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## A Longitudinal Investigation of Parenting Stress in Caregivers of Children with Retinoblastoma

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### Abstract

**Background**—Retinoblastoma is typically diagnosed in young children and may present unique parenting challenges. Qualitative research suggests that parents experience distress related to the initial diagnosis and treatment that subsequently resolves. The objectives were to systematically assess parenting stress over time in parents of young children with retinoblastoma and to examine associations between parenting stress and child outcomes.

**Procedures**—Parents of children with retinoblastoma completed the Parenting Stress Index (PSI) during serial psychological assessments scheduled based on the child's age (age 6 months to 5 years). Caregivers of 92 patients (85.9% mothers) completed the assessments. Child outcomes included developmental functioning and parent-reported adaptive functioning.

**Results**—At baseline and age 5, all subscales on the PSI were within normal limits, and most were significantly below normative means (i.e., demonstrating low levels of stress). All domains remained relatively stable over time. Associations between parenting stress and child outcomes were much stronger at age 5 than at baseline. Child-directed parenting stress was a small but significant contributor to declines in child functioning over time.

**Conclusions**—Parents of children with retinoblastoma report normal levels of parenting stress while their children are young. However, baseline parenting stress appears to contribute to changes in child functioning over time. Future studies should assess illness-related aspects of adjustment to further understand the parenting experience of young children with cancer and/or having a visually-impaired child.

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## Keywords

parenting stress; retinoblastoma; childhood cancer; longitudinal

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## Introduction

A cancer diagnosis in a child is a stressful event for all families. The diagnosis and subsequent treatments often require frequent medical visits, including hospitalizations, and may lead to time away from school, work, and/or other family members if treatment occurs at a medical center far from home. Once treatment is over, families will transition back into their pre-cancer lives, with most describing the adjustment as striving to find a “new normal.” This new normal likely involves regular medical visits and disease evaluations, and may also include rehabilitation appointments or other services required to cope with the after effects of the disease and its treatments.

Retinoblastoma is a rare eye cancer that is typically diagnosed in children under the age of 2 years.<sup>1, 2</sup> While survival rates are high, treatment of retinoblastoma is complex, as decisions need to be made not only for cancer cure, but also for eye salvage and vision preservation. Children with unilateral disease have been typically treated with upfront enucleation, although in recent years, eye salvage therapies including intra-arterial chemotherapy have become a standard of care in many centers.<sup>1</sup> For children with bilateral disease, an intense multidisciplinary approach with systemic or intra-arterial chemotherapy and focal treatments is typically used, and upfront enucleation is reserved for those cases with very advanced intraocular disease or failure of conservative treatments.<sup>1</sup> For children who require enucleation, a prosthetic is fitted, which requires regular cleanings as well as modification as the child ages and the facial bones develop. For unilateral patients, vision in the remaining eye is typically spared;<sup>3</sup> however it is strongly recommended that children wear glasses to protect that eye.

Limited research has focused explicitly on children with retinoblastoma, with even less known about their parents. This represents a significant gap in the literature given the uncertainties associated with the cancer diagnosis and the long-term functional outcomes in this young population. Qualitative reports have suggested that parents experience elevated levels of stress associated with the initial diagnosis.<sup>4, 5</sup> This period has been described as particularly overwhelming for parents of children that require enucleation,<sup>4, 5</sup> especially if no other treatment is indicated. Over time, however, families have described a return to normal; though questions regarding prognosis, the child’s psychological reactions, and long-term outcomes arise as the child progresses developmentally.

These qualitative reports provide rich descriptions of parental reactions during the diagnosis, treatment, and off-therapy phases, and highlight some of the unique aspects of parenting a child with retinoblastoma that may not affect parents of children with other cancers. For example, retinoblastoma results in visual morbidity and continuous care of the prosthetic is required, long after treatment has ended and a cure has been achieved. There also may be visual impairments that require special educational and/or functional supports, as well as therapies to address or prevent deficits. Studies of children with non-retinoblastoma visual

impairments suggest that parents report more stress than parents of typically-developing children.<sup>6</sup> Additionally, given that children with retinoblastoma are very young at diagnosis, there are increased responsibilities and pressures placed on parents to speak for them, and to determine both their physical and mental states for the medical team; such responsibilities are not as prevalent in older children. Finally, many cases of retinoblastoma are the result of a genetic mutation passed from parent to child, which may impact parents' decisions regarding having additional children.<sup>7</sup> Ultimately, these factors support the need to systematically assess parenting stress and other aspects of adjustment in parents of children diagnosed with retinoblastoma.

