
RECOGNIZING YOUNG CHILDREN IN NEED OF MENTAL HEALTH ASSESSMENT: DEVELOPMENT AND PRELIMINARY VALIDITY OF THE EARLY CHILDHOOD SCREENING ASSESSMENT

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ABSTRACT: The Early Childhood Screening Assessment (ECSA) is a primary care screening measure developed to identify very young children (1½–5 years old) who need further emotional or behavioral assessment. The ECSA was developed specifically to meet the logistical constraints of primary care settings. This study assessed the preliminary psychometric properties of the ECSA by comparing it with extant validated measures of young children's emotional and behavioral development, comparing it with a diagnostic interview, and measuring test-retest reliability. In the study, 309 mothers in two primary care clinics completed the ECSA and the Child Behavior Checklist (CBCL; T. Achenbach & L. Rescorla, 2000). A subset ($n = 69$) also completed the Diagnostic Interview for the Preschool Age (DIPA; M. Scheeringa & N. Haslett, 2010). ECSA score correlated significantly and strongly with the CBCL Total Problem T score (Spearman's $\rho = 0.86, p \leq .01$). The ECSA was 86% sensitive and 83% specific in identifying DIPA diagnoses. Internal consistency of the ECSA was 0.91. Test-retest reliability at 10 days was excellent (Spearman's $\rho = 0.81, p \leq .01$). The ECSA is an easy-to-use screening measure that demonstrates strong convergent validity, criterion validity, and test-retest reliability in the pediatric setting. It shows potential as a feasible and psychometrically strong tool for busy primary care providers to identify preschoolers who need further socioemotional assessment.

RESUMEN: La Evaluación de Investigación sobre la Temprana Niñez (ECSA) es una medida investigativa primaria desarrollada para identificar a niños muy pequeños (1½-5 años de edad) que necesitan evaluaciones emocionales y de conducta adicionales. ECSA fue desarrollada específicamente para atender las dificultades

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logísticas de lugares donde se prestan primeros auxilios. Este estudio evaluó las propiedades sicométricas preliminares de ECSA por medio de compararla con medidas convalidadas existentes del desarrollo emocional y de conducta de niños pequeños, compararla con una entrevista de diagnóstico, y medir su confiabilidad en cuanto a la dinámica de examinar y re-examinar. En el estudio, 309 madres de dos clínicas de primeros auxilios completaron el cuestionario ECSA y la Lista de Conducta del Niño (CBCL). Un segundo grupo ($n = 69$) también completó la Entrevista de Diagnóstico para la Edad Pre-escolar (DIPA). Los puntajes de ECSA fueron correlacionados significativa y fuertemente con el puntaje T del problema total de CBCL (Spearman's $\rho = 0.86$, $p \leq 0.01$). ECSA demostró 86% de sensibilidad y 83% de especificidad en identificar los diagnósticos de DIPA. La consistencia interna de ECSA fue de 0.91. La confiabilidad de la dinámica de examinar y re-examinar a los 10 días fue excelente (Spearman's $\rho = 0.81$, $p \leq 0.01$). ECSA es una medida investigativa fácil de usar que demuestra una fuerte validez de convergencia, validez de criterio y confiabilidad en la dinámica de examinar y re-examinar en el terreno pediátrico. La misma muestra su potencial como una posible y sicométricamente fuerte herramienta para que los ocupados profesionales que proveen primeros auxilios puedan identificar niños en edad pre-escolar que necesitan evaluaciones socio-emocionales adicionales.

RÉSUMÉ: Le test de dépistage ECSA ("Early Childhood Screening Assessment" en anglais) est une mesure de dépistage de soin de santé primaire développé pour identifier de très jeunes enfants (1 an et demi à 5 ans) qui ont besoin d'une évaluation émotionnelle et comportementale supplémentaire. L'ECSA a été spécifiquement développé pour remplir les contraintes logistiques des cadres de soin de santé primaire. Cette étude a évalué les propriétés psychosomatiques préliminaires de l'ECSA en le comparant à des mesures de développement émotionnel et comportemental des jeunes enfants validées existantes, en le comparant à un entretien diagnostique, et en mesurant la fiabilité pré-test. Dans l'étude, 309 mères dans deux cliniques de soin primaires ont complété l'ECSA et l'évaluation standardisée du Comportement de l'Enfant ("Child Behavior Checklist" en anglais, abrégé CBCL). Un sous-groupe ($n = 69$) a aussi complété l'Entretien Diagnostique pour les Enfants d'Age Préscolaire (DIPA en anglais). Les scores ECSA étaient très fortement liés au score total CBCL de problèmes T (coefficient ρ de Spearman = 0,86, $p \leq 0,01$). La fiabilité test-retest à 10 jours était excellente (coefficient ρ de Spearman = 0,81, $p \leq 0,01$). L'ECSA est une mesure de dépistage facile à utiliser qui fait preuve d'une forte validité convergente, d'une validité de critère et d'une fiabilité test-retest dans le contexte pédiatrique. Il fait preuve de potentiel en tant qu'outil fiable et psychométriquement fort afin que les pratiquants de soin primaire très occupés identifient les enfants d'âge préscolaire qui ont besoin d'une évaluation sociale et émotionnelle supplémentaire.

ZUSAMMENFASSUNG: Die Screening Bewertung der Frühen Kindheit (ECSA) ist ein Beurteilungsinstrument kindlicher Entwicklung innerhalb der Primärversorgung. Ziel ist die Klärung, ob Kleinkinder (1 1/2 bis 5 Jahre) einen spezifischen diagnostischen Bedarf in den Bereichen Emotionalität und Verhalten haben. Die ECSA wurde speziell entwickelt, um dem logistischen Bedarf der Primärversorgung zu erfüllen. Diese Studie untersucht die psychometrischen Eigenschaften der Vorprüfung der ECSA, in dem sie mit etablierten, validen Messinstrumenten der Emotionalität und des Verhaltens junger Kinder verglichen wird, im Vergleich zu einem diagnostischen Interview unter Berücksichtigung der Retest-Reliabilität. Innerhalb der Untersuchung beendeten 309 Mütter in zwei Kliniken der Primärversorgung den ECSA und die Checkliste kindliches Verhalten (CBCL). Eine Teilgruppe ($n = 69$) beendeten auch das Diagnostische Interview für die Schulfähigkeit (DIPA). Die ECSA Ergebnisse korrelierten hoch signifikant mit den Werten des CBCL gesamt Problem T-Wertes (Spearman's $\rho = 0.86$, $P \leq 0.01$). Die ECSA war zu 86% leicht reagierend und in 83% spezifisch in der Identifizierung von DIPA Diagnosen. Die interne Konsistenz der ECSA war 0.91. Die Retest-Reliabilität nach 10 Tagen war sehr zufrieden stellend (Spearman's $\rho = 0.81$, $p \leq 0.01$). Die ECSA ist ein leicht zu bedienendes Screening Instrument mit stark konvergenter

Validität und Kriteriumsvalidität im kinderärztlichen Setting. Es könnte ein brauchbares und psychometrisch starkes Instrument stark beschäftigter Versorgungseinrichtungen bei der Identifizierung von weiterem diagnostischen Bedarf im sozioemotionalen Bereich bei Vorschulkindern werden.

