

KIPS: An Evidence-Based Tool for Assessing Parenting Strengths and Needs in Diverse Families

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Citation: Comfort, M., Gordon, P.R. & Naples, D. (2011). KIPS: An Evidence-Based Tool for Assessing Parenting Strengths and Needs in Diverse Families. *Infants & Young Children: An Interdisciplinary Journal of Early Childhood Intervention*, 24(1), 56-74.

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Abstract

The movement toward evidence-based practices has stimulated greater interest in assessing parenting outcomes. The purpose of these studies was to further validate the Keys to Interactive Parenting Scale (KIPS), a structured observational assessment of parenting quality, with 397 diverse families. Factor analysis demonstrated that the 12 KIPS items comprise one construct that explained 60% of the variance and showed high internal consistency ($\alpha = 0.95$). Analyses of KIPS scores did not detect significant differences in parenting quality among African American, White, and Latino parents observed during parent-child play. Parents rated by home visitors as more engaged in services showed higher quality parenting ($r = 0.22, p < .0001$). KIPS scores correlated significantly with the NCATS Caregiver Total ($r = 0.35, p = .0001$) and subscales (Response to Distress $r = 0.38, p < .0001$; Social-Emotional Growth Fostering $r = 0.29, p = .001$; Cognitive Growth Fostering $r = 0.19, p = .03$), and two HOME subscales (Acceptance $r = 0.23, p = .01$; Responsivity $r = 0.19, p = .038$). These findings, together with previous research, demonstrate the reliability, validity, evaluative value, and clinical relevance of KIPS. KIPS offers a practical tool that providers can use to tailor services to diverse families, track progress, and demonstrate outcomes.

Keywords: *evidence-based, family engagement, HOME Inventory, Keys to Interactive Parenting Scale, parent-child interaction, parenting assessment, parenting scale parenting tool, parenting.*

Acknowledgements

This work was supported by SBIR Grant No. 1 R44 HD048135-02 from the National Institute for Child Health and Human Development (NICHD). Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the NICHD. Comfort Consults obtained approval from the University of Delaware Human Subjects Review Board and the Virginia Department of Health Institutional Review Board to ensure that the research procedures, consent forms, and measures complied with federal and state guidelines.

We offer special thanks to Maria Brown, State Director, Healthy Families Virginia, Johanna Schuchert, Executive Director, Prevent Child Abuse Virginia for their wholehearted administrative support, and to all staff and families in the Healthy Families Virginia programs who so kindly participated in the study. We greatly appreciate Tamson Kelly Noel, Monica Sullivan, Nilsa Rodriguez, Teresita Cuevas, Patricia Place, Amanda Spires, and Ryan Burt, the project coders, who devoted extensive time and effort to scoring the play and teaching videos. Finally, we are especially grateful to Alan Sockloff for his statistical expertise and guidance in the data analyses and interpretation of results.

Comfort, Gordon, & Naples (2011).
Infants & Young Children, 24(1), 56-74.

Parenting behavior experienced by young children has consistently been shown to be one of the most important contributors to healthy child development and well-being (Belsky et al., 2007; Brooks-Gunn & Markman, 2005; Ginsburg, American Academy of Pediatrics Committee on Communications, & Committee on Psychosocial Aspects of Child and Family Health 2007; National Scientific Council on the Developing Child, 2004; Roggman, Boyce, & Innocenti, 2008), healthy adjustment during adolescence (Hawkins, Catalano, Kosterman, Abbott, & Hill, 1999) and successful adult functioning (Center on the Developing Child at Harvard University & the National Council on Early Childhood Policy and Programs, 2010; Maselko, Kubzansky, Lipsitt, & Buka, 2010; Werner, 2004). Due to the pivotal role relationships play in promoting healthy early development (Appleyard & Berlin, 2007), family service programs commonly focus on developing parenting skills in order to promote optimal child development (Gomby, 2005; Roggman, Boyce, & Innocenti, 2008). The movement toward implementing evidence-based practices has stimulated greater interest in assessment of parenting outcomes that reflect program goals (Family Strengthening Policy Center, 2007; Roth & Vandivierre, 2009). Furthermore, high quality interventions have been shown to improve parenting (Daro, 2006; Harding, Galano, Martin, Huntington, & Schellenbach, 2007; Howard & Brooks-Gunn, 2009; Love et al., 2009; Mathematica Policy Research, 2002a; Sweet & Appelbaum, 2004). Moreover, recent federal, state, and local initiatives expect home-based family service programs to use research-based models and provide evidence of effectiveness in parenting outcomes (Boller, Strong, & Daro, 2010; DiLauro, 2010; Higgins, Stagman, & Smith, 2010). For example, to demonstrate effectiveness in family outcomes, federal requirements from the Office of Special Education Programs (OSEP) require early intervention and preschool special education programs to “report the percent of families participating in Part C who report that early intervention services have helped their family . . . help their children develop and learn.” (Early Childhood Outcomes Center, 2010, “OSEP Requirements: Reporting Child and Family Outcomes”, para 4).

In addition to its importance in program evaluation, parenting assessment proves useful clinically (Comfort & Farran, 1994; Comfort et al., 2010). A practical parenting assessment offers family service providers a tool to use with families to jointly reflect on specific parenting behaviors that promote children’s development in order to identify each family’s strengths and needs, and partner more effectively with each family to support them in nurturing their children. Ongoing parenting assessment enables providers, together with families, to monitor parenting progress as their children develop and apply the resulting information to service planning.

Many family service programs use parent questionnaires regarding parenting attitudes, practices, or knowledge of child development (Gomby, 2005). However, research shows that parent self-reports often differ from actual practices (Kashdan, 2009; Lovejoy, Weis, O’Hare, & Rubin, 1999). Furthermore, surveys do not easily identify the various dynamic strategies used to guide children’s behavior (Dumont, et al., 2008; Kaminski, Valle, Filene, & Boyle, 2008). Observational assessment offers an independent means to assess what parents actually do, rather than what they report to do in surveys. Therefore, assessing the parents’ perspectives is necessary, but insufficient. Combining the assessment of parent knowledge or attitudes with observed parent behavior provides a more complete picture with which to target prevention and intervention services with families (Huang et al., 2005; Wacharasin, Barnard, & Spieker, 2003).

