DPICS Psychometric Analyses

Initial Classification of the DPICS Items

The items of the DPICS instrument were classified into seven groups based on substantive considerations. The original classification of the items is presented in Attachment 1 and denoted with a "S"(for Suggested). These seven groups consisted of the following topic areas:

- Child's overall negative conduct

- Child's affectionate or positive behavior

- Parent negativity/hostility/harshness in dealing with problem behaviors

- Ineffective use of discipline (too many commands, not giving opportunity to child to comply, etc.)

- Detached parenting

- Parenting competence in response to positive/prosocial behaviors of the child

- Affectionate parenting

The psychometric analyses that followed were initiated based on the above listed categorization of the items. Basic psychometric analyses were conducted using the pre-intervention assessments for Headstart studies 1 and 2 (N=882). About 820 parent-child dyads had DPICS assessments in this sample.

Assessment of Child Behavior with the DPICS

The DPICS instrument coded negative conduct, non-compliance, and positive behavior. The positive and negative behavior items were separately analyzed using exploratory factor analyses. The items that significantly contributed to these two factors are indicated in Attachment 1 with an "I" (for Included). The coders also rated the overall valence of the child using a 5-point scale from extremely negative to extremely positive. This item was also included in the child behavior scales. There were several additional items in DPICS that indicated child compliance and non-compliance. These were direct and indirect commands to which child complied or did not comply, warnings and "grandma's rules" to which child complied or did not comply. While it is possible to include these items in corresponding child behavior scales, we refrained from doing this because these items are also included in parenting scales. By including them in both parenting and child scales, one may introduce a spurious correlation between child behavior and parenting behavior that may bias the link between these two constructs.

The dominant factor of child negative behavior items accounted for 45% of the joint variance of six items considered for this measure. The resulting child negative behaviors subscale had and an internal reliability of 0.75. There were only four items describing positive or prosocial behaviors of the child and the dominant factor of these four items accounted for 43% pf their joint variance. The internal reliability of positive/prosocial beahaviors scale was 0.52.[1]

Validity of the two child behavior scales were satisfactory. The two subscale scores were correlated by -.14. The convergent/discriminant validity analyses supported the interpretation of the negative behaviors subscale. The correlation of this latter subscale score with CBCL externalizing problems score was .16, and with ECBI intensity scale was .20. The correlation of this subscale score with the CII negative behaviors scale score (which is observed at the same time) was .68, indicating that similar situational factors may have influenced both of these measures. The discriminant validity of the positive behaviors subscale was somewhat weaker than the

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[1] The alpha for the positive behaviors is rather low but this is expected when there are only 4 items. Caution may be warranted in using this measure in multivariate models.

negative behaviors scale. It was uncorrelated with measures of behavior problems such as CBCL externalizing and ECBI, and positively correlated with the CII positive behaviors scale (.47).

Assessment of Parenting

Five topic areas of parenting were thought to be represented by the DPICS items. However, two of these topic areas, detached parenting and affectionate parenting, were not represented by enough numbers of items. The items that represented affectionate parenting and reverse of those that represented detached parenting were included in a scale score that combined positive, engaged and affectionate parenting. Factor analyses generally supported the remaining three topic areas of parenting, i.e., harsh, ineffective, and supportive parenting. In some instances some of the DPICS items had to be substantially modified, combined, and/or recoded in order to accurately represent the underlying construct. The psychometric properties of the four final parenting measures are presented next. The items that were included in each topic area are indicated with an "I" and those that were included after substantial modification are indicated with an "M" in Attachment 1.

Harsh parenting

Eleven items were considered for inclusion in the negative, harsh or hostile parenting behaviors, and coercive authority styles. Among these, "parent physical intrusion" was intended to represent behaviors that were controlling (e.g., grabbing a toy away from the child), however in practice it included coding of behaviors that were not controlling. It was therefore, weakly correlated with other harsh parenting items, and was excluded from the final scale. The DPICS items pertaining to direct commands and warnings were added to represent a "total commands" and a "total warnings" item. These total count variables were then recoded. Commands that were at the level of the median (15) or below were coded as 0, and the remaining counts were coded into 6 additional categories. Total warnings were coded into none, one, and two or more warnings. The parent valence scale was coded to 0 for exuberant to average, and the remaining two negative valence codes were recoded to one and two, representing the degree of negativity.

