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children's  
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STRENGTHENING SOCIAL AND  
EMOTIONAL HEALTH

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## Parent-Child Rating Scale (PCRS):

**A parent-reported questionnaire to assess social  
and emotional functioning in children.**

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Parent-Child Rating Scale (PCRS) | November 2012 | Number T12-017

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# Parent-Child Rating Scale (PCRS):

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## Executive Summary

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This study included data from two large samples to examine the psychometric properties of the Parent-Child Rating Scale (P-CRS), which was designed to measure children's social-emotional development. A local urban sample of parents of 1,332 children (aged 3 to 6) and parents of 1,213 children from a national panel (aged 3 to 5) completed the P-CRS. Consistent psychometric properties of the P-CRS were found from both samples. Exploratory factor analysis revealed 7 domains of social-emotional development; Negative Peer Social Relations, Positive Peer Social Relations, Task Orientation, Emotional Sensitivity/Anxiety, Self Reliance, Frustration Tolerance, and Positive Disposition. The P-CRS demonstrated excellent internal reliability and evidence of criterion validity against teacher's ratings of development and parental report of health and developmental problems (e.g., ADHD and Autism). The P-CRS is a psychometrically valid and user-friendly questionnaire that could potentially help schools, researchers, and pediatricians assess children's social-emotional development.

## Introduction

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Social-emotional development is a key component for healthy growth and adaptive functioning of young children. Social development refers to the development of children's ability to create and maintain positive relationships with peers and adults; whereas emotional development is defined as the development of children's ability to express and regulate emotions. According to parent report and clinical diagnosis, the prevalence of social-emotional problems in toddlers and infants ranges from 7% to 24% (Carter, Briggs-Gowan, & Davis, 2004). Healthy social-emotional development is associated with a wide range of outcomes, including better school outcomes (Briggs-Gowan & Carter, 2008), stress-coping (Cauce, 1986), and long-term and short-term mental health and well-being (Hartup, 1989). Alternatively, delay or disability in social-emotional functioning is associated with psychopathological disorders, social-emotional problems, and behavioral problems (Campbell, Shaw, & Gilliom, 2000; Campbell, Spieker, Burchinal, & Poe, 2006; Cicchetti, 1993; Shaw, Keenan, & Vondra, 1994).

### *Importance of screening*

Early identification of social-emotional difficulties and competence is crucial for young children since appropriate intervention can help prevent exacerbation and persistence of problems over time (Hawkins, Catalano, Kosterman, Abbott, & Hill, 1999). Screening tools, completed by teachers, pediatricians, or parents, are commonly used to facilitate the early identification process. There are some unique advantages of assessing children's social-emotional development through parent report. First, parent-report survey tools can be cost-effective and efficient. Second, parents can provide longitudinal information that cannot be easily accessed with a one-time visit by a professional or teacher's classroom evaluation. Lastly, parental screening can increase parental awareness and participation in their child's development.

### ***Current problems with the assessment of children's social-emotional development***

Despite the importance of social-emotional development, the current United States mental health system for children remains fragmented and inefficient. Only a handful of parent report social-emotional screening tools are available, and few have been adapted widely for use. In two review articles by Carter, Briggs-Gowan and Davis (2004) and Glascoe (2005), the authors comment that some screening tools assess only a narrow range of social-emotional problems, such as the *Eyberg Child Behavior Inventory* (Colvin, 1994) and *Toddler Behavior Screening Inventory* (Mouton-Simien, McCain, & Kelley, 1997; TBSI). Others have low sensitivity and specificity to social-emotional or behavioral problems, such as the *Early Childhood Assessment* (DECA) (LeBuffe & Naglieri, 1999). Some, like the Denver-II, are only standardized for a local sample and not well-validated (Glascoe, et al., 1992). The *Ages & Stages Questionnaire-Social-Emotional Version* (ASQ:SE; Squires, Bricker, & Twombly, 2002) and the *Brief-Infant-Toddler Social-Emotional Assessment* (Briggs-Gowan, Carter, Irwin, Wachtel, & Cicchetti, 2004) seem to be the most appropriate for brief socio-emotional screening of young children. However, they are both subject to further validation.