The Keys to Interactive Parenting Scale (KIPS) was developed in response to requests from programs for a reliable and valid parenting behavior assessment. Existing observational parenting measures, developed primarily for research purposes, are too expensive or cumbersome for practical use by family service providers (Baggett, Carta, & Horn, 2009; Roth & Vandivierre, 2009). For example, some programs, particularly those staffed primarily by paraprofessionals, have found the Nursing Child Assessment Teaching Scale (NCATS) impractical due to high ongoing training costs and implementation challenges (Galano & Huntington, 2004). Others suggest that the NCATS and the Home Observation for Measurement of the Environment (HOME) scales may lack sufficient flexibility for clinical use, and that the NCATS teaching tasks miss opportunities to observe spontaneous parenting behaviors due to the required structured task (for a detailed discussion, see Dumont, et al., 2008).

In addition, questions have been raised about the adequacy of the NCATS and HOME to assess parenting in some cultural groups (Dumont, et al., 2008; Gaffney, et al., 2001; Huang, et al., 2005; Totsika & Sylva, 2004). The changing demographics in United States communities from 1990-2008 have led programs to attend more closely to the cultural backgrounds of the families they serve. Within the three major racial/ethnic groups enrolled in U.S. family service programs, shifts in national birth statistics during the past two decades have shown a decrease in the proportion of babies born to white women (65% to 53%), an increase in those born to Hispanic women (16% to 24%), and little change in the proportion born to African American women (16% to 15%) (Livingston & Cohn, 2010). These shifts stimulate a heightened awareness of the need to tailor interventions to specific parenting skills, within the context of cultural experiences (Maschinot, 2008) and personal preferences. Similarly, assessment tools need to appropriately assess parenting across diverse racial/ethnic groups.

KIPS aims to address the need for a practical, reliable and valid observational parenting assessment that collects clinically relevant information to document parenting outcomes. An online training program has been developed to make KIPS readily available and reduce the cost of implementation. A previous field test showed that, after one day of training, both professional and paraprofessional service providers could use KIPS reliably with the families they served (Comfort & Gordon, 2006). Providers found the assessment information clinically relevant, worth the effort, and valuable for understanding families' parent-child interactions (Comfort, Gordon, & Unger, 2006). A recent study demonstrated that KIPS was sufficiently sensitive to track changes in parenting behavior during services. In addition, parents' early KIPS scores, in combination with parent engagement in services, predicted later KIPS scores and toddler's social behavior (Comfort et al., 2010).

The two studies described in this paper aimed to further examine the construct validity of KIPS with diverse families in three racial/ethnic groups and to assess its criterion validity with two well-established instruments used to measure parenting.

Method

Participating Agency

Families and family service providers who participated in these construct and criterion validity studies were drawn from Healthy Families Virginia, a statewide system of community-based programs, accredited by Healthy Families America (2010) and coordinated by Prevent Child Abuse Virginia (2010). The sites serve urban, suburban and rural families at risk for child maltreatment and adverse childhood outcomes. Each HFV community site serves primarily first-time parents, teen parents and single mothers. From 2004-08, 24 HFV sites reported screening 27,500 families prenatally or at delivery, conducting risk assessment interviews with 10,939 families, of whom 8,004 were considered at risk for child maltreatment due to environmental stressors or family history of abuse, and enrolling 5,218 in HFV services (Galano & Huntington, 2008).

HFV provides home visiting services that build trusting relationships with families in order to enhance parents' strengths, promote involvement with their children, and support proactive planning and decisions that help families achieve their goals.

The HFV program goals are:

- to achieve positive pregnancy outcomes and child and maternal health outcomes;
- to promote optimal child development by screening for suspected delays, referring children for developmental evaluations, and monitoring participation in therapeutic programs;
- to promote positive parent-child interaction and stimulate home environments that support child development; and
- to prevent child abuse and neglect.

Construct Validity Study Participants

Sixty-seven Family Support Workers (FSWs) volunteered to participate from 11 HFV programs across Virginia. Families listed in their case loads were randomly selected and invited to participate. Of the 618 families selected from caseload lists, 146 were not currently available (e.g., case closed, family had moved out of service area, unable to contact), 75 declined participation, and 397 parents/caregivers consented to take part in the study. Because the study was conducted by researchers external to HFV, descriptive data on family characteristics were available only for those families who consented to participate in the study. Thus, comparative analysis of participants with non-participants was not possible. The participating families and their home visiting services are described in Tables 1 and 2. According to FSW report, study families received a mean of 23 months of services ($SD = 19.2$) and completed a mean of 92 % ($SD = 15$ %) of home visits during the 6 months prior to the study. The completion rates were calculated from FSW reports of number of visits completed divided by the number of visits scheduled for each participating family. As shown in Table 2, the mean percent of visits completed ranged from 87 % for families enrolled 12 months or less in services to 97 % for families enrolled for 37 months or longer.

Table 1
Characteristics of Families as Percentage of Construct Validity Study Sample

Characteristic	<i>n</i>	Percent
Relation to Child		
Mother	373	94.0

KIPS: Keys to Interactive Parenting Scale

Father	18	4.5
Other relative	6	1.5
Caregiver Age		
16-18 years	30	7.6
19-25 years	223	56.2
26-34 years	100	25.2
35-69 years	40	10.1
No response	4	1.0
Caregiver Race/Ethnicity		
African American	208	52.4
White	130	32.7
Latino	36	9.1
Other (Asian, Native American, Biracial)	23	5.8
Caregiver Marital Status		
Single	274	69.0
Married	91	22.9
Separated	18	4.5
Divorced	12	3.0
Widowed	2	0.5
Caregiver Education Level		
Less than high school	91	22.9
High school graduate/GED	167	42.1
Some College	103	25.9
College graduate or more	35	8.9
No response	1	.3
Employment Status		
Not Employed	170	42.8
Employed full-time	131	33.0
Employed part-time	56	14.1
Job training or school	17	4.3
Disabled	12	3.0
No response	11	2.8

Table 1 (continued)
Characteristics of Families as Percentage of Construct Validity Study Sample

Characteristic	<i>n</i>	Percent
Family Income		
Less than \$10,000	142	35.8
\$10,000-15,000	56	14.1
\$15,000-24,999	77	19.4
\$25,000-34,999	52	13.1
\$35,000-100,000 or more	33	8.4
No Response	37	9.3
Child Gender		
Female	201	50.6
Male	196	49.4
Child Age		
2-12 months	154	38.7
13-24 months	108	27.2
25-36 months	61	15.4
37-71 months	74	18.6
Child Development Screen with ASQ		
Normal range in 5 domains	343	86.4
Delays in 1 to 4 domains	54	13.6
Parent Report of Special Health or Developmental Needs		
Yes	58	14.6
No	336	84.6
No response	3	.8
Number of Children in Family		
One child	226	56.9
Two children	97	24.4
Three or more children	71	17.9
No response	3	.8
Parent Reports Support in Caring for Child		
Has Support	305	76.8
No Support	92	22.9
No response	1	.3

Note. Total percentages may not add up to 100% due to rounding.

