

Measurement of fine-grained aspects of toddler temperament: The Early Childhood Behavior Questionnaire

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Received 27 June 2005; received in revised form 20 January 2006; accepted 26 January 2006

Abstract

This article describes the development, reliability, and factor structure of a finely differentiated (18 dimensions) parent-report measure of temperament in 1.5- to 3-year-old children, using a cross-sectional sample ($N=317$) and a longitudinal sample of primary ($N=104$) and secondary ($N=61$) caregivers. Adequate internal consistency was demonstrated for all scales and moderate inter-rater reliability was evident for most scales. Longitudinal stability correlations were primarily large over 6- and 12-month spans and moderate to large from 18 to 36 months. Factor analysis revealed a three-factor structure of Surgency/Extraversion, Negative Affectivity, and Effortful Control. In both samples and for both primary and secondary caregivers, older children received higher scores for Attention Focusing, Discomfort, Inhibitory Control, and Positive Anticipation. Primary caregivers rated females higher in Fear, and lower in High-intensity Pleasure, than males; secondary caregivers rated females higher than males in several aspects of Effortful Control.

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Keywords: Temperament; Assessment; Toddlers

Increases in the number of empirical studies of temperament in recent years (Rothbart & Bates, 1998, 2006) have been matched by an expanded and more finely defined list of dimensions considered within the temperament realm. Although fine-grained instruments have been developed to assess temperament in infants (Gartstein & Rothbart, 2003) and older children (Rothbart, Ahadi, Hershey, & Fisher, 2001), an analogous instrument appropriate for use with children between the ages of 1 and 3 has not been made available. The current study describes the psychometric characteristics, factor structure, and demographic correlates of an instrument designed to fill this gap: the Early Childhood Behavior Questionnaire (ECBQ).

The ECBQ was originally designed to supplement the Toddler Behavior Assessment Questionnaire (TBAQ; Goldsmith, 1996), a widely used parent-report temperament questionnaire for young children. The TBAQ includes 108 items that address five aspects of temperament: Activity Level, Pleasure, Social Fearfulness, Anger Proneness, and Interest/Persistence. Goldsmith (1996) documented internal consistency and inter-rater reliability of the instrument, as well as convergence with other temperament measures. Subsequent studies (e.g., Eiden, Edwards, & Leonard, 2004;

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Kochanska & Knaack, 2003; Lemery, Goldsmith, Klinnert, & Mrazek, 1999) have provided support for the construct validity of the instrument. The value of this measure is further indicated by successful translations to Japanese (Kusanagi, Chen, & Hoshi, 2000), Spanish (Salinas, Montesinos, & Carnicero, 1999), and Dutch (Van Bakel & Riksen-Walraven, 2004).

Several aspects of temperament assessed by the new instrument, but not the TBAQ, reflect differences between our theoretical approach and the approach that guided the creation of the TBAQ. Whereas Goldsmith (1996) regarded temperament solely in terms of individual differences in emotionality during early development, the ECBQ is based on a definition of temperament that includes reactive processes involving not only emotion, but also motor and sensory systems, as well as an emphasis on self-regulatory processes that modulate reactivity (Rothbart & Derryberry, 1981; Rothbart et al., 2001). Within the domain of emotion, the ECBQ is broader in content than the TBAQ. Rather than a single Pleasure scale, for example, the new measure separately assesses pleasure related to low- and high-intensity activities, and also includes a scale concerning pleasure about upcoming activities. Differences also exist in the individual items within the scales shared by the two instruments. To ease time demands on subjects, the ECBQ uses a stem-and-leaf format, in which a single context (e.g., “When playing outdoors, how often did your child”) is followed by multiple responses (e.g., “like making lots of noise”, “enjoy sitting quietly in the sunshine”, “want to climb to high places”). In addition, several scales include entirely new items not included on the earlier measure. Due to these substantial differences between the two measures, the name Early Childhood Behavior Questionnaire (ECBQ) was chosen, rather than TBAQ-Revised.

1. Temperament constructs assessed in the new instrument

The 18 scales included in the ECBQ are predominantly “downward extensions” of dimensions contained on the Children’s Behavior Questionnaire (CBQ; Rothbart et al., 2001) and “upward extensions” from the Infant Behavior Questionnaire-Revised (IBQ-R; Gartstein and Rothbart, 2003). Ten scales are found in similar forms on all three instruments: Activity Level, Attention Focusing (labeled Duration of Orienting on IBQ-R and including attention shifting capability on the CBQ), Fear (including startle and reactions to both social and non-social stimuli on the IBQ-R), Frustration, High- and Low-intensity Pleasure, Perceptual Sensitivity, Positive Anticipation (measured as rate of approach in the IBQ-R), Sadness, and Soothability. One scale, Affiliation/Cuddliness is found on the IBQ-R, but not the CBQ. Four scales included in the new instrument, Discomfort, Impulsivity, Inhibitory Control, and Shyness, are included on the CBQ, but not the IBQ-R. Finally, three scales on the ECBQ, Attention Shifting, Motor Activation, and Sociability, are not included on either the CBQ or IBQ-R. See Putnam, Ellis, and Rothbart (2001) for further information concerning decisions regarding inclusion of scales in some instruments, but not others.

2. Temperament structure

A fine-grained approach to temperament, in addition to allowing greater specificity in predicting and assessing relations between temperament and other constructs, contributes to an understanding of temperament through investigation of hierarchical relations among traits. Factor analysis of the IBQ-R and CBQ has consistently yielded a three-factor structure (Gartstein & Rothbart, 2003; Kochanska, DeVet, Goldman, Murray, & Putnam, 1994; Rothbart et al., 2001). In both infants and older children, a Surgency factor is marked by high loadings for Activity Level and High-intensity Pleasure. Impulsivity and Shyness (loading negatively) further define this factor for the CBQ. Positive Anticipation holds its primary loading on Surgency for the IBQ-R, and a high secondary loading on this factor for the CBQ. A second factor, Negative Affectivity, is marked by primary positive loadings for Frustration, Sadness, and Fear for both the IBQ-R and CBQ, and also by Discomfort and Positive Anticipation on the CBQ. Negative primary loadings on Negative Affectivity are obtained for Falling Reactivity for the IBQ-R and Soothability for the CBQ. Finally, a third factor, labeled Orienting/Regulation in infants and Effortful Control in children, is distinguished by primary loadings for Low-intensity Pleasure and Duration of Orienting/Attention Control in both measures. Soothability and Cuddliness further define the factor in the IBQ-R, whereas Inhibitory Control, Smiling and Laughter, and Perceptual Sensitivity complete the CBQ factor.

Based on the findings regarding temperament structure of fine-grained temperament in infants and older children, it was expected that factor analyses would reveal three factors, with High-intensity Pleasure, Activity Level,

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