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The Relationship among Caregiver Depressive Symptoms, Parenting Behavior, and Family-center Care

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Abstract

Background and Objective: Parental depression has been associated with adverse child outcomes. However, the specific parenting behaviors that may result in such child outcomes and what effect family-centered care (FCC) has on positive parenting behavior of depressed parents has not previously been examined.

Methods: Data from the National Survey of Early Childhood Health (NSECH) was used ($n = 2,068$). Groups were stratified by the presence of parental depression and compared on demographics and mean number of specific positive parenting behaviors. Generalized linear models were developed based on testing whether individuals performed more or less than the median number positive behaviors. Lastly, we tested whether depression independently predicted each outcome after adjustment for FCC, coping, social support and ethnicity to evaluate if depression independently predicted each outcome after adjustment.

Results: There was no difference in demographic variables between those who were depressed and not depressed. Those not depressed performed significantly more routines ($p = 0.036$); reported coping better with parenting ($p < 0.001$); performed significantly less punitive behaviors ($p = 0.022$) and needed/had less social support ($p = 0.002$) compared to those depressed. Individual items and scale scores were associated in the expected directions. FCC was independently associated with study variables, but did not moderate the effect of depression.

Conclusions: These data identify specific parenting behaviors that differ between parents who report depressive symptoms compared to those without depressive symptoms. More targeted interventions coordinated through a medical home are needed for parents with depressive symptoms to reduce the child health disparities often associated with parental depression.

The Relationship among Caregiver Depressive Symptoms, Parenting Behavior, and Family-center Care

Major depressive disorders occur in approximately 20% of adult females (Yonkers, Vigod, & Ross, 2011). Women of childbearing age have been reported to be of particular risk, especially during the first postpartum year (Viguera et al., 2011; Yonkers et al., 2011). The prevalence of less severe forms of depression is less well known, but one study reported the presence of depressive symptoms in almost 40% of a sample of inner-city mothers (Heneghan, Silver, Bauman, Westbrook, & Stein, 1998). It has been well-established that maternal depression is associated with numerous adverse child health and developmental outcomes (Cornish et al., 2005; Gartstein & Fagot, 2003; Kurstjens & Wolke, 2001; Logsdon, Wisner, & Pinto-Foltz, 2006; NICHD Early Child Care Research Network, 1999; Petterson & Albers, 2001; Teti, O'Connell, & Reiner, 1996; Tronick & Reck, 2009). In general, the mechanisms through which depression influences child outcomes are related to the interference of optimal parent-child interactions and with maternal-role functioning (Berkule et al., 2014; Logsdon et al., 2006; NICHD Early Child Care Research Network, 1999). Most of the research, to date, focuses on maternal depression, but the mental health of fathers has also been reported to be a risk factor for adverse child outcomes (Fletcher, Feeman, Garfield, & Vimpani, 2011; Ramchandani et al., 2011; Ramchandani, Stein, Evans, O'Connor, & Alspac study team, 2005).

More data are needed to identify specific parenting behaviors that may be influenced by parental depression in order to target preventive interventions that support positive parenting in the face of parental depression. For example, it has been shown that mothers suffering from depression have interaction styles characterized as withdrawn or intrusive (Field, 1998). Each of these interaction styles has consequences for how parents with depression manage day-to-day

parenting tasks necessary for child health, safety, and development (Berkule et al., 2014). The relationships are complex and parental depression interacts with other factors such as socioeconomic status, race and ethnicity, maternal sensitivity, and social support (Campbell, Matestic, von Stauffenberg, Mohan, & Kirchner, 2007; Clare & Yeh, 2012; Logsdon, McBride, & Birkimer, 1994; Wang, Wu, Anderson, & Florence, 2011).

It is clear from the literature that parental depression, especially maternal depression, is a serious problem and depression affects parental functioning and child outcomes. Some national organizations recommend screening and initial management of postpartum depression in primary care settings (Earls & The Committee on Psychosocial Aspects of Child and Family Health, 2010; National Institute for Health Care Management, 2010), while others have suggested that there is not yet enough evidence to recommend universal screening, but suggest that it should be considered (American College of Obstetricians and Gynecologists, 2010). Because of the detrimental effects parental depression has on childhood development and other health-related outcomes (Kurstjens & Wolke, 2001; Maughan, Cicchetti, Toth, & Rogosch, 2007; Ramchandani et al., 2005; Santos, Matijasevich, Domingues, Barros, & Barros, 2010), pediatricians and pediatric nurse practitioners are often assuming a primary role in identifying and referring caregivers for suspected depression. However, few interventions aimed specifically at depressed mothers exist for delivery within pediatric primary care settings (Bauer, Stanton, Carroll, & Downs, 2013; Berkule et al., 2014). Family-centered care (FCC) is an approach to planning and coordinating care that ensures comprehensive health management for children and families that is individualized to meet the needs of each family (Committee on Hospital Care Institute for Patient- and Family-Centered Care, 2012; National Association of Pediatric Nurse Practitioners' Health Policy Committee, 2015). High quality FCC has been shown to improve