Table 2
Home Visiting Services of Construct Validity Study Families

	<i>n</i>	Percent of Families	Percent of Visits Completed	
			<i>M</i>	<i>SD</i>
Number of Months Served				
1-12 Months	155	39	87	17
13-24 Months	94	24	93	13
25-36 Months	64	16	96	15
37-107 Months	84	21	97	14
Home Visit Schedule				
Weekly Visits	152	38		
Biweekly Visits	133	34		
Monthly Visits	95	24		
Quarterly Visits	17	4		

Criterion Validity Study Participants

To examine the criterion validity of KIPS, data were collected with the NCATS and HOME with a subgroup of 130 families from the larger group in the construct validity study. Comparative analysis of demographics for the 130 families versus the remaining 267 non-criterion families in the construct validity study group showed that those in the subgroup were similar to families in the larger construct validity study group on most characteristics. Specifically, the subgroup was similar in that 94 % of the parents were mothers, with an average age of 24 years, 73 % were single parents, 46 % were employed full or part-time, 47 % were not employed, 42% reported incomes less than \$10,000 per year, 42% reported incomes between \$10,000 and \$25,000 per year, 82% of caregivers reported having one or two children per family and 79% had support in caring for their children. Forty-seven percent of the children were females and 19.4 % had special health or developmental needs according to parent report. No significant differences between groups were found for caregivers' relation to the child, age, marital status, employment, and income level. Child characteristics showed no significant differences for child gender, number of children in the family, parents' reports of child having special needs, and support in caring for the child. The subgroup differed significantly by several characteristics. Children in the criterion validity study were significantly younger ($M = 17$ months, $SD = 12.3$) than those in the non-criterion group ($M = 23$ months, $SD = 17.5$), $t(n = 395) = 3.71, p < .0001$ (two-tailed). Families in the criterion validity study were enrolled in services for fewer months ($M = 19$ months, $SD = 15.4$) than those in the non-criterion group ($M = 25$ months, $SD = 20.5$), $t(395) = 2.83, p = .005$ (two-tailed). The differences between the criterion validity study group and non-criterion group in child age and length of services is attributable to the limited age range, 2 through 36 months, required by the measures administered in the criterion validity study. Also, compared to the non-criterion validity study group, the criterion validity study families differed by race/ethnicity and education. The subgroup represented 42 % African Americans (non-criterion group 58 %), 40 % Whites (non-criterion group 29 %), 12 %

Latino (non-criterion group 8 %) and 7 % Other (non-criterion group 5 %), $X^2(3, N = 397) = 9.18, p = .027$). In the criterion validity study group, 26% reported less than high school education (non-criterion group 22 %), 48% received high school diplomas or GEDs (non-criterion group 39 %), and 26 % attended some college or more (non-criterion group 39 %), $X^2(2, N = 396) = 7.29, p = .026$.

Provider Training and Family Recruitment

Participating FSWs attended half-day training sessions on the study purposes and procedures, including administering the questionnaires and videotaping the parent-child interaction sessions. After completing the study, they received stipends and free access to KIPS online training in return for their study time and effort. On average, seven clients, were randomly selected from the caseloads of the participating FSWs. Each family was assigned a unique ID code to maintain their anonymity to the researchers. The FSWs' Supervisors called or mailed the families invitations to participate in the study. If a family declined to participate, a replacement family was randomly selected from the caseload. Parents/caregivers who agreed to participate signed consent forms that complied with federal guidelines. Invitations and consents were provided in Spanish when needed. Seven of the 11 HFV programs with the most diverse service populations (i.e., African American, White, Latino) invited families with children ages 2 through 36 months, who had agreed to the construct validity study protocol, to be involved in the criterion validity subgroup study using two additional assessments. All participating families received stipends and copies of their videos for their time and effort devoted to the studies.

Measures

Measures used in construct and criterion validity studies. The focal measure for both the construct and criterion validity studies was the KIPS (Comfort & Gordon 2006). KIPS is a structured observational assessment of the quality of parenting behaviors during 20 minutes of free play with children ages 2 through 71 months. The twelve KIPS items are set on 5-point scales (5 indicating high quality), with behavioral descriptors at the odd points on the scale. The list of 12 KIPS items and example of an item and behavioral descriptors are shown in Figure 1.

Figure 1. The 12 KIPS Items

1. Sensitivity of Responses
2. Supports Emotions
3. Physical Interaction
4. Involvement in Child's Activities
5. Open to Child's Agenda
6. Language Experiences
7. Reasonable Expectations
8. Adapts Strategies to Child
9. Limits & Consequences
10. Supportive Directions
11. Encouragement
12. Promotes Exploration & Curiosity

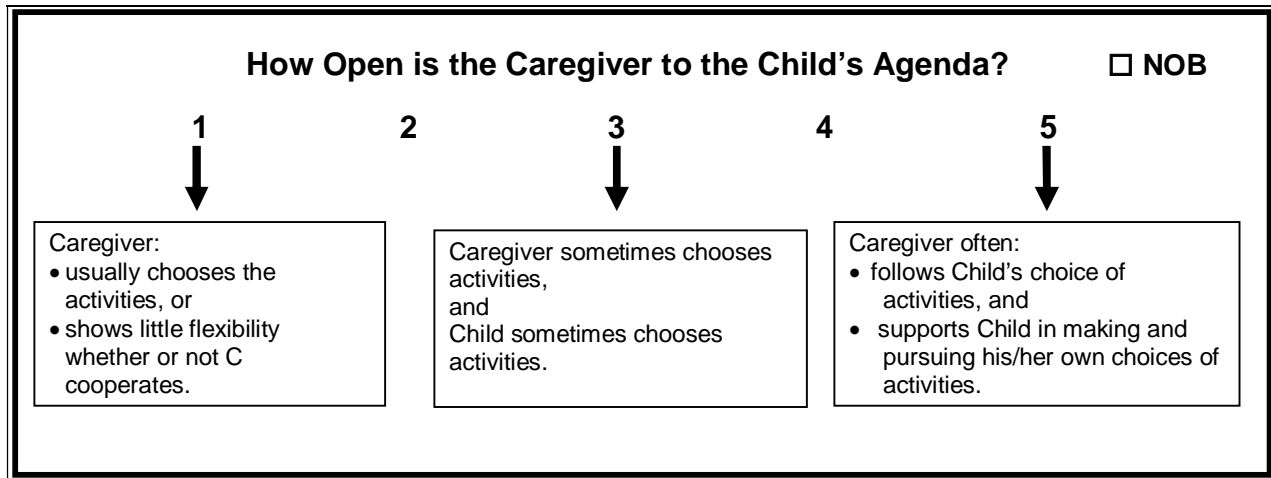


Figure 1. List of 12 KIPS items and an example of a KIPS item and behavioral descriptors.