抄録：早期児童期スクリーニング評価The Early Childhood Screening Assessment (ECSA)は、情緒あるいは行動の追加的な評価が必要な非常に幼い子ども（1歳半から5歳）を同定するために開発された、プライマリー・ケアのスクリーニング法である。ECSAはプライマリー・ケアの設定における事業遂行上の制約を特に満たすために開発された。この研究では、幼い子どもの情緒的行動的発達の現存する妥当性のある測定法と比較すること、診断面接と比較すること、そしてテスト再テスト信頼性を測定することによって、ECSAの心理検査特性を予備的に評価した。この研究では、2カ所のプライマリー・ケア・クリニックにおいて309人の母親が、ECSAと児童行動チェックリスト(CBCL)を記入した。その下位グループ(n=69)は、就学前児のための診断面接the Diagnostic Interview for the Preschool Age (DIPA)も終えた。ECSAスコアは、CBCLの全問題Tスコアと有意に強く相関していた(Spearmanの $\rho = 0.86, p \leq 0.01$)。ECSAは、DIPA診断を同定する上で、86%の感度と83%の特異性があった。ECSAの内部整合性は0.91だった。10日後のテスト再テスト信頼性はすばらしかった(Spearmanの $\rho = 0.81, p \leq 0.01$)。ECSAは、小児科の設定において強い収束性妥当性、判定基準妥当性、およびテスト再テスト信頼性を示す、使いやすいスクリーニング法である。ECSAは、忙しいプライマリー・ケア供給者が、社会情緒的な追加的評価が必要な就学前児を見つけるための、実行可能で心理検査的に強力なツールとしての可能性を示した。

* * *

In primary care settings, approximately 10% of preschoolers have serious mental health problems that interfere with their current functioning in family, childcare, and peer contexts (Egger & Angold, 2006; Lavigne et al., 1996). These problems also are associated with an elevated risk of future emotional, academic, and relationship problems (Briggs-Gowan & Carter, 2008; Lahey et al., 2004; Lavigne et al., 1998; Scheeringa, Zeanah, Myers, & Putnam, 2005). In the context of a growing literature documenting the presence, morbidity, long-term implications, and effective treatments of these mental health problems, pediatric, public health, and mental health professionals have called for more attention to early childhood mental health (AAP, 2001; Hood & Eyberg, 2003; Jellinek & Froehle, 1998; Keenan & Wakschlag, 2004; Lahey et al., 1998; Lieberman, Ippen, & Van Horn, 2006; Luby et al., 2006; Olds et al., 1998; Scheeringa, Zeanah, Myers, & Putnam, 2003; U.S. Department of Health and Human Services, 1999; Webster-Stratton, Reid, & Hammond, 2004). Early identification of mental health problems is one important step toward increasing clinical attention in the pediatric setting and reducing the risk of adverse outcomes (Williams, Klinepeter, Palmes, Pulley, & Foy, 2004).

Unfortunately, young children with mental health problems are underrecognized and undertreated (Costello et al., 1988; Horwitz, Gary, Briggs-Gowan, & Carter, 2003; Horwitz et al., 2007). The pediatric setting provides an excellent opportunity for systematic early identification of children with mental health needs. The standard practice of informal discussion about a child's mental health is insufficient to identify children with mental health problems (Murphy, Arnett, Bishop, Jellinek, & Reede, 1992). Yet, clinicians and researchers have identified a number of barriers that limit primary care providers' identification of children with mental health problems, including minimal mental health training for pediatric providers, physician communication styles that may restrict parental disclosure, parental factors, time constraints, and limited referral options (Burklow, Vaughn, Valerius, & Schultz, 2001; Horwitz et al., 2007; Wissow, Roter, & Wilson, 1994; Young, Davis, Schoen, & Parker, 1998). Further, systematic screening approaches are rarely implemented in practice, despite new innovations that address this pattern

in developmental screening (Cheng, Perrin, DeWitt, & O'Connor, 1996; Earls & Hay, 2006). Systematic screening can reduce some of these barriers (Earls & Hay, 2006).

For a screening tool to be adopted, it must meet the unique logistical and time demands of the pediatric setting. In the context of a primary care visit, even 2 min is a sizable time investment for screening (Silverstein & Sand, 2005). In fact, time limitations are the most commonly cited barrier to addressing child mental health problems in primary care pediatric settings (Horwitz et al., 2007). Thus, an effective psychosocial screen must not only be psychometrically sound and provide clinically meaningful information but also be quick to administer and easy for providers to score and interpret (Jellinek & Murphy, 1990; Perrin & Stancin, 2002).

Systematic screening in older pediatric populations increases identification of mental health problems to the expected community prevalence (e.g., Jellinek et al., 1999; Lloyd, Jellinek, Little, & Murphy, 1995; Murphy et al., 1992). One example, the Pediatric Symptom Checklist (PSC), is a well-validated, nonproprietary, brief, parent-report measure for children 4 to 18 years old designed to identify children with mental health problems. The PSC's validity and feasibility have been demonstrated in multiple inpatient and outpatient pediatric settings (Borowsky, Mozayeny, & Ireland, 2003; Jellinek, Evans, & Knight, 1979; Jellinek & Murphy, 1990; Jellinek et al., 1999; Murphy et al., 1992; Murphy et al., 1996; Pagano et al., 1996). This logistically feasible and psychometrically sound measure provides a model for screening tools in primary care settings.

A similar approach to screening in toddlers and preschoolers has the potential to increase identification and prevention efforts. Psychometrically strong measures such as the Brief Infant Toddler Social Emotional Assessment (BITSEA; Briggs-Gowan & Carter, 2002) and the Ages & Stages Questionnaire: Social-Emotional (ASQ:SE; Squires, Bricker, & Twombly, 2002) assess emotional and behavioral problems in very young children. However, systematic screening has not been widely implemented, perhaps because of logistical considerations. The BITSEA includes Problem and Competency (i.e., strengths) scales, which are integrated into one measure. A methodological strength, this feature requires that scorers identify the Competency items that are mixed throughout the scale and add those separately from the Problem items, a process that adds time needed to score the measure. A computerized scoring system reduces the time necessary to score (from 5 to 3 min), but makes the measure technology-dependent, which may be a challenge for some practices. The ASQ:SE uses eight different questionnaires each required for different age groups, which some practices can find daunting. Neither of these measures is available in the public domain, although their costs are generally not prohibitive in medical settings. Other existing measures have limitations as primary care screeners because of focus on specific symptom clusters (DeGangi, Poisson, Sickel, & Wiener, 1995; Eyberg & Pincus, 1999; Luby, Heffelfinger, Koenig-McNaught, Brown, & Spitznagel, 2004), length (Achenbach & Rescorla, 2000; Merrell, 1994), validation using outcomes not specific to mental health (Bagnato, Neisworth, Salvia, & Hunt, 1999; Barbarin, 2007), or inability to obtain the measure (Mouton-Sieman, McCain, & Kelly, 1997). Experience in developmental screening suggests that different practices may select different measures to fit their practice setting (Dworkin & Earls, 2006). An easy-to-use and score, technology independent, psychometrically strong measure could be a welcome addition to the selection of screens from which primary care providers can select.

