Assessing Social and Emotional Development in Head Start: Implications for Behavioral Assessment and Intervention with Young Children

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Introduction

Social and emotional problems in young children often intensify over time and can lead to significant problems in functioning later in life (e.g., Sprague & Walker, 2000; Squires, Bricker, & Twombly, 2002). Early interventions with preschool children can reduce behavior problems, improve social functioning, and improve parent-child relationships (e.g., Odom & Wolery, 2003; Querido, 2004). However, effective early intervention requires identification of target behaviors that signify developmental risk. Although several assessment instruments are currently in use (e.g., Achenbach & Rescoria, 2000; Conners, 1997), our understanding of the domains of social and emotional health that must be assessed is largely theoretical.

One promising instrument is the Ages & Stages Questionnaire: Social-Emotional (ASQ:SE), published in 2002 to identify problems in the social and emotional development of children between 3 and 66 months (e.g., Squires et al., 2002). The ASQ:SE is time efficient, low-cost, and designed for large-scale screening purposes. Eight separate parent-completed questionnaires of varying lengths were developed for the following age intervals: 6, 12, 18, 24, 30, 36, 48, and 60 months. It is particularly useful for clinicians working in educational settings, such as Head Start, because it is an expansion of the Ages and Stages Questionnaire, a developmental assessment instrument widely used by educators and developmental psychologists.

The ASQ:SE was specifically designed for use in Head Start and similar programs that foster healthy development in low-income children (e.g., Administration for Children & Families, 2003). Screening for developmental concerns is particularly relevant for low-income families, where higher rates of mental health problems and developmental delays are evident (e.g., Aber, Jones, & Cohen, 2000; Klerman, 1994). When studied in a normative sample of 3,014 children, internal consistency, test-retest reliability, and concurrent validity were all found to be adequate (e.g., Heo, 2000; Squires et al., 2002). The authors of the ASQ:SE identified seven behavioral areas that are assessed, including self-regulation, compliance, communication, adaptive functioning, autonomy, affect, and interaction with people (e.g., Squires et al., 2002). However, the utility and reliability of these behavioral areas have not yet been examined. The purpose of the present study was to conduct a preliminary examination of the factor structure of the ASQ:SE in preschool children to determine if it fits with the behavioral areas defined by the authors. A second goal was to examine the utility of these factors as possible subscales of the ASQ:SE.

Method

Participants

Participants in this study included 93 preschool children (ages 35 to 64 months) and their primary caregivers who were enrolled in Head Start. The children were predominantly male (52.7%) and the mean age of child participants was 47.9 months (*SD* = 10.2). The majority of the children were Caucasian (46.2%), while 20.4% were African-American and 29% were multi-racial. Most caregivers were biological mothers (84.9%) and the mean caregiver age was 30.2 years (*SD* = 8.9). The majority of primary caregivers were Caucasian (71%) and English-speaking (88.2%). However, an important subgroup of this population spoke Arabic (5.4%). Many caregivers did not complete their high school education (23%) and only 18.3% were college graduates. The mean income for participating families was $12,165 (SD = $8,317), which demonstrates the low socioeconomic status of this population. Demographic information was gathered by caregiver report and all primary caregivers completed at least one 36 Month, 48 Month, or 60 Month ASQ:SE on a child.

Procedure

The Family Interaction Skills Clinic of the University of Nebraska-Lincoln provides mental health services to Head Start families in Lancaster County. As part of these services, the ASQ:SE is administered regularly to all Head Start families at this location. These measures are then stored in clinical files and the data is entered into a Microsoft Access database, along with demographic information on all families. This archival database was utilized in the present study. Preschool children were selected for this study and only the 36 Month, 48 Month, and 60 Month versions of the ASQ:SE were used.

Results

36 Month ASQ:SE

The 36 Month version of the ASQ:SE consists of 31 total items and the sample for this analysis consisted of 42 children. Factor analysis of the items on this measure resulted in only one general factor, $\lambda = 23.98$. All of the items loaded on this factor, which accounted for 93.48% of the cumulative variance in scores. A reliability analysis (Cronbach's alpha) determined that the internal consistency of the 31 items was .996. These results suggest that the items on this measure have a dominant underlying theme that can be represented by a single composite variable. Based on these results, it may not be useful to create subscales of items for this version of the ASQ:SE.

48 Month ASQ:SE

The 48 Month version of the ASQ:SE consists of 33 total items, although item 30 was eliminated because there was no variance in scores on this item. The sample for this analysis consisted of 40 children. For this measure, a 10-factor solution was chosen based on eigenvalues, variance accounted for, and examination of scree plots. This 10-

factor solution accounted for 75.17% of the cumulative variance in scores. The pattern of items that loaded on each factor did not resemble the item content of the seven behavioral areas identified by the authors of the ASQ:SE (Squires et al., 2002). A reliability analysis (Cronbach's alpha) of each of the factors and examination of inter-item correlations resulted in four potential subscales with good internal consistency. These subscales included Internalizing ($\alpha = .71$), Oppositional/Defiant ($\alpha = .75$), Externalizing ($\alpha = .77$), and Developmental Delays ($\alpha = .74$). See Table 2 for a listing of items, internal consistency, and content of each subscale.