KIPS was initially developed through a series of steps, including (a) factor analysis, (b) expert and literature reviews, (c) provider focus groups, and (d) a pilot psychometric study (Comfort & Gordon, 2006). With support from the National Institute of Child Health and Human Development, a set of studies were conducted to investigate its reliability and validity and to enhance its online training and support system (for details, see www.ComfortConsults.com/kips).

A KIPS field test showed high internal consistency ($\alpha = .95$) and high provider-researcher agreement (92.4 %) in scoring by professionals and paraprofessionals when assessing the families they served (Comfort, Gordon, & Unger, 2006). Home visitor focus groups confirmed KIPS' face validity and indicated that the tool provided specific information for service planning that offered a different perspective regarding families' parenting skills. Longitudinal research demonstrated that parenting outcomes, independently assessed with KIPS, increased significantly over one year of intervention, repeated measures ANOVA, $F(3, 222) = 16.1, p < .0001, f = .39$. Furthermore, stepwise regression analysis indicated that, beyond demographics, KIPS scores during early infancy, in combination with parent engagement in services, predicted later quality of parenting, $R^2 = .23, F(2,69) = 9.99, p < .0001$, with comparable contributions by each factor, KIPS $\beta = .33, p = .003$; SRCE $\beta = .32, p = .004$. Similar stepwise regression analysis indicated that, beyond demographics, KIPS scores during infancy, in combination with parent engagement in services, also predicted toddler social behavior during parent-child play, $R^2 = .34, F(2,45) = 10.89, p < .0001$, with strong contributions by each factor, KIPS $\beta = .35, p = .009$; SRCE $\beta = .41, p = .002$ (Comfort, et al., 2010).

For the KIPS assessment, each parent and child were instructed to play as they normally do together when they have some free time, while a familiar FSW filmed the interaction. Families used their own toys, books or household play materials within their familiar home settings. Independent project coders, blinded to study assessments, scored the 12 KIPS items. Two of the 397 videos collected were deemed unscorable, because the child cried throughout the video, or the DVD was damaged. KIPS mean scores were calculated by summing the item ratings and dividing by the number of items scored. Behaviors that were marked as "NOB" (*Not Observed*) were not included in the calculations. KIPS mean scores were used in data analyses ($N = 395$ for

construct validity study; $n = 130$ for criterion validity study), except for the factor analysis where item scores were required.

The Family Info Form, a two-page questionnaire, was completed by all participating parents or other primary caregivers who participated in the construct and criterion validity studies to collect descriptive information on parent and child demographics, any special health or developmental needs of the child, and support in caring for the child. The items queried child information such as age, gender, race/ethnicity, number of children in the family, and special needs, health issues or disabilities. Other items requested caregiver information such as relationship to child, age, gender, race/ethnicity, marital status, highest education completed, employment status, family income, and whether caregiver has support in caring for the child.

Construct validity study measures. The Ages & Stages Questionnaires (ASQ, Squires et al., 1997) were routinely completed by FSWs with caregivers by means of child observation and parental report to screen for developmental delays and to monitor children's developmental progress as part of the HFV statewide evaluation. The ASQs include a series of developmentally aged questionnaires with 30 items each, written at a 6th grade reading level, to assess the skills of children 4 through 60 months old in five domains: (a) communication, (b) gross motor, (c) fine motor, (d) problem solving, and (e) personal-social. Responses are marked on 3-point scales: (a) *Yes*, (b) *Sometimes*, (c) *Not Yet*, then converted to point values and summed for total scores in each developmental domain. Psychometric information shows that cut-offs were established from a sample of medical risk, environmental risk and non-risk populations with diverse education, economic and ethnic characteristics. Internal consistency reliability (Cronbach's alpha) averaged 0.65 or higher, and inter-rater agreement of observers was 94 %. Concurrent agreement on normal range vs. needs referral between the ASQ and standardized measures (e.g. Bayley Infant Development Scales) showed 84 % agreement overall (Mathematica Policy Research, 2002b). For the construct validity study, ASQs administered within one month of the study visit were accessed for participating children. Domain scores in the five developmental areas screened by the ASQ were compared to the ASQ cutoff scores designated on the scoring form to describe whether each child was within normal range of development.

The Knowledge of Child Development Scale (KCDS, King & Fullard, 1982), a parent-report questionnaire, written at a sixth-grade reading level with true-false responses, measures knowledge of typical child development, behavioral expectations, and child management and disciplinary procedures. Examples of items include: "A mother can teach her child a lot just by playing with him," and "A baby is able to begin learning as soon as he is born." A higher score represents greater knowledge of child development. The KCDS total score shows satisfactory internal consistency ($\alpha = 0.83$) and test-retest reliability over two weeks ($r = .77$) and has been significantly associated with organization of the home environment and caregiver-child interaction ($\beta = .23$, $p = .006$, Unger, Tressel, Jones & Park, 2004). For the construct validity study we used a shortened, 24-item version of the KCDS adapted by Unger and his colleagues for a study of low-income, single parent families enrolled in early intervention programs. Total number of items scored correctly were used for data analyses.

The Staff Rating of Caregiver Engagement (SRCE, adapted from Unger, et al. 2004) is a 6-item rating scale that documented the FSW's perception of the parent/caregiver's involvement

with program staff and services during the past month. Caregiver-staff engagement in services has been positively associated with caregiver-child interaction ($\beta = 0.24, p = .004$, Unger et al., 2004). Examples of items include (a) Was attentive and listening, (b) Seemed emotionally engaged, and (c) Was open and sincere. An adapted SRCE, expanded from a 3- to 5-point scale and used initially for the KIPS field test, includes a scale ranging from 1 (*Hardly Ever [0-20%]*) to 5 (*Almost Always [81-100%]*). The adapted version of the SRCE showed high internal consistency ($\alpha = .91$) in the KIPS field test (Comfort, Gordon, & Unger, 2006). For the construct validity study, the SCRE mean scores were used for data analyses.

