lack of pleasant interactions with their parents during emotion discussions. This study moves beyond this literature by examining how family emotional environment relates to anxiety.