The Baby Pediatric Symptom Checklist: Development and Initial Validation of a New Social/Emotional Screening Instrument for Very Young Children

R. Christopher Sheldrick, PhD; Brandi S. Henson, PsyD; Emily N. Neger, BA; Shela Merchant, MA; J. Michael Murphy, EdD; Ellen C. Perrin, MD

From the Division of Developmental-Behavioral Pediatrics, Floating Hospital for Children, Tufts Medical Center, Boston, Mass (Dr Sheldrick, Dr Henson, Ms Neger, Ms Merchant, and Dr Perrin); and Department of Psychiatry, Massachusetts General Hospital, Boston, Mass (Dr Murphy)
The authors have no conflicts of interest to disclose.
Research support for the development and validation of the Baby Pediatric Symptom Checklist was provided by The Commonwealth Fund & National Institutes of Health grant KM1CA156726.
Address correspondence to R. Christopher Sheldrick, PhD, 800 Washington Street, Box 854, Boston, Massachusetts 02111 (e-mail: rsheldrick@tuftsmedicalcenter.org).
Received for publication June 26, 2012; accepted August 15, 2012.

ABSTRACT

OBJECTIVE: To develop and validate the Baby Pediatric Symptom Checklist (BPSC), a brief social/emotional screening instrument for children less than 18 months. The BPSC is modeled after the Pediatric Symptom Checklist (PSC) and is part of the Survey of Wellbeing of Young Children, a comprehensive, freely available screening instrument designed for use in pediatric primary care.

METHOD: BPSC items were developed by a team of experts who reviewed existing assessment instruments and relevant research literature. Scale construction and initial validation were conducted with 205 families from pediatric primary care sites and 54 families from referral clinics. A replication sample of 146 additional families were enrolled from an independent set of primary care practices.

RESULTS: Exploratory factor analysis revealed 3 dimensions of the BPSC: irritability, inflexibility, and difficulty with routines. Factor structure was confirmed in the replication sample. Retest reliability and internal reliability were adequate (intraclass correlation coefficient >0.70) across subscales, with the exception of the "irritability" subscale's internal reliability in the replication sample. Construct validity of the "irritability" and the "difficulty with routines" subscales is supported by correlations with the Parenting Stress Index and the Ages & Stages Questionnaire: Social/Emotional, but the "inflexibility" subscale seems to be distinct from performance on these instruments. Tests of differential item functioning revealed no significant effects for race/ethnicity, child gender, parent education, or family income. Age-based normative data were calculated for each subscale.

CONCLUSION: The BPSC assesses 3 domains of behavior for very young children and shows promise as a social/emotional screening instrument for pediatric primary care.

KEYWORDS: social; emotional; behavioral; screening; pediatrics

ACADEMIC PEDIATRICS 2013;13:72–80

WHAT'S NEW

The BPSC is a brief social/emotional screening instrument designed for use in pediatrics with children under 18 months of age. It is easy to administer and score and is freely available. Initial investigation suggests that it has sound psychometric properties and effectively identifies social/emotional problems relevant to very young children.

APPROXIMATELY 10% TO 15% of 1-year-old and 2-year-old children experience social/emotional problems that cause significant problems for both the child and family.[1] Additionally, ample evidence suggests that early behavior patterns can predict the later emergence of social/emotional disorders as well as certain medical outcomes. For example, longitudinal studies have found that infants high in reactivity or behavioral inhibition at 4 months of age continue to react strongly and show symptoms of anxiety during the first 2 years of life and later into childhood.[2,3] Similarly, infants with temperaments labeled as "difficult" are 4 times as likely to have trouble adjusting in preschool and school[4] and are more likely to exhibit aggression and rule-breaking behaviors.[5] Early behavior patterns can also affect the quality of parent-infant interactions and are associated with both externalizing and internalizing symptoms later in childhood, especially if there is a mismatch between parenting style and child temperament.[6–8]

Medically, infants with "difficult" temperaments and high levels of negative reactivity have been found to be more accident-prone and to be more likely to experience a hospitalization later in childhood.[9] Highly emotional

infant temperament has been found to predict higher rates of childhood obesity[10] and children described as "difficult" in infancy are at significantly higher risk for tooth caries,[11] perhaps because parents have more difficulty getting them to comply with oral hygiene practices.