An earlier paper by our group<sup>8</sup> described unexpected declines in developmental and adaptive functioning over time in children with retinoblastoma. Such declines were in contrast to all prior studies of retinoblastoma which have demonstrated cognitive abilities typically in the average range or higher.<sup>9-11</sup> We hypothesized that non-illness related factors – like parenting stress – may have influenced outcomes, particularly given that the largest declines were observed in those children who received enucleation and no other treatment.<sup>8</sup> Two papers<sup>12, 13</sup> examined the influence of parenting stress on neurocognitive outcomes in children with cancer (leukemia and lymphoma). Both papers demonstrated that parenting stress influenced neurocognitive outcomes, particularly with regard to parent-reported functioning, with higher parenting stress associated with greater functional impairment in survivors. Such findings lend support to our hypothesis that parenting stress may influence child outcomes in parents of children with retinoblastoma, and call for additional research regarding interactions between parent and child outcomes.

The objective of the current paper was to systematically assess the parenting stress of caregivers of children with retinoblastoma over time, and to examine associations with child outcomes. As part of their enrollment on an institutional treatment protocol, children completed serial psychological assessments that also included measures of parental functioning. It was hypothesized that parents would report increased levels of stress shortly after their child was diagnosed, but that this stress would dissipate over time. It was also hypothesized that parenting stress would be associated with child outcomes (adaptive and developmental functioning), such that greater parenting stress would be associated with lower levels of child functioning.

## Methods

### Procedure

Children diagnosed with retinoblastoma were eligible for an institutional treatment protocol (RET5), with enrollment completed between April of 2005 and November of 2010. The protocol – including the psychological assessment portion (see below) – was approved by the Institutional Review Board, and all parents/guardians provided informed consent. At enrollment, patients were stratified by disease stage and laterality (unilateral vs. bilateral), with a combination of therapies then offered based on strata, including enucleation, chemotherapy, focal therapies and/or external beam radiation therapy, as previously reported.<sup>14, 15</sup>

As part of their enrollment on RET5, patients were eligible to complete serial psychological assessments. Given that the vast majority of patients are diagnosed under the age of 2 years, assessments were scheduled based on patient age, rather than time since diagnosis. More specifically, assessments were completed within 3 months of the following time points: at the time of study entry (baseline), 6 months, 1, 2, 3 and 5 years of age. Assessment appointments were scheduled in conjunction with medical visits and took place in the hospital's Psychology Clinic. All measures were administered and scored by senior psychological examiners who were supervised by licensed psychologists.

The assessment battery included both objective measures of cognitive development [Mullen Scales of Early Learning<sup>16</sup>], as well as parent-completed measures of adaptive [Vineland Scales of Adaptive Behavior, Interview Edition<sup>17</sup>] and social-emotional functioning [Ages and Stages Questionnaire<sup>18</sup>]. Preliminary findings from these measures have been previously reported.<sup>8</sup> Additionally, a caregiver completed a measure of parenting stress [Parenting Stress Index<sup>19, 20</sup>], which is the focus of the current paper. For our purposes, "caregiver" was defined as the legal guardian accompanying the child to clinic appointments, and could include parents, as well as other adult caregivers (e.g., grandparents, foster parents). The same caregiver completed measures at all time points.

## Participants

All patients enrolled on the RET5 protocol who spoke English and were 5 years of age or younger at the time of diagnosis were eligible to complete serial psychological assessments. Of 107 patients enrolled on RET5, caregivers of 92 patients (86%) completed the PSI at least once (median number of assessments = 3, range 1 – 6). Children who did not complete assessments were significantly older at diagnosis ( $t(105) = -4.41, p < .001$ ) and more likely to be a non-African American minority ( $\chi^2 = 39.49, p < .001$ ).

Children were an average of 1.30 years old at diagnosis (standard deviation = 1.13, range less than one month to 5.61 years of age). The majority of children were white (n = 62, 67.4%), with a high proportion of African-Americans (n = 22, 23.9%). The sample was evenly split with regards to gender (n = 45, 48.9% female). Consistent with epidemiological predictions,<sup>2</sup> over half of patients were diagnosed with unilateral retinoblastoma (57.6%, n = 53). Ten patients were diagnosed with retinoblastoma as a function of 13q deletion syndrome which is associated with, among other things, neurological impairments and intellectual disability.<sup>2, 21, 22</sup> One-third of patients underwent enucleation only; all other patients completed some type of systemic chemotherapy. All demographic and treatment information is in Table 1.