health-related resource utilization and reduce costs (J. E. Cox, Buman, Woods, Famakinwa, & Harris, 2012; DeVries et al., 2012; Long, Bauchner, Sege, Cabral, & Garg, 2012; Romaine, Bell, & Grossman, 2012). Although not specific to depression, family-based approaches within primary care have potential for effectively intervening with families affected by parental depression (Beardslee, Gladstone, Wright, & Cooper, 2003). More data are needed to better understand the role of specific models of care, such as FCC, in the provision of optimal care and targeted anticipatory guidance for families in which one or more parent suffers from depression. However, previous examinations of data contained within the National Survey of Early Childhood Health (NSECH) 2000 dataset did not adjust for this important potential confounder when examining the relationship between parental depression and parenting behaviors (Blumberg & O'Connor, 2004; Kogan et al., 2004; Mistry, Stevens, Sareen, De Vogli, & Halfon, 2007; Regalado, Sareen, Inkelas, Wissow, & Halfon, 2004).

The current study evaluated whether parental depression independently predicted specific parenting behaviors (routines, enrichment, punitive disciplinary behaviors, positive disciplinary strategies, and home safety [childproofing]) after adjusting for FCC and traditional risk factors (coping, social support, and ethnicity). Our hypothesis is that the association of suboptimal parenting among caregivers who experience depressive symptoms would be lessened if the family received FCC delivered in the context of a primary care home.

Methods

Sample

The National Survey of Early Childhood Health (NSECH) is a telephone survey of a national random sample of 2,068 parents of children between ages 4 and 35 months conducted by the National Center for Health Statistics (NCHS) in 2000 (Blumberg, Olson, & Osborn, 2002). African-American and Latino children were oversampled to provide a nationally

representative sample of underrepresented populations suitable for subgroup analyses. Most respondents were mothers (94%) of the sampled child; the remaining were fathers (5%) or grandparents (1%). The response rate was 65.6%. A more complete description of the NSECH is presented elsewhere (Blumberg et al., 2002).

Procedure

Structured telephone interviews of approximately 30 minutes were conducted in English or Spanish with parents, and questions addressed the content and quality of early childhood health care. The aim of the original NSECH was to assess parents' perceptions of the primary health care their child was receiving (Blumberg et al., 2002).

Variables

All questions were on a Likert-type scale with variable response options as will be described for each variable. All questions had a response option of "Don't know" and "Refused." Each variable is described in more detail below. In general, we deleted the "Don't know" and "Refused" responses; reverse-coded items, where appropriate; summed the scores; and either used the score as a continuous variable or created a dichotomous variable using a median split.

Depression. Depression was measured using the five-item Mental Health Inventory (MHI-5) (McHorney, Ware, Rogers, Raczek, & Lu, 1992), which is a validated and brief measure derived from the original Short form Health Survey Questionnaire (SF-36) (McHorney & Ware, 1995). The MHI-5 uses a six-point response scale from "All of the time" to "None of the time" (McHorney et al., 1992). Both versions have been validated for use with diverse populations and have adequate psychometric properties (Berwick et al., 1991; Kelly, Dunstan, Lloyd, & Fone, 2008; Leiferman, Ollendick, Kunkel, & Christie, 2005; Mchorney & Ware, 1995; Mchorney, Ware, Lu, & Sherbourne, 1994; Mchorney, Ware, & Raczek, 1993;

McHorney et al., 1992). Each of the questions refers to how the participant felt during the *past month*. How much of the time have you 1) been a very nervous person? 2) felt calm and peaceful? 3) felt downhearted and blue? 4) felt so down in the dumps that nothing could cheer you up? and 5) been a happy person? Lastly, we summed the responses for the five questions and, then, transformed the raw scores (range 0-100) as has been typically done in the literature. No consensus has been reached on what cut-off score should be used to indicate depression (Kavanaugh et al., 2006; Kelly et al., 2008; Mistry et al., 2007). Most recently, Kelly and colleagues used five statistical methods that yielded scores of 60, 68, and 76 (Kelly et al., 2008). We selected 68 to define depressed vs. not depressed (Cronbach's alpha = 0.810).