The resulting six items yielded a single factor that accounted for 43% of their joint variance. The internal reliability of the scale constructed from these eleven items was .67. This scale score was not significantly correlated with the positive parenting scales of DPICS. It was positively associated with the CII harsh parenting scale (.65) and negatively associated with the CII preventive, supportive, and affectionate parenting scales (-.24, -.26, -.27, respectively). Additionally, it was strongly positively associated with the CII and DPICS child negative behaviors scales (.54 and .42, respectively) and maternal reports of child behavior problems (CBCL r=.16, and ECBI r=.13). Its association with CBCL externalizing score was higher than CBCL internalizing score (.05, not significant). Depressed or angry parents had significantly higher mean harsh parenting scores than non-depressed or non-angry parents. The seven-month stability for the harsh parenting subscale was high (.50) among those parents who did not receive parenting training or other related services.

Ineffective parenting

There were seven items in the DPICS that represented parenting problems other than hostility or harsh discipline. These pertained to inappropriate expression of demands, no waiting until the child could respond to a command or warning, etc. It was hypothesized that too many indirect commands in excess of direct commands may represent an ineffective attempt to discipline. In order to operationalize this concept, all indirect commands were summed into a total count of indirect commands and the total number of direct commands was subtracted from this, resulting in a measure of "excess" indirect commands. The median excess indirect commands was 6 in this sample. This quantity was recoded zero to four, where zero was median level or less excess indirect commands and four indicated forty or more excess indirect commands in 30 minutes. The resulting six items yielded a dominant factor that accounted for 32% of their joint variance. The internal reliability of the scale constructed from these items was relatively low (.51).

The ineffective parenting scale of DPICS is slightly different in content from that assessed by the CII, in that it does not address the area of inconsistent parenting or parenting behaviors that give up on previously stated commands. Therefore a very high correlation between this and CII ineffective parenting scales is not expected.

Indeed, the correlation of these two measures of ineffective parenting was .18. This scale score was positively associated with the DPICS and CII child negative behaviors scales (.18 and .31, respectively). It was not significantly associated with the CII or DPICS child positive behaviors scales. Its association with CBCL externalizing, ECBI intensity, and CBCL internalizing scores was non-significant. Depressed and non-depressed parents did not significantly differ in mean ineffective parenting scores. Angry parents had marginally higher ineffective parenting scores than non-angry parents (p<.10). The seven-month stability correlation for the ineffective parenting scale was .32 among those parents who did not receive parenting training or other related services. Overall the validity and reliability of this scale is not very satisfactory but if used jointly with other ineffective parenting measures, it may contribute to the measurement of this construct because it addresses a dimension of ineffective parenting that is not addressed by the other measures included in the Headstart study.

Parenting supportive of prosocial behaviors

There were six items in the DPICS that were originally considered for representing parenting practices that promoted positive and prosocial child behaviors. Psychometric analyses indicated that one of these items, problem solving behaviors, were present in too few parents and could not be included in the final scale due to distributional difficulties. Only 9% of the parents had a non-zero code for this variable, perhaps because the children in this study were too young. The remaining five items constituted a single factor accounting for 47% of their joint variance. The internal reliability of the scale constructed from these items was .75.

This supportive parenting scale score was positively associated with the CII supportive and preventive parenting scale scores (.43 and .38, respectively). It was negatively associated with CII and DPICS child negative behaviors scales (-.18 each) and positively associated with the CII and DPICS child positive behaviors scales (.33 each). This score was not significantly associated with the CBCL externalizing, internalizing, and ECBI intensity scores. Depressed and angry parents did not significantly differ in their mean supportive parenting scores from non-depressed or non-angry parents. The seven-month stability correlation for the supportive parenting subscale was .50 among the parents who did not receive parenting training or other related services.

Combined supportive/engaged/affectionate parenting score

In addition to the supportive parenting items, there were five items in DPICS that represented affectionate behaviors and neutral parent engagement. These were positive affect, questions, statements, and overall positive valence. Positive physical contact code included neutral and unintentional physical contact with affectionate physical contact. This item was therefore not significantly associated with other affectionate behaviors as assessed by DPICS. It was excluded from further consideration. The four items representing affectionate and engaged behaviors were added to the six items that represented supportive parenting to construct a scale that represented combined positive parenting. The factor analysis yielded a dominant factor that accounted for 39% of the combined variance of all ten items. The internal reliability of the combined positive parenting scale was high (.83).

