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Persistence of Mental Health Problems in Very Young Children Investigated by US Child Welfare Agencies

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Abstract

Objective—To document the persistence and predictors of mental health problems in children 12-18 months investigated for alleged maltreatment.

Methods—Data came from the second National Survey of Child and Adolescent Well-being (NSCAW II), a longitudinal study of youth 0 to 17.5 years referred to U.S. child welfare agencies. These analyses involved children 12 to 18 months. Baseline sociodemographic, social services, developmental and health data were collected on children and caregivers. Potential social-emotional problems at baseline were assessed with the Brief Infant Toddler Social and Emotional (BITSEA) scales. Outcomes were scores over the clinical cutoff on the Child Behavior Checklist (CBCL) 1.5-5 assessed at 18 months post study entry.

Results—The multivariable analyses showed that an elevated BITSEA score at baseline (OR=9.18, 95%CI 1.49, 56.64; p=.018) and living with a depressed caregiver (OR=13.54, 95%CI 2.50, 73.46; p=.003) were associated with CBCL scores in the clinical range at the 18 month follow-up. For children who scored both positive on the BITSEA and lived with a depressed caregiver, 62.5% scored positive on the CBCL as compared to 10.7% of the children with one risk factor and 3.8% of the children with neither risk factor. Only 23.9% of children and/or their caregivers received any service.

Conclusions—Data show considerable persistence of mental health problems in very young children that two factors could identify. Lack of services to these children is a tremendous missed

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opportunity for identification and treatment that could, potentially, prevent more serious mental health problems.

Keywords

Infant; Mental Health; Persistence; National Survey of Child and Adolescent Well-Being

INTRODUCTION

It is now well accepted that social, emotional and behavioral problems begin early, are persistent, predict future, more intractable mental health problems, and that early identification and treatment are important.¹⁻⁵ Conditions such as depression, oppositional defiant disorder, anxiety, disruptive behavior disorders and attention deficit hyperactive disorder have been identified in toddlers and have been shown to persist in school age children. For example, Lavigne et al.⁶ found that preschool children diagnosed with oppositional defiant disorder were likely to continue to exhibit disorder through early elementary school and Mäntymaa et al.⁷ found that risks assessed during infancy (difficult temperament, health problems, emotional and behavioral problems) and family psychosocial risks were related to internalizing and externalizing problems at age 5. Similarly, Luby et al.⁸ found that 3-6 year olds with depression compared to children with no emotional or behavioral problems at study entry were 11.3 times as likely to continue to be depressed over a twenty-four month follow-up and Lahey et al.⁹ found that maternal ratings of fussiness, activity level, predictability and affect predicted conduct problems over 4-13 years in the Children of the National Longitudinal Survey of Youth 79.⁹

Although there has been some attention to mental health issues in children under two years of age, data for this age group are sparse. Briggs-Gowan et al. examined the 1-year persistence of parent-reported problems in 1082 12-40 month old children randomly selected from birth records using the Infant-Toddler Social and Emotional Assessment (ITSEA).² They found that for children high on any ITSEA domain, 49.9% continued to have a high score at follow-up and that high scores were related to problems in multiple domains, family life impairment and parenting distress. Briggs-Gowan and Carter,¹⁰ using some of these same children, examined the persistence of social, emotional and behavioral problems using the Brief Infant-Toddler Social and Emotional Assessment (BITSEA), a 42-item nationally normed instrument and the Diagnostic Interview Schedule for Children, Version IV administered when the children were in elementary school (mean age 6.0 years, SD = .4 years). The BITSEA identified 67.9% of the children who met criteria for a psychiatric disorder when the children were in elementary school.

Children presenting to Child Welfare agencies are at particularly high risk for social, emotional and behavior problems.¹¹⁻¹⁵ Data from the National Survey of Child and Adolescent Well-Being – NSCAW II found that around the time of the investigation for alleged maltreatment 34.6% of 12 to 18 month-olds scored high on the Problem Scale of the BITSEA, 20.9% showed problems on the Competence Scale, 47.2% showed one or both problems and few of these children or their caregivers received services for these problems.¹⁶ However, whether these problems are persistent or transient is unknown. Given that contact with the child welfare system can present an opportunity to identify service needs, understanding the persistence of problems identified in these young children and the factors related to persistence would be particularly helpful in identifying those children at greatest risk for future MH problems. These at risk children and their families could then be targeted for mental health services given that effective services supplied early can prevent progression to more severe and difficult to treat problems.⁶⁻⁹ Thus, the current analyses sought to answer two questions: (1) What is the persistence of mental health problems in a

national sample of 12-18 month old children investigated by US child welfare agencies over an 18 month follow-up period; and (2) Are there child and /or family factors assessed shortly after investigation that are related to the persistence of mental health problems?