Parenting behaviors. Parenting behaviors included routines, enrichment, punitive disciplinary behaviors, positive disciplinary strategies, and childproofing (see descriptions below). Recent literature has defined positive parenting behaviors that have been associated with optimal child health and developmental outcomes as well as negative parenting behaviors that have been associated with adverse child outcomes (Belsky & Jaffee, 2006; Belsky & Pluess, 2009; Chronis et al., 2007; de Graaf, Speetjens, Smit, de Wolff, & Tavecchio, 2008a, 2008b; Juffers, Bakersmans-Kraneburg, & Van Ijzendoorn, 2008a, 2008b; Landry & Smith, 2011; Landry, Smith, & Swank, 2006; Landry, Smith, Swank, & Guttentag, 2008; Matsumoto, Sofronoff, & Sanders, 2010; Morrongiello & Kiriakou, 2004; Mulvaney & Mebert, 2010; Nowak & Heinrichs, 2008; Perrin, Sheldrick, McMenamy, Henson, & Carter, 2014; Sanders, Bor, & Morawska, 2007; Shonkoff, 2010; Shonkoff, Garner, et al., 2012; Spijkers, Jansen, de Meer, & Reijneveld, 2010; Tamis-LeMonda & Baumwell, 2011; Thomas & Zimmer-Gembeck, 2007; Vanderveen, Bassler, Robertson, & Kirpalani, 2009; Wiggins, Sofronoff, & Sanders, 2009). The

parenting behaviors described below fit with the current conceptualization of positive and negative parenting behavior.

Routines. Routines were defined by five questions. The first three were scored as “Same every day” or “Changes from day to day.” Those three questions are as follows. Is (CHILD’S) bedtime usually the same time each day? Is (CHILD’S) nap time usually the same every day? Are (CHILD’S) mealtimes usually the same every day? Two additional questions were scored on a 4-point scale from “Every day” to “Never.” These two questions are as follows. How many days in a typical week does everyone in the household eat a mid-day or evening meal together? How many days in a typical week does everyone in the household eat breakfast together?

Environmental structure, including routines, has been associated with the development of self-regulatory functioning, more positive developmental outcomes, and school readiness (Bradley, 2002; Dilworth-Bart, Khurshid, & Vandell, 2007; Matheny, Wachs, Ludwig, & Phillips, 1995; Visser et al., 2014; Wachs, 1993). Depression is a known risk factor for adverse child outcomes (Chronis et al., 2007), but it is not known if depression might interfere with a mother’s ability to provide daily routines.

Enrichment. Enrichment was defined by three questions with a 4-point response option from “Every day” to “Never” as follows: Please tell me the number of days in a typical week that you or any other family members do the following activities, 1) read stories to (CHILD), 2) play music or sing songs with (CHILD), and 3) take (CHILD) on any kind of outing such as the park, grocery, church, or a playground.

Punitive disciplinary behaviors. Punitive disciplinary behaviors were defined by two questions with a 4-point response option from “Often” to “Never.” Parents were asked to say

how often they used raising their voices or yelling and spanking as methods of disciplining their child.

Positive disciplinary strategies. Positive disciplinary strategies were defined by three questions with a 4-point response scale from “Often” to “Never” when asked about the frequency of each disciplinary practice. How often do you 1) take away a toy or treat? 2) give a time-out (that is making (CHILD) take a break) from what activity [he/she] is doing? and 3) explain to (CHILD) why [his/her] behavior is not appropriate?

Childproofing. Childproofing was defined by six questions that had the response options of “Yes,” “No,” or “Not applicable.” Parents were told they were going to be read a list of things that parents sometimes do to childproof their home or to make it safe and they were to say if they ever did that in their home. The items were as follows: 1) put up baby gates, window guards, or other barriers; 2) put locks or safety latches on cabinets where such things as cleaning supplies or medicines are kept; 3) padding hard surfaces or sharp edges; 4) put stoppers or plugs in outlets; 5) turn down hot water thermostat setting; and 6) Syrup of Ipecac can be used if (CHILD) swallows something poisonous. Do you have Syrup of Ipecac at home?

Covariates. Covariates included coping, social support, FCC, and race/ethnicity.

Coping. Coping was defined by one question with a 4-point response scale from “Very well” to “Not well at all” as follows: How well do you feel you are coping with the day to day demands of parenthood?

