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Parental Depression and Child Outcomes: The Mediating Effects of Abuse and Neglect

Using longitudinal data on 1,813 children and parents from a nationally representative child-welfare sample, National Survey of Child and Adolescent Well-Being (NSCAW), this study investigated physically abusive and neglectful parenting as mediating the effects of parent depression on child mental health by developmental stage. Findings from latent growth models indicated that parental depression had a significant impact on child outcomes for all youths, but of the 2 types of parenting behaviors, only neglectful parenting mediated the relationship for preschool and school-aged children. Neither parenting behavior mediated the effects of parental depression for adolescents.

Parental depression has been associated with emotional and behavioral problems for children and adolescents, both in community and in clinical populations (National Research Council [NRC] & Institute of Medicine [IOM], 2009). The literature documenting impact is relatively consistent—parental depression has been negatively associated with a range of outcomes for children from infancy to adolescence, with an impact robust to measurement issues (i.e., diagnosis vs. elevated symptoms) (Goodman & Gotlib, 2002; Jaser, Langrock et al., 2005). Research has suggested that some parents may be more likely to experience depression and recurrence of depression (Kessler, Berglund et al., 2005). Among these, parents involved with child welfare have had particularly high rates of depression, with nearly half reporting depression during a 3-year period (Burns, Mustillo et al., 2009).

In 2007, nearly 3.5 million youths and their parents in the United States were child-welfare involved (U.S. Department of Health and Human Services [DHHS], 2009). Child-welfare-involved children and adolescents constitute a particularly vulnerable population (Burns, Phillips et al., 2004). These youths have exceptionally high rates of physical and mental health needs, a low likelihood of receiving services, and a high prevalence of parent- and family-level risk factors, including poverty, parental mental illness, and single parenting (Leslie et al., 2005). In

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a recently published summary report of parental depression by the NRC and IOM (2009), the authors stated, ''Few opportunities exist to identify vulnerable populations of children . . . living in households with one or more parents experiencing depression or to offer prevention and treatment services that can improve the care of the depressed parent in a framework that also offers services for children'' (pp. 1 – 2). Involvement with child welfare presents a unique window for intervening with at-risk youths and their families, yet limited research has focused on parental depression in this population.

Prevalence of Depression

General population. Research has consistently documented the high prevalence of depression, compared with other mental health disorders, among adults (16.6% lifetime; 6.7% in previous 12 months) (Kessler, Berglund et al., 2005), with 80% of depressed adults experiencing recurrence (Burcusa & Iacono, 2007). Women and individuals facing economic or other stressors (e.g., discrimination, marital conflict) have the highest rates of depression (Matheson et al., 2006). Women are both more likely to experience depression and more likely to experience recurrence (Burcusa & Iacono, 2007). Primary caregivers involved with child welfare constitute a population at high risk, as they are more likely to be women and to be experiencing stressors associated with high rates of depression.

Child-welfare population. Mothers involved with child welfare are more likely to have a diagnosis of depression than any other mental health problem (Wolfe, 1999). In a recent examination of prevalence using the National Survey of Child and Adolescent Well-Being (NSCAW), a nationally representative sample of children involved with child welfare, nearly half of all parents (most of whom were mothers) reported major depression at some point during the 36 months following a child-welfare report (Burns, Mustillo et al., 2009). Rates of parental depression in the child-welfare population are elevated, even in comparison with other high-risk samples. For example, the rates of depression among mothers involved with child welfare approximated those of homeless women and incarcerated women and were significantly higher than those of women facing significant financial stress (Bassuk, Buckner, Perloff, & Bassuk, 1998; Bloom, Owen, Covington, & Raeder, 2003; Rosen, Tolman, & Warner, 2004).

Parental Depression and Child Outcomes

The high prevalence of parental depression in the child-welfare population is particularly concerning given the well-documented association between parental depression and negative outcomes for children and adolescents (for a review, see NRC & IOM, 2009). The evidence for this connection, most of which is with mothers, has consistently documented increased rates of emotional and behavioral problems in children and adolescents, including depression, anxiety, and disruptive behavior disorders (e.g., Angold & Costello, 2001).

The limited research on parental depression and child outcomes specifically in the child-welfare population has shown similar patterns of association. In the Burns, Mustillo et al. (2009) evaluation using the NSCAW sample, parental depression (88.7% of parents were mothers) predicted higher levels of emotional and behavior problems, with 40% of children and adolescents in the clinical range for internalizing difficulties and 60% in the clinical range for externalizing difficulties. In a smaller study using case review, having a depressed parent was associated with a greater likelihood of having an attention-deficit-disorder diagnosis, being on a psychotropic medication, and having another psychological concern noted in the child's file (Leschied, Chiodo, Whitehead, & Hurley, 2005).

Mechanisms Translating Parental Depression Into Negative Child Outcomes

Given the significance of parental depression for child and adolescent emotional and behavioral functioning, a substantial body of research has examined mechanisms through which parental depression translates into adverse youth outcomes. A primary mechanism examined is impaired parenting (Avenevoli & Merikangas, 2006; Elgar, Mills, McGrath, Waschbusch, & Brownbridge, 2007). Research has focused largely on community and clinical populations, concentrating primarily on mothers. In their meta-analysis of 46 studies examining depression and maternal parenting behavior, Lovejoy, Graczyk, O'Hare, & Neuman (2000) conceptualized parenting difficulties as ''correlates of

disturbances in negative and positive affect'' (p. 563). Harsh parenting and disengaged parenting were the parenting behaviors most strongly associated with parental depression, though studies in the review focused on infants and young children to the exclusion of older youths. More recent research has documented similar connections between parental depression and harsh and disengaged parenting for parents of older youths (e.g., Du Rocher Schudlich & Cummings, 2007; Gerdes et al., 2007). Notably, recent investigations have continued to overlook fathers. Below, we briefly review the literature specific to parenting styles associated with depression: harsh parenting and disengaged parenting.