METHOD

Design and Analytic Sample

Data came from the baseline interviews and 18-month follow-up of NSCAW II, a nationally representative longitudinal study of 5,872 youth ages 0 to 17.5 years referred to US child welfare agencies where an investigation of potential maltreatment was completed during the sampling period, February 2008 to April 2009. Excluded were agencies in eight states that required contact of a caregiver by agency staff rather than by study staff.¹⁷ NSCAW II employed a two-stage, stratified sample design. The first stage selected geographic areas containing a population served by a single child welfare agency. These primary sampling units (PSUs) served as the basis from which a sample of approximately 60 children with a maltreatment investigation was drawn in each PSU. Seventy-one of the original 92 PSUs in NSCAW I were eligible and agreed to participate in NSCAW II, and 10 additional PSUs were added. This sample was constructed to be representative of all US children who were subjects of agencies' investigations for alleged maltreatment during the sampling period.¹⁷

Baseline interviews were completed between March 2008 and September 2009 and follow up interviews were completed 18 months later. The data reported here comes from interviews with caregivers and child welfare workers about children 12 through 18 months of age at baseline ($N = 620$) who also had reported mental health outcomes at the 18-month follow-up ($n=531$, 94.1%). All procedures for NSCAW II were approved by the Research Triangle Institute's institutional review board, and all analytic work was approved by the Rady Children's Hospital institutional review board.

ANALYSIS WEIGHTS

Analysis weights were constructed based on the stages of the sample design, accounting for the probability of each child's selection within his/her county of residence. Weights were further adjusted to account for more or fewer population members than expected on the sampling frame, small deviations from the original plan that occurred during sampling, for nonresponse and for replacement PSUs. *All* analyses presented here use weighting in analyses. Nonweighted cell sizes are presented for some analyses to provide detail about the amount of data upon which analyses are based. *All* parameters were generated using the weights and therefore can be inferred to the U.S. Child Welfare population.¹⁷

MEASURES

Sociodemographic Variables

Sociodemographic variables included child's age, sex, race, placement type at the time of the baseline interview, reason for placement, and contact with the child welfare system before the current investigation. The caregivers' age, marital status and education were examined.

Adaptive Behaviors

The Vineland Adaptive Behavior Scale Screener is a measure of adaptive behaviors with age-specific versions. Each version consists of 15 items in three domains: Communication (how well the child speaks and understands), Daily Living Skills (skills needed to take care of oneself) and Socialization (skills needed to get along with others).¹⁸ Daily Living Skills and Socialization were included in NSCAW II. The Vineland Screener has an excellent

inter-rater reliability with lay interviewers ($ICC=.98$) and the correlations between the screener and full instrument (validity) were Communication ($R=.95$) and Daily Living Skills ($R=.93$). If children scored at or below one standard deviation below average in either domain, they were classified as having problems with adaptive behaviors in that domain.¹⁸

Chronic Conditions

This is a dichotomous measure indicating whether any of 11 chronic health problems was endorsed by caregivers including asthma, autism, Down syndrome, developmental delays, diabetes, insulin use, cystic fibrosis, cerebral palsy, muscular dystrophy, hypertension and AIDS. The most prevalent chronic conditions reported were asthma and developmental delays.

Family Risk Score

This summary score is constructed from variables commonly found in baseline caseworkers' interviews. Family risk variables included: active alcohol abuse or drug abuse by primary or secondary caregiver; primary caregiver had recent history of arrests/detention, intellectual or cognitive impairment, physical impairments, poor parenting skills or unrealistic expectations of child; primary or secondary caregiver used excessive/inappropriate discipline, had a history of abuse/neglect; lack of reasonable cooperation by caregiver; lack of a supportive caregiver present in the home; high stress in the family; low social support; and caregiver involvement in non-CPS services. For these analyses this variable was dichotomized with a score of 1 for the presence of 1 or more risks and a score of 0 for no family risk factors.