Caregivers were an average of 28.38 years of age (standard deviation = 7.05, range 17.75 to 57.75) at the time of the child's diagnosis. The vast majority of parents were mothers (85.9%) and married or living as married (69.6%), with a significant minority identifying as single (23.9%).

## Measures

**Parenting Stress Index [PSI].<sup>19, 20</sup>**—The PSI is a commonly used measure of parenting stress. In 101 questions, the PSI delineates between stress as a function of child characteristics (e.g., adaptability, demandingness, mood) and stress as a function of parent characteristics (e.g., depression, sense of competence, social isolation). Multiple sub-domains add up to a Child Domain score (6 subscales), a Parent Domain score (7 subscales), and a Total Stress Score. Raw scores are calculated and ranges (low, normal, high) are provided for interpretation. Additionally, mean scores from a normative sample are available for each sub-domain and domain for comparison purposes.

**Mullen Scales of Early Learning.<sup>16</sup>**—The Mullen is a measure of developmental functioning appropriate for use with children from birth through age 5. It is an examiner-administered instrument that uses toys, games, pictures, and other objects to elicit information about a child's language, fine and gross motor skills, and overall early learning capabilities. Raw scores are converted to age-normed T-scores for subscales and a standard score (normative mean = 100, SD = 15) for the overall Early Learning Composite. The Early Learning Composite was used for the current study.

**Vineland Scales of Adaptive Behavior [VABS].<sup>17</sup>**—The VABS is an examiner-administered semi-structured interview of parents that assesses adaptive functioning from birth through adulthood. Subscales including Motor Skills, Communication, Socialization, and Daily Living Skills combine into an overall Adaptive Behavior Composite. The Adaptive Behavior Composite is an age-normed standard score (normative mean = 100, SD = 15) and was used for the current study.

## Analytical Plan

Due to multiple comparisons, the alpha was set at  $p < .01$  for all analyses that involved both domains and sub-domains. For analyses that involved just the domain scores (Child, Parent, Total), alpha was set at  $p < .05$ . At baseline (assessment completed within 3 months of study entry) and age 5 years, estimated mean scores for all domains and subdomains of the PSI were compared with published normative means via one-sample t-tests. ANOVAs were used to assess for possible differences between treatment strata at these two time points. Independent sample t-tests were calculated to examine differences in parenting stress based on caregiver gender (male vs. female) and marital status (married vs. other). Longitudinal trends were analyzed for the entire group using linear mixed-effect models accounting for the effect of patient age. Correlations were computed between measures of child functioning (Mullen, VABS) and parenting stress at baseline and age 5. Linear models were calculated to explore the impact of baseline parenting stress on child functioning over time.

## Results

### Parenting Stress

Overall mean scores at both baseline and age 5 were well within the Average range, suggesting normative amounts of parenting stress, with a minority of parents falling within the clinical range (Table 2). More specifically, at baseline, average child-specific stress was

at the 40<sup>th</sup> percentile, parent-related at the 17<sup>th</sup> percentile, and overall stress at the 30<sup>th</sup> percentile. At age 5, average child-directed stress was at the 35<sup>th</sup> percentile, parent at the 20<sup>th</sup> and total at the 24<sup>th</sup> percentile. For all domains and sub-domains, a series of one-sample *t*-tests revealed that average stress levels were below the normative means, and in most cases, the difference was statistically significant (Table 2).

There were no differences between treatment-related strata for the three broader domains – Child, Parent and Total Stress – at baseline ( $F = 1.23, 0.77, \text{ and } 1.32$ , respectively; all  $p$ 's non-significant) and age 5 ( $F = 0.42, 0.94, \text{ and } 0.72$ , respectively; all  $p$ 's non-significant). At baseline, there were no significant differences between married and not married parents for child- or parent-related stress; there was, however, a difference in total parenting stress ( $t = 2.31, p < .05$ ), with married parents reporting less overall stress. There were no differences between these groups at the age 5 assessment. Likewise, there were no differences in the parenting stress reported by male and female caregivers at either the baseline or the age 5 assessments.

Longitudinal analyses revealed that almost all domains and sub-domains of the PSI were stable during the study period (Table 3). There were two exceptions. Parenting stress as related to the child's mood increased over time, while stress as related to the child's distractibility or hyperactivity decreased. It should be noted, however, that despite a significant change over time, average scores remained within normal limits for both subscales.