Social support. Social support was defined by two questions with a 4-point response scale (Cronbach’s alpha = 0.848) from “Very well” to “Not well at all” as follows: 1) Is there someone you can turn to for day to day emotional help while parenting? 2) Do you have someone you can count on to watch the (CHILD) if you need a break?

Family-centered care (FCC). FCC was defined by 4 questions with a 4-point response scale (Cronbach's alpha = 0.820) from "Always" to "Never." Each of the questions refers to the *past year*. How often did (CHILD'S) doctor or health provider 1) take time to understand specific needs of (CHILD'S)? 2) respect your expertise? 3) ask how you are feeling as a parent? and 4) understand you and your family and how you prefer to raise (CHILD)?

These questions fit with the core principles of patient- and family-centered care that have been described in a policy statement from the American Academy of Pediatrics (Committee on Hospital Care and Institute for Patient- and Family-Centered Care, 2012). In brief, the statement suggests that a collaborative relationship be established among the patients, families, doctors, nurses, and other health care professionals for the planning, delivery, and evaluation of health care. Additionally, the relationship should be guided by the following principles, which are summarized from the policy statement: 1) listening to and respecting individual needs of each child and his/her family; 2) providing services that are tailored to the needs, beliefs, and cultural values of each child and family; 3) sharing unbiased information that is useful to the family so that they can effectively participate in care and decision-making; 4) providing and/or ensuring formal and informal support throughout the child's life; and 5) collaborating with patients and families in all areas of care delivery, research, program development, etc. (Committee on Hospital Care and Institute for Patient- and Family-Centered Care, 2012).

Race/ethnicity. Respondents were allowed to identify all possible categories that described race. If a race other than the seven existing categories was indicated, then verbatim responses were recorded. Verbatim responses were reviewed and matched against a database of alternate nomenclature maintained by the U.S. Census Bureau and back-coded into one of the seven categories. White (Non-Hispanic White), Hispanic and Black or African American was

coded as such for the current analysis and represented 97.5% of respondents. Native American, Alaska Native, Asian, Native Hawaiian, Pacific Islander and Other were coded as “Other” for analysis, to achieve statistical inference (Cronbach’s alpha = 0.664).

Statistical Analysis

To test the effect of receipt of FCC on the association of suboptimal parenting among caregivers with depressive symptoms, we first conducted a preliminary analysis and calculated correlation coefficients (Pearson or Spearman, when appropriate) for all predictor variables to test if depression co-varied with any other predictor. Additionally, we performed a descriptive analysis of demographics stratified by those who had depressive symptoms and those who did not have depressive symptoms. Chi-square analysis was used to test for differences between those depressed and those not depressed for categorical variables, while independent-samples t-tests were used to test for differences in continuous variables. Similarly, independent-samples t-tests were used to test for differences in the mean number of positive parenting behaviors, while Wilcoxon methods were used to test for differences in median number of positive parenting behaviors stratified by presence of depressive symptoms. Chi-square analysis was used to test whether those who were not depressed were more/less likely to adhere to advocated individual positive parenting behaviors (unadjusted).

Lastly, we tested whether individuals performed more/less than the median number positive behaviors by developing generalized linear models (using the binomial distribution and logit link function). That is, for example, if an individual performed the median number of routines (3.0 routines) they were given the value 1, while an individual performing less than the median number of routines was given the value 0. Each dichotomized outcome was made a function of the main effects (depression, FCC, coping, social support, and ethnicity) as well as all of the two-way interactions with depression to evaluate whether depression independently

predicted each outcome after adjustment. All data were analyzed using SAS® [Version 9.3; Cary, NC, USA]. Prior to the initiation of the study, an institutional review board determined that the study was exempt. No corrections (e.g., Bonferroni) were made for multiple testing, since we felt each outcome was important in isolation.

Results

A total of $N = 2063$ were included in the analysis ($n = 1562$, 75.7% not depressed, $n = 501$, 24.3% depressed). There was no difference in demographic variables between those who reported depressive symptoms and those who did not (Table 1). Depression was significantly correlated with only one other predictor, which was how well he/she coped with the demands of parenthood. Depression was inversely related to coping well with the demands of parenthood ($r = -0.455$, $p = 0.020$)

Influence of Depression on Outcomes

Depressive symptomology significantly decreased the odds that an individual performed more than the median number of routines (OR = 0.68, 95% CI 0.54-0.82, $p = 0.018$) and increased the odds that an individual performed more than the median number of punitive behaviors (OR = 1.51, 95% CI 1.15-1.92, $p = 0.007$). This suggests that these relationships were not mediated by FCC.