Caregiver Depression

The Composite International Diagnostic Interview Short Form (CIDI Combined) is a 24-item self-report screening tool that was developed by the World Health Organization and adapted from the Composite International Diagnostic Interview. Only questions assessing major depression were asked of all caregivers in NSCAW II during the baseline interview.¹⁹ The CIDI major depression sensitivity has been reported as 89.6 ($se=0.8$) and the specificity as 96.2 ($se=0.2$).²⁰

Child's Services Use

All primary caregivers were asked about the child's use of services, with questions from the Child and Adolescent Services Assessment (CASA).²¹ The CASA has moderate to excellent reliability and validity with parent test-retest reliability for ever reporting a MH service of 0.57 to 0.91 (Cohen's κ). Validity, examined by comparing parent responses to management information system data during the instrument's development, indicated that 84% of parent reports were confirmed.²¹ For current analyses, "specialty MH services" consisted of any inpatient admission to a psychiatric hospital or a psychiatric unit in a general hospital, an admission to a hospital medical inpatient unit for a psychiatric problem, any residential treatment center use, or any visits to a MH clinician, a community MH center, or day treatment facility, or use of a therapeutic nursery. "Any MH services use" consisted of specialty sector use or any in-home counseling, visits to a family doctor for a MH issue, visits to a school guidance counselor, or visits to an alcohol or drug clinic. Service use reported at baseline and/or at 18-month follow up is included.

Parenting Skills Training

This is a dichotomous indicator of whether in-home caregivers had received any parenting skills training at baseline and/or by the 18-month follow-up. Specifically, the survey question asked: "In the last twelve months have you received any parenting skills training?"¹⁹

Baseline Child Mental Health Problem

Caregivers were administered the BITSEA. The BITSEA is a 42-item screening tool normed on a community sample of children selected from birth records designed to identify children at risk for social-emotional problems (BITSEA-P) and low social competence (BITSEA-C).²² The BITSEA has good internal consistency ($\alpha = 0.79$ BITSEA-P, $\alpha = 0.65$ BITSEA-C) and interrater reliability (ICC = 0.68 BITSEA-P, ICC = 0.61 BITSEA-C). Predictive validity was established by comparing BITSEA scores with 1-year follow up ITSEA and CBCL scores. The BITSEA-P correlated 0.53 with CBCL, 0.45 with ITSEA Internal, 0.57 with ITSEA External, and 0.55 with ITSEA Dysregulation. The BITSEA-C (high scores equal more competence) had lower correlations with the ITSEA: -0.11 for Internal, -0.21 for External, and -0.13 for Dysregulation. Combined BITSEA-P and BITSEA-C scores beyond set cutoffs identified 85% of the subclinical/clinical scores on the CBCL/1.5-5 with a specificity of 75%.²²

Outcome: Child Mental Health Problems at the 18-month follow-up—At the 18-month follow up, caregivers in this study were administered the Child Behavior Checklist 1.5-5 (CBCL 1.5-5). The CBCL is a symptom checklist indicating problems severe enough to warrant mental health services. T scores of ≥ 64 were considered clinically significant and indicated that a child was in need of mental health services. Test-retest reliability for the Total Problem Score was 0.90, and in developmental studies the CBCL 1.5-5 has correctly classified 84.2% of children who were referred for MH services as in need of those services (7.3% false-positive and 8.6% false-negative results).²³

DATA ANALYSES

Analyses used descriptive statistics to summarize key variables of interest, including the MH problem indices. In addition, all potential baseline correlates of the outcome of interest were examined in multivariable logistic regression models, beginning with child variables and then adding family variables. A level of statistical significance ($p < 0.05$) was used in deciding which variables to retain in multivariable models. The interaction between the two variables remaining in the model was tested. All analyses were weighted and conducted using SAS-Callable SUDAAN, version 11.

RESULTS

As shown in Table 1, 55% of the 531 children were male, 34.9% were Black and 22.1% Hispanic, 92.7% were in their own homes, with or without child welfare services, 9.6% had experienced a placement change in the 18 months since baseline, and 47.2% had a positive BITSEA Problem and/or Competence score. 88.9% of these children lived in a family with at least one psychosocial risk factor and 27.7% had a caregiver who, at entry into the study, was depressed.