Harsh parenting. Studies consistently have demonstrated that depressed parents are more negative toward their children and more likely to be easily irritated by child behavior. Depressed mothers of infants and young children were more likely to express negative affect and to be physically or verbally aggressive with their children (Lyons-Ruth, Lyubchik, Wolfe, & Bronfman, 2002). In a study focused on school-aged children, depressed mothers were more likely to be intrusive, to engage in disagreements, and to be inconsistent in discipline (e.g., Cummings, Keller, & Davies, 2005). Similar harsh parenting styles have been identified with older youths: depressed mothers were more likely to demonstrate irritability, to criticize, and to be hostile or angry when talking with school-aged children and adolescents (Conger & Conger, 2002; Jaser, Fear et al., 2008).

Disengaged parenting. In the area of disengaged parenting, mothers who were depressed were less likely to engage in positive interactions with their children, more likely to exhibit withdrawal, and less likely to respond to their child's emotional needs (Goodman & Brumley, 1990). Studies focused on young children demonstrated that depressed mothers were less likely to play with, read to, or attend to their child (Palaez, Field, Pickens, & Hart, 2008). Turning to parents of school-aged children and adolescents, parental depression was associated with lower levels of parental warmth, involvement, and monitoring for both mothers and fathers, which related to higher levels of youth internalizing and externalizing symptoms (Du Rocher Schudlich & Cummings, 2007; Elgar et al., 2007; McKee et al., 2008).

Parenting Mechanisms in Families Involved With Child Welfare

Despite the wealth of research on the association between depression and parenting behavior in the general population, parental depression and mechanisms of transmission have received less attention in child welfare. Examining mechanisms specifically for this group is critical, as children and adolescents often become involved with child welfare as a result of concerns about parenting. If parental depression results in compromised parenting, children and adolescents of depressed parents may be at increasedrisk in an already at-risk population (Leslie et al., 2005). Of particular interest in this population is whether parental depression is associated with harsh parental behavior at the abuse end of the spectrum or with disengaged behavior at the neglect end of the spectrum. Specifically, is parental depression associated with (a) heightened harsh parenting that escalates to physical abuse or with (b) parental disengagement that intensifies to the level of neglect?

Parental depression and physical abuse. The limited available research provides some support for the idea that the harsh parenting behaviors associated with parental depression may escalate to physically abusive parenting (Burke, 2003; Greenwald, Bank, Reid, & Knutson, 1997). With young children, parental depression has been associated with greater use of corporal punishment and with physically abusive behaviors such as slapping, shaking, and hitting (Lyons-Ruth et al., 2002; Silverstein, Augustyn, Young, & Zuckerman, 2009). In a prospective study with a nationally representative community sample, depressed parents of children of various ages were three times more likely to self-report engaging in physically abusive behavior than were nondepressed parents (Chaffin, Kelleher, & Hollenberg, 1996).

In terms of impact, evidence suggests that the earlier the exposure to physical abuse, the greater is the impact on the child. Infants and preschool children are considered at greatest risk, given their physical vulnerability and limited interaction with other adults (Wulczyn, Barth, Yuan, Jones Harden, & Landsverk, 2005). In a study using a large prospective community

sample, children who were physically abused before age 5 had higher levels of internalizing and externalizing problems based on teacher report (Keiley, Howe, Dodge, Bates, & Pettit, 2001). School-aged children are often viewed as less vulnerable because they have increased competencies and increased access to other adults for support and monitoring (Wulczyn et al., 2005). Yet physically abused school-aged children have been found to have high rates of emotional and behavioral problems (Manly, Kim, Rogosch, & Cicchetti, 2001). Few studies have focused on adolescents, but physical abuse appears to still have a negative impact (Widom, 2000). One study examining the developmental stage during which maltreatment occurred found that physical abuse during adolescence or persistent abuse across developmental stages was most strongly associated with behavioral and emotional outcomes (Thornberry, Ireland, & Smith, 2001).

Parental depression and neglect. Turning to the association between parental depression and neglect, the literature linking depression and neglect is more equivocal than that linking parental depression and physical abuse (Knutson & Schartz, 1997). In Chaffin et al.'s (1996) investigation, parental depression was related only indirectly to higher rates of parent-reported neglect through substance use. Most research has focused on infants and young children. Neglect is assumed to be most problematic for young children, given their high vulnerability coupled with virtually full reliance on parents to meet their physical and emotional needs (Wulczyn et al., 2005). In contrast, however, Thornberry et al. (2001) found that youths neglected only in adolescence and those persistently neglected through adolescence had the most difficulties.

Current Investigation

The purpose of the current investigation was to examine the impact of parental depression on child and adolescent emotional and behavioral problems and the potentially mediating role of physically abusive and neglectful parenting behavior by developmental stage. To our knowledge, this is the first study to examine parental depression, parenting behavior, and child and adolescent emotional and behavioral problems specifically for the child-welfare population. Because the literature indicates that parent depression has an impact on both internalizing and externalizing difficulties, we examined child emotional and behavioral problems broadly, as an indicator of overall impact on child mental health (e.g., Elgar et al., 2007). We used the NSCAW data set because the national scope and inclusion of a large representative sample provided a unique opportunity to examine ways in which parental depression translates into outcomes for children involved with child welfare (Dowd, Kinsey, Wheeless, Suresh, & NSCAW Research Group, 2004). We examined these mechanisms across three age groups: preschoolers (2 – 5 years old), school-aged youths (6 – 11 years old), and adolescents (12 – 15 years old). Most child-welfare research has not been grounded in a developmental approach (Cicchetti & Toth, 2000), despite the fact that ''maltreatment occurs in a developmental context accompanied by a stream of related risks and protective factors that also influence developmental outcomes'' (Wulczyn et al., 2005, p. 24).