### Associations with Child Functioning

Correlations were computed between the Parent-Directed and Child-Directed Stress scales and the Mullen and VABS at baseline and age 5 (Table 4). Overall, higher levels of parenting stress were associated with lower scores (worse functioning) on the Adaptive Behavior Composite and the Early Learning Composite. More specifically, at baseline, parent ratings of adaptive functioning were associated with parent ratings of child-directed stress ( $r = -.23, p < .05$ ). Associations with the Mullen were non-significant. Associations between parent-directed stress and adaptive or developmental functioning were also non-significant and marginal. In contrast, at age 5, associations between ratings of adaptive functioning and child-directed stress were significantly stronger (Fisher's  $z = 1.88, p < .05$ ; Table 4). The association between child-directed stress and the Mullen was marginally significant ( $r = -.27, p = .056$ ). Additionally, parent-directed stress was now associated with both adaptive functioning on the VABS ( $r = -.35, p < .01$ ) and developmental functioning on the Mullen ( $r = -.29, p < .04$ ).

To further explore the relationship between parenting stress and child outcomes, longitudinal linear models were calculated with child functioning (Mullen and VABS) as the outcome and parenting stress at baseline and age at exam as predictors. Due to the risk of intellectual disability in patients with 13q-syndrome,<sup>21</sup> these patients ( $n=10$ ) were excluded from analyses. As would be expected based on our prior analyses,<sup>8</sup> participants declined significantly over time on both the Mullen (estimate =  $-2.46, t(149) = -4.02, p < .0001$ ) and the VABS (estimate =  $-2.28, t(165) = -4.83, p < .0001$ ). Child-directed parenting stress was a significant predictor for the Mullen (estimate =  $-0.18, t(149) = -2.27, p = .02$ ) and the VABS

(estimate =  $-0.17$ ,  $t(165) = -2.90$ ,  $p = .004$ ), accounting for a decline of about 1 point over the 5 year study period. Parent-directed stress was non-significant for both the Mullen (estimate =  $-0.007$ ) and the VABS (estimate =  $-0.05$ ).

## Discussion

The current study sought to prospectively evaluate parenting stress in a sample of caregivers of children with retinoblastoma treated on an institutional protocol. In contrast to hypotheses, results revealed that parents demonstrated low levels of stress at both baseline (shortly after the child's diagnosis) and when the child was five years old (final time point). Mean scores at both time points were below the normative mean on all subscales, particularly on the parent domain. A few parents fell within the clinical range at each time point. Longitudinal analyses revealed stability across the majority of domains assessed during the study period. Overall, results suggest that caregivers of young children with retinoblastoma experienced low levels of parenting stress during the first few years of their child's diagnosis and treatment, with expected elevations in parental stress surrounding diagnosis not found.

Correlations between parenting stress and measures of child functioning suggested few associations between the two at baseline, whereas associations between parenting stress and child outcomes were much stronger at age 5, and all significant. Moreover, longitudinal analyses suggested that child-directed parenting stress contributed a small but significant amount to overall declines in child functioning. Such findings are in line with other recent studies suggesting that parenting stress influences child cognitive outcomes<sup>12, 13</sup> and also provide support for our prior hypothesis that declines in cognitive functioning observed in children with retinoblastoma are at least partially mediated by parenting stress.<sup>8</sup> Future studies of cognitive or functional outcomes in children with cancer – both those who are expected and those who are not expected to have declines – would benefit from longitudinal designs that include indicators of parenting stress. Further, this growing body of literature may suggest that interventions to target cognitive functioning in children with cancer would benefit from the inclusion of components aimed at parenting stress as well. These interventions may be particularly necessary for parents of young children given the pressures and responsibilities associated with this age group, as well as key research regarding the impact of early experiences on long-term development.<sup>23, 24</sup>

Results of this study are somewhat in contrast with the qualitative reports previously published<sup>4, 5</sup> as well as a recent quantitative study from Japan,<sup>25</sup> that suggested that parents of children with retinoblastoma experience elevated levels of stress around the time of their child's diagnosis. It may be that the PSI is not equipped to assess the particular stressors associated with the retinoblastoma diagnosis, and that illness-specific measures might have been more appropriate.<sup>26</sup> More specifically, it may be that the PSI does not accurately capture those factors that may be most affected by a child's cancer diagnosis, particularly in the years close to diagnosis. Alternatively, it may be that our parents are truly resilient and did not experience elevated stress as related to their child's diagnosis, but rather were able to cope adequately. Indeed, research with parents of children with cancer has frequently highlighted the resilience and growth exhibited by parents during and after the cancer

experience.<sup>27, 28</sup> Future research efforts should focus on better capturing the illness-related stressors of parents of young children with cancer, both with and without retinoblastoma. Indeed, it would be beneficial to know whether the patterns observed during this study are unique to parents of children with retinoblastoma, or are in line with the experience of parents of children with other cancers typically diagnosed during early childhood (e.g., leukemia or neuroblastoma), and/or parents of children with non-cancer related visual impairments. Similarly, future studies may wish to assess parents' retinoblastoma status and to examine the potential influence of genetic heritability on parenting stress.