### ***The importance of multi-source information***

A multi-source approach to evaluate children's development is preferable. Using multiple informants can allow integration of information from different contexts and reduce possible problem of response biases from one informant. Ironically, one major challenge of the assessment of children's social-emotional development is the integration of information gathered from different sources (Carter et al., 2004). Problems that hinder the integration of multiple reports include difficulty obtaining the reports due to expensive and time-consuming procedures; measurement of limited domains of children's social-emotional problems and competence across

different assessment tools, and difficult drawing direct comparisons between different assessment tools and informants.

Parent and teacher assessments of children often provide different information. For example, Achenbach, McConaughty, and Howell (1987) reported that the average correlation between parent and teacher reports was only .27. There are many possible reasons for this. For one, most assessments inquire about different domains from teachers and parents and are developed independently as either a teacher report or a parent report. One of the main purposes of the development of the current scale is to create a measure that is comparable to an existing teacher report. Such a measure could be of value to school administrators or researchers because it helps both school officials and parents to develop a mutual understanding of children's social-emotional development.

### ***Current Research***

In sum, there are few well-validated broadband questionnaires available to assess children's social-emotional problems and competence. Importantly, current parent report measures do not integrate well with teacher report. The Parent-Child Rating Scale (P-CRS) is a parent questionnaire developed by our research team to address the need for such assessment tool. This questionnaire was designed to provide an alternative cost-efficient and valid assessment of children's social and emotional development. It can serve as a standalone measure, but also can be used as a complement of the Teacher-Child Rating Scale (T-CRS) (Hightower & et al., 1986; Perkins & Hightower, 2002), a questionnaire that assesses children's social-emotional development from the perspective of the teacher. The purpose of the current study was to demonstrate the psychometric properties of the P-CRS across two different populations.

## Methods

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The questionnaire was initially developed as part of a community effort to improve the kindergarten- registration process of school districts in western New York.

The questionnaire items used for this study were primarily derived from the 32-item revised T-CRS (Hightower et al., 1986) and further revised by our research team. The original items were a result of consultation with numerous early childhood professionals, including teachers, audiologists, physical and occupational therapists, speech pathologists, social workers, school psychologists, school nurses, and pediatricians.

Similar to the T-CRS, the P-CRS was designed to assess both social-emotional competences and deficiencies. Based on the T-CRS, social-emotional competence includes being able to form/maintain positive peer relationships, being assertive and self-reliant, being able to tolerate frustration/setbacks, being able to self-regulate, and having a positive temperament. Social-emotional deficiencies include having negative peer relationships, and being anxious and insecure. The items of the P-CRS were developed to assess those areas. These items were also reworded to fit the perspective of a parent. We did not expect the items/subscales to be identical to those in the T-CRS since teachers and parents form their respective perceptions of children's behavior in different settings (Achenbach, McConaughy, & Howell, 1987; Tasse & Lecavalier, 2000).

This paper reports the results from two separate but complementary samples of parents. First, we obtained data from parents in a local urban school district using the P-CRS assessment tool, conducted factor analyses, and validated the measure with teacher reported information about the children during the same time period. This study benefited from an existing system and data-reporting infrastructure, the Rochester Early Childhood Assessment Partnership, which collects student and classroom performance data.

We then performed a replication study by administering the same measure to a national sample of parents of young children who are included in an on-going national panel population. We examined the validity of the factors using outcomes based on teacher's report for sample 1, and parent report for sample 2.

### ***Procedures***

**Sample 1.** 1,332 parents of children from the ages between 3 and 6 attending the RECAP - affiliated preschool programs in Rochester, NY completed the instrument as part of the normal school registration process. Parents were asked to complete the instrument, using pencil and paper, at the beginning of the school year. The district also collects information about each child from the teachers during a similar time period. Teachers completed two previously validated scales, the Teacher-Child Rating Scale and the Child Observation Record, shortly after preschool classes began, as part of the established RECAP system (Moller, Forbes-Jones, Hightower, & Friedman, 2008; Montes, Hightower, Brugger, & Moustafa, 2005). We obtained permission from the school district to analyze the psychometric properties of these instruments and to use these measures to validate the data collected as part of the Rochester Early Childhood Assessment Project.