In synthesizing the literatures that examine depression and harsh and uninvolved parenting, depression and abusive and neglectful parenting, and the impact of physical abuse and neglect on children and adolescents, we examined the following hypotheses. First, we hypothesized that parental depression would have a negative impact on emotional and behavioral functioning for children and adolescents in all three age groups but that the effect would be strongest among preschool-aged children. Second, we expected that physically abusive parenting and neglectful parenting would partially mediate the impact of parental depression on child outcomes for preschool-aged children, but that only physically abusive parenting behavior would partially mediate the impact of parental depression, as neglectful parenting behaviors may be less problematic for older children, given their greater competency and access to other adults for care and support (for an exception, see Thornberry et al., 2001). We proposed partial mediation, as opposed to full mediation, given that parenting behaviors are only one of several potential mechanisms involved in translating parental depression into negative child outcomes. Because child and adolescent emotional and behavioral problems may also be associated with youth gender, with boys having higher rates of early-onset disorders and girls having higher rates of

adolescent-onset disorders, we included gender in our analyses (Zahn-Waxler, Shirtcliff, & Marceau, 2008). We also included poverty and marital status, as studies have linked lower levels of family income and single-parent status to child outcomes (Magnuson & Berger, 2009; McLoyd, 1998).

Method

The NSCAW was designed by the DHHS to examine the relationships among child and family well-being, family characteristics, experience with the child-welfare system, community environment, and other factors (Dowd et al., 2004). The NSCAW main sample cohort included 5,501 children, aged birth to 14 at the time of sampling, who had contact with the child-welfare system (CWS) as a result of investigations or assessments for child abuse or neglect within a 15-month period beginning in October 1999. The NSCAW design has been detailed extensively elsewhere and is summarized here (Dowd et al., 2004). The sample was selected using a two-stage, stratified sample design. Children who had been alleged to have experienced maltreatment and had a completed child protective services investigation were selected from 92 primary sampling units (PSUs) in 97 counties nationwide, with oversampling of infants, youths with reports of sexual abuse, and youths who were receiving ongoing child-welfare services.

Baseline interviews and assessments were conducted an average of 4 months after the closing of the CWS investigation for maltreatment. Interviews with the child's caregiver who was most knowledgeable about the child were conducted in the home with computer-assisted personal interviewing technology. These analyses included data from interviews with the primary caregiver at baseline (Wave 1), a follow-up interview that took place approximately 18 months postbaseline (Wave 3), and a follow-up interview that took place 36 months postbaseline (Wave 4). Data from Wave 2, a telephone interview that took place 12 months postbaseline, were not included, as the mode (i.e., telephone) and measures were different from Waves 1, 3, and 4.

The analytic sample included children who remained in the home of their primary caregiver across all waves following a report of abuse or neglect ($n = 3{,}669$; 67%). The sample also included only children whose primary caregiver was consistent at Waves 1, 3, and 4, both to maintain reporter consistency of variables and outcomes and to ensure that the individual who was reporting depressive symptoms was consistent throughout the study ($n = 3{,}425$; 62%). Finally, only children older than age 2 were retained in the sample, as reliable mental health data were available only for children ages 2 and older ($n = 3{,}802$; 69%). With overlap across the three groups, the final analytic sample included 1,813 children and adolescents. Caregiver respondents were primarily biological parents (biological mothers were 88% and biological fathers 7.2% of the entire sample).

Weights

The NSCAW sample was weighted to account for differential selection probabilities. The probability weights were constructed in stages corresponding to the stages of the sample design, with adjustments due to missing months of frame data or types of children, nonresponse, and undercoverage. All analyses were weighted to account for the sampling design.

Measures

Child emotional and behavioral problems. Child emotional and behavioral problems were assessed using the Total Problems Scale of the Child Behavior Checklist (CBCL), a well-validated, normed measure indicative of child emotional and behavior problems associated with risk for psychopathology (Achenbach, 1991). Internal consistency of the CBCL internalizing, externalizing, and total problems scales in the NSCAW study at baseline was high, ranging from .90 to .96 for 4- to 15-year-olds, as measured by Cronbach's alpha. Table 1 shows mean CBCL scores by age and wave, as well as other descriptive statistics. We ran preliminary models on the internalizing and externalizing scales separately but found few differences between those results and the total problems scale.

Parent depression. Parents reported their level of depression at each wave for the preceding 12 months with the Composite International Diagnostic Interview Short-Form (CIDI-SF), a set of screening scales developed from the full-length CIDI, a structured diagnostic

Table 1. *Parent and Child Variables from the NSCAW Sample: Weighted Descriptive Statistics (*N = *1,813)*

	Age Range						
	Preschoolers (2 – 5, 29%)		School-Aged Youths (6 – 11, 50%)		Adolescents (12 – 15, 21%)		
Variables	*M*	*SD*	*M*	*SD*	*M*	*SD*	Range
Child gender[a]	.538	.039	.528	.031	.423	.051	0 – 1
Family poverty[b]	.481	.037	.527	.035	.479	.047	0 – 1
Parent marital status[c]	.258	.032	.332	.028	.326	.051	0 – 1
Wave 1							
Child CBCL	54.822	.827	56.470	.951	59.846	1.409	23 – 91
Parental depression	.266	.370	.205	.024	.293	.043	0 – 1
Physically abusive parenting	.799	.032	.768	.034	.573	.041	0 – 1
Neglectful parenting	.288	.035	.423	.033	.576	.045	0 – 1
Wave 3							
Child CBCL	55.821	.941	54.954	.776	58.128	1.206	23 – 91
Parental depression	.219	.041	.146	.022	.285	.047	0 – 1
Physically abusive parenting	.775	.034	.672	.032	.424	.052	0 – 1
Neglectful parenting	.207	.031	.301	.032	.497	.050	0 – 1
Wave 4							
Child CBCL	55.688	.940	53.821	.851	56.958	1.32	23 – 91
Parental depression	.262	.039	.232	.030	.207	.039	0 – 1
Physically abusive parenting	.752	.046	.529	.030	.390	.053	0 – 1
Neglectful parenting	.254	.038	.329	.034	.466	.052	0 – 1

[a]Child gender: 0 = *male*, 1 = *female*. [b]Family poverty: 0 = *not living in poverty*, 1 = *living in poverty*. [c]Parent's marital status: 0 = *not currently married*, 1 = *married*.

measure of adult psychiatric disorders designed to correspond with the *Diagnostic and Statistical Manual of Mental Disorders*, 3rd and 4th editions (Kessler, Andrews, Mroczek, Ustun, & Wittchen, 1998). Classification accuracy of the CIDI-SF with the CIDI on these scales ranged from 93% to 98% (Kessler, Andrews et al., 1998). Depression was dichotomized to indicate any major depressive episode in the 12 months before the interview.