Despite the prevalence and long-term implications of early childhood behavioral difficulties, they are rarely detected, and fewer than 8% receive mental health services,[12] a much lower proportion than for older children.[13] There are several reasons for this discrepancy, including: (1) neither prominent child-focused psychosocial interventions (eg, cognitive-behavioral therapy) nor psychoactive medication is appropriate for very young children; (2) very few programs or therapists focus on infant mental health or relational psychotherapy with parents and young children; and (3) there are few validated behavioral screening or assessment instruments for infants.

Nevertheless, several beneficial interventions exist. Home-based family counseling for parents of infants with "difficult" temperaments have been found to reduce the incidence of psychiatric symptoms when children reach adolescence.[14] Home visiting programs have been shown to reduce the number of hospital visits and improve parental coping[15] and depression.[16] Counseling programs and parenting classes held in primary care and other settings have also proven to be effective interventions in the first years of life,[17] with education focused on providing families with alternative strategies for interacting with their children when a "temperamental mismatch" exists.[18] Early identification of emotional/behavioral problems in very young children can increase access to such services and may minimize later difficulties in school and social functioning.

Furthermore, because pediatric surveillance is by definition a longitudinal process,[19] assessing risk for behavioral disorders early may yield benefits later on. Assessment with a parent-completed screening instrument beginning at early ages helps parents learn that the pediatric office is an appropriate place to discuss child behavior and provides a longitudinal behavioral history for the physician to consider if faced with questions during subsequent visits. A large study by the Pediatric Research in Office Settings and the Ambulatory Sentinel Practice Network found that pediatricians were more likely to prescribe medications for a behavioral problem if concerns had already been noted in a previous visit.[20]

Screening programs designed to monitor social/emotional wellbeing have become increasingly prevalent in pediatrics because of national recommendations and assorted legal mandates,[21] yet many barriers still exist. Beyond the challenges of creating accurate instruments for use with infants, screeners must also be short, easy to read, simple to score, and inexpensive or free to use. The Pediatric Symptom Checklist (PSC) meets these criteria and has been well validated across a range of studies.[22–26] The PSC has become very popular as a screening instrument for children 4 years old and above in pediatric practice.[27,28] We worked with the creators of the PSC to develop similar instruments for younger children: the Baby Pediatric Symptom Checklist (BPSC) for children younger than 18 months and the Preschool Pediatric Symptom Checklist (PPSC) for children from 18 to 60 months.

The creation of these measures for younger children occurred as part of an ongoing project to develop a comprehensive surveillance instrument for children under 5 years of age, known as the Survey of Wellbeing of Young Children (SWYC). More information regarding the background and conceptualization of the SWYC is available in an earlier publication describing the PPSC[29] and on the website www.TheSWYC.org.

In this article, we describe the development and initial validation of the BPSC. Like the PSC, the BPSC is designed to maximize feasibility in clinical settings: it is brief, easy to score, and freely available.

METHODS

OVERVIEW

We created a list of possible items for the BPSC based on an extensive review of existing assessments and relevant research literature, as well as consultation with parents of young children and experts in child development. We enrolled 2 samples of parents to develop and pilot-test the BPSC: (1) a large original sample including parents from primary care sites and a small number from referral clinics (hereafter known as "original sample") and (2) an independent replication sample of parents from a different set of primary care pediatric practices (hereafter known as "replication sample"). Using data from the original sample, we conducted analyses to reduce the number of items and determine factor structure. Additionally, we conducted initial tests of internal reliability and construct validity. We then assessed the final abbreviated version of the BPSC with the replication sample. To establish retest reliability, approximately one third of the replication sample was asked to complete the BPSC a second time 3 to 4 weeks later. All studies were approved by the Institutional Review Board of Tufts Medical Center.

BPSC ITEM DEVELOPMENT AND DESCRIPTION

Our goal was to write questions that could be answered efficiently by parents from a range of educational and cultural backgrounds in the context of a pediatric waiting room. Thus, we attempted to write questions that were short, easy to read, and salient to parents. We began by identifying common questions and constructs across several parent-report measures designed for children under 18 months, including the Infant-Toddler Social and Emotional Assessment,[30] the Ages & Stages Questionnaire: Social/Emotional (ASQ:SE),[31] the Greenspan Social-Emotional Growth Chart,[32] the Behavioral Assessment of Baby's Emotional and Social Style,[33] and the Temperament and Atypical Behavior Scale.[34] In addition, we reviewed relevant literature on temperament and infant behavior and generated items based on our clinical experience.

Both the BPSC and PPSC are unique in that in addition to questions about child behavior, we have included questions that address parenting challenges. Inclusion of such questions is consistent with a transactional model in which