As expected, the combined scale score was highly correlated with supportive parenting scale (.91). These two scales should not be used in analyses together because of the substantial overlap between them. The positive parenting scale was negatively correlated with child negative behaviors as assessed by the CII and DPICS (-.22 and -.23, respectively) and positively correlated with child affectionate/prosocial behaviors assessed by the same two instruments (.42 and .46, respectively). Its correlations with the CBCL externalizing and ECBI intensity scores were small and non-significant. Depressed parents had significantly lower positive parenting scores than non-depressed parents. Note that the combined score was significantly associated with depressive symptoms while the supportive parenting score was not. This indicates the stronger association of the combined score with affect than the supportive parenting behaviors. Therefore the supportive parenting scale may be more malleable with respect to parenting intervention than the combined scale score. The seven-month stability correlation for the combined positive parenting scale was .52 among the parents who did not receive parenting training or other related services.

Attachment 1: Assignment of DPICS Items to DPICS Subscales for the Headstart Studies 1 and 2

Legend: S- Suggested on conceptual grounds; I – Included and supported by factor analysis results; E – Excluded because it did not load in a meaningful factor; M – Variable was substantially modified and included in the scale.

		Harsh Parenting	Ineffective Parenting	Parenting Supportive of Prosocial Behavior	Detached Parenting	Affectionate Parenting[a]	Child Negative Behavior	Child Positive Affectionate
PPDATP1	parent acknowledge			S – I				
PPDATP2	parent phys intrusion	S - E						
PPDATP3	parent irrelev verbal				S - E			
PPDATP4	parent critical neg command	S – I						
PPDATP5	parent critical critical	S – I						
PPDATP6	parent phys negative	S – I						
PPDATP7	parent phys positive					S – E		
PPDATP8	parent positive affect					S – I		
PPDATP9	parent unlabeled praise			S – I				
PPDATP10	parent labeled praise			S – I				
PPDATP11	parent question				S - R	I		
PPDATP12	parent des question encourage			S – I				
PPDATP13	parent problem solving			S – E				
PPDATP16	parent statement				S – R	I		
PPDATP17	parent des comment encourage			S – I				
PPDATP18	parent indirect c no opp		S – I					
PPDATP19	parent indirect c compliance		S – M					
PPDATP20	parent indirect c noncompliance		S – M					
PPDATP21	parent direct c no opp	S – M	S – I					
PPDATP22	parent direct c compliance	S – M						
PPDATP23	parent direct c noncompliance	S – M						
PPDATP24	parent grandmas rule no opp		S – I					
PPDATP25	parent grandmas rule compliance							
PPDATP26	parent grandmas rule noncompliance							
PPDATP27	parent warning no opp	S - M	S – I					

		Harsh Parenting	Ineffective Parenting	Parenting Supportive of Prosocial Behavior	Detached Parenting	Affectionate Parenting[a]	Child Negative Behavior	Child Positive Affectionate
PPDATP28	parent warning compliance	S – M						
PPDATP29	parent warning noncompliance	S – M						
PPDATP30	parent time out warning no opp		S – I					
PPDATP31	parent time out warning compliance							
PPDATP32	parent time out warning noncompliance							
PPDATP33	parent marital critical male							
PPDATP34	parent marital critical female							
PPDATP35	parent parent ignore				S - E			
PPDATC1	child phys negative						S – I	
PPDATC2	child destructive						S – I	
PPDATC3	child smart talk						S – I	
PPDATC4	child cry whine yell						S – I	
PPDATC5	child positive aff nonverbal							S – I
PPDATC6	child positive aff verbal							S – I
PPDATC7	child physical warmth							S – I
PPDATC8	child sib deviance						S – I	
PPDATS1	fath moth teach valence	S - M				S – M		
PPDATS2	child valence						S - M	S – M
PPDATS3	marital valence							

Notes:
a. Affectionate parenting items could not be included in a scale because there were too few of them. Instead, these items were added to supportive parenting items to construct as global affectionate – supportive – engaged parenting scale.