Physically abusive and neglectful parenting. The Conflict Tactics Scale, Parent-Child Version (CTS-PC) was used to assess physically abusive and neglectful parenting behaviors (Straus & Hamby, 1997; Straus, Hamby, Finkelhor, Moore, & Runyan, 1998). The parent completed the CTS-PC, a widely used instrument to assess parenting behavior and maltreatment, which included scales for nonviolent discipline, psychological aggression, physical assault, and neglect in the parent – child relationship. To measure physically abusive parenting and neglectful parenting, we used dichotomized versions of the physical assault and neglect scales.

The physical assault scale is an additive measure of behaviors based on three subscales: minor assault (e.g., ''spanked him/her on the bottom with your bare hand; slapped him/her on the hand, arm, or leg''), severe assault (e.g., ''slapped him/her on the face, or head or ears''), and very severe assault. Items on the very severe physical assault scale include low-frequency behaviors such as ''grabbed him/her around the neck and choked him/her'' and ''beat him/her up, that is, you hit him/her over and over as hard as you could.'' The neglect scale included behaviors such as ''were not able to make sure your child got the food he/she needed'' and ''were so caught up in your own problems that you were not able to show or tell your child that you loved him/her.''

The additive scales on which our dichotomized measures were based have demonstrated high validity but lower internal consistency in previous studies, likely attributable to underreporting, the infrequency of the events that make up the scales, and the lack of association

among some items (Dowd et al., 2004; Straus et al., 1998). To address the internal consistency issues, the developers recommended dichotomizing the scales, as we have done in this study, and considering them as lower bound estimates. Parents were counted as engaging in the behavior if they endorsed one or more items (Straus & Hamby, 1997).

Demographics. Marital status was assessed at each wave by asking parents whether they were married, separated, divorced, widowed, or never married. A dichotomous variable was created to indicate currently married. Poverty status for the NSCAW families at baseline was calculated on the basis of procedures followed by the U.S. Census Bureau, which includes both the family's income level and the number of adults and children in the household. A dichotomous variable was created to indicate families at or below the federal poverty line (less than 99% of poverty) or above the poverty line (greater than or equal to100% of poverty). Child gender was reported by the parent at baseline interview. We also tested parent employment status, primary type of maltreatment reported at the study entry (e.g., physical abuse, sexual abuse), mental health services received by parent or child, and parent relationship to child, but we excluded them from the final analyses because they had no effect on the key relationships.

Missing Data

Item-missing data was low (less than 5%). In terms of attrition, each follow-up wave contained at least 80% of the baseline sample. The NSCAW researchers have examined both the item-missing data and the attrition for selection and bias and have concluded that both are minimal (Dowd et al., 2004). For example, of 300 variables garnered from case records and CWS interviews used to compare those who remained in the study to those lost to follow-up, analyses indicated that only 4 of the 300 variables tested showed a difference at the .05 level and only 2 variables had a real difference of greater than 5% (Dowd et al., 2004). As such, we used full-information maximum-likelihood estimation (FIML) for our models to include the small number of participants who were missing data on parent depression. This method requires the assumption that data are missing at random (MAR). Although MAR cannot be formally tested, we attempted to explore that feasibility by examining patterns of missing data on covariates on the basis of participants' responses to the same covariates at different waves. Using all available data, FIML computes a casewise likelihood function using only those variables observed for individual i. In addition, data from partially complete cases contribute to the estimation of parameters that involve missing data. Simulations have shown that under the MAR assumption, FIML performed better than listwise deletion and multiple imputation in terms of both bias and efficiency (Enders & Bandalos, 2001).

Data Analysis Plan

Because of the complex survey design involving stratification, children's selection into the study by PSUs (mostly county child-welfare agencies), and probability weighting, descriptive statistics were computed using Stata 11.0 (StataCorp, 2009). To examine the main effects of parental depression and the mediating effects of physically abusive and neglectful parenting behaviors on stability and change in child emotional and behavioral problems over the 36-month period following entry into CWS, we conducted latent growth models (LGM) using Mplus 5.0 (Muthén & Muthén, 2007), specifying the appropriate clustering, weighting, and stratification variables. By treating parental depression and the parenting variables as time-varying covariates (TVC), the model examines the time-specific main and mediating effects of these variables net of the influence of the underlying growth process (Bollen & Curran, 2006).

The TVCs are included as contemporaneous effects rather than lagged effects because of findings that current parental depression is associated with the most significant impairments in parenting and child outcomes (Gunlicks & Weissman, 2008). With the TVC approach, first we examined unconditional LGM by age group to determine the nature of the stability and change in CBCL score over time as well as whether significant variability existed around the mean trajectories. Next, we examined the main and mediating effects of parental depression and parenting variables on child CBCL score at Level 1, controlling for demographic variables at Level 2, for all three age groups.