**Sample 2.** Data were collected by Harris Interactive from its Harris Poll On-Line opt-in panel members as part of a larger study. Invitations to participate in the study were sent, via e-mail, to a stratified random sample of U.S. residents 18 years or older, with a child between the ages of 2 and 6 years. The 6,460 responses to the invitation were screened to include only those having a child in the home, aged 4 or 5 years, who was expected to enroll in kindergarten the following fall. This resulted in 1,444 qualified respondents. The questionnaire was self-administered online. Each invitation to participate was password-protected, to ensure that the respondent would complete only one questionnaire. Reminder e-mails were sent two days after the initial invitation to participants who had not yet responded. Up to four additional reminders were sent.

Respondents were eligible for monthly sweepstakes drawings, and earned points redeemable for merchandise and gift certificates in return for their participation.

Both Studies 1 and 2 were reviewed and approved by the University of Rochester Human Subjects Review Board.

## **Measures**

### **Sample 1**

*Parent-Child Rating Scale* – the Parent-Child Rating Scale (P-CRS) consists of 39 brief behavioral items describing a child. Sample items include (i) bothers other children, (ii) makes friends easily, (iii) can focus on one thing for some time, (iv) is frightened easily, (v) is a self-starter, (vi) deals well with frustration, and (vii) is usually pleased (Table 2). Parents are asked to rate how much they agree with those items using a 5-point scale (strongly disagree – strongly agree).

*Teacher-Child Rating Scale (T-CRS)* (Perkins & Hightower, 2002) – The T-CRS is a validated teacher-rated measure of students' problem behaviors and competencies, consisting of 32 items assessing four empirically-derived subscales: task orientation, behavior control, assertiveness, and peer social skills. T-CRS alpha coefficients of internal consistency range from .90 to .94.

*Preschool Child Observation Record (COR)* (Fantuzzo, Hightower, Grim, & Montes, 2002; Schweinhart, Mcnair, & Barnes, 1993) – The COR is an observational measure, completed by teachers, which assesses young children in three empirically-derived dimensions: cognitive, motor, and social development. Teachers attended a two-day training workshop on assessment of children's development and abilities before administering the COR. Trained teachers then systematically record their observations of children's functioning on these three dimensions. Children's acquisition of skills is measured on a five-point developmentally sequenced scale with

each point representing a level of children's growth along the developmental continuum.

Cronbach's alphas were .92, .87, and .93 for the aforementioned three dimensions respectively.

## **Sample 2**

The P-CRS was included in this survey, along with other measures described below.

*General Health* – Based on the items commonly used in other national surveys (National Center for Health Statistics, 2003), parents were asked to rate their children's overall health and mental/emotional health on a 4-point scale (poor – excellent).

*Developmental Disorders* – Parents were asked to indicate (Yes/No) whether their child was diagnosed by a physician as having Autism or Asperger's Syndrome. Children whose parents responded affirmatively to either or both Autism and Asperger's syndrome were classified as having an Autism Spectrum Disorder (ASD). Similarly, children whose parents stated that the child was diagnosed with Attention Deficit Hyperactivity Disorder (ADHD) and/or Attention Deficit Disorder (ADD) were classified as having ADHD/ADD.

## **Analysis**

**Principal Components Analyses** Analyses were conducted using SAS version 9. We used principal components analyses (PCA) with varimax rotation to assess the factor structure. Scree plots were also used to assist with the determination of factor number. Items with factor loadings of .40 or above were retained for each factor. After obtaining a plausible solution in sample 1 with 7 factors, we replicated the procedure using sample 2 and determined whether the same 7 factors were identified. We then conducted reliability and validity analysis by first calculating subscores for each component using the national panel sample, then we estimated inter-

correlations and alpha-reliabilities, as well as concurrent validity coefficients between the 7 factors and teacher and parent reported validity measures.

## Results

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### *Demographics*

**Sample 1: Local Urban Sample.** The local urban sample included 1,332 respondents. The mean age of the children in the sample at the time the data were collected was 4.19 years ( $sd = .45$ ). Fifty-one percent of the children were male. The ethnic composition of the sample was 60% African-American, 18% white, 14% Hispanic, 2% Asian, and 7% of undetermined ethnicity. All children attended an urban school district characterized by high levels of poverty, with 88% of students eligible for free or reduced price lunches. This demographic composition resembled the characteristics of the local community. The majority of respondents were the children's mothers (84%), and 10% were fathers. The surveys were administered as part of the standard kindergarten registration process, and approximately one-half of the children in the district are represented (Table 1).