Table 2 shows correlates of the CBCL scores at the 18-month follow-up. Elevated BITSEA Problem and/or Competence score at entry into the study was associated with a higher rate of CBCL scores in the clinical range at the 18 month follow-up (5.1%, versus 34.8%, $p < .10$) as was living with a depressed caregiver at baseline (6.8% versus 51.2%, $p < .10$) and living in a family with at least one psychosocial risk (1.1% versus 21.5%, $p < .10$). Receipt of mental health services by the child or parenting skills training at study entry or over the 18-month follow-up as well as child sociodemographic variables, placement history, Vineland scores, chronic health conditions, and any other family variables were not related to 18-month CBCL scores.

The multivariable analysis (Table 3) shows that baseline BITSEA scores indicating possible problems (OR = 9.18, 95% CI 1.49-56.64; $p = .018$) and living with a caregiver who is depressed at baseline (OR = 13.54, 95% CI 2.50-73.46; $p = .003$) but not the family risk score, were associated with CBCL scores in the clinical range 18 months later. In fact, of the 21.9% of children who both scored positive on the BITSEA and lived with a depressed caregiver at study entry, 62.5% scored in the clinical range on the CBCL at 18 months. This compared to 10.7% of children who lived with a depressed caregiver or had an elevated BITSEA score at study entry, and 3.8% of children with neither of these factors. To begin to address whether these findings reflected the possibility that depressed mothers reported more problems in their young children, we examined the percentages of children who scored positive on the BITSEA at baseline and positive on the 18-month follow-up CBCL by caregivers' depression. For caregivers who were depressed at baseline and 18 months, at baseline only and not at baseline but at 18 months: the percentages of children reported to have positive CBCL scores at the follow-up were 80.2%, 59.7% and 12.5% respectively. Thus, when caregivers who had not scored as depressed at baseline scored positive for depression at follow-up, they reported fewer mental health problems in children than caregivers who were depressed at baseline. This suggests that caregiver state alone is not the major determinant of reporting higher follow-up CBCL scores.

DISCUSSION

Data from this cohort of children investigated for alleged maltreatment by US child welfare agencies suggests that 34.8% of these children identified at 12-18 months of age as having social-emotional and competence problems had CBCL scores in the clinical range 18 months later, an indication of problems requiring services. These findings are similar to although lower than those of Briggs-Gowan et al., who found that 49.9% of a community based sample of 12-40 month olds selected from birth records had continued high scores on the ITSEA, the parent instrument for the BITSEA at a 12 month follow-up.² Initial prevalence of any problem on the ITSEA in the Briggs-Gowan et al. sample was lower (20.3%) as compared to the NSCAW-II sample (47.2%).² The Briggs-Gowan et al. sample was older at the initial screening and it may be that the instrument is more accurate at older ages or that as children age problems are more likely to develop. It is also possible that the shorter follow-up (12 months) contributed to improved prediction. Similarly, the rate of observed mental health problems in this subset of children is lower than those commonly reported in studies of children in contact with child welfare.^{14, 24} This could be due to the age of the children in this sample. Given that they are young, they have had less exposure to their challenging home environments and, thus, may not yet have developed problems. It may also be due to the fact that this sample includes all children with an investigation for alleged maltreatment and not just children placed out-of-home. There are data to suggest that those placed out-of-home have more mental health needs.²⁴ The findings are also consistent with extant literature demonstrating persistence for early mental health problems.^{2, 8, 9}

Results underscore the particular relevance of parental depression to emotional/behavioral problems at early ages. Children with positive scores on the BITSEA whose caregivers are depressed at baseline only are four times as likely to be CBCL+ at follow-up compared to children whose caregivers become depressed over the 18 month follow-up (59.7% versus 12.5%); however BITSEA+ children with caregivers who are depressed at baseline and who remain depressed are nearly 7 times as likely to be CBCL+ at follow-up compared to those who become depressed but were not at baseline (80.2% versus 12.5%). 15.8% of caregivers in this sample were depressed at baseline and at 18 months. The relationship of caregiver depression and child mental health problems is well established and is bidirectional.