The LGMs included a latent intercept and latent slope for child CBCL, which allowed

individuals to vary on both their initial CBCL and their rate of change over time. In these LGMs, time-specific individual-level measures were assumed to contain input from two sources: the latent process under consideration and random error. Because we assumed the process of interest followed a linear pattern over time, the individual measures were modeled with an individual-specific intercept and slope across time plus error. With TVCs, the Level 1 equation was:

$$Y_{it} = \alpha_i + \beta_i \lambda_t + \gamma_t w_{it} + \varepsilon_{it} \qquad (1)$$

where Y_{it} was the response variable for individual i at time t; α_i was a subject-specific intercept term; $\beta_i \lambda_t$ was the subject-specific slope multiplied by time; γ_t was the time-specific influence of covariate w for individual i at time t; and ε_{it} was the disturbance for individual i at time t. We constrained the effects of the TVCs to be equal over time. This portion of the model captured individual change over time and was similar to the Level 1 submodel in the hierarchical linear model (HLM) framework.

The second level of the model allowed the latent intercepts and slopes to be a function of covariates. In this model, the intercept and slope were allowed to correlate. The Level 2 equations were as follows:

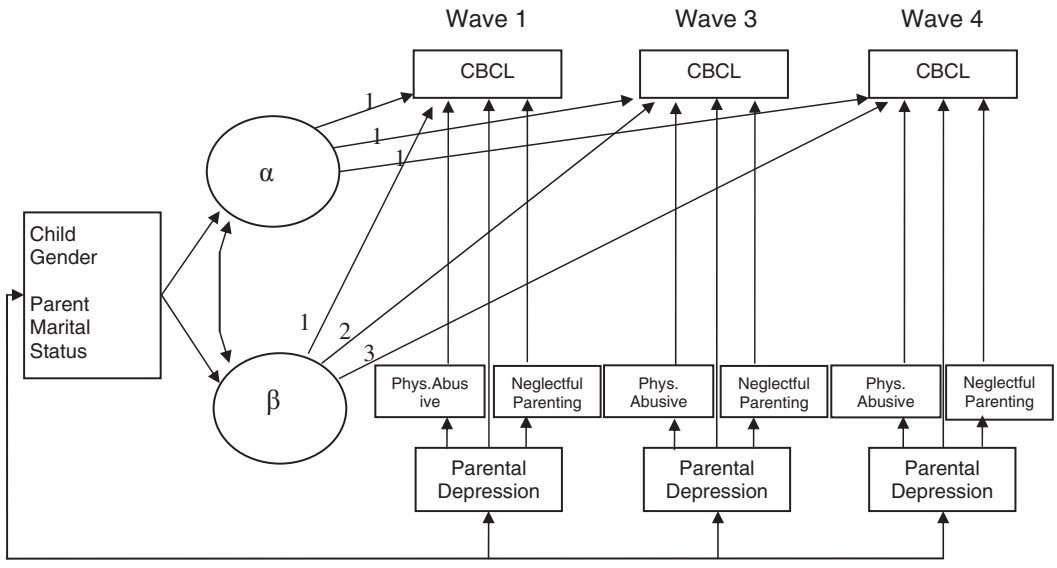
$$\alpha_i = \mu_\alpha + \sum_{k=1}^{K} \gamma_{\alpha k} x_{ik} + \xi_{ai} \qquad (2)$$

$$\beta_i = \mu_\beta + \sum_{k=1}^{K} \gamma_{\beta k} x_{ik} + \xi_{\beta i} \qquad (3)$$

where α_i and β_i were the intercept and slope for individual i and μ_α and μ_β were the means of the intercept and slope when the x variables equaled 0. The remaining part of each equation summed for K time-invariant variables, the effect of each predictor on the latent intercept and slope, and included a disturbance term representing deviation from the mean intercept and slope for individual i, respectively.

Figure 1 provides a graphic depiction of the estimated model. Factor loadings on the intercept were fixed to 1, and factor loadings on the slope were fixed at 0, 1, and 2 for the three time points. Parental depression, physically abusive parenting, and neglectful parenting variables were included as TVCs ($pdep_1 - pdep_3$, $physabusive_1 - physabusive_3$, $neglectful_1 - neglectful_3$), but demographics were included as

FIGURE 1. CONCEPTUAL LATENT GROWTH MODEL WITH TIME-VARYING AND TIME-INVARIANT COVARIATES.



Note: Lagged paths and error terms omitted.

time-invariant covariates (TIC) at Level 2. The TICs affected both the latent intercept and the latent slope of CBCL, but the TVCs examined the effect of parental depression and physically abusive and neglectful parenting behaviors on child CBCL above and beyond the latent growth process of CBCL. We first estimated an unconditional linear growth model to determine whether there was a significant mean increase or decrease over time and whether there was significant variability in individual trajectories of CBCL across participants.

Next, we ran the model with the demographics as TICs and parental depression and parenting variables as TVCs to examine the association of parental depression and parenting variables with deviation from each subject's predicted CBCL trajectory (Bollen & Curran, 2006; Bryk & Raudenbush, 1992). We tested for mediation using MODEL INDIRECT in Mplus, which calculates a z-statistic for the indirect effect and uses the delta method for standard errors. Age stratification was accomplished using the ''grouping'' option to include all three age groups in a single, stratified model. We examined two measures of fit (root mean square error of approximation [RMSEA] and comparative fit index [CFI]) that reflected the success of the model in balancing explanatory power and parsimony. For CFI, values greater than or equal to .90 were considered acceptable (Bentler, 1990); for RMSEA, adequate fit was indicated by values less than .08 and good fit by values less than .05 (Browne & Cudeck, 1993).

Results

Tables 2 – 5 include results from LGMs of parental depression and parenting behavior on child CBCL score. Table 2 includes results from unconditional models, and Tables 3 – 5 include results from CBCL score, parental depression, and parenting mediators by the three age groups along with the three demographic variables.

Unconditional Models

For preschoolers ($n = 573$), the unconditional model indicated a mean starting level of 54.97 (standard error [*SE*] = .81, $p < .01$) and a mean slope of .38 (*SE* = .39), which was not significantly different from 0 (Table 2). The nonsignificant slope coefficient indicated stability rather than change in CBCL over time. In terms of the variances, however, both intercept and slope had significant variances of 97.19 (12.65) and 16.34 (4.228), respectively. Despite the fact that the mean slope coefficient itself was not significant, the significant variance parameter indicated significant variability around the stable trajectory. Closer examination of individual trajectories indicated that, although many preschoolers had relatively stable CBCL scores over time, the CBCL scores for a sizable number of children were either increasing or decreasing over time.