**Table 1. Characteristics of Samples 1 and 2.**

<u>Characteristic</u>	<u>Sample 1</u>	<u>Sample 2</u>
Total N	1332	1213
Characteristics of Children		
Male (%)	51	51
Mean age at the time of data collection	4.19	4.95
Standard deviation of age (years)	0.45	0.43
Race/ethnicity (%)		
African-American	60	9
White	18	83
Hispanic	14	9
Asian or Pacific Islander	2	4
Undertermined	7	3
Characteristics of Respondents		
Relationship with child (%)		
Mother	84	64
Father	10	30
Grandmother	-	4
Grandfather	-	1
Other	6	1
SES	Low	Middle
Location	Urban	National

**Sample 2: National Panel Sample.** The national panel sample included 1,213 respondents who completed the questionnaire (completion rate 84%). The mean age of the children in the sample was 4.95 years (sd = .43). Fifty-one percent of the children were male. The ethnic composition of the sample included 9% African-American, 83% white, 9% Hispanic, 4% Asian or Pacific Islander, and 3% of undetermined ethnicity (respondents could select more than one choice for race/ethnicity). The median of annual household income was between \$50,000 - \$74,999. Sixty-three percent of respondents reported an annual household income of \$50,000 or more. This sample demographic composition resembled the characteristics of the Harris panel and is more affluent and white than the national population. The questionnaire was completed by the child's mother for 64% of the sample, by the father for 30%, by a grandmother for 4%, by a grandfather for 1%, and by another respondent for 1% (Table 1). Age, sex, race/ethnicity, education, region and household income were weighted in the dataset where necessary to represent the national

population. Propensity score weighting was also used to adjust for respondents' propensity to be online.

### **Factor Analysis**

**Sample 1.** The PCA yielded 7 factors with an eigenvalue greater than one. In addition, inspection of the scree plot supported the presence of 7 factors. Each factor/subscale explained from 7% to 9% of the total variance. Overall, fifty-four percent of the total variance among items was explained by the 7-factor model (Table 2). Items with factor loadings of .40 or above were retained for each factor. The 7 factors were labeled as “negative peer social relations”, “positive peer social relations”, “task orientation”, “emotional sensitivity/anxiety”, “self reliance”, “frustration tolerance”, and “positive disposition”. Subscales and their items are displayed in Table 2. Subscales included 4 to 7 items.

**Sample 2.** We repeated the same analyses with the national sample to confirm the factor structures. The results of PCA were almost identical for the two sample groups. In this sample, there were 7 factors with eigenvalues greater than one. In addition, inspection of the scree plot supported the presence of 7 factors. Therefore, both scree and eigenvalue criteria confirmed the 7 factor solution from sample 1. Each subscale explained 6% to 10% of the total variance. Overall, fifty-nine percent of the total variance among items was explained by the 7-factor model. The items loaded into the same subscales derived from sample 1 with two exceptions. The item “is liked by other children” was cross-loaded on negative peer social relations and positive peer social relations (-0.42 and 0.54 respectively). The item “works well without adult support” loaded on the task orientation subscale rather than the self-reliance subscale (Table 2).