The Early Childhood Screening Assessment (ECSA) was specifically developed to address the logistical challenges of pediatric settings. It is a single page, 40-item, visually simple measure designed to identify very young children (1–5 years old) who would benefit from further mental health assessment. The ECSA shares some features of the PSC, which has been accepted by the

pediatric community for older children (Jellinek & Froehle, 1998). Both can be scored quickly and used as a first step in screening program to identify children who may be at higher risk for mental health problems.

The ECSA's format provides information that may enhance clinical interactions. The ECSA provides information about clinical risk status, as indicated by a score above the cutoff score. The ECSA also offers parents a chance to identify individual emotional or behavioral patterns with which they would like assistance by circling a "+" and provides an opportunity for parents to circle whether they are concerned about their child's emotional or behavioral development (*yes, somewhat, no*). Parental concern may identify areas of developmental difficulties, can inform treatment planning (Glascoe, 2003; Hacker et al., 2006), and may enhance focused anticipatory guidance even in the absence of clinical-range problems. In-depth analysis of parental-concern responses is beyond the scope of this article and will be addressed in future analyses. Particularly important in early childhood settings, the ECSA includes the U.S. Preventive Health Task Force 2 question parental depression screener (PHQ2), which has been validated to identify maternal depression in pediatric settings (Olson, Dietrich, Prazar, & Hurley, 2006), and two nonspecific parental-distress items. Overall, the ECSA provides an opportunity for information to be obtained quickly and efficiently and may be useful in enhancing pediatric care of young children.

This article presents the development and early psychometric results of the ECSA, including (a) convergent validity with the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2000) Total Problem score, (b) sensitivity and specificity in predicting a diagnosis on the Diagnostic Infant Preschool Structured Interview (DIPA; Scheeringa & Haslett, 2010), (c) test-retest reliability, and (d) as a secondary measure of validity, convergent validity with scores on screening measures with more limited age ranges, the BITSEA (18–36 months) and the PSC (48–60 months).

METHODS

Procedures

This study was approved by the Institutional Review Boards of Tulane University School of Medicine, Children's Hospital of New Orleans, and the Lifespan Office of Research Administration.

Mothers were recruited in the waiting room of two urban pediatric practices, one in New Orleans, Louisiana and one in Providence, Rhode Island. Figure 1 presents the patterns of participation in each setting. All English-speaking mothers (defined as custodial guardians) of children 18 to 60 months were invited to participate, unless the child was in obvious medical distress requiring urgent medical attention or constant parental attention because of an observable medical problem (e.g., trouble breathing, active bleeding). In the study, no children needed to be excluded because of medical distress. To include this population, members of the research team approached mothers of children who appeared to be between 12 months and 7 years old. Mothers were selected to maintain consistency of reporters across families, as parents report somewhat different patterns of symptoms (Duhig, Renk, Epstein, & Phares, 2000) and because mothers are generally more likely to accompany young children in primary care settings. All enrolled mothers completed a brief demographic form as well as parent-report questionnaires about the child's mental health. Follow-up appointments were scheduled for completion of additional parent-report measures. In both studies, comparison measures included the CBCL and either the BITSEA or the

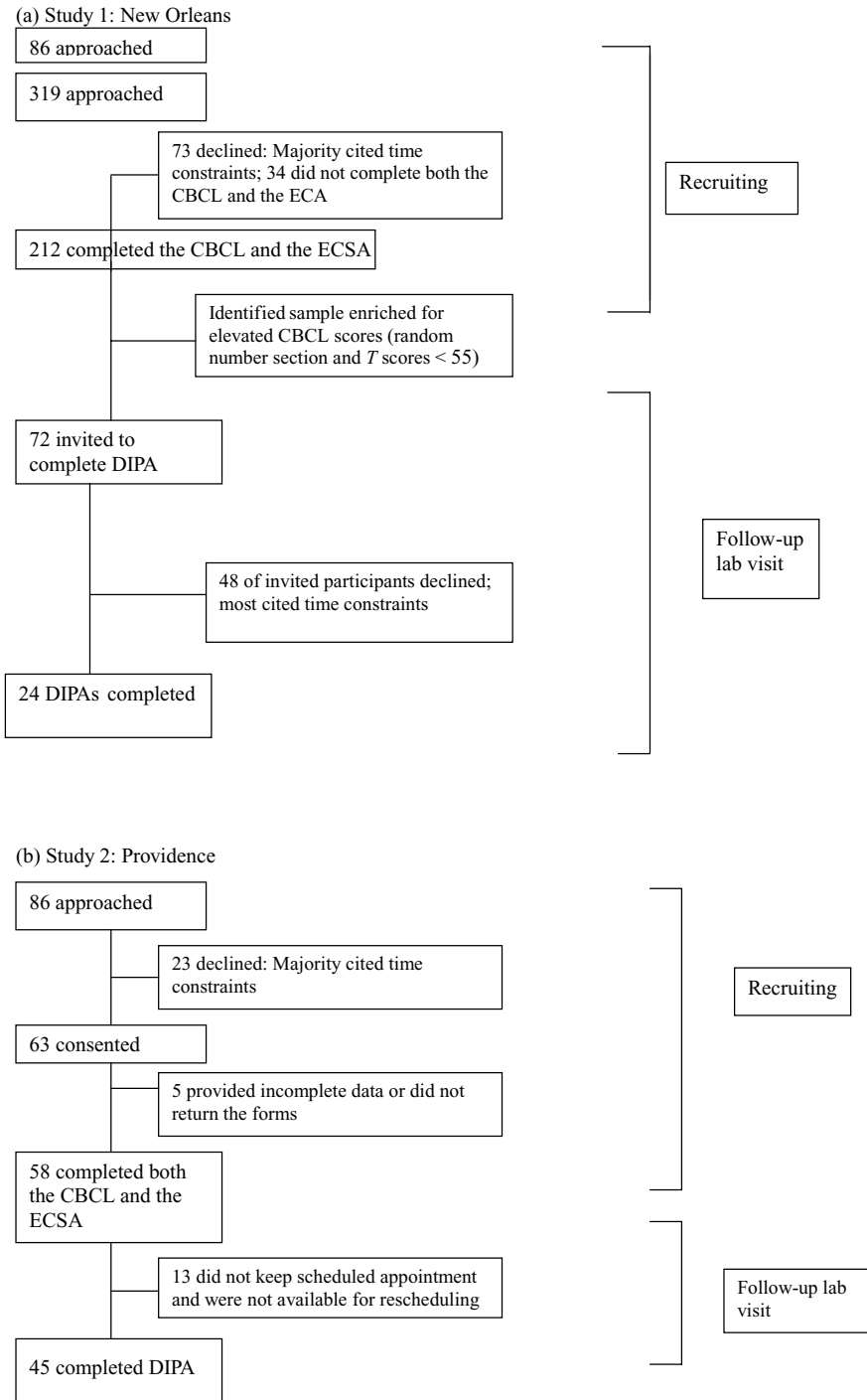


FIGURE 1. Study 1: New Orleans (a) and Study 2: Providence (b).