For school-aged youths ($n = 858$), the mean intercept of 56.41 (.89) and mean slope of −1.33 (.34) were both significant, which shows that the CBCL score appeared to improve over time, as a decline in score equates with an improvement in emotional and behavioral problems. In addition, the variance components for intercept, 112.41 (10.61), and slope, 11.33 (4.31), were also significant, indicating significant variability around the initial level and rate of change over time in CBCL.

Adolescents ($n = 382$) had a mean intercept of 59.72 (1.35) and a mean slope of −1.39 (.50), which were both significant at $p < .01$. Adolescents had a higher mean initial CBCL score than

Table 2. *Unstandardized Coefficients and Variances for Latent Growth Parameters for CBCL Total Problem Score in NSCAW Youths (*N = *1,813)*

	Preschoolers (2 – 5)		School-Aged Youths (6 – 11)		Adolescents (12 – 15)	
Parameter	Estimate	*SE*	Estimate	*SE*	Estimate	*SE*
Initial level (I)	54.970**	0.808	56.414**	0.888	59.723**	1.351
Variance	97.193**	12.650	112.406**	10.610	104.067**	18.431
Rate of change (S)	0.380	0.389	−1.331**	0.339	−1.393**	0.504
Variance	16.335**	4.228	11.330**	4.310	7.316*	3.650
Correlation of I & S	−8.798	4.702	−5.403	4.961	−8.749	7.754

* $p < .05$. ** $p < .01$.

Table 3. *Unstandardized Coefficients for the Effects of Demographic, Parental Depression, and Parenting Variables on Child CBCL Total Problem Score in Preschoolers (*n = *573)*

	Initial Level of CBCL		Rate of Change in CBCL		Time-Specific CBCL	
Variable	Coefficient	*SE*	Coefficient	*SE*	Coefficient	*SE*
Level 2						
Child gender	1.459	1.857	0.097	0.945		
Family poverty	3.680*	1.439	−1.144	0.851		
Parent marital status	3.472**	1.248	−0.755*	0.997		
Level 1						
Parental depression[a]					3.922**	0.609
Neglectful parenting[a]					3.072**	0.500
Physically abusive parenting[a]					1.778**	0.549
Indirect effects[b]						
Parental depression via neglectful parenting neglectful parenting					0.910**	0.249
Parental depressionvia physically abusive parenting					0.148	0.092
Random parameters						
Intercept	52.301**	1.551				
Residual variance (I)	79.640**	8.689				
Slope	1.016	0.892				
Residual variance (S)	15.470**	2.837				

[a]Lagged effects controlled. [b]Effects from parental depression to neglectful and physically abusive parenting were estimated and only the path from parental depression to neglectful parenting was significant ($b = .296$, $SE = .080$, $p < .01$).

*$p < .05$. **$p < .01$.

did preschoolers or school-aged youths, but their scores declined slightly more than the those of school-aged youths, which indicates improvement over time, given that lower scores reflect less emotional and behavioral problems. Like preschoolers and school-aged youths, the adolescent group also had significant variability around both intercept, 104.07 (18.43), and slope, 7.32 (3.65). The unconditional model stratified by age fit the data well (CFI = 1.00, RMSEA = .02).

Preschoolers Model

The models shown in Tables 3 – 5 included the time-varying parental depression and parenting variables at Level 1 and the demographic variables at Level 2 for all three age groups. Table 3 presents selected coefficients from the full model for the preschooler group with the tests for indirect effects of depression, through parenting behaviors. Of the Level 2 demographic variables, poverty status and parent marital status significantly predicted initial level of child CBCL score, but only marital status predicted change over time. Specifically, preschoolers living at or below the poverty line had an initial CBCL score that was almost 4 points higher on average than that of preschoolers who were not living in poverty, net of the effects of the TVCs. Preschoolers with a married parent had a higher initial CBCL score by almost 3.5 points but then experienced a significant decline in CBCL score over time, which indicated improvement, compared with those whose with a parent who was not married, net of the effects of the TVCs.

In terms of the key study variables at Level 1, the findings showed that parental depression significantly predicted child CBCL score, physically abusive parenting, and neglectful parenting. The direct effect from parental depression to child CBCL was 3.92 (.609), which indicates about a 4-point increase in emotional and behavioral problems among preschoolers with depressed parents. Depression in parents was also associated with an increased probability of neglectful parenting but had no association with the probability of physically abusive parenting. Of the parenting behaviors, both physically abusive and neglectful parenting had a significant effect on child CBCL, such that physically

Table 4. *Unstandardized Coefficients for the Effects of Demographic, Parental Depression, and Parenting Variables on Child Emotional and Behavioral Problems in School-Aged Youths (*n = *858)*

	Initial Level of CBCL		Rate of Change in CBCL		Time-Specific CBCL	
Variable	Coefficient	*SE*	Coefficient	*SE*	Coefficient	*SE*
Level 2						
Child gender	1.003	1.165	−0.643	0.541		
Family poverty	−1.245	1.343	0.678	0.654		
Parent marital status	−1.619	1.604	0.268	0.517		
Level 1						
Parental Depression					2.146**	0.605
Neglectful parenting[a]					2.866**	0.761
Physically abusive parenting[a]					3.559**	0.702
Indirect effects[b]						
Parental depression via neglectful parenting					0.905**	0.263
Parental depressionvia physically abusive parenting					0.287	0.181
Random parameters						
Intercept	56.852**	1.731				
Residual variance (I)	107.036**	10.878				
Slope	−1.486	0.798				
Residual variance (S)	14.500**	2.600				

[a]Lagged effects controlled. [b]Effects from parental depression to neglectful and physically abusive parenting were estimated and only the path from parental depression to neglectful parenting was significant ($b = .316$, $SE = .057$, $p < .01$).