**Table 2. Factor Analysis.**

	Study 1 Local Sample						Study 2 National Sample					
	Varimax Rotation (mneigen=1)						Varimax Rotation (mneigen=1)					
	NPSR	PFPSR	TO	ES/A	S-Re	PD	NPSR	PFPSR	TO	ES/A	S-Re	PD
5. Is disliked by other children	0.52					VII						VI
11. Irritates friends	0.68					VI						VI
17. Is avoided by other children	0.58											
23. Loses friends easily	0.60											
29. Fights with other children	0.64											
34. Bothers other children	0.70											
2. Likes to play with other children	0.74						0.79					
8. Has many friends	0.63						0.56					
14. Likes to be with other children	0.72						0.77					
20. Talks easily with other children	0.57						0.65					
26. Is liked by other children	0.58						0.54					
32. Makes friends easily	0.67						0.65					
4. Has difficulty following directions		-0.43						-0.53				
9. Gets back to task quickly after interruptions		0.59						0.62				
10. Completes things he starts		0.60						0.64				
16. Can focus on one thing for some time		0.67						0.73				
22. Jumps from one task to another		-0.60						-0.56				
28. Has a short attention span		-0.70						-0.75				
31. Works well without adult support			0.55		0.40			0.42				
38. Concentrates well				0.69					0.75			
6. Is frightened easily				0.61					0.64			
12. Cries easily				0.61					0.70			
18. Gets nervous easily				0.68					0.54			
24. Is shy, withdrawn				0.55					0.67			
30. Feelings are hurt easily				0.64					0.65			
36. Is a worrier				0.55						0.72		
1. Is a leader					0.61					0.72		
7. Is a self starter					0.69					0.73		
13. Shares ideas					0.57					0.52		
19. Is self motivated					0.64					0.68		
25. Defends own views					0.62					0.57		
3. Stays calm when things do not go his/her way						0.71					0.75	
15. Deals well with failure						0.70					0.75	
21. Deals well with frustration						0.75					0.79	
33. Handles problems well						0.65					0.65	
27. Is usually content												0.69
35. Is easily comforted												0.59
37. Is usually pleased												0.72
39. Is often happy												0.62
Percent of total variance after rotation	8%	9%	8%	7%	8%	7%	10%	10%	8%	8%	8%	6%
Alpha reliability	0.76	0.83	0.81	0.72	0.78	0.80	0.86	0.85	0.79	0.78	0.84	0.78
	Cumulative percent of total variance: 54%						Cumulative percent of total variance: 59%					

NPSR = Negative Peer Social Relations, PFPSR = Positive Peer Social Relations, TO = Task Orientation, ES/A = Emotional Sensitivity/Anxiety, S-Re = Self Reliance, FT = Frustration Tolerance, PD = Positive Disposition

### ***Reliability and Validity Analyses***

For the forthcoming reliability and validity analyses, subscale scores computation was based on the factor structure obtained from the national panel sample group since that was more representative of the general population. The item “works well without adult support” was included in the task orientation scale. In order to obtain a simple structure, the item “is liked by other children” was included in the peer relationships as it has a higher factor loading on that subscale.

We computed P-CRS subscale scores by averaging the score of the items in each subscale. Mean substitution was applied if one item was missing in the subscale. If more than one item was missing, the subscale was treated as missing for that case. In both samples, P-CRS subscale scores were moderately correlated with each other. For the local sample, correlation coefficients ranged from -.28 for negative peer social relations and self reliance to .55 for frustration tolerance and task orientation. For the national panel sample, correlation coefficients ranged from -.25 for emotional sensitivity/anxiety and self reliance to .60 for positive peer social relations and self reliance.

### ***Reliability***

For the local sample, the internal consistency for the 7 factors ranged from  $\alpha = .72$  to  $\alpha = .83$ . Corrected item-total correlations were in an appropriate range ( $r > .33$ ) for all items, suggesting that removal of individual items would not improve the internal consistency of any factor scales. Similarly, for the national panel sample, the internal consistency for the 7 factors ranged from  $\alpha = .78$  to  $\alpha = .86$ . Corrected item-total correlations were in an appropriate range ( $r > .30$ ) for all items.

### ***Validity***

**Sample 1.** In general, T-CRS subscales and COR social scores were hypothesized to correlate positively with P-CRS competence subscales, positive social peer relations, task orientation, self reliance, frustration tolerance, and positive disposition and negatively with P-CRS deficiencies subscales, negative peer social relations and emotional sensitivity/anxiety. In addition, T-CRS subscales should show stronger relationship with their corresponding P-CRS subscales than other subscales, for example, T-CRS task orientation should correlate strongest with P-CRS task orientation than other P-CRS subscales. All the correlations were expected to be in low to moderate magnitude. Table 3 demonstrates that the majority of parent ratings of the socio-emotional functioning of their children correlated well with teacher observation of behaviors in the classroom. Both teacher observation measures, the COR subscales and the T-CRS subscales, were moderately correlated with the P-CRS subscales (parent report measures) in the expected direction. Overall, the COR social subscale was positively associated with parent report of positive peer social relations, task orientation, self reliance and positive disposition ( $r = .07$  to  $.14, p < .01$ ) and negatively associated with negative peer social relations ( $r = -.15, p < .01$ ). Similar results were observed for COR cognitive and motor subscales; however, the effects were lower compared to COR social.