60 Month ASQ:SE

The 60 Month version of the ASQ:SE consists of 33 total items, although items 4, 10, and 11 were eliminated because there was no variance in scores on these items. The sample for this analysis consisted of 27 children. For this measure, a 6-factor solution was chosen based on eigenvalues, variance accounted for, and examination of scree plots. This 6-factor solution accounted for 81.96% of the cumulative variance in scores. The pattern of items that loaded on each factor did not resemble the item content of the seven behavioral areas identified by the authors of the ASQ:SE (Squires et al., 2002). A reliability analysis (Cronbach's alpha) of each of the factors and examination of inter-item correlations resulted in three potential subscales with good internal consistency. These subscales included Insecure/Defiant ($\alpha = .77$), Externalizing ($\alpha = .51$), and Developmental Delays ($\alpha = .99$). See Table 4 for a listing of items, internal consistency, and content of each subscale.

Discussion

The purpose of the present study was to conduct an exploratory examination of the factor structure of the ASQ:SE. Though the authors of the ASQ:SE intended that the items fall within seven behavioral areas, the factor structures did not fit this description. Results indicate that only one general factor can be found within the items on the 36 Month ASQ:SE, while 10 factors were chosen for the 48 Month ASQ:SE, and 6 factors for the 60 Month ASQ:SE. Reliability analyses and examination of the items that loaded on each factor resulted in four potential subscales on the 48 Month ASQ:SE and three potential subscales on the 60 Month ASQ:SE.

A few limitations of the study should be noted. The analyses for each measure consisted of very small sample sizes. Replication of this study is needed with larger samples. Additionally, as 11.9% of the caregivers in this study did not speak English as their primary language, the meaning of certain items may have been lost in the translation process. Furthermore, cultural values may have impacted answers on certain items, such as "Does your child look at you when you talk to her?" Few studies have included the ASQ:SE and much more research is needed with this instrument. Future studies could examine the internal consistency of the items listed by the authors under the seven behavioral areas. While this study was limited to preschool children, the study will be replicated with infants and toddlers using the 6, 12, 18, 24, and 30 Month versions of the ASQ:SE. The results of this study are preliminary, although they provide support for the examination of subscales on the ASQ:SE. This is particularly necessary in light of the significant differences found in this study between the factor structures of the different

versions of the ASQ:SE. The subscales of the ASQ:SE are likely to have both research and clinical utility and could provide meaningful direction for interventions.

Table 1

Factor Analysis Results for 48 Month ASQ:SE.

Factor	Eigenvalue	% of Variance	Cumulative %	Internal Consistency
1	5.435	16.985	16.985	.6936
2	3.505	10.953	27.938	.0970
3	2.925	9.140	37.078	.7514
4	2.477	7.741	44.819	.7731
5	2.060	6.437	51.256	.7434
6	1.963	6.133	57.389	.6458
7	1.755	5.485	62.874	.5410
8	1.413	4.416	67.289	.1446
9	1.338	4.180	71.470	-.5085
10	1.185	3.703	75.173	.4870

Table 2

Tentative Subscales for the 48 Month ASQ:SE Based on Factor Analysis Results.

Factor	Items	Content
1. Internalizing	3,9,12,14,17	Does not play with adults, little interest in surroundings, no enjoyment of mealtimes, not happy, does not use words to express needs or feelings
2. Oppositional/ defiant	13,20,24,31,33	Does not follow instructions, difficulty with transitions, does not follow rules, hurts others, others have expressed concerns
3. Externalizing	7,8,16,24,25	Unable to settle down, tantrums, more active than others, does not follow rules, destructive behavior
4. Developmental delays	3,4,5,9,21,22	Does not play with adults, unable to calm self, does not like to be hugged, little interest in surroundings, does not explore environment, repetitive behaviors

Table 3

Factor Analysis Results for 60 Month ASQ:SE.

Factor	Eigenvalue	% of Variance	Cumulative %	Internal Consistency
1	9.617	32.058	32.058	1.0000
2	7.791	25.971	58.029	.5015
3	2.294	7.647	65.676	.1012
4	1.916	6.386	72.063	.7693
5	1.769	5.897	77.960	.0291
6	1.200	4.000	81.960	-.1767

Table 4

Tentative Subscales for the 60 Month ASQ:SE Based on Factor Analysis Results.

Factor	Items	Content
1. Insecure/ defiant	2,6,9,12,15	Clings to caregiver, too friendly with strangers, tantrums, eating problems, does not follow instructions, others have expressed concerns
2. Behavior Problems	5,7,8,9,13,17,26, 28,30,31	Unable to calm self, cannot settle down, not happy, tantrums, unable to focus, not enough sleep at night, does not stay away from danger, other kids do not like to play, hurts others, does not share
3. Developmental delays	18,19,20,21,22,23, 24,25	Does not use words to express needs or feelings, difficulty with transitions, does not explore environment, repetitive behaviors, hurts self, does not follow rules, destructive