Caregiver depression is a risk factor for child mental health problems and child social-emotional or behavioral problems can affect caregivers' depression.^{24, 25}

The fact that depression is common in caregivers of children investigated by child welfare agencies and is treatable, but that few women receive services, is a tremendous missed opportunity for intervention.²⁴ This is particularly important because caregiver depression was predictive of child problems whether the caregiver was consistent over the 18 month follow-up and regardless of whether the caregiver was a biological or foster parent. Further, depression screening instruments are available, easy to administer and could be part of investigations for alleged maltreatment. Caregivers found to be suffering from depression could then be referred for services as they are for other issues. Similarly, that so few children with elevated CBCL scores or their caregivers report receiving mental health or parenting skills training either at baseline or at the 18 month follow-up (23.9%) also represents a missed opportunity to intervene early and, perhaps, avoid the development of long standing and more difficult to treat mental health problems.²⁶⁻²⁸ It is also notable that so few baseline characteristics predicted persistent problems. Cross-sectional analyses suggested that welfare services history and caregiver marital status might be important predictors¹⁶ but they were not predictive longitudinally which underscores the importance of longitudinal analyses.²⁰ Other analyses with the NSCAW data have identified the importance of the relationship of placement change to mental health problems.²⁹ The lack of an observed relationship may be due to the fact that relatively few of these children (9.6%) had experienced a placement change.

Although NSCAW II is an important source of information about children in contact with child welfare agencies, these data are not without limitations. All data are reported by the child's caregiver or taken from caseworker interviews (e.g., the Family Risk Score) and there was no independent verification of any of the reported information. For the 7% of children in out-of-home placements at baseline, caregivers had, in most instances, only limited knowledge of the child and of any services use. Both measures of mental health problems are not diagnostic and the CIDI-SF Depression Scale may perform better than shorter depression measures commonly used in primary care settings. It was developed to successfully predict its parent instrument, the CIDI, and its positive predictive value is considerably better (75.7%) than other instruments commonly used in primary care.^{20, 30} Further there is no assurance that if parenting skills training was received that it was evidence-based or targeted to the child's problems.

These data showed considerable persistence of mental health problems in young children and suggest that early indication of mental health problems combined with parental depression may aid in identifying children in need of additional assessment and services. Coupled with the data of Jee et al., they suggest that routine screening for social-emotional problems is critically important and doable in primary care, particularly given the mandate by the Agency for Children and Families that child well-being (including caregiver needs) falls within child welfare purview.^{13,31} These data also show that few young children with mental health problems and/or their caregivers receive services, and although services for young children and their caregivers is often dyadic, many efficacious parent-based interventions exist, suggesting that the opportunity for early identification and treatment of mental health problems afforded by an investigation for alleged maltreatment is a tremendous missed opportunity to improve the lives of these young, highly vulnerable children and a services system and social policy failure with potential long term consequences.²⁸

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What's New

Persistence of mental health problems in 12-18 month old children investigated for alleged maltreatment is considerable and those with the highest risk were identified with two measures, a screener for social-emotional problems, the BITSEA, and a measure of caregiver depression.

TABLE 1

Characteristics of the 531 children 12-18 months and their families at study entry

	Total
	% weighted (se)
Child:	
Gender: Male	55.0 (7.3)
Female	45.0 (7.3)
Race: Black	34.9 (8.6)
White	29.6 (6.6)
Hispanic	22.1 (5.8)
Other	13.5 (7.6)
Placement at entry: In home, no child welfare services	74.6 (5.0)
In home, child welfare services	18.1 (3.9)
Out of home	7.3 (1.6)
Placement change over the 18 month follow up: No	90.4 (2.1)
Yes	9.6 (2.1)
Vineland: Daily Living skills: Severe/Moderate	40.2 (7.3)
Normal	59.8 (7.3)
Vineland: Socialization: Severe/Moderate	20.7 (7.4)
Normal	79.3 (7.4)
Chronic health condition: Yes	16.2 (4.0)
No	83.8 (4.0)
Any child welfare service history prior to study entry: Yes	23.0 (5.5)
No	77.0 (5.5)
BITSEA 0 (No Problem)	52.8 (7.2)
1 (Problem/Competence/Both)	47.2 (7.2)
FAMILY:	
Family Risk Score at study entry: 0	11.1 (4.1)
1+	88.9 (4.1)
Depressed Caregiver at study entry: No	72.3 (7.1)
Yes	27.7 (7.1)
Marital status: Married	21.2 (5.8)
Separated	5.2 (2.4)
Divorced	10.6 (3.8)
Widowed	1.0 (0.8)
Never married	62.0 (7.7)
Educational level: Less than high school	23.3 (5.4)
High school	60.0 (6.2)
More than high school	16.6 (2.9)
Any child/parenting service at study entry and/or 18 months: Yes	23.9 (4.1)