**Table 3. Correlations between P-CRS, COR and T-CRS in Sample 1**

	NPSR	PPSR	TO	ES/A	S-Re	FT	PD
P-CRS PPSR	-0.39**						
P-CRS TO	-0.47**	0.42**					
P-CRS ES/A	0.38**	-0.24**	-0.27**				
P-CRS S-Re	-0.23**	0.53**	0.53**	-0.25**			
P-CRS FT	-0.32**	0.37**	0.55**	-0.27**	0.42**		
P-CRS PD	-0.41**	0.55**	0.48**	-0.25**	0.47**	0.42**	
COR Social	-0.15**	0.14**	0.13**	-0.02	0.09**	0.07*	0.10**
COR Motor	-0.12**	0.09**	0.12**	-0.03	0.06*	0.05	0.08*
COR Cognition	-0.14**	0.10**	0.13**	-0.05	0.07*	0.03	0.09*
T-CRS TO	-0.20**	0.13**	0.26**	-0.03	0.13**	0.20**	0.18**
T-CRS BC	-0.21**	0.08*	0.22**	0.01	0.02	0.20**	0.17**
T-CRS As	-0.08**	0.20**	0.14**	-0.12**	0.22**	0.15**	0.15**
T-CRS PS	-0.20**	0.18**	0.23**	-0.04	0.13**	0.20**	0.18**

Note: P-CRS = Parent-Child Rating Scale; COR = Child Observation Record; T-CRS = Teacher-Child Rating Scale; NPSR = negative peer social relations; PPSR = positive peer social relations; TO = task orientation; ES/A = emotional sensitivity/anxiety; S-Re = self reliance; FT = frustration tolerance; PD = positive disposition; BC = behavior control; AS = assertiveness; PS = peer social; \*\*  $p < .01$ ; \*  $p < .05$

Parent report of task orientation and teacher report of task orientation was correlated at  $r = .26, p < .01$ . Other P-CRS subscales including positive peer social relations, self reliance, frustration tolerance, and positive disposition were positively correlated with T-CRS task orientation from  $r = .13$  to  $.20, p < .01$ . P-CRS negative peer social relations was negatively correlated with T-CRS task orientation ( $r = -.20, p < .01$ ).

T-CRS behavior control correlated with P-CRS positive peer social relations, task orientation, frustration tolerance and positive disposition ( $r = .08$  to  $.22, p < .01$ ). P-CRS negative peer social relations correlated with lower T-CRS behavior control ( $r = -.21, p < .01$ ).

T-CRS assertiveness correlated with P-CRS self reliance at  $r = .22, p < .01$ . Other P-CRS subscales that predicted T-CRS assertiveness included positive peer social relations, task

orientation, frustration tolerance and positive disposition ( $r = .14$  to  $.20$ ,  $p < .05$ ). P-CRS emotional sensitivity/anxiety was negatively correlated with T-CRS assertiveness ( $r = -.12$ ,  $p < .01$ ).

T-CRS peer social was negatively associated with negative peer social relations ( $r = -.20$ ,  $p < .01$ ) and positively associated with positive peer social relations ( $r = .18$ ,  $p < .01$ ). Other P-CRS subscales that were associated with T-CRS peer social included task orientation, self reliance, frustration tolerance, and positive disposition ( $r = .13$  to  $.23$ ,  $p < .01$ ).

These patterns of results showed some support of convergent and discriminant validity of the P-CRS scale as P-CRS subscales tend to correlate strongest with their T-CRS corresponding subscales compare to other subscales.

**Sample 2.** We used parent report of health and developmental problems to validate the P-CRS in this sample. We hypothesized that negative peer social relations and emotional sensitivity/anxiety were negatively associated with parental report of child's overall health and child's mental or emotional health, and positively associated with parental report of behavior problems and early intervention services. Positive peer social relations, task orientation, self reliance, frustration tolerance, and positive disposition would have the opposite pattern for those outcome variables. Children diagnosed with ASD or ADD/ADHD were hypothesized to have lower scores in social competence subscales and higher scores in social deficiencies subscales.