PSC, depending on the child's age. A subset of mothers was invited to participate in a diagnostic interview. Specific procedures differed slightly between the two sites as described below.

Study 1 (New Orleans)

Participants. This practice is a six-physician practice that provided approximately 45,000 patient visits annually at the time of the study, which was prior to Hurricane Katrina. Approximately 35% of the patients received Medicaid, and 63% were privately insured.

Procedures. Mothers in the study completed the ECSA and the CBCL on the recruiting day. All mothers scheduled a follow-up appointment within 2 weeks. Mothers completed the ECSA at the second appointment to measure test-retest reliability. Additionally, mothers of children 18 to 41 months completed the BITSEA, and mothers of children 42 to 60 months completed the PSC.

A subgroup of participants was invited to complete the DIPA. This group included children with a CBCL *T* score greater than 55 (top 30%) and computer-generated random participant numbers set to invite 1 in 5 participants. This method has been used in psychometric studies using interviews because it ensures adequate rates of moderate–severe symptomatology (Egger et al., 2006). The DIPA was administered prior to the paper-and-pencil measures in the follow-up appointment. In both settings, a board-certified child and adolescent psychiatrist, who did not review CBCL and ECSA scores, administered the DIPA.

In Study 1, 319 mothers consented to participate in the study (Figure 1), representing a 77% recruitment rate. Of these, 212 (86%) completed both the ECSA and the CBCL. Using the selection method described earlier, 72 were selected to participate in the DIPA; 24 (33%) agreed, with most who declined citing time constraints.

Study 2 (Providence)

Participants. This practice is an urban-hospital-based resident and faculty practice that sees 63,000 visits per year, with approximately 73% of children covered by Rhode Island State Children's Health Insurance Program.

A similar procedure was employed for the Providence sample. Mothers completed a brief demographic form, the ECSA, and the CBCL in the waiting room of an urban-hospital-based pediatric practice. Questionnaires were sealed in an envelope until after the follow-up appointment. To enhance the DIPA completion rates, all mothers in this sample were scheduled for a follow-up appointment for the DIPA, at which time they also completed the BITSEA (for 18- to 41-month-olds) or the PSC (for 42- to 60-month-olds) after completing the interview.

In this setting, 86 mothers were approached, and 66 (77%) consented to participate in the study. Of these, 5 provided incomplete data and were not included in data analysis. Of the remaining 58 mothers, 44 (76%) completed the DIPA.

Measures

The CBCL (Achenbach & Rescorla, 2000). This well-established, 100-item questionnaire is used for children 18 to 60 months. It takes 10 to 15 min to complete and is scored using a template or a computer program. The CBCL uses a 3-point Likert scale (0 = not true,

1 = somewhat or sometimes true, 2 = very true or often true). The CBCL results provide *T* scores normed by age and gender, indicating clinical, subclinical or nonclinical ranges. The CBCL has demonstrated extensive internal validity, test-retest reliability and convergent reliability.

The BITSEA (Briggs-Gowon & Carter, 2002). This measure is a 42-item screen for children 12 to 36 months and is scored on a 3-point Likert scale. The measure generates a Total Problem score and a Total Competence score that each can be compared to cutoff points for age and gender. The BITSEA has been validated against the CBCL with good sensitivity and specificity (Briggs-Gowan, Carter, Irwin, Wachtel, & Cicchetti, 2004).

The PSC (Jellinek & Froehle, 1998). This 35-item screen is designed to identify psychosocial problems in the pediatric setting in children 4 to 18 years. The item responses are scored on a 3-point Likert scale and cutoff scores are provided. Validity has been established with the CBCL and clinical interviews, and the scale has been shown to be a feasible instrument for use in inpatient and outpatient settings (Jellinek & Murphy, 1990; Jellinek et al., 1999; Lloyd et al., 1995; Murphy et al., 1992; Murphy et al., 1996; Pagano et al., 1996). The clinical cutoff score for children under 6 years is 24.

The DIPA (Scheeringa & Haslett, 2010). This structured diagnostic interview was created specifically for parents of infants and preschoolers 9 to 60 months. The diagnoses are based on the *Diagnostic and Statistical Manual of Mental Disorders, fourth edition, text revision (DSM-IV-TR; American Psychiatric Association, 2000)* and the *Research Diagnostic Criteria: Preschool Age (RDC:PA; AACAP Task Force on Research Diagnostic Criteria: Infancy Preschool Age, 2003)*, which includes empirically validated, developmentally sensitive modifications to diagnostic criteria. The interview is scored manually. Most interviews take between 45 and 90 min to complete. Each of the 13 symptom modules includes assessment of symptom characteristics, child impairment related to the symptom cluster, and parental accommodations to the symptoms. The DIPA reviews symptoms of posttraumatic stress disorder, major depressive disorder, oppositional defiant disorder, attention deficit hyperactivity disorder, conduct disorder, separation anxiety, generalized anxiety disorder, obsessive compulsive disorder, reactive attachment disorder, feeding disorders, specific phobias, and sleep disorders. The DIPA tally sheet provides instructions to apply either the *DSM-IV-TR* or the *RDC:PA* criteria in making a diagnosis. It has demonstrated adequate test-retest reliability for most disorders as well as criterion validity when compared with CBCL scores (Scheeringa & Haslett, 2010).

Brief Demographic Form. This form included the child's age, race, child medical problems, childcare status, parental age and educational background, agencies from which the family has received services (WIC, Head Start, Home Visiting Nurses, Child Protection), and family history of psychiatric disorders.

The ECSA. The ECSA is a 40-item, parent-report measure scored on a Likert scale of 0 (*never/rarely*), 1 (*sometimes/somewhat*), and 2 (*always/almost always*). The screen is written at a Grade 5 reading level and takes approximately 5 to 7 min to complete and under 1 min to score. The ECSA score is the sum of the child symptom items (Items 1–36). Parental concern also is reflected by the “+” system, in which parents are asked to circle the “+” next to each item if they are “concerned about an item and want help with it” and by a general question about

whether the parents are concerned about their child's emotional and behavioral development. The ECSA also includes the validated U.S. Preventative Health Task Force (USPHTF) depression questions (Figure 2).