*$p < .05$. **$p < .01$.

abusive parenting was associated with about a 2-point higher total problem score, and neglectful parenting behavior was associated with about a 3-point higher score. Because parental depression was not associated with physically abusive parenting, however, it cannot be a mediator in the relationship between parent depression and child CBCL score. The tests for indirect effects confirmed that only neglectful parenting significantly mediated the relationship between parental depression and child CBCL score among preschoolers ($z = 3.65$, $p = .01$). Significant residual variances remained for both the intercept and slope.

School-Aged Youths Model

For school-aged youths, none of the demographic variables at Level 2 significantly predicted initial level of CBCL or change over time (Table 4). As with preschoolers, parental depression significantly predicted child CBCL score, although the direct effect was smaller, with a 2.15-point increase ($SE = .61$), controlling for the other variables in the model and the latent growth process. Parental depression was also significantly associated with an increase in the probability of neglectful, but not physically abusive, parenting ($b = .32$, $SE = .06$, $p < .01$). Physically abusive parenting and neglectful parenting were significantly associated with child CBCL score, such that physically abusive parenting was associated with a 3.56-point elevation in total problem score, and neglectful parenting was associated with a 2.87-point elevation in total problem score, controlling for the other variables and the latent growth process. The tests for indirect effects showed a significant, indirect effect from parent depression to child CBCL score through neglectful parenting only ($z = 3.45$, $p < .01$). The residual variance for the intercept and slope remained significant.

Adolescents Model

As with the model for school-aged youths, none of the demographic variables was associated with either the intercept or the slope for CBCL score in the adolescent group (Table 5). Parental depression was significantly associated

Table 5. *Unstandardized Coefficients for the Effects of Demographic, Parental Depression, and Parenting Variables on Child Emotional and Behavioral Problems in Adolescents (*n = *382)*

	Initial Level of CBCL		Rate of Change in CBCL		Time-Specific CBCL	
Variable	Coefficient	*SE*	Coefficient	*SE*	Coefficient	*SE*
Level 2						
Child gender	−1.466	2.427	0.986	1.054		
Family poverty	0.300	1.982	−0.864	1.009		
Parent marital status	−0.846	2.111	0.484	1.127		
Level 1						
Parental depression[a]					3.252**	0.610
Neglectful parenting[a]					1.844	0.969
Physically abusive parenting[a]					3.436**	1.090
Indirect effects[b]						
Parental depression via neglectful parenting					−0.038	0.060
Parental depressionvia physically abusive parenting					0.145	0.180
Random parameters						
Intercept	59.278**	2.235				
Residual variance (I)	107.304**	19.362				
Slope	−1.690*	0.779				
Residual variance (S)	10.087*	2.148				

[a]Lagged effects controlled. [b]Effects from parental depression to neglectful and physically abusive parenting were estimated and neither was significant at $p < .05$.

*$p < .05$. **$p < .01$.

with a 3.25-point ($SE = .61$) increase in child CBCL score in adolescents but not with either physically abusive or neglectful parenting, net of other variables and the latent growth process. With no direct effect from parental depression to the mediators, mediation was precluded. In addition, neglectful parenting did not have a direct effect on child CBCL for this age group, but physically abusive parenting was associated with a 3.44-point increase in total problem score. Fit of the overall model stratified by age was good (CFI = .971, RMSEA = .021).

Discussion

In this sample of youths involved with child welfare, parental depression was directly associated with elevated emotional and behavioral problems for youths of all ages. For preschoolers and school-aged youths, parental depression also indirectly affected outcomes through neglectful parenting. For adolescents, neither physically abusive nor neglectful parenting played a mediating role. Although hypothesized as a potential mediator for all three age groups, parental depression was not associated with elevated levels of physically abusive parenting for any age group. Although this study was specific to child welfare, the findings provide further support for the impact of parental depression, particularly when parents are experiencing significant parental- and familial-level risk factors, as in the case of parents involved with child welfare. The findings further reinforce the importance of including a developmental perspective when examining the impact of depression on parenting.

In terms of the overall impact, parental depression appears to be most strongly associated with elevated emotional and behavioral problems for youths at the ends of the age spectrum—those in the preschool and adolescent age groups. The strength of the relationship between parental depression and child outcomes for young children is not surprising, given their greater reliance on parents for care (Wulczyn et al., 2005). Conversely, the strength of the relationship between parental depression and adolescent outcomes was somewhat surprising. Adolescence is typically conceptualized as a period of decreased reliance on parents, increased importance of peer relationships, and individuation (Steinberg & Morris, 2001).

Parenting Behavior as a Mechanism of Transmission

As hypothesized, in the preschool age group, neglectful parenting partially mediated the association between parental depression and youths' emotional and behavioral problems. This finding corresponds with a substantial literature linking parental depression and disengaged parenting for young children (e.g., Palaez et al., 2008), as well as with findings from the child maltreatment literature linking parental depression and parental neglect (e.g., Chaffin et al., 1996). Depressed parents of school-aged children were equally as likely to exhibit neglectful parenting behaviors. Furthermore, the impact on emotional and behavioral functioning of school-aged children was similar (i.e., the indirect effects were similar).

A major contribution of this study is the specific focus on a child-welfare involved sample of parents, children, and adolescents and on parenting behaviors that have escalated to the level of neglect and abuse. The literature on the association between parental depression and neglectful parenting is limited and somewhat inconsistent (Knutson & Schartz, 1997), and the literature on the impact of neglect has frequently overlooked the impact of neglect on school-aged children (Wulczyn et al., 2005). Our findings provide some evidence that parental depression poses a significant risk factor for neglectful parenting of school-aged youths, who appear to be negatively affected, despite supposedly increased developmental competencies and the involvement of other adults.