As expected, negative peer social relations and emotional sensitivity/anxiety were negatively associated with parental report of child's overall health and child's mental or emotional health, ( $r = -.18$  to  $-.40$ ,  $p < .01$ ) and positively associated with parental report of behavior problems and early intervention services ( $r = .08$  to  $.35$ ,  $p < .01$ ) (Table 4). Positive peer relationships, task orientation, self reliance, frustration tolerance, and positive disposition had the opposite pattern. They were generally associated with higher parental report of child's overall health, child's mental

or emotional health ( $r = .17$  to  $.46$ ,  $p < .01$ ), and lower report of behavior problems and early intervention services ( $r = .09$  to  $.39$ ,  $p < .01$ ).

**Table 4. Correlations between P-CRS and Health Measures in Sample 2**

	NPSR	PPSR	TO	ES/A	S-Re	FT	PD
P-CRS PPSR	-0.63**						
P-CRS TO	-0.51**	0.44**					
P-CRS ES/A	0.36**	-0.32**	-0.27**				
P-CRS S-Re	-0.35**	0.60**	0.52**	-0.25**			
P-CRS FT	-0.31**	0.33**	0.52**	-0.39**	0.34**		
P-CRS PD	-0.48**	0.59**	0.52**	-0.41**	0.49**	0.50**	
<b>Health</b>							
Child's overall health	-0.22**	0.20**	0.17**	-0.18**	0.19**	0.03	0.18**
Child's mental or emotional health	-0.41**	0.36**	0.39**	-0.31**	0.31**	0.30**	0.46**
Behavior problems	0.35**	-0.24**	-0.39**	0.23**	-0.25**	-0.27**	-0.28**
Early intervention services	0.13**	-0.14**	-0.24**	0.08*	-0.21**	-0.09**	-0.09**

Note: NPSR = negative peer social relations; PPSR = positive peer social relations; TO = task orientation; ES/A = emotional sensitivity/anxiety; S-Re = self reliance; FT = frustration tolerance; PD = positive disposition; \*\*  $p < .01$ ; \*  $p < .05$

Twenty of the parents reported that their child was diagnosed with Autism Spectrum Disorder (ASD) and 34 parents reported that their child was diagnosed with Attention Deficit Hyperactivity Disorder (ADHD)/Attention Deficit Disorder (ADD). *t*-tests were performed to compare the subscales' scores between children who were diagnosed with Autism Spectrum Disorder (ASD), and Attention Deficit Hyperactivity Disorder (ADHD)/Attention Deficit Disorder (ADD) to children who were not. We found that children who were diagnosed with ASD scored significantly lower in social-emotional competence subscales including positive peer social relations,  $t(1195) = -6.19$ ,  $p < .01$ , task orientation,  $t(1194) = -6.84$ ,  $p < .01$ , self reliance,  $t(1194) = -8.89$ ,  $p < .01$ , frustration tolerance,  $t(1196) = -4.65$ ,  $p < .01$  and positive disposition,  $t(1195) = -3.33$ ,  $p < .01$  and scored significantly higher in negative peer social relations,  $t(1195) = 2.79$ ,  $p < .01$  and emotional sensitivity/anxiety,  $t(1195) = 2.56$ ,  $p < .05$ , than their counterparts. Similarly, children

who were diagnosed with Attention Deficit Hyperactivity Disorder (ADHD)/Attention Deficit Disorder (ADD) scored significantly lower in social-emotional competence subscales including positive peer social relations,  $t(1192) = -3.91, p < .01$ , task orientation,  $t(1191) = -9.38, p < .01$ , self reliance,  $t(1191) = -4.50, p < .01$ , frustration tolerance,  $t(1193) = -2.98, p < .01$  and positive disposition,  $t(1192) = -5.02, p < .01$  and scored significantly higher in negative peer social relations,  $t(1192) = 6.69, p < .01$  and emotional sensitivity/anxiety,  $t(1192) = 2.77, p < .05$ , than their counterparts.

