

Maternal Depression and Early Childhood Behaviors: The Role of Mother-Daughter Relationships

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ABSTRACT. Maternal depression has been linked to a variety of negative developmental outcomes for children. Using data from Waves I and III of The National Longitudinal Study of Adolescent Health, this study used a three-generational model (child, mother, grandmother) to examine maternal depression as it relates to the quality of the mother-daughter relationship and children's behaviors. The study found that young women were more likely to report feeling depressed both prior to and following childbirth when they perceived problems in relating with their own mothers. Behavior problems were more prevalent for children who had mothers with more depressive symptoms.

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The birth of a child is expected to be one of the most joyous times in a woman's life. Yet, for many women, this life-changing event is accompanied by overwhelming sadness and despair. Postpartum depression, defined as the onset of depression within the first year of childbirth (Centers for Disease Control and Prevention, 2004), may threaten the mother's quality of life and daily functioning as well as her marriage, the mother/child bond, and the behavior and/or development of the baby (Beck, 1995; Campbell & Cohn, 1991; Field, 1995; Gotlib & Whiffen, 1991). An estimated 10-15% of women develop postpartum depression within one year of giving birth (National Institutes of Health, 2005). Data from the Pregnancy Risk Assessment Monitoring System (PRAMS) indicates the actual occurrence may vary widely based on the level of severity, demographic factors, and associated risk factors. In 2000, out of 453,186 women in seven states, 7.1% reported severe postpartum depression and 52% reported low to moderate levels (Centers for Disease Control and Prevention, 2004).

Women who report severe postpartum depressions tend to perceive their pregnancy as one of the most difficult times of their lives (Gross, Wells, Radigan-Garcia, & Dietz, 2002). A family systems perspective would suggest that family of origin characteristics, such as the quality of the mother-daughter relationship, might affect maternal depression and that the presence of depressive symptoms would affect not only the mother but other members of the family, including the child.

The purpose of this study is to use a multi-generational model (i.e., grandmother, mother, child) to explore predictors of maternal depression and assess the impact of maternal depression on child behaviors. Specifically, we examine maternal depression as it relates to (a) a history of depression, (b) the quality of the mother-daughter relationship (i.e., the relationship between the grandmother and mother), and (c) children's behaviors. This study has implications for family life education as well as implications for family therapists who may work with women experiencing maternal depression or children whose mothers suffer from depression.

A recent meta-analysis of 84 studies revealed 13 significant predictors of postpartum depression: prenatal depression, self esteem, childcare stress, prenatal anxiety, life stress, social support, marital relationship, history of previous depression, infant temperament, maternity blues, marital status, socioeconomic status, and unplanned /unwanted pregnancy (Beck, 2001). A history of depression has been noted as the strongest and most consistent predictor of postpartum depression (Hobfoll, Ritter, Lavin, Hulsizer, & Cameron, 1995; Johnstone, Boyce, Hickey, Morris-Yates, & Harris, 2001).

Perceptions of self as mother and perceptions of the child are important in the mother's psychological response to motherhood as well as her interactions with the baby (Ammaniti et al., 1992; Pajulo, Savonlahti, Sourander, Piha, & Helenius, 2004). Women who were raised in emotionally deprived parent-child relationships are vulnerable to past hurts and the disappointment and anxiety of unrealistic expectations in parenting their own children (Lier, Gammeltoft, & Knudsen, 1995). Thus, the mother-daughter relationship may be a significant context for the development of positive perceptions and expectations of motherhood, thereby serving as a protective factor against postpartum and maternal depression.

Maternal depression has been related to externalizing and internalizing problems in children from infancy through the school-age years (Civic & Holt, 2000; Field, 1995; Luoma et al., 2001; Luoma et al., 2004; Marchand & Hock, 1998). In a meta-analysis of studies exploring the relationship between maternal depression and attachment, maternal depression was related to less likelihood of secure attachment and greater likelihood of avoidant or disorganized attachment in infants (Martins & Gaffan, 2000). However, the effect of maternal depression on children is

linked to length and persistence of the depression (Civic & Holt, 2000). When postpartum depression ended within six months, infants who were depressed in the early months of life were no longer depressed at one year of age (Field, 1995).

Although there is substantial support for a lack of increased risk for postpartum depression, longitudinal studies are needed to determine whether a causal relationship exists (Surkan, Peterson, Hughes, & Gottlieb, 2006). Since mothers are often an important source of social support, this study will explore the relationship between the quality of the mother-daughter relationship and daughter's depression at two points in time during the daughter's adolescence and during the birth of her first child. We then examine the impact that maternal depression has on child behaviors. Because demographic factors such as financial strain and education have been associated with postpartum depression (Surkan et al., 2006), they also are included in the analyses.

The study asks the following research questions: (a) Is the quality of the mother-daughter relationship associated with self-reported depression either as an adolescent and/or as a young mother?; (b) Are young mothers' self-reports of depression associated with their children's behaviors?; (c) Is the quality of the mother-daughter relationship associated with children's behaviors?