Influence of FCC on Outcomes

FCC independently and significantly increased the odds that an individual performed more than the median number of routines (OR = 1.12, 95% CI 1.03-1.23, $p = 0.011$).

Other Influences on Outcomes

Coping (OR = 0.23, 95% CI 0.08-0.40, $p < 0.001$) and social support (OR = 0.17, 95% CI 0.03-0.39, $p < 0.001$) decreased the odds that an individual performed more than the median

number of punitive behaviors. Coping (OR = 1.54, 95% CI 1.30-1.70, $p < 0.001$) and social support (OR = 1.37, 95% CI 1.14-1.68, $p < 0.001$) increased the odds that an individual performed more than the median number of positive disciplinary strategies. No significant interaction effects existed between depression and any other variable studied (FCC, coping, social support, or ethnicity). That is, the relationship between the presence of depressive symptoms and each outcome was not moderated by another predictor.”

Discussion

Parental depression is frequently encountered by pediatricians and pediatric nurse practitioners; yet, limited primary care-based interventions aimed specifically at this health risk group exist in the outpatient setting. This study sought to examine whether providing FCC lessens the association of suboptimal parenting behaviors among caregivers with depressive symptoms and builds upon previously published findings from the NSECH dataset by Regalado et al. (Regalado et al., 2004). We found that despite parents' receipt of FCC, those with depressive symptoms continued to use punitive disciplinary behaviors and institute fewer routines (regularity of mealtime, naptime, and bedtime).

Family-centered care is an approach to engage families and is considered the standard of pediatric practice (Committee on Hospital Care and Institute for Patient- and Family-Centered Care, 2012; National Association of Pediatric Nurse Practitioners' Health Policy Committee, 2015). Little exists in the literature examining the effect FCC has on the behaviors of mothers with depressive symptoms or what specific aspects of FCC might be associated with more positive parenting behaviors. It is unclear why FCC did not moderate the effects of depression on our outcome variables. The study used parents' report about whether they received FCC. Each question referred to their experience within the past year. It is not clear whether the parent was

accurate in his/her recall. Additionally, family-centered care may need to be operationalized differently in future studies to determine what specific provider behaviors may help to moderate the effects of depression on parenting behaviors.

When parental depression is suspected during well-child visits, pediatric providers may suggest any number of recommendations including lifestyle changes, involvement of family members, scheduling more time with the health care provider, or referral to self-help or support groups or to mental health professionals (Olson et al., 2002). However, little is known about whether parents with depressive symptoms actually follow through with recommendations given to them.

Our study specifically found that parents with depressive symptoms were less likely to adhere to routines for sleep and meals or advice about childproofing and reading to their children. These mothers also reported more difficulties coping with parenting demands and were more likely to use punitive parenting strategies. Our findings support those of other studies that have examined the association between maternal depressive symptoms and parenting practices from birth to entry into kindergarten (Kavanaugh et al., 2006; McLearn, Minkovitz, Strobino, Marks, & Hou, 2006a, 2006b; Paulson & Bazemore, 2010). It highlights the fact that it is not uncommon for parents with young children to report depressive symptoms that affect their ability to carry out critical parenting behaviors central to children's health and wellbeing. Important to note, however, the presence of depressive symptoms was not associated with differences in all parenting behaviors. For example, the presence of depressive symptoms was related to the use of fewer routines (bed time, nap time, and meal time), but not with the family eating breakfast or dinner together. Likewise, only reading to the child differed between those with and without depressive symptoms, but singing/listening to music and going on outings did

not. Both measures of punitive behavior was associated with depression, but only one of the three positive disciplinary strategies (explaining that child behavior is wrong) differed. Lastly, only one of the measures of safety or childproofing differed, which was putting locks on cabinets. So, while the presence of depressive symptoms was associated with differences in positive and negative parenting behaviors, it was not universally so. More data are needed to better understand the burdens that these parenting behaviors may have on parents who have depressive symptoms and how they can be better supported in their role as parents.