ECSA Development

The ECSA scale items were derived from the *DSM-IV*, RDC, and DC:0-3 (AACAP Task Force on Research Diagnostic Criteria: Infancy Preschool Age, 2003) and the Diagnostic Criteria: ZERO TO THREE (ZERO TO THREE Diagnostic Classification Task Force, 1994), with a goal of identifying items representing the core signs of externalizing, internalizing, regulatory, developmental, and relationship disorders described in empirical literature supporting validity of psychopathology in preschoolers and describing clinical practice with preschoolers (Keenan & Wakschlag, 2004; Lahey et al., 2004; Luby et al., 2003; Scheeringa et al., 2005). Item selection was supported by review of validity studies of early childhood psychopathology and review of existing measures of preschool and older child measures. A multidisciplinary group of infant mental health professionals reviewed the items. The initial set of 65 items was refined to the current 40-item scale based on the following analyses of an initial 87 respondents. Items were removed based on a combination of factors, including low item test-retest reliability ($r \leq 0.3$; $n = 9$) or item-total correlation ($n = 9$), repeated parent confusion about item ($n = 1$), or apparent clinical redundancy ($n = 4$). Items describing competency or positive behaviors were removed because of feedback from pediatricians about logistics involved in reverse coding ($n = 4$). The USPHTF depression screening questions were added to complete the 40-item scale after 87 participants had participated in the study. On the 40-item scale, principal component analysis (CPA) of the child items revealed one primary factor that included mood, anxiety, and disruptive behavior symptoms (eigenvalue = 11.5) and two additional prominent factors with eigenvalues above 2, representing posttraumatic symptoms, and an inhibited, anxious cluster. Psychometric properties of the 65-item and final 40-item scale are equivalent, and the results described in this article reflect the 40 items.

The final 40 items include 36 items focused on behavioral and emotional development, and four maternal distress items. The final child items include a slight predominance of items reflecting internalizing ($n = 22$) over externalizing symptom clusters ($n = 17$). The scale includes four items that reflect regulatory processes (e.g., sleeping, eating) and six items reflecting interpersonal relationship patterns (e.g., playing with other children). Some items are counted in more than one of these four categories (e.g., problems with sleep may represent sleep, mood, or anxiety disorders).

The USPHTF depression items were included in the measure because of the impact of parental mental health on child development, and in the public health context of increasing calls to utilize the pediatric setting to identify parental mental health needs (Horwitz et al., 2007; Olson et al., 2006). Maternal items follow child items in the measure. These items are not presented separately from child items to encourage mothers to consider these questions as part of their child's health assessment. Psychometric properties of this previously validated screen (Olson et al., 2006; Olson et al., 2005) embedded within a child screen will be assessed in future studies.

The ECSA is scored on a 3-point Likert scale. The instructions invite parents to circle the number that best describes their child compared to other children the same age. As described earlier, each item also has a "+" which can be circled to identify areas of parental concern, and parents are asked whether they are generally concerned about their child's emotional and behavioral development.

Early Childhood Screening Assessment Child Name _____ Date _____ Your name _____

- Please circle the number that best describes your child compared to other children the same age.
- For each item, please circle the + if you are concerned and would like help with the item.
 0= Rarely/Not True 1= Sometimes/Sort-of 2= Almost always/Very True

1. Seems sad, cries a lot	0	1	2		+
2. Is difficult to comfort when hurt or distressed	0	1	2		+
3. Loses temper too much	0	1	2		+
4. Avoids situations that remind of scary events	0	1	2		+
5. Is easily distracted	0	1	2		+
6. Hurts others on purpose (biting, hitting, kicking)	0	1	2		+
7. Doesn't seem to listen to adults talking to him/her	0	1	2		+
8. Battles over food and eating	0	1	2		+
9. Is irritable, easily annoyed	0	1	2		+
10. Argues with adults	0	1	2		+
11. Breaks things during tantrums	0	1	2		+
12. Is easily startled or scared	0	1	2		+
13. Tries to annoy people	0	1	2		+
14. Has trouble interacting with other children	0	1	2		+
15. Fidgets, can't sit quietly	0	1	2		+
16. Is clingy, doesn't want to separate from parent	0	1	2		+
17. Is very scared of certain things (needles, insects)	0	1	2		+
18. Seems nervous or worries a lot	0	1	2		+
19. Blames other people for mistakes	0	1	2		+
20. Sometimes freezes or looks very still when scared	0	1	2		+
21. Avoids foods that have specific feelings or tastes	0	1	2		+
22. Is too interested in sexual play or body parts	0	1	2		+
23. Runs around in settings when should sit still (school, worship)	0	1	2		+
24. Has a hard time paying attention to tasks or activities	0	1	2		+
25. Interrupts frequently	0	1	2		+
26. Is always "on the go"	0	1	2		+
27. Reacts too emotionally to small things	0	1	2		+
28. Is very disobedient	0	1	2		+
29. Has more picky eating than usual	0	1	2		+
30. Has unusual repetitive behaviors (rocking, flapping)	0	1	2		+
31. Might wander off if not supervised	0	1	2		+
32. Has a hard time falling asleep or staying asleep	0	1	2		+
33. Doesn't seem to have much fun	0	1	2		+
34. Is too friendly with strangers	0	1	2		+
35. Has more trouble talking or learning to talk than other children	0	1	2		+
36. Is learning or developing more slowly than other children	0	1	2		+
37. I feel too stressed to enjoy my child	0	1	2		+
38. I get more frustrated than I want to with my child's behavior	0	1	2		+
39. I feel down, depressed, or hopeless	0	1	2		+
40. I feel little interest or pleasure in doing things	0	1	2		+

Are you concerned about your child's emotional or behavioral development? Yes Somewhat No

FIGURE 2. Early Childhood Screening Assessment.

Receiver Operating Characteristics (ROC) analysis weighted at 0.8 to prioritize sensitivity identified a cutoff score of 18 or higher in this sample, with the presence of any DIPA diagnosis as the outcome (Gleason, Dickstein, & Zeanah, 2006). In other settings, alternative cutoffs may be appropriate (Pagano et al., 1996).

Analysis

Data were analyzed using SPSS 13.0 (SPSS, Chicago, IL), with the exception of the ROC analysis which was performed using ROC4.exe (available at <http://www.mirecc.va.gov>). The level of significance was set at 0.01 to minimize risk of Type I error for main outcomes. Two-tailed Spearman's ρ correlations were used to assess correlations between ECSA scores and the BITSEA, the PSC, and the CBCL as well as for test-retest reliability. All parents completed either the BITSEA or the PSC; only children within the specified age ranges for each of these measures are included in the calculations. Sensitivity, specificity, and positive and negative predictive values were calculated in the standard manner using the presence of a diagnosis on the DIPA interview as the reference standard.

The ROC analysis is a signal-detection test that is used to evaluate diagnostic measures. The ROC analysis computes quality indices of the sensitivity and specificity of each test, allowing identification of the optimal cut point that identifies two groups that differ on the outcome of interest (O'Hara, Kraemer, Yesavage, Thompson, Noda, et al. 2005). In this case, the predictor was the ECSA, and the outcome of interest was the DIPA diagnosis.

PCA was used to explore whether the ECSA items yielded clinically relevant subscales. PCA examines interrelationships among a large number of variables and can identify underlying dimensions or factors. In scales, these factors may represent subscales. The square of eigenvalues represents the variance explained by the factor. A screeplot provides a visual representation of the eigenvalues plotted against the factor number in order of decreasing eigenvalue. When the slope of the screeplot becomes flat, the remaining factors do not add significantly to the variance.