## Discussion

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The P-CRS is a questionnaire designed to assess children's social and emotional development using parent report. In this study, we examined factor structure, reliability, and validity of P-CRS using both a large urban sample and a national sample of parents of young children. Exploratory factor analysis revealed 7 domains of social-emotional development, namely, social awareness/aggression, peer relationships, task orientation, emotional sensitivity/anxiety, self reliance, frustration tolerance, and self-regulation. These domains cover a broad range of social and emotional competencies and deficiencies.

This study has several strengths. First, we were able to replicate our results in both a large urban sample and a national panel sample. We found that the P-CRS has the same factor structure and high internal reliability across the two samples. This supports the generalizability of the P-CRS in low SES, predominantly African American urban populations, and in the general United States population.

Second, the P-CRS was completed by pencil and paper in Sample 1 and electronically in Sample 2, and both data-collection methods resulted in high internal reliability, and similar factor structure. This suggests that either method of administration is reasonable for future use of the P-

CRS. The option of completing the questionnaire online can greatly increase the time- and cost-efficiency of measure administration. Moreover, online questionnaires allow instant calculation of children's social-emotional development scores and comparison to national norms.

Third, the P-CRS was validated against different measures and responders. In particular, it was validated against teachers' observation-based reports using well-established and widely used measures (COR and T-CRS) in the urban sample, and against parent reports of health and developmental problems in the national panel sample. These analyses revealed reasonable correlations in the expected direction across multiple measures.

As anticipated, the P-CRS subscales have low to moderate correlations with T-CRS subscales. Low to moderate agreements between teacher and parent reports are well-documented in the literature (Achenbach, et al., 1987; Tasse & Lecavalier, 2000). Because the items of P-CRS were adopted from the T-CRS, we are more confident that the low to moderate correlation was not due to method errors from differences between parents' and teachers' items.

More likely, it is due to the fact that the observed social and emotional behavior was measured in different contexts (classroom vs. home) and children often exhibit different behavior in different settings. In addition, teachers and parents are likely to have different perspectives on children's development. In other words, parents might provide unique information beyond that of teachers which together, can give a more complete and global evaluation of child's social-emotional development.

There are some potential limitations to this study. It is unclear whether the questionnaire can be applied for different age groups, for example grade school children, as we only included parents of pre-K and Kindergarten children in this study. In the future, we plan to include children of older ages to test the validity of the scale for those age groups. Further, we could only evaluate

data from those who responded to the surveys and who could read and answer the items, limiting our ability to generalize the data to all populations. Finally, in order to be used as a screening tool, the P-CRS needs to be further validated against established diagnostic measurement of social-emotional development.

### ***Practical Application***

This study provides support that the P-CRS is a reliable tool for assessing children's social and emotional competence and deficiencies in a school setting. Early detection of difficulties is necessary to ensure timely access to services and healthy development and success in school. In turn, early intervention can improve quality of care and reduce social economic disparities.

Other potential applications for the P-CRS include program and curriculum evaluation, where the P-CRS can be used as a standalone questionnaire or it can be used with other measures, such as the T-CRS. Systematic evaluation is an essential step to monitor programs designed to enhance children's social and emotional development. The P-CRS and T-CRS together provide a broad picture of children's social and emotional development. The P-CRS provides longitudinal information about children's social and emotional development and also information of the child's functioning outside of the classroom while T-CRS provides cross-sectional information based on observations inside the classroom.

The factor analytic and validity results suggest that teacher and parent view the same constructs in T-CRS and P-CRS in a similar way. However, parents seem to assess their child in a more finite way and this is shown by the greater number of subscales. These results can provide valuable input for teachers when communicating social-emotional development issues with parents.

This is the first parent report measure of which we are aware that is designed to complement a teacher report on children's social-emotional development. Findings from this study demonstrate that the P-CRS is a promising assessment tool. Educators and clinicians are encouraged to utilize P-CRS to assess children's social and emotional development. In addition, it is our hope that the use of P-CRS and T-CRS can facilitate teacher-parent communication. Further research is needed to investigate the psychometric properties of the P-CRS in additional samples, to establish test-retest reliability and to set cutoff points for clinical screening.

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