Many pediatric health care providers feel it is their responsibility to screen for and intervene when a mother is suspected of having depressive symptoms (Olson et al., 2002). Strong evidence now exists from the science of early brain and child development that exposure to adversities in early childhood, such as maternal depression, leads to alterations in the brain connectivity with implications for lifelong health and development (Bellis, Lowey, Leckenby, Hughes, & Harrison, 2014; Callender, Olson, Choe, & Sameroff, 2012; Cambron, Gringeri, & Vogel-Ferguson, 2014; Cho, Kim, Lim, Lee, & Shin, 2015; Duncan, Ziol-Guest, & Kalil, 2010; Escueta, Whetten, Ostermann, O'Donnell, & Positive Outcomes for Orphans Research, 2014; Ferro & Boyle, 2015; Jensen, Dumontheil, & Barker, 2014; Kalmakis & Chandler, 2014; Kujawa et al., 2014; McCurdy, Gorman, Kisler, & Metallinos-Katsaras, 2014; Mersky, Topitzes, & Reynolds, 2013; Montgomery, Cutuli, Evans-Chase, Treglia, & Culhane, 2013; NICHD Early Child Care Research Network, 1999; Oettinger & Paulson, 2014; Reiser, McMillan, Wright, & Asmundson, 2014; Roos et al., 2013; Shonkoff, Richter, van der Gaag, & Bhutta, 2012; Slykerman et al., 2015; Tissot et al., 2014; Visser et al., 2014). This literature provides ever-growing support for the detrimental effects of parental depression on physical and mental health, behavioral, and cognitive outcomes for children. Clearly, improving the early identification and

treatment of parental depression as well as other adversities is critical for pediatric primary health care providers. Even though there are validated and brief tools for screening for maternal depression in primary care (J. L. Cox, Holden, & Sagovsky, 1987; Kroenke, Spitzer, & Williams, 2001), there is little guidance available to the pediatrician and pediatric nurse practitioner on how to best handle maternal depression once suspected. Moreover, there exist no specific recommendations on timing and how often to screen (American College of Obstetricians and Gynecologists, 2010; Horwitz, Briggs-Gowan, Storfer-Isser, & Carter, 2007, 2009). Reimbursement for screening for maternal depression is often cited as a barrier to routine screening. However, the Illinois Department of Healthcare and Family Services successfully established statewide maternal depression screening. This model incorporated Medicaid reimbursement for risk assessment screening with the use of three pre-approved standardized instruments for maternal depression, along with a statewide telephone consultation service with a psychiatrist (Illinois Department of Healthcare and Family Services, 2014).

Another known barrier to routine screening is a lack of options to offer mothers if depression is suspected. Supportive watching and brief counseling may be adequate in a majority of cases; however, pediatric providers may be the first to suspect a worsening of symptoms or functioning. Little advice currently exists on how to facilitate two-way communication between the pediatric primary care provider and the mother's primary care provider, obstetrician, or women's health nurse practitioner. There is also a paucity of brief interventions that can be delivered in the primary care setting, specifically, to support depressed mothers, especially those with temporary or mild symptoms. When such interventions are developed, it would be important to include strategies for the busy pediatric provider to gain confidence in his/her initial efforts to intervene. Recent pilot work has demonstrated the feasibility, acceptability, and initial

efficacy of a group intervention offered in a community health clinic (Valdez, Mills, Barrueco, Leis, & Riley, 2011; Valdez, Padilla, Moore, & Magana). Large, randomized clinical trials are needed to further determine the long-term effects of such interventions. Moreover, ongoing work is needed at the policy level to ensure appropriate reimbursement for greater care coordination efforts related to maternal depression.

Pediatric primary care-based interventions to support the family are highly effective (Perrin et al., 2014), but require systems-level changes and resources, which has limited their widespread dissemination thus far. Promotion of positive parenting behavior with all parents has merit, but even more emphasis might be needed in the face of additional risk factors such as parental depression. Additionally, anticipatory guidance is needed to ensure that parents with depressive symptoms develop strategies and support networks to assist them in providing an optimal caregiving environment while the depressive symptoms are being managed. Evidence-based brief interventions such as Reach Out and Read (ROR) are helpful in promoting literacy (Mendelsohn et al., 2001; Weitzman, Roy, Walls, & Tomlin, 2004) and creating opportunities for the implementation of bedtime routines (High, LaGasse, Becker, Ahlgren, & Gardner, 2000). Others have shown that providing children's books with positive parenting storylines has been shown to increase caregiver awareness of non-punitive techniques to handle everyday behavior challenges (Bauer et al., 2012; Bauer et al., 2013). For mothers with more severe symptoms and those who are at highest risk, home visitation programs have been shown to produce effective results and long-term cost savings. When these programs are well-coordinated with the medical home (Paradis, Sandler, Manly, & Valentine, 2013), child health can be optimized.

The study has several limitations. The NSECH uses cross-sectional data from 2000. As such, causation cannot be determined using these cross-sectional data. Additionally, parental

depression was measured by self-report of depressive symptoms rather than using an objective measure of depression, which introduces the potential for social desirability bias.