RESULTS

Table 1 presents the demographics of the participants in Studies 1 and 2, which included 56% boys and had a mean child age of 35.5 months ($SD = 13.1$, range = 18–60); of these, 34 (21.9%) were under 2.0 years, 55 (35.5%) were 2.0 to 2.11 years, 33 (21.3%) were in both the 3.0 to 3.11 and 4.0 to 4.11 years' ranges. Mean maternal age was 30.5 years ($SD = 6.8$). Participants in Study 2 had a lower rate of high-school graduates, 42 versus 88%; $\chi^2 = 49.1(1)$, $p < .01$, lower maternal age, 27.1 versus 31.9 years; $t = -4.9(215)$, $p < .01$, and higher rates of WIC eligibility, 73 versus 41%; $\chi^2 = 18.5(1)$ $p < .01$, than those in Study 1.

In a comparison of participants in Study 1 who completed the DIPA compared with those who were invited, but did not complete the interview, completers differed from noncompleters on CBCL total score, 48.9 versus 55.5; $t 2.35(70)$ $p \leq .02$, maternal age, 33.4 years versus 29.4 years; $t = -2.2(69)$, $p \leq .02$, and maternal education, $\chi^2 = 10.5$, $p \leq .03$. In a post hoc analysis, mothers in the completer group were more likely to have attended college than were those in the noncompleter group. The groups did not differ on child age, gender, race, WIC eligibility, or ECSA score. In Study 2, DIPA completers used significantly more social service resources, $t = -2.6(56)$, $p \leq .01$. Although no other group differences were statistically significant, DIPA

TABLE 1. Demographic Characteristics of Participants

	Study 1 (<i>n</i> = 216) <i>n</i> (%)		Study 2 (<i>n</i> = 63) <i>n</i> (%)		Total Sample (<i>N</i> = 279) <i>n</i> (%)	
Boys	117	(55.2)	31	(53.4)	148	(54.8)
Girls	95	(44.8)	27	(46.6)	122	(45.2)
Caucasian	89	(42.0)**	16	(27.6)**	105	(38.9)
African American	101	(47.6)**	14	(24.1)**	115	(42.6)
Hispanic	5	(2.4)**	17	(29.3)**	22	(8.3)
Asian	4	(1.9)	0		4	(1.5)
Other race/Did not respond	13	(6.5)**	11	(19.0)**	22	(8.9)
WIC-eligible	81	(38.2)**	43	(74.1)**	129	(46)
Some high school	7	(3.3)	15	(25.9)	22	(8.1)
High school Graduate/Some college	82	(38.7)	39	(67.2)	121	(44.9)
College or graduate degree	122	(57.6)*	2	(3.4)	124	(45.9)*
Maternal age <i>M</i> (<i>SD</i>)	32.0	(6.4)	26.9	(6.6)	30.9	(6.8)

Totals do not add up to 100% because some mothers declined to respond to all questions.

**Differences between sites significant at the $p \leq .05$ level.

completers' CBCL and ECSA scores were greater than 2 *SDs* higher than were those of the noncompleters.

ECSA Scores

The mean ECSA Problem score was 15.8 ($SD = 9.9$, range = 0–57), with a positive skew. Mean ECSA scores did not differ between Study 1 and Study 2, $M = 15.3$ versus 16.8, $t = 8.5$ (83), $p > .40$, and are presented in the aggregate here. Scores did not vary by age, Spearman's $\rho = -0.028$, $p > .68$, or gender, M (girls) 14.5 versus M (boys) 15.9; $t = -1.2$ (306), $p > .22$. Twenty (7.1%) mothers circled at least one "+" indicating that they were concerned about a specific item and wanted help with it. Higher scores were associated with family and maternal social risk factors including WIC eligibility, $t = -2.77$ (303), $p \leq .00$, use of more social service resources, Spearman's $\rho = -.22$, $p \leq .01$, younger maternal age, Spearman's $\rho = 0.25$, $p \leq .00$, and lower maternal educational level. There was a statistically significant difference between high-school graduates and college in post hoc analysis, $p \leq .04$. ECSA scores were not associated with race, visiting nurse involvement, enrollment in Head Start, and participation in child protective services. PCA of the ECSA scores revealed a primary factor with an eigenvalue of 8.0, explaining 22% of the variance. On a screeplot, this factor separates itself from the remainder of the factors, of which the highest eigenvalue is 2.1. Most items on the ECSA load onto the primary factor, with prominent contribution of mood and behavioral regulation symptoms. Factor 2 represents trauma-associated symptoms.

Comparison Measures

Results of the comparison measures are presented in Table 2. In this sample, the mean CBCL score for the sample as a whole was 47.01 ($SD = 11.0$) on the Total Problems score. In this sample, including only children 36 months and younger, 24.7% ($n = 22$) scored above the

TABLE 2. Scores on Comparison Measures

Measure	Age Range (Months)	Study 1			Study 2			Combined		
		<i>n</i>	<i>M</i> (<i>SD</i>)	No. (%) in Clinical Range	<i>N</i>	<i>M</i> (<i>SD</i>)	No. (%) in Clinical Range	<i>N</i>	<i>M</i> (<i>SD</i>)	No. (%) in Clinical Range
CBCL Total Problems <i>T</i> score	18–60	212	46.1 (10.1)	12 (5.2)	60	51.2 (13.0)	12 (20)	270	47.2 (11.0)	22 (8.1)
BITSEA Problem score	18–36	96	9.8 (6.7)	20 (15.0)	19	13.1 (8.5)	8 (23.5)	113	10.5 (7.1)	28 (19.4)
Pediatric Symptom Checklist score	48–60	42	7.9 (6.8)	4 (7.4)	10	11.3 (9.6)	1 (5.3)	54	8.8 (7.4)	4 (6.5)

problem score cutoff for their age and gender on the BITSEA. For children 48 to 60 months, the mean PSC score was 8.4 (*SD* = 7.4). In that age group, 5.2% (*n* = 2) of the children had a clinical score on the PSC.

Convergent Validity

Table 3 presents correlations between ECSA scores and the comparison measures. Overall, ECSA scores correlated highly with the CBCL Total Problem score, Spearman’s $\rho = 0.81$, $p \leq .01$. Convergent validity was secondarily assessed using the two age-specific measures. In children 18 to 36 months of age, the ECSA was significantly correlated with the BITSEA Problem Scale, Spearman’s $\rho = 0.60$, $p \leq .01$. In children 48 months and older, the ECSA correlated significantly with the PSC, Spearman’s $\rho = 0.63$, $p \leq .01$.

Criterion Validity: Diagnostic Classification

In the group of 69 children whose mothers participated in the DIPA, 28 children met criteria for a diagnosis using the DIPA symptom and impairment criteria. ADHD was the most common diagnosis, with 11 of 28 (39%) children meeting criteria for ADHD.

TABLE 3. ECSA Correlation With CBCL Total *T* Score and Comparison Screens

ECSA Correlation With	Study 1 Spearman’s ρ (<i>n</i>)	Study 2 Spearman’s ρ (<i>n</i>)	Combined Spearman’s ρ (<i>n</i>)
CBCL Total <i>T</i> score	0.79** (212)	0.90** (58)	0.81** (270)
BITSEA Problem (18–36 months)	0.60** (98)	0.76** (19)	0.62** (117)
PSC (48–60 months)	0.48** (66)	0.66** (14)	0.51** (80)

** $p \leq .01$.

TABLE 4. Study 1: Association Between Early Childhood Screening Assessment (ECSA) Clinical Status With Diagnostic Infant Preschool Structured Interview (DIPA) Diagnosis

	No DIPA Diagnosis	DIPA Diagnosis	Total	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)
Negative ECSA*	10	1	11	90.9	76.7	76.9	90.9
Positive ECSA*	3	10	13				
Total	13	11	24				

*Using a cutoff score of 18.