Methods

Sample

Data are from Waves I (collected in 1995) and III (2000) of the contractual data set of The National Longitudinal Study of Adolescent Health (Add Health), a large nationally representative sample of adolescents (emerging adulthood at Wave III) in the United States. Specifically, in-home interview data from Waves I ($n = 20,745$) and III ($n = 15,197$) and parent interview data from Wave I ($n = 17,670$) are used. The Add Health data were collected using a sample of 80 high schools and 52 middle schools from the United States. Incorporating systematic sampling methods and implicit stratification into the Add Health study design ensured this sample is representative of U.S. schools with respect to region of country, urbanicity, school size, school type, and ethnicity (Harris et al., 2003).

In this study, child, mother, and grandmother refer to the three generations that we are examining. Child refers to the offspring of the mother (i.e., the participant in the Add Health study) and the grandmother refers to the parent of the Add Health participant. The mother-daughter relationship refers to the relationship between the participant (i.e., mother) and her mother (i.e., grandmother).

To address the research questions, we limited our analyses to young women who (a) participated in Waves I and III, (b) had parent interview data from their mother (i.e., grandmother), and (c) had children who had been born between Waves I and III. To adjust for the sample design, only participants with valid sampling weights were selected. Because the aforementioned filters resulted in a relatively small sample size (less than 1,300 cases), we limited our analyses to only Hispanic ($n = 219$), African American ($n = 341$), and Caucasian ($n = 661$) participants so as to avoid generalizing results to other ethnic groups based on a small number of cases. The final sample size for this study was 1,221.

Measures

Depression. Depression was measured at Waves I and III using nine of the 20 Center for

Epidemiological Studies Depression Scale (CES-D) items measuring depressive symptomatology during the past week (Radloff, 1991). This was used as a continuous variable with scores ranging from zero to 27, with higher scores representing increased depression. Wave I of Add Health includes the original version of the CES-D with four modifications; however, only nine of the 20 items were used in Wave III. Therefore, we only used the items from Wave I that corresponded with the Wave III items. These nine items represent each of the four CES-D subscales (i.e., depressed affect, happy, somatic and retardation, and interpersonal). Cronbach's alpha for Wave I and Wave III was 0.79 and 0.80, respectively.

Typically, when using the full version of the CES-D, a score of 16 has been used as a threshold to indicate severe depressive symptoms such that individuals at or above 16 are considered depressed, which is arrived at by using the 80th percentile score (i.e., 16) (Radloff, 1991). To provide a context for thinking about the young mothers in this study, we used the total samples from Wave I and III to determine a threshold using the 80th percentile. The overall mean depression score at Wave I was 5.7 and the 80th percentile was a score of 9. The mean score for the subsample examined in this study was 7.4, significantly lower than the threshold score ($t = -7.78$, $df = 128$, $p = .00$). For Wave III, mean depression was 4.5 and the 80th percentile score was 7. The mean score for the subsample was 5.2, significantly lower than the threshold score ($t = -11.78$, $df = 128$, $p = .00$). In other words, at both Waves I and III the mean score of our subsample was below what would be classified as depressed. We also compared the Wave III mean score of our subsample to the depression scores of women who were not mothers at Wave III. The mean score for mothers ($M = 5.18$, $SE = .15$) was significantly higher than the mean score for young women without children ($M = 4.84$, $SE = .09$), $F = 4.77$, $df = 127$, $p = .03$.

Child behaviors. In Wave III, participants were asked how their child normally acts during an average day, thinking back about her/his behavior during the last two weeks. Two sets of three questions were used, with the first set of questions asked in reference to children less than two years old and the second set for children two years old and older. Participants with a child less than two years old were asked about how often (a) the child was upset by unexpected loud noises, (b) the parent had trouble soothing or calming the child, and (c) the child would get fussy and irritable. For two year olds and older, participants were asked how often (a) the parent had trouble soothing or calming the child, (b) the child was demanding and impatient even when the parent was busy, and (c) how often the child became unhappy or irritable. Response format for all questions ranged from zero (almost never) to four (almost always). Each set of items was summed with a range from zero to 12, with higher scores indicating "more difficult" child behaviors. Cronbach's alpha for the less-than-two was 0.49 and for two year olds and older was 0.71. Only reports related to the most recent child born were used in this study. Thus, each participant only had one child behavior score such that the scores for this measure could be either that for a less than two year old or for a two year old or older. Mean comparisons indicated that there was not a significant difference between the two.

Mother-daughter relationship quality. The quality of the mother-daughter relationship was based on participants' reports of their relationship with their mother at Waves I and III and on the mother's reports of their relationship with their daughter at Wave I. Five items ($\alpha = .84$) from Wave I were used to provide an overall score of the participant's report of their relationship with their mother, producing a summed scale that ranged from zero to 20, with higher scores indicating a higher quality relationship. Three items ($\alpha = .83$) were used from Wave III to measure relationship quality, producing a summed scale that ranged from zero