Unexpectedly, physically abusive parenting did not mediate the relationship between parental depression and child outcomes for children of any age. In the parental depression literature focused on the general population, depression has been clearly associated with heightened use of harsh but not necessarily physically abusive parenting strategies. Across these studies, harsh parenting was operationalized broadly and included harsh or negative verbal interactions as well as some mild physically aggressive behavior (e.g., spanking). These studies, however, rarely have included a specific focus on physically abusive parenting behaviors. In the current study, physically abusive parenting included behaviors that ranged from spanking to more severe assaultive behaviors. As would be expected, analyses indicate that physically abusive parenting itself was problematic for youths across all three age groups. Parental depression, however, was not associated with higher levels of engagement in physically abusive parenting behaviors for parents in any of the three age groups. This finding may provide more support for the idea that depression is not a strong risk factor for child physical abuse or that this association exists only when it occurs in the context of other factors, such as childhood sexual abuse or domestic violence (Schuetze & Eiden, 2005). Alternatively, the combination of physically abusive behaviors that vary in severity may have masked any associations between parental depression and specific physically abusive parenting behaviors, or parents may have been less likely to report physically abusive behaviors because of concerns about potential child-welfare investigations.

In this study, the parenting mechanisms examined did not mediate the relationship between parental depression and adolescent outcomes; however, the parenting mechanisms examined were limited. Although prior research supports a relationship between parental depression, neglectful and/or abusive parenting, and outcomes for adolescents, the research is sparse. Our findings do not eliminate parenting behavior as a mechanism of transmission, as other parenting behaviors not examined in this study may play a role. In particular, adolescent-relevant parenting behaviors that should be considered include parental emotional-support seeking from the adolescent or parental reliance on the adolescent for child care of younger siblings (Peris, Cummings, Goeke-Morey, & Emery, 2008). In addition, the relationship between parental depression and negative outcomes for adolescents may be accounted for by increased exposure to stress associated with having a depressed parent, such as exposure to higher levels of marital or interpersonal conflict (e.g., Cummings et al., 2005). Adolescents, in comparison to other aged youths, may be more aware of and negatively affected by the interpersonal environment, as they are navigating developmental transitions to adulthood.

Although parental depression exerted a direct effect on outcomes for all youths and an indirect effect for two of the three age groups, it is important to consider that the impact of parental depression in this study was significant but modest. Looking across all three age groups over time, without the inclusion of parental depression and physically abusive

and neglectful parenting, youth emotional and behavioral problems either appeared stable or improved slightly. When parental depression and parenting behavior were included in the analyses, stability was compromised and improvement was tempered. In addition, the mean child and emotional behavior problem scores for all three age groups at baseline were in the normal range. Of note is that analyses with the subsample of children and adolescents with emotional and behavioral problems in the borderline or clinical range at baseline (i.e., between one fourth to one half of children in the three age groups) yielded a relatively similar trajectory over time (analyses available from the first author).

Limitations

This study has several limitations that merit consideration. First, parental depression, parenting behavior, and child emotional and behavioral problems were assessed using the parent's report. Although having multiple informants would have enhanced our design, it is not clear that depressed parents have distorted or biased views of child symptoms and functioning (Richters, 1992). Some studies have shown small to moderate associations between maternal depression and overreporting of child difficulties (e.g., Boyle & Pickles, 1997), but others have shown the opposite—that depressed mothers may be more accurate reporters of child emotional and behavioral problems (e.g., Conrad & Hammen, 1989).

Second, we examined only one possible mediator of parental depression—parenting behaviors. Other potential mediators of depression should be examined, as the negative impact of parental depression on child emotional and behavioral problems likely is multifaceted. Those with some support in the literature include coparenting or marital conflict (Cummings et al., 2005), parental substance use (Chaffin et al., 1996), and the impact of child emotional and behavioral problems themselves on rates of parental depression and parenting behaviors (Hawkins, Amato, & King, 2007). Although the inclusion of these mediators was beyond the scope of this investigation, these are important next steps, particularly for a child-welfare sample. Another important next step for the literature on parental depression is to expand examinations beyond mother-only or predominantly mother samples. Further research needs to examine the relationships among depression in fathers, other key caregivers, parenting behavior, and child outcomes (Crosnoe & Cavanagh, 2010).

A third limitation results from the inclusion criteria we placed on the sample. In limiting our analysis to youths who remained in the home across waves and who had the same parent interviewed across waves, the sample was likely limited to more stable families among those who are child-welfare involved. In doing so, the most vulnerable youths may have been excluded, thereby leading us to underestimate the impact of parental depression and parenting behaviors. Finally, although the CTS-PC is the best existing measure for assessing parental self-report of physically abusive and neglectful parenting, it has limitations. Namely, given low reliability coefficients for some scales, the developers suggest scoring subscales dichotomously. This scoring method allowed for comprehensive assessment of any physically abusive or neglectful parenting behaviors but did not allow for examination of severity or intensity of parenting behaviors. Future research efforts should attempt to identify a more sensitive measure that better assesses the severity and intensity of physically abusive and neglectful parenting behavior.

On the basis of our findings, children involved with child welfare, who constitute an already vulnerable population, may be at particular risk for emotional and behavioral problems when they have a parent experiencing depression, with parental neglect playing an important role for younger children. Unfortunately, when adults receive treatment for depression, it is typically treated as an isolated problem. Treatment rarely takes into consideration how depression affects parenting and children (Knitzer, Theberge, & Johnson, 2008). As stated in one of the NRC and IOM's seven recommendations (2009), it is necessary to ''expand the state's capacity to respond to parental depression through a family-focused lens'' (p. 11). Identifying parental depression in the initial stages of child-welfare involvement would provide an opportunity to be responsive to their call. Services could be tailored to provide parents with needed mental health services and effective parenting supports, thereby potentially reducing the likelihood of emotional and behavioral problems in children and adolescents.

NOTE

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