In summary, more work needs to be done to help pediatricians and pediatric nurse practitioners in primary care settings to identify the presence of parental depressive symptoms and intervene early. New models of care that provide greater access to mental health professionals for consultative services may be helpful and cost-effective. For a majority of families, having a medical home and receiving FCC increases the likelihood parents will adhere to anticipatory guidance that optimizes positive child outcomes. Parents with depressive symptoms require additional intervention and support. Effective large-scale programs exist, but they are not universal or widely disseminated. More data and guidance are needed to help pediatric primary care providers to identify, stratify, and support parents with depressive symptoms.

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Table 1

Demographics by Depressive Symptoms Group

Variable	Overall N=2063 (%)	Not Depressed N=1562 (%)	Depressed N=501 (%)	<i>p</i>
Child ever received WIC benefits	1178 (57.1%)	845 (54.1%)	324 (64.6%)	0.205
Child currently receives WIC benefits	536 (26.0%)	370 (23.7%)	159 (31.7%)	0.235
Children in home < 18 years old				
1	446 (21.6%)	353 (22.6%)	95 (19.0%)	0.911
2	908 (44.0%)	676 (43.3%)	228 (45.6%)	
3	522 (25.3%)	395 (25.3%)	127 (25.3%)	
4	190 (9.2%)	137 (8.8%)	51 (10.1%)	
Number of children < 3 years old				
1	1828 (88.6%)	1384 (88.6%)	444 (88.6%)	0.645
2	219 (10.6%)	161 (10.3%)	57 (11.4%)	
3	14 (0.7%)	16 (1.0%)	0 (0.0%)	
Relationship to child				
Mother	1935 (93.8%)	1450(92.8%)	482 (96.2%)	0.151
Father	99 (4.8%)	97 (6.2%)	7 (1.3%)	
Grandparent	31 (1.5%)	16 (1.0%)	13 (2.5%)	
Mother's marital status				
Married	1331 (64.5%)	1023 (65.5%)	311 (62.0%)	0.439
Divorced	128 (6.2%)	89 (5.7%)	38 (7.6%)	
Separated	60 (2.9%)	33 (2.1%)	26 (5.1%)	
Never Married	522 (25.3%)	403 (25.8%)	120 (24.0%)	
Other	23 (1.1%)	14 (0.9%)	7 (1.3%)	
Mother's ethnicity				
Non-Hispanic, White	818 (39.6%)	626 (40.1%)	192 (38.3%)	0.198
Hispanic	728 (35.2%)	576 (36.9%)	152 (30.3%)	
Black	468 (22.7%)	344 (22.0%)	124 (24.8%)	
Other	52 (2.5%)	16 (1.0%)	36 (7.2%)	
Mother's employment				
Full time	968 (46.9%)	701 (44.9%)	260 (51.9%)	0.570
Part time	378 (18.3%)	298 (19.1%)	83 (16.5%)	
Unemployed	718 (34.8%)	564 (36.1%)	159 (31.7%)	
Continuous Variables	Overall Mean (<i>SD</i>)	Not Depressed Mean (<i>SD</i>)	Depressed Mean (<i>SD</i>)	<i>p</i>
Mother's age	29.1 (7.3)	29.0 (5.9)	29.4 (10.0)	0.710
Child's age	2.2 (0.4)	2.2 (0.4)	2.2 (0.5)	0.823
Number of doctor's visits	32.7 (14.6)	27.8 (10.1)	44.6 (21.4)	0.423
Number of well-child visits	20.9 (11.0)	23.2 (10.2)	15.0 (12.6)	0.647