Criterion validity study measures. The NCATS (Sumner & Spietz, 1994) was used in this study as a criterion measure of parent-child interaction for comparison with KIPS. The NCATS requires a 1- to 6-minute observation of the parent teaching his/her child (birth to 3 years old) a novel, age-appropriate activity with standard toys assigned by the FSW. The 73 binary (Yes, No) items are organized into six subscales. The four caregiver subscales include (a) Sensitivity to Cues, (b) Response to Child's Distress, (c) Social-emotional Growth Fostering, and (d) Cognitive Growth Fostering. The two child subscales are (a) Clarity of Cues, and (b) Responsiveness to Caregiver. NCATS internal consistency ranges from $\alpha = .52$ to $.80$ on caregiver subscales and $\alpha = .50$ to $.78$ on child subscales, with $\alpha = .87$ and $\alpha = .81$ on caregiver and child total scales, respectively. Test-retest reliability over a 3 to 4 month interval using generalizability coefficients was stronger for caregiver (.85) than for child (.55) total scores. For the criterion validity study, all total and subscale scores for caregiver and child were used for data analyses.

The Infant/Toddler HOME inventory (Caldwell & Bradley, 2003) was implemented as a criterion measure of the home caregiving environment. The HOME inventory is used extensively in the U.S. and internationally in clinical and research settings; often selected to evaluate the impact of intervention programs (Brooks-Gunn & Markman, 2005; Totsika & Sylva, 2004). It involves a 45-minute observation/interview with the parent and child. The 45 binary (*Yes, No*) items are organized into six subscales (a) Parental Responsivity, (b) Acceptance of Child, (c) Organization of the Environment, (d) Learning Materials, (e) Parental Involvement, and (f) Variety in Experience. Higher scores indicate a more enriched environment. HOME data from the National Longitudinal Survey of Youth revealed a greater influence of poverty than ethnicity in differentiating the environments of European Americans, African Americans and Hispanic Americans (Bradley, Corwyn, McAdoo, & Garcia Coll, 2001). Reports of internal consistency are high overall ($\alpha = .84$, $\alpha = .49$ to $.78$ for subscales, Mathematica Policy Research, 2002b). Test-retest reliability at 12 and 24 months is moderately high overall (.77, .30 to .77 for subscales) and inter-observer reliability ranges from .76 to 1.0 (Totsika & Sylva, 2004). For the criterion validity study, all total and subscale scores were used for data analyses.

Data Collection and Video Scoring

Construct and criterion validity studies. The FSWs filmed 20 minutes of free play between each participating parent (or caregiver) and his or her child, ages 2 through 71 months, in the home or familiar community setting. After the video, the parent completed two study questionnaires, the Family Info Form and the KCDS. The FSW completed the SRCE and provided a copy of the child's recent ASQ, completed within 3 weeks of the video session. After

the sites duplicated play videos for families, all data were transported to the project office for scoring, data entry and analyses. Project coders, who were blinded to questionnaire responses, scored the parent/caregiver-child play videos with KIPS. Two coders were White, one was African American, and two coders who were Latino and bi-lingual (English, Spanish) scored videos of Spanish-speaking families. Coders were trained to 90 % agreement through the KIPS online training system, a 10-hour online training program (for a description, see www.ComfortConsults.com/kipstraining). They also participated in personal training sessions that included additional scoring practice and review of study responsibilities. Periodic reliability checks on 9 percent of the videos during the study indicated high agreement (94 % agreement; $r = .89$) between coders and the KIPS developers.

Criterion validity study. The subgroup of 130 families involved in the construct validity study volunteered to participate in two additional assessments, the NCATS and HOME. This study was limited to families with children ages 2 through 36 months to accommodate specific child age requirements of the assessment tools; KIPS begins at 2 months of age and the NCATS and HOME assess children from birth through 3 years of age. For the NCATS, FSWs filmed an additional brief video of the parent teaching his/her child a novel task. Three project coders, including one NCATS trainer and two NCATS-certified coders (two White and one African American), scored NCATS from the parent-child teaching videos. One of the coders scored both NCATS and KIPS videos, but did not score assessments for the same families. A bi-lingual (English, Spanish) coder scored videos of Spanish-speaking families. FSWs who were trained and experienced in using the HOME administered the HOME scale.

KIPS Test-Retest Study. To examine the stability of KIPS scores, we examined test-retest scores with 26 families participating in an urban home-based Early Head Start program. For each parent/caregiver-child dyad, two 20-minute play videos were filmed one week apart in the program's playroom with developmentally appropriate toys. The parents/caregivers reported that they were primarily mothers (81 %); single (73 %); average age 29 years; African American (96 %); mostly high school graduates or GED recipients (54 %), with some college/college graduates (32 %), and 8 % currently in school. Families reported varied employment status (46 % not employed, 15 % part-time, 15 % full-time, 8 % in job training, 8 % disabled), primarily low income (78 % less than \$15,000 annually), 69 % were supported in caring for their children, and 23 % listed special health or mental health needs (e.g., clinical depression), or disabilities (e.g., cerebral palsy, visual impairment). For the children, families reported 54 % males, average age 25 months, an average of three children per family, 96 % African American, and 31% with special health or developmental needs (e.g., asthma, speech/language delays). Families reported receiving services for an average of 24 months.

Results

As part of the construct validity study, KIPS scores were subjected to factor analysis to determine the structure of the scale and whether subscales could be established. Principal factor analysis with iterations for stable communalities and varimax rotation were used to detect the existing factors, the relationship of each item to the factors, and the weight of individual items. For items with eigenvalues greater than 1.0, the results for the total sample, $N = 395$, showed only one coherent factor for the 12 KIPS items which explained 60 % of the variance, and showed

moderately high item loadings ranging from .69 to .87. Results for the three subgroups showed similar patterns of one-factor solutions and item loadings: African American, 64 % variance explained, loadings .73 to .86; White, 51 % variance explained, loadings .63 to .83; and Latino, 65 % variance explained, loadings .69 to .95.

Descriptive statistics for the construct validity study total sample, $N = 395$, showed an overall KIPS mean of 3.35, $SD = .70$, minimum 1.3 to maximum 5.0. Cronbach's coefficients alpha indicated high internal consistency of KIPS for the total sample, $\alpha = .95$, and for the three subgroups, African American $\alpha = .95$, White $\alpha = .92$, Latino $\alpha = .96$. A comparison of KIPS mean scores for the racial/ethnic subgroups is shown in Figure 1. One-way ANOVA indicated no significant differences in KIPS mean scores by parent race/ethnicity, African American $M = 3.27$, $SD = .70$; White $M = 3.49$, $SD = .59$; Latino $M = 3.30$, $SD = 1.0$; Others $M = 3.38$, $SD = .75$.