Results of this study must be interpreted in light of limitations. As this was a longitudinal study with assessments based on child age, our sample size fluctuated, sometimes widely, across time points. As such, there may be biases to our results as a function of this. Additionally, both our parent measure and one of our child outcomes were completed by the same informant. Future studies may wish to use alternate reporters to assess child functioning such as teachers or daycare providers. Finally, our measure of adaptive functioning was published in the 1980s<sup>17</sup> and may contain questions that are irrelevant to our children. While a revised edition of this measure was published shortly after our study commenced,<sup>29</sup> we felt that it was important for measures to remain consistent across the study and therefore did not switch to the updated version.

Ultimately, the results of this study are reassuring regarding the resilience of parents of children with retinoblastoma. Indeed, rates of stress remained well within the normal range for all of our parents, regardless of marital status, parent gender, and treatment plan for the child. However, associations between parent stress and child cognitive and adaptive functioning are worth further exploration and suggest that parenting stress may be influencing child functioning and may benefit from targeted intervention efforts.

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## Glossary

<b>PSI</b>	Parenting Stress Index
<b>VABS</b>	Vineland Scales of Adaptive Behavior

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TABLE I

## Demographic and Treatment Information

	N	%
<i>Child Variables</i>		
Age at diagnosis (years)		
Mean ± Standard Deviation	1.30 ± 1.13	
Median	0.82	
Range	.03 – 5.61	
Gender		
Male	47	51.1
Female	45	48.9
Race		
White	62	67.4
African-American	22	23.9
Multiple Races	3	3.3
Other	5	5.4
Specifics of Retinoblastoma Diagnosis		
Bilateral	33	35.9
Bilateral (Asynchronous)	6	6.5
Left Eye	29	31.5
Right Eye	24	26.1
Treatment Strata		
A (chemotherapy)	22	23.9
B (chemotherapy)	22	23.9
C Low (enucleation only)	30	32.6
C High (enucleation plus chemotherapy)	18	19.6
<i>Caregiver Variables</i>		
Relationship to child		
Mother	79	85.9
Father	9	9.8
Other (foster mother, grandmother)	4	4.3
Age at child's diagnosis		
Mean ± Standard Deviation	28.38 ± 7.05	
Range	17.75 – 57.75	
Marital status at time of child's diagnosis		
Married / Living as Married	64	69.6
Separated / Divorced	4	4.3
Single	22	23.9
Unknown	2	2.2
Number of Assessments *		
Mean	3.09	

	N	%
Median	3	
Range	1 – 6	

\* Maximum sample for specific time points are as follows: Baseline only 25, 6 months 31, 1 year 53, 2 years 67, 3 years 69, 5 years 61.

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Average baseline and Age 5 scores on the Parenting Stress Index for all patients compared to normative means