Table 2

Individual Behaviors Stratified by Presence of Depressive Symptoms

Variable	Overall N=2063 (%)	Not Depressed N=1562 (%)	Depressed N=501 (%)	OR (95% CI)
Routines				
Family eats dinner together	1142 (68.3%)	886 (67.9%)	256 (69.4%)	0.94 (0.73-1.20)
Family eats breakfast together	510 (66.5%)	385 (65.4%)	125 (70.2%)	0.80 (0.56-1.15)
Bed time same each day	1481 (71.8%)	1158 (74.1%)	323 (64.5%)	1.58 (1.27-1.96)***
Nap time same each day	1324 (65.9%)	1047 (68.6%)	277 (57.4%)	1.63 (1.31-2.01)***
Meal time same each day	1532 (74.3%)	1198 (76.8%)	334 (66.7%)	1.65 (1.32-2.06)***
Enrichment				
Read stories to child	938 (61.8%)	746 (63.3%)	192 (56.3%)	1.34 (1.05-1.71)*
Music/sings with child	1542 (81.6%)	1182 (81.8%)	360 (80.9%)	1.06 (0.81-1.39)
Takes child on outings	749 (44.5%)	592 (45.4%)	157 (41.4%)	1.17 (0.93-1.48)
Punitive Behaviors				
Often raises voice at child	199 (20.2%)	117 (16.8%)	82 (28.5%)	0.51 (0.37-0.70)***
Often spansks child	35 (10.1%)	18 (7.8%)	17 (14.5%)	0.50 (0.25-1.00)*
Positive Disciplinary Strategies				
Often takes child toys/treats	205 (35.3%)	146 (33.8%)	59 (39.9%)	0.77 (0.52-1.13)
Often gives child a time out	266 (42.7%)	202 (43.3%)	64 (41.0%)	1.10 (0.76-1.58)
Often explains behaviors is wrong	616 (71.7%)	471 (73.5%)	145 (66.5%)	1.39 (1.00-1.94)*
Childproofing				
Puts up baby gates	1427 (70.4%)	1072 (69.8%)	355 (72.3%)	0.91 (0.76-1.09)
Lock/latches cabinets	1571 (78.5%)	1203 (79.6%)	368 (75.3%)	1.20 (1.01-1.43)*
Pad sharp edges	1036 (52.5%)	784 (52.8%)	252 (51.5%)	1.03 (0.89-1.21)
Put stoppers in outlets	1886 (92.3%)	1433 (92.8%)	453 (90.6%)	1.23 (0.96-1.59)
Lower hot water settings	1045 (53.4%)	802 (53.8%)	243 (51.9%)	1.06 (0.90-1.24)
Have syrup of Ipecac at home	820 (39.9%)	637 (40.9%)	183 (36.7%)	1.14 (0.97-1.34)
Coping				
Cope well with parenting demands	1308 (64.2%)	1094 (70.2%)	214 (44.8%)	2.91 (2.35-3.59)***
Social Support Present				
Has emotional support	367 (17.8%)	218 (13.9%)	149 (29.9%)	0.38 (0.30-0.48)***
Has someone to watch child	244 (11.8%)	139 (8.9%)	105 (21.0%)	0.37 (0.28-0.48)***

Table 3

Multivariable Regression Models Examining Relationship between Parental Depression and Parenting Behavior

Parenting Behaviors	OR (95% CI)
Routines	0.68 (0.54-.082)*
Enrichment	ns
Punitive disciplinary behaviors	1.51 (1.15-1.92)**
Positive disciplinary behaviors	ns
Childproofing	ns

Note: Controlled for the following variables in each analysis: Family-centered care, Coping, Social support, Ethnicity

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

Table 4

Logistic Regression Models

Outcome	Predictor	OR (95% CI)	<i>p</i> -value
Routines	FCC	1.12 (1.03-1.23)	0.011**
	Depressed	0.68 (0.54-0.82)	0.018**
	Coping	1.02 (0.78-1.19)	0.589
	Social Support	0.87 (0.78-0.98)	0.096
	Ethnicity	0.75 (0.49-1.29)	0.365
Enrichment	FCC	1.02 (0.77-1.34)	0.645
	Depressed	0.95 (0.77-1.12)	0.487
	Coping	1.07 (0.85-1.37)	0.418
	Social Support	0.96 (0.72-1.28)	0.604
	Ethnicity	0.95 (0.58-1.82)	0.486
Punitive Disciplinary Behaviors	FCC	0.91 (0.74-1.19)	0.212
	Depressed	1.51 (1.15-1.92)	0.007**
	Coping	0.23 (0.08-0.40)	<0.001**
	Social Support	0.17 (0.03-0.39)	<0.001**
	Ethnicity	1.08 (0.83-1.31)	0.564
Positive Disciplinary Behaviors	FCC	1.03 (0.84-1.20)	0.845
	Depressed	0.88 (0.74-1.02)	0.141
	Coping	1.54 (1.30-1.70)	<0.001**
	Social Support	1.37 (1.14-1.68)	<0.001**
	Ethnicity	1.01 (0.79-1.28)	0.678
Child Proofing	FCC	1.08 (0.87-1.19)	0.404
	Depressed	0.91 (0.79-1.03)	0.227
	Coping	1.04 (0.86-1.18)	0.482
	Social Support	1.01 (0.88-1.16)	0.834
	Ethnicity	0.99 (0.87-1.14)	0.892