Figure 2. KIPS Mean Scores for Diverse Families

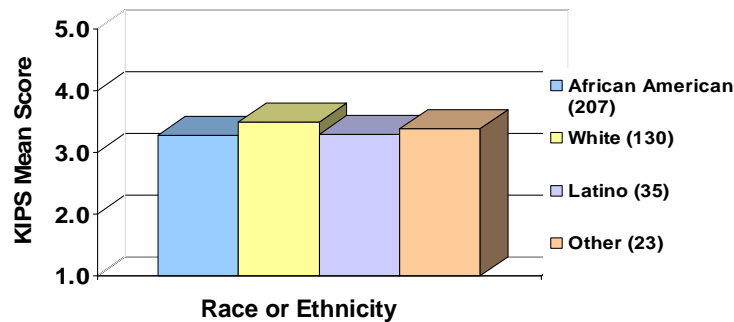


Figure 2. Comparison of KIPS mean scores indicated no significant difference by parent race/ethnicity.

Though no difference was found for KIPS mean scores by race/ethnicity in this construct validity study, like other studies of parent-child interaction (Kelly & Barnard, 2000), differences were detected for other caregiver demographics. The results of one-way ANOVAs of KIPS mean scores, shown in Table 3, indicated significant differences in the expected directions for caregiver age, with caregivers less than 18 years scoring lower than older caregivers; for marital status, with single caregivers scoring lower than caregivers who had ever been married (i.e., currently married separated, divorced or widowed); and for education, with caregivers attending any years of college scoring higher than those with less education. KIPS mean scores did not differ significantly according to parent gender, employment, support in caring for the child, child gender, child age group, or child special needs reported by the parent.

Table 3
Analysis of Variance of KIPS Mean Scores by Selected Caregiver Demographics

	<i>n</i>	<i>M</i>	<i>SD</i>	<i>df</i>	<i>F</i>	<i>p</i>
Caregiver age						
Less than 18years	18	3.0	.54	1	5.07	.03
18 or more years	376	3.4	.71			
Marital status						
Single	273	3.3	.70	1	7.21	.008
Married	122	3.5	.69			
Education						
Less than high school	90	3.2	.71			
High school/GED	167	3.3	.66			
Any college, graduate or graduate school	137	3.5	.73	2	6.04 ^a	.003

Note. ^a Tukey's HSD post hoc, $p < .05$

The results of the test-retest study demonstrated high correlation of KIPS mean scores, Pearson $r = .88$; test $M = 3.2$, $SD = .95$; retest $M = 3.4$, $SD = 1.0$. As a rating scale, the standard method of calculating agreement for KIPS considers items scored within one point. The test-retest showed 93.3 % agreement of item scores. Only one of the 26 test-retest pairs fell below 80 % agreement. In this case, the child behaved substantially differently between the two occasions, which probably impacted the parent's behavior.

For the construct validity study, KIPS scores correlated significantly with the FSW's rating of caregiver engagement in services, SRCE $M = 4.08$, $SD = .83$, minimum 1.5 to maximum 5.0, $r = .22$, $p < .0001$, but not with other service factors, including months enrolled in the program, frequency of visits, and home visit completion rate. These findings are consistent with the results of previous studies of KIPS in other home visiting programs (Comfort, Gordon, & Unger, 2006; Comfort, et al., 2010). Further analysis using one-way ANOVAs showed a significantly lower rate of home visits completed for families receiving services for 1 to 12 months, $M = 87$ %, $SD = 17$, than each of the other categories listed in Table 2, $F(3,396) = 11.31$, $p < .0001$, Tukey's HSD, $p < .01$. However, no significant differences were found in KIPS mean scores by the four time periods of enrollment in services. Significant correlations of KIPS mean scores also were found with parent knowledge of child development and behavioral expectations, KCDS $M = 20.3$, $SD = 2.3$, minimum 10 to maximum 24, $r = .18$, $p < .0001$.

To examine the criterion validity of KIPS, data were collected with the NCATS and HOME for a subgroup of 130 families from the HFV construct validity study group. Within this subgroup, Cronbach's coefficients alpha of the three measures related to parent-child interaction were calculated to assess internal consistency. The result for KIPS, $\alpha = .94$, was analogous to results for the construct validity study result reported above. Alpha coefficients for the NCATS and HOME were $\alpha = .80$ and $\alpha = .69$, respectively. Descriptive statistics for the three measures analyzed for the criterion validity study are presented in Table 4. The KIPS mean and standard

deviation for the criterion validity study are similar to those of the construct validity study, $M = 3.35$, $SD = .70$.

Table 4
Means and Correlations of KIPS with NCATS and HOME Scales

Scales and Subscales	n	Mean	SD	r	p
KIPS Mean	130	3.25	.67		
NCATS Teaching Total	130	55.66	6.54	.23	.009
Caregiver Subscale Total		38.9	5.07	.35	.0001
Sensitivity to Cues		9.14	1.26		---
Response to Distress		9.45	1.63	.38	<.0001
Social-Emotional Growth Fostering		8.40	1.33	.29	.001
Cognitive Growth Fostering		11.91	2.98	.19	.03
Child Subscale Total		16.76	3.26		---
Clarity of Cues		8.29	1.35		---
Responsiveness to Caregiver		8.47	2.23		---
HOME Infant Toddler Total	123	38.06	5.74		
Responsivity		10.23	1.09	.19	.038
Acceptance		6.40	1.29	.23	.01
Organization		5.21	1.00		---
Learning Materials		7.63	1.76		---
Involvement		5.17	1.25		---
Variety		3.71	1.09		---

Pearson correlations of KIPS mean scores with NCATS and HOME total and subscale scores also are shown in Table 4. The results showed significant associations with nearly all NCATS subscales that assessed the caregiver's behavior, but not with those related to the child. Higher correlations with KIPS were expected for the NCATS caregiver than child subscales because KIPS focuses on the quality of parenting behaviors in the context of child needs. Correlations of KIPS with HOME scores showed significant associations with the two HOME subscales that reflected the caregiver's social-emotional behaviors observed with the child, but not with those related to the structure or routine of the caregiving environment. Like the correlations with KIPS, the results shown in Table 5 indicate modest correlations between the NCATS and HOME scales, and a greater number of significant associations of NCATS with the two observed socio-emotional behavior subscales of the HOME, than with the Involvement subscale which is scored primarily by interview.