TABLE II

	Normative			Baseline (n = 84) <sup>a</sup>			Age 5 (n = 57)			
	M	M ± SD	t	b	N (%)	Clinical Range	M ± SD	t	N (%)	Clinical Range
Child Domain	98.4	95.52 ± 17.95	-1.47	-1.47	7 (8.3)	7 (8.3)	92.49 ± 19.02	-2.34	4 (7.0)	4 (7.0)
Adaptability	24.5	24.54 ± 5.94	0.05	0.05			24.05 ± 6.78	-0.50		
Acceptability	12.5	10.98 ± 3.43	-4.07 <sup>**</sup>	-4.07 <sup>**</sup>			11.09 ± 4.09	-2.61		
Demandingness	18.1	17.95 ± 4.75	-0.28	-0.28			17.81 ± 4.79	-0.46		
Mood	9.6	9.07 ± 2.96	-1.64	-1.64			9.28 ± 2.87	-0.84		
Distractibility/Hyperactivity	24.4	24.98 ± 4.93	1.07	1.07			22.47 ± 4.85	-3.00 <sup>*</sup>		
Reinforces Parent	9.3	8.06 ± 2.40	-4.73 <sup>**</sup>	-4.73 <sup>**</sup>			8.14 ± 2.15	-4.07 <sup>**</sup>		
Parent Domain	122.7	104.92 ± 23.19	-6.99 <sup>**</sup>	-6.99 <sup>**</sup>	2 (2.4)	2 (2.4)	102.74 ± 24.97	-6.04 <sup>**</sup>	1 (1.8)	1 (1.8)
Competence	29.2	23.45 ± 5.61	-9.38 <sup>**</sup>	-9.38 <sup>**</sup>			23.42 ± 5.82	-7.49 <sup>**</sup>		
Social Isolation	12.8	11.62 ± 3.79	-2.86 <sup>*</sup>	-2.86 <sup>*</sup>			11.53 ± 4.44	-2.16		
Attachment to the Child	12.6	10.05 ± 2.80	-8.37 <sup>**</sup>	-8.37 <sup>**</sup>			10.05 ± 2.50	-7.68 <sup>**</sup>		
Health	11.9	11.36 ± 3.70	-1.34	-1.34			10.44 ± 3.44	-3.21 <sup>*</sup>		
Role Restriction	19.0	16.18 ± 4.24	-6.11 <sup>**</sup>	-6.11 <sup>**</sup>			15.68 ± 5.02	-4.99 <sup>**</sup>		
Depression	20.4	16.35 ± 5.61	-6.62 <sup>**</sup>	-6.62 <sup>**</sup>			16.60 ± 5.74	-5.00 <sup>**</sup>		
Spouse	16.8	15.60 ± 6.48	-1.68	-1.68			15.05 ± 5.32	-2.48		
Total Stress	221.1	201.51 ± 37.15	-4.81 <sup>**</sup>	-4.81 <sup>**</sup>	10 (11.9)	10 (11.9)	194.68 ± 39.84	-5.01 <sup>**</sup>	6 (10.5)	6 (10.5)

\*  $p < .01$

\*\*  $p < .001$

Note. Higher scores are indicative of greater stress.

<sup>a</sup> Baseline is defined as the first assessment for each participant, so includes patients from multiple age ranges

<sup>b</sup> One-sample  $t$ -tests against the normative mean

**TABLE III**

## Longitudinal statistics for the Parenting Stress Index

	Intercept	Estimate	t
Child Domain	94.57	-0.08	-0.15
Adaptability	23.64	0.26	1.33
Acceptability	10.66	0.11	1.02
Demandingness	17.97	0.07	0.41
Mood	8.48	0.26	2.79*
Distractibility/Hyperactivity	25.69	-0.61	-3.94**
Reinforces Parent	7.85	0.08	1.04
Parent Domain	106.04	-0.18	-0.23
Competence	23.00	0.15	0.95
Social Isolation	11.68	0.04	0.32
Attachment to the Child	10.04	0.04	0.44
Health	11.73	-0.20	-1.60
Role Restriction	16.59	-0.11	-0.70
Depression	15.81	0.19	1.05
Spouse	15.86	-0.09	-0.50
Total Stress	201.58	-0.52	-0.45

\*  
 $p < .01$ \*\*  
 $p < .001$ 

*Note.* Repeated measures linear modeling to estimate longitudinal trajectory. Intercept reflects the initial mean score or where the proposed line crosses the Y axis. Estimate reflects change per year; *t* value reflects difference in slope (estimate) from an expected slope of 0.

Correlations between the Parenting Stress Index and child outcomes at baseline and age 5

**TABLE IV**

	Baseline (n = 84)		Age 5 (n = 57)			
	M ± SD	Parent-Directed Stress r (p)	Child-Directed Stress r (p)	M ± SD	Parent-Directed Stress r (p)	Child-Directed Stress r (p)
Early Learning Composite <sup>a</sup>	93.49 ± 17.86	.07 (.55)	-.15 (.18)	86.00 ± 15.31	-.29 (.04)	-.27 (.05)
Adaptive Behavior Composite <sup>a</sup>	101.66 ± 12.57	-.03 (.76)	-.22 (.04)	93.03 ± 17.45	-.35 (.009)	-.52 (<.001)

<sup>a</sup>Standard Scores, with a normative mean of 100 (SD = 15)

Note. Mean scores were calculated for child outcomes (Mullen Early Learning Composite and Vineland Adaptive Behavior Composite) at baseline and age 5. Correlations were computed between parenting stress and child outcomes at baseline and age 5.