	Total
No	76.1 (4.1)

TABLE 2

Relationship of baseline child and family characteristics to CBCL Scores at the 18-month follow-up

	CBCL ≥64 at 18 months	CBCL <64 at 18 months	p-values
	% weighted (se)	% weighted (se)	
Child:			
Gender: Male	27.7 (11.9)	72.3 (11.9)	0.156
Female	8.5 (4.2)	91.5 (4.2)	
Race: Black	9.9 (6.0)	90.1 (6.0)	0.664
White	17.3 (7.5)	82.7 (7.5)	
Hispanic	9.8 (6.6)	90.2 (6.6)	
Other	62.2 (25.2)	37.8 (25.2)	
Initial Placement: In home, no child welfare services	22.3 (10.3)	77.7 (10.3)	0.288
In home, child welfare services	10.5 (2.7)	89.5 (2.7)	
Out of home	7.6 (2.8)	92.4 (2.8)	
Placement change over 18 month follow up: No	19.2 (8.6)	80.8 (8.6)	0.956
Yes	18.4 (10.2)	81.6 (10.2)	
Vineland: Daily Living skills: Severe/Moderate	13.5 (8.1)	86.5 (8.1)	0.519
Normal	22.9 (11.4)	77.1 (11.4)	
Vineland: Socialization: Severe/Moderate	8.5 (7.5)	91.5 (7.5)	0.278
Normal	21.9 (8.8)	78.1 (8.8)	
Chronic health condition: Yes	31.2 (14.7)	68.8 (14.7)	0.451
No	16.7 (8.9)	83.3 (8.9)	
Child welfare service prior to study entry: Yes	21.4 (10.4)	78.6 (10.4)	0.871
No	19.1 (10.8)	80.9 (10.8)	
BITSEA: 0 (No Problem)	5.1 (2.9) [†]	94.9 (2.9)	0.075
1 (Problem/Competence/Both)	34.8 (14.0)	65.2 (14.0)	
FAMILY:			
Family Risk Score at study entry: 0	1.1 (1.0) [†]	98.9 (1.0)	0.099
1+	21.5 (9.8)	78.5 (9.8)	
Depressed Caregiver at study entry: No	6.8 (2.7) [†]	93.2 (2.7)	0.095
Yes	51.2 (18.2)	48.8 (18.2)	
Marital status: Married	12.4 (7.1)	87.6 (7.1)	0.68
Separated	5.4 (4.0)	94.6 (4.0)	
Divorced	14.1 (7.1)	85.9 (7.1)	
Widowed	86.2 (14.0)	13.8 (14.0)	
Never married	22.4 (12.1)	77.6 (12.1)	
Educational level: Less than high school	17.5 (8.6)	82.5 (8.6)	0.796
High school	21.6 (11.8)	78.4 (11.8)	

	CBCL ≥64 at 18 months	CBCL <64 at 18 months	p-values
More than high school	12.5 (6.8)	87.5 (6.8)	
Child/parenting service baseline and/or 18 mo: Yes	15.8 (7.5)	84.2 (7.5)	0.701
No	20.1 (9.5)	79.9 (9.5)	

[†]
=p < .10

TABLE 3

Multivariable Model Predicting CBCL 1.5-5 year Scores in the Clinical Range (N=530)

Characteristic	CBCL 1.5-5 year scores 64	
	OR	95% Confidence Interval
Intercept	0.02	0.00 0.13
BITSEA Problem/Competence at Study Entry:		
No (0)	1.00	1.00 1.00
Yes (1)	9.18 *	1.49 56.64
Depressed Caregiver at Study Entry:		
No (0)	1.00	1.00 1.00
Yes (1)	13.54 ***	2.50 73.46

*
p<0.05**
p<0.01***
p<0.001

Child race, initial placement, placement change, chronic health condition as well as Family Risk Score, marital status and any child/parenting service not significant.