Table 5

Correlations of NCATS and HOME Totals and Subscales for Observed Caregiver Behavior

Scale and Subscales	HOME Total and Subscales			
	Total	Acceptance	Responsivity	Involvement
NCATS Total Scale	.19 ^a	.19 ^a	.21 ^a	---
Caregiver Subscale Total	.20 ^a	.18 ^a	.27 ^b	---
Sensitivity to Cues	.22 ^a	---	.25 ^b	---
Response to Distress	---	.23 ^a	---	.21 ^a
Social-Emotional Growth Fostering	---	---	---	---
Cognitive Growth Fostering	.21 ^a	---	.24 ^b	---

Note. ^a $p < .05$, ^b $p < .01$

One-way ANOVAs of KIPS, NCATS and HOME scores by the three racial/ethnic groups with sufficient numbers for analysis (i.e., African Americans, Whites, Latinos) showed no significant differences for KIPS mean scores, but significant differences for several NCATS and HOME scales. For the NCATS, significantly lower scores were found for Latinos on the Caregiver Total, $F(2,119) = 6.68, p = .002$, Sensitivity to Cues subscale, $F(2,119) = 6.68, p = .002$, and Cognitive Growth subscale, $F(2,119) = 6.68, p < .0001$, than for African American and White parents, Tukey's HSD post hocs, $p < .01$ for each analysis. For the HOME, significantly lower scores were found for African Americans on the Acceptance subscale than for White parents, $F(2,112) = 8.41, p < .0001$, Tukey's HSD post hocs, $p < .0001$, but no differences from the others were detected for Latino parents.

Discussion

This study aimed to examine the construct validity of KIPS with diverse families in three racial/ethnic groups and to assess its criterion validity with two well-established measures. With regard to construct validity, factor analysis demonstrated that the 12 items on KIPS comprise one construct, which showed high internal consistency. These findings indicate that KIPS items should be combined into a single scale without subscales. The moderately high item loadings suggested that each of the 12 KIPS items makes a valuable contribution to the scale. Additionally, test-retest results showed stability of the scale. These results satisfy one of the initial design criteria of KIPS, to develop a brief tool, which would be stable and practical for routine clinical use.

As demographics of families shift within family service programs, it is essential that we enrich our understanding of the background and experience that parents bring to interactions with their children. Cultural patterns related to parenting knowledge and practice are being examined increasingly among African American, White, and Latino families with varied socioeconomic characteristics (Barbarin, McCandies, Coleman, & Hill, 2005; Brooks-Gunn & Markman, 2005; Cabrera & Garcia Coll, 2004; Huang et al., 2005; Spicer, 2010). These studies highlight the variations in parenting and remind us to interpret parenting assessment results thoughtfully within each family's context. Thus, it is important to evaluate an assessment tool's suitability for use in diverse populations.

The construct validity study examined KIPS mean scores in three racial/ethnic groups commonly served by prevention and intervention programs for families of young children in the United States. Unlike other observational parenting assessments (e.g., Huang et al., 2005), subgroup analyses of KIPS scores did not detect significant differences in parenting quality among African American, White, and Latino parents observed during interactions with their children. In a previous study, with a smaller, more economically diverse sample, when adjusted for demographic factors related to poverty, no differences were found in KIPS scores among the same three racial/ethnic groups included in this study (Comfort, Gordon, & Unger, 2006).

Since cultural differences in parenting have been demonstrated, why might KIPS mean scores look similar across groups in this study? KIPS focuses on the quality of parenting behaviors, defined as whether the parent's behaviors during the play session meet his or her child's current needs, and promote development and learning. Respectful of the heterogeneous expressions of parenting behaviors across cultures (Brooks-Gunn & Markman, 2005), the KIPS rating scale is anchored by behavioral descriptors that allow for cultural differences. For example, a parent may express physical interaction through a wide array of possible behaviors, such as touch, body language or respect of the child's preferences for space and movement. If she or he consistently matches the child's current needs and preferences for physical involvement, ensuring trust during the play session, the behavior would be rated as high quality on the KIPS Physical Interaction item. Thus, parents of different races or ethnicities may express high quality behaviors in many different ways which are appropriate within their cultures. This suggests that KIPS may be a useful tool for family service providers working with the three subgroups studied. Like other parent-child interaction research (for a review, see Kelly & Barnard, 2000), this and previous studies of KIPS (Comfort & Gordon, 2006) showed significantly lower quality parenting for adolescent and single parents, and higher quality parenting as educational levels increased.

To examine criterion validity, KIPS was compared with the well-established NCATS and HOME scales. The NCATS scores for the families in this study were generally lower than those reported in the NCATS manual (Sumner & Spietz, 1994). This may be due to differences in family demographics for the samples studied. Unlike the sample described in the NCATS manual, this study included primarily single parents, with high school or less education, enrolled in child abuse/neglect prevention services. Like the present study, NCATS validation studies reported significant correlations between NCATS caregiver subscales and HOME Total scores, ranging from .17 to .59, with few significant correlations for NCATS child subscales (Sumner & Spietz, 1994). Similar to this criterion validity study, the NCATS Caregiver Social-Emotional and Cognitive Growth subscales showed the highest associations with the HOME Total score.

KIPS correlated significantly with five out of six of the NCATS caregiver behavior subscales (.19 to .38), but with none of the child scales. KIPS also correlated significantly with the HOME Acceptance and Responsivity subscales (.23 and .19) that represented parenting behavior, but not with the other HOME subscales. These findings suggest that KIPS assesses aspects of the parent's contribution to parent-child interaction measured by two well-established measures. The modest level of correlations with KIPS was expected, as the three scales are structured differently and are designed to observe different parenting situations. KIPS observes free play, whereas NCATS requires a teaching task, and the HOME measures the caregiving environment.

KIPS assesses parents as they play with their children and provides a wide range of spontaneous interaction with familiar toys or household objects that may more closely resembles typical family routines. Other research (Huang et al., 2005) has demonstrated positive correlations among NCATS, HOME and a third observational parenting assessment, the Parent/Caregiver Involvement Scale (Farran et al., 1987), with which KIPS also has been shown to correlate significantly (Comfort & Gordon, 2006). Thus, KIPS has now been shown to correlate with three long-established assessments of parenting.

Within the criterion validity study, KIPS did not show significant differences among African American, White, and Latino parents during parent-child play. Similar to other studies (e.g., Huang et al., 2005), in this study the NCATS showed significant differences from other groups for Latinos during teaching tasks on the Caregiver Total and some subscales, while the HOME showed a significant difference for African Americans from other groups on a caregiver behavior subscale. Although warranted, further analysis to adjust for potential demographic confounders was not possible in this study due to the small number of Latino families. Such analyses have been conducted in other studies with the NCATS and HOME scales to explore the racial/ethnic differences observed in more detail (Bradley et al., 2001; Huang et al., 2005).