TABLE 5. Study 2: Association Between Early Childhood Screening Assessment (ECSA) Clinical Status With Diagnostic Infant Preschool Structured Interview (DIPA) Diagnosis

	No DIPA Diagnosis	DIPA Diagnosis	Total	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)
Negative ECSA*	24	3	27	82.4	85.7	77.8	88.9
Positive ECSA*	4	14	18				
Total	28	17	45				

*Using a cutoff score of 18.

The ECSA demonstrated sensitivity and specificity in the acceptable range without notable difference in performance between the two study populations (see Tables 4–6). The ECSA identified 24 of 28 (86%) children who met criteria for a diagnosis on the DIPA. Specificity was 83% (34 of 41). The positive predictive value, defined as the probability that someone with a positive ECSA met criteria for a diagnosis on the DIPA, was 77% (24 of 31), and the negative predictive value, defined as the probability that a negative ECSA predicted the lack of a diagnosis on the DIPA, was 90% (34 of 38). As a comparison, the CBCL demonstrated a sensitivity of 71% (20 of 28) and specificity of 80% (31 of 39) in identifying a DIPA diagnosis when any CBCL subscale had at least a borderline-clinical score (Table 7). Of the 4 children who met

TABLE 6. Cumulative Association Between Early Childhood Screening Assessment (ECSA) Clinical Status With Diagnostic Infant Preschool Structured Interview (DIPA) Diagnosis

	No DIPA Diagnosis	DIPA Diagnosis	Total	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)
Negative ECSA*	34	4	38	85.7	82.9	77.4	89.4
Positive ECSA*	7	24	31				
Total	41	28	69				

PPV = Positive predictive value; NPV = Negative predictive value.

*Using a cutoff score of 18.

TABLE 7. Association of Child Behavior Checklist (CBCL) Clinical Status With Diagnostic Infant Preschool Structured Interview (DIPA) Diagnosis

	No DIPA Diagnosis	DIPA Diagnosis	Total	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)
Nonclinical CBCL	31	8	39	71	80	71	80
Positive CBCL	8	20	28				
Total	39	28	67				

Positive CBCL = at least one scale in borderline or clinical range; PPV = Positive predictive value; NPV = Negative predictive value.

a DIPA diagnosis but had an ECSA score below 18 (false negatives), all met criteria for two diagnoses: 1 child with behavioral disorder and a regulatory disorder, 2 with emotional disorders only, and 1 with an emotional and a behavioral disorder. The ECSA scores of the children with false positive ECSA results (ECSA ≥ 18 and no diagnosis on the DIPA) were 18 ($n = 2$), 19 ($n = 2$), 20 ($n = 2$), and 25 ($n = 1$).

Because of the low rate of responses and the group differences between DIPA completers and noncompleters in Study 1, sensitivity and specificity also were calculated independently for each study. In Study 1, the ECSA had a sensitivity of 90.9%, identifying 10 of 11 children who met criteria for a diagnosis on the DIPA, and a specificity of 76.9%. In Study 2, the sensitivity was 82.4% (14 of 17) and the specificity was 85.7% (24/28).

Test-Retest Reliability and Internal Consistency

Test-retest reliability of the 36 child-focused items of the ECSA was 0.81 ($p \leq .01$) at a mean of 10 days. Individual item test-retest varied, ranging from 0.33 (*is difficult to comfort when hurt or distressed*) to 0.7 (*eats nonfood items*).

The Cronbach α of the child items of the ECSA was 0.91.

Maternal Depressive Symptoms

Nearly all (215 of 218) mothers responded to both USPHTF depression questions. Overall, 21.4% ($n = 46$) of mothers endorsed having at least one symptom of depression sometimes on the USPHTF questions. In this sample, maternal depression scores (the sum of Items 37 and 38) were associated with lower maternal educational level. Post hoc analysis demonstrated a difference between those who did not graduate high school and those with a graduate education, $F = 3.6$, $p \leq .001$. Maternal depressive symptoms were inversely correlated with child age, Spearman's $\rho = -0.15$, $p \leq .02$, and maternal age, Spearman's $\rho = -0.17$, $p \leq .01$, and positively correlated with the number of resources parents accessed, Spearman's $\rho = 0.22$, $p < .00$. WIC-eligible mothers also endorsed more depressive symptoms than those who did not receive WIC, mean depression score 0.50 versus 0.24, $t = -2.4(210)$, $p < .01$.

Maternal depression scores correlated modestly with ECSA scores, Spearman's $\rho = 0.29$, $p < .01$. Using a cutoff of at least one depressive symptom as a positive depression screen,

maternal depression identified only 36 of 99 (36.4%) children with an ECSA score greater or equal to 18.

CONCLUSIONS

This study demonstrated the promising psychometric properties of the ECSA. In two general pediatric practices, the ECSA showed strong and significant convergent validity with the most commonly used measure of early childhood emotional and behavioral problems, the CBCL, as well as two age-specific shorter measures, the BITSEA and the PSC. In addition, the ECSA predicted diagnosis status on a structured parent interview and demonstrated strong test-retest reliability. Thus, the primary hypotheses were supported. The ECSA's psychometric properties are encouraging and support further study of the ECSA as a tool to identify young children with emotional or behavioral problems in the pediatric setting.

The ECSA scores correlated with high-risk demographic variables, providing additional support of convergent validity. WIC eligibility served as a proxy for income and was related to higher ECSA scores than for non-WIC eligible children, a pattern consistent with reported literature (e.g., Simpson, Bloom, Cohen, & Blumberg, 2005). The number of social services the family accessed (as reported on the demographic form) also was positively associated with ECSA score. Although the list of social service agencies was by no means exhaustive, this finding is consistent with recognized data that has suggested that it is the *number* of risk factors a child experiences—rather than specific risk factors—which increases the risk of adverse outcomes, including mental health problems (Sameroff, Seifer, Zax, & Barocas, 1987).

Parent-report measures, such as the ECSA, must be interpreted with caution, recognizing that they reflect the perceptions of the parent. Any measure, especially a parent-report measure, should be interpreted within the clinical context. Maternal depression is one of the many factors that may contribute to a mother's experience of a child's behavior as particularly difficult and depressed mothers may endorse more symptoms on a screen than may nondepressed mothers (e.g., Biederman, Mick, & Faraone, 1998; Sawyer, Streiner, & Baghurst, 1998). In such cases, although further evaluation may reveal that the clinical disorder lies within the parent, the positive screen facilitates intervention that will enhance maternal mental health—a key component in early childhood mental health (Carter, Garrity-Rokous, Chazan-Cohen, Little, & Briggs-Gowan, 2001; Chilcoat & Breslau, 1997; Dawson et al., 2003; Seifer, Dickstein, Sameroff, Magee, & Hayden, 2001). Research has demonstrated that self-report screening for maternal depression is feasible in primary care settings (Olson et al., 2006; Olson et al., 2005). The ECSA is the first child screen that incorporates parental depression items in the screen itself. As the high completion rates for this part of the screen demonstrate, mothers were willing to complete reports of their own mental health in a pediatric screen. Rates of positive screen in this sample were not dissimilar from those in a primary care sample using the USPHTF questions (17%) and in a longitudinal study of toddlers (17–24%) (McLennan, Kotelchuck, & Hyunsan, 2001; Olson et al., 2006). Maternal depressive symptoms were associated with parent-reported child symptoms, but the modest correlation and the low sensitivity of the USPHTF questions in identifying positive ECSA scores provide additional evidence of discriminant validity of the ECSA.