Study Limitations

These studies have several limitations which warrant discussion. The parents/caregivers were randomly assigned from the case loads of Healthy Families Virginia programs. Though their characteristics were diverse, they represent a select, at-risk population of those accepting family services in a southeastern state who agreed to participate in the studies. KIPS was designed primarily for use in family service programs that include families like those in this study. The term Latino represents a very wide spectrum of subcultures, which were not specifically examined in these studies. Further research is needed to continue examining KIPS use with the various subcultures included within Latino families. Less than half the anticipated number of Latinos participated in the studies than were projected from the demographics reported in 2000-04 by Healthy Families Virginia. This may reflect the challenging climate toward immigrants in the U.S. at the time the study was conducted, as described by the Urban Institute (Chaudry, Capps, Pedroza, Castaneda, Santos, & Scott, 2010). Immigrant families interviewed regarding the heightened raids in worksites and homes, and other immigration enforcement activities in 2007-2008 across the U. S, experienced severe stress and challenges, such as separations of parents and children, job loss, fear of deportation, and housing instability. Finally, caution is needed to avoid generalizing these study results to other locales or programs with dissimilar family characteristics, to other racial/ethnic groups, or to the general community of families not involved in family services.

Implications for Service Providers

Parents rated by home visiting providers as more engaged in services, rather than those having longer enrollment or higher rates of visit completion, showed higher quality parenting, as measured by KIPS. This suggests that it was some aspect of the family-provider relationship established during services, rather than the quantity of visits, that was associated with parenting outcomes for these families. This result underscores the value of attending to the process factors

(e.g., family-staff relationships, theory of change, approach and activities) described at length by Jones Harden (2010) that have been linked to outcomes in high quality early childhood intervention. This finding also confirms previous results in three other home visiting models in which the engagement in family services correlated significantly with KIPS (Comfort, Gordon & Unger, 2006; Comfort et al., 2010). Further, a longitudinal study showed that engagement in services contributed to predicting future parenting quality (Comfort et al., 2010). In accord with long-standing family-centered principles (Bailey & McWilliam, 1993), the lesson for programs interested in improving parenting is to redouble their efforts to build a strong foundation of collaborative family-provider relationships, which enhance respect, learning and problem solving, and in turn, strengthen parents' capacities to build nurturing relationships with their children (Halpern, 2000). As recommended by Woolfolk and Unger (2009), to build these relationships, family service providers and supervisors may need to be especially creative, flexible and responsive to fit their program models, policies and curricula to individual family needs and preferences.

A significant, but modest correlation of KIPS scores with scores on a survey of parent knowledge of child development and behavioral expectations points to the value of gathering both parent self-reports and observations to gain multiple perspectives on parenting practices. In an earlier, smaller study, self-report measures of parental efficacy, knowledge, confidence and skills did not correlate significantly with observations of parenting behaviors (Comfort, Gordon, & Unger, 2006). As commonly noted, parenting attitudes and knowledge may not necessarily translate into practice (Dumont, et al., 2008; Kashdan, 2009) and parent perceptions of their own behavior may not correspond to those of observers (Lovejoy, et al., 1999). Surveys and interviews can provide valuable information to guide intervention, but direct observation is critical to assessing what parents actually do. A practical observational tool, designed for use in family services, puts parenting assessment directly into the hands of families and service providers.

One limitation of observational tools is that the process of observing may influence behavior. In collecting and interpreting observation results the impact of the observation process needs to be considered. For most families, if observations are conducted by a familiar provider with whom the family has developed trust and rapport, the parent and child settle into their typical play routines after a few minutes (Erickson & Kurtz-Riemer, 1999). One can desensitize the family by observing frequently, even for short periods. Further, if the observer provides no interaction or feedback during the process, the parent and child tend to be less distracted. For families who are initially uncomfortable or act atypically with observational assessments, several techniques may lessen anxiety and increase the comfort level and natural interactions. For example, providers may (a) explain how the parenting assessment will be offered to families enrolled in the program as a learning tool for the family and provider to work together, (b) discuss questions about confidentiality and the process in advance, and (c) involve the parent and child in setting up the observation by choosing the location, a convenient time, and the toys or task (if appropriate).

The results of the construct validity study suggest that KIPS detects similar parenting quality for African American, White and Latino families, and correlates with other well-established parenting assessment tools. Using assessment results interpreted respectfully within the context

of each family's culture, service providers can work collaboratively with each family to identify personal strengths and areas for growth, then tailor interventions to each family's preferences. This personalized information can be useful in (a) reflecting with families about parenting, (b) setting specific parent-child interaction goals with families, (c) selecting relevant activities within a curriculum, (d) conducting parenting check-ups to help parents adapt as children develop, (e) reinforcing positive changes in parenting behaviors, and/or (f) jointly determining next steps with the family (for examples of clinical use of KIPS, see Comfort et al., 2010). In best practice, such individualized observational assessments, interpreted through reflection among providers, families and supervisors, can lead to the choice of parent-child strategies and activities that are most pertinent to each family. When this process becomes an ongoing loop, it can drive evidenced-based reflective practice that both satisfies federal requirements to demonstrate family outcomes (e.g., Early Learning Outcomes Center, 2010) and helps parents, children, providers and programs continually improve and grow (Child Welfare Information Gateway, Children's Bureau, & FRIENDS, 2010).

Conclusion

KIPS was designed as a practical, user-friendly, observational parenting assessment, specifically for family service providers who work with families of infants, toddlers and preschool children. These studies, together with previous research, have demonstrated the reliability, validity, evaluative value and clinical relevance of KIPS as a structured observational assessment of the quality of parenting. Previous results have shown high inter-rater reliability for professionals and paraprofessionals in scoring observed parent-child play of the families they served, and have demonstrated high internal consistency (Comfort & Gordon, 2006; Comfort et al., 2010). A previous study has demonstrated that KIPS can detect changes in quality of parenting behavior for families enrolled in services, and that early KIPS scores, together with parent engagement in services, predicted later quality of parenting and children's social behavior (Comfort et al., 2010). Focus groups have reported the value of the tool in identifying specific profiles of parenting behaviors and facilitating individualized service planning (Comfort, Gordon, & Unger, 2006). This construct validity study showed that KIPS assessed similar parenting quality for families of three diverse racial/ethnic groups, and had satisfactory test-retest stability. Furthermore, KIPS was shown to correlate with two well-established parenting assessment tools. Overall, these studies suggest that KIPS could be useful to family service programs both clinically and for program evaluation.

This reliable, valid, and clinically relevant scale makes observational parenting assessment widely accessible to family service providers. Empowered with the ability to assess parenting behavior, providers can more effectively collaborate with families regarding parent-child interaction, and support nurturing parenting tailored to individual families, thereby improving family well-being, and the health and development of children. The movement toward evidence-based practice has stimulated greater interest in assessment of parenting outcomes. KIPS offers a practical tool that service providers can use to collaborate with families in health, education and social service settings to guide services, track progress and demonstrate outcomes.

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