That ECSA scores were not statistically significantly different by gender in this study is consistent with reports from other screeners. While boys generally demonstrate higher rates of aggressive behavior problems than do girls (e.g., Baillargeon et al., 2007), screening measures

do not always find that mean scores differ by gender, and epidemiological studies do not reveal differences in overall rates of psychiatric disorders in preschoolers by gender (Briggs-Gowan et al., 2004; Egger & Angold, 2006; Lavigne et al., 1996; Squires et al., 2002).

The PCA of the ECSA yielded a primary factor that included mood, anxiety, and disruptive behavior disorder items. This lack of distinction between the traditional categories of internalizing and externalizing symptoms is consistent with an epidemiological study that found that a traditionally externalizing disorder (oppositional defiant disorder) mediates the association between traditionally internalizing disorders (MDD and anxiety), and raises questions about applying the traditional internalizing and externalizing dichotomy to preschool psychopathology (Egger & Angold, 2006).

While promising, limitations of this study must be noted. The ECSA was studied in two urban primary care practices, serving children with private and public insurance, and these populations may not be representative of the general U.S. population. The two sites were in different states and served different patient populations. The practice in Study 1 serves children with both private and public insurance whereas the practice in Study 2 primarily serves publicly insured patients. The Study 1 sample (New Orleans) had similar rates of WIC eligibility and educational attainment to those of the Louisiana population (U.S. Census Bureau, 2005). The population in Study 2 (Providence) had a higher proportion of WIC-eligible families than did the general Rhode Island population. However, overall, the sample's rates of WIC use are similar to the U.S. general population (Blewett, Davern, & Rodin, 2004; U.S. Census Bureau, 2005). Despite this similarity, recruitment issues may limit the generalizability of the findings. Rates of recruitment were similar in the two clinics. Approximately one fourth of parents approached in the waiting room declined to participate in the study. Patterns of completing the DIPA, however, were different. The two studies used different methods to invite parents to complete the DIPA. In Study 1, a sample enriched for symptomatology on the CBCL was invited to complete the DIPA. Because of scoring issues for the CBCL, this invitation was offered after the initial clinic contact. It seems possible that this delay contributed to the attrition in Study 1. In Study 2, all parents were invited to participate in the DIPA interview in an effort to reduce attrition. In Study 1, higher resource parents completed the DIPA, and in Study 2, parents who used more social service resources completed the DIPA, with a trend toward children with higher rates of parent-reported symptoms. These divergent patterns may influence the pattern of outcomes. Alternatively, it is possible that these completion patterns may increase the generalizability of the findings because high- and low-resource families were included.

Although the findings in the two sites were similar, these early data suggest a value in further examining the ECSA's functioning in populations with different socioeconomic backgrounds. Preliminarily, the correlations between the ECSA and extant measures appeared higher in Study 2, a population characterized by higher rates of demographic risk factors than that in Study 1. Comparison of the differences in sensitivity and specificity between the two groups is limited because of the size of the groups, although further examination of the ECSA within social risk settings is warranted.

This study is a preliminary assessment of validity. Future studies focused on validity, feasibility, and acceptability in nationally representative samples will add to the strength of the psychometric properties. Note that even with the different demographics in the two samples, the primary outcomes were comparable. As with other screening tools, it is possible that future data will demonstrate that different cutoff points will be appropriate for use in different populations (Pagano et al., 1996).

Use of the comparison instruments must be discussed. Because mothers served as the reporters for the ECSA, the CBCL, the PSC or the BITSEA, and the DIPA, it is possible that the associations among these measures may be inflated by reporter bias. The study used two different forms of parent report to compare to the ECSA: questionnaire and diagnostic interview. That two different formats provided similar results strengthens the validity findings of this study.

Use of the CBCL as a comparison measure is common in establishing validity of new measures (Briggs-Gowan et al., 2004; Squires et al., 2002); however, questions have been raised about the CBCL's sensitivity, particularly for internalizing disorders, when compared with a diagnostic interview (Egger et al., 2006). For this reason, the correlation between CBCL and ECSA scores, rather than the ECSA's sensitivity and specificity in predicting CBCL clinical status, was assessed. While a diagnostic interview elicits information in a different manner than do the CBCL, the BITSEA, and the PSC, use of other informers and observational data would strengthen the demonstration of the ECSA's validity. The DIPA's face validity, close adherence to developmentally sensitive diagnostic nosologies, established reliability, and concurrent criterion validity all make it a reasonable comparison measure.

Discussion of screening in primary care is not complete without acknowledgment of real-world issues in implementation of screening. Screening must be considered only as one step in a coordinated system of care. To be considered for use in primary care, screens must be easily available, must identify disorders that tend not to be identified otherwise but which are associated with significant adverse outcomes, and for which effective interventions exist (Cadman, Champers, Feldman, & Sackett, 1985). While screening reimbursement continues to be a challenge, practices can optimize their screening practice by consulting professional resources (e.g., www.dbpeds.org or www.aap.org) when planning screening implementation. Structured measures can be important adjuncts to standard clinical practice, but they should not be considered substitutes for clinical judgment. Screen results must be interpreted in the context of the clinical presentation.

Practices should develop a plan to address positive screens before screening patients. This plan may include training focused on discussing mental health problems with families, primary care level interventions, and referral plans for patients whose symptoms are outside of the practice scope of primary care. Because of many real-world challenges inherent in referral to mental health providers, innovative models of pediatric mental health care have been developed. Successful models include secondary screening, mental health consultation, and onsite specialty care (Campo, 2005; Wren, 2005). Regardless of the model of care, pediatric and mental health providers have an opportunity to advocate for increased access to children's mental health services.

CLINICAL IMPLICATIONS

The ECSA is a newly developed measure to identify emotional and behavioral problems in young children in primary care settings, designed for ease of completion and ease of scoring, making it particularly useful in primary care settings as an option for practices in which existing measures do not fit the logistics of the setting. Pediatricians have limited time in well-child visits and rarely screen their patients for psychosocial issues in a systematic manner. This results in missed opportunities for early intervention, prevention efforts, or both. In this study, parents were able to complete the ECSA while waiting in the pediatrician's waiting room for their appointments, suggesting feasibility in that portion of its use. In summary, this study demonstrates the ECSA's

promise as one step in a carefully developed system of meeting young children's mental health care needs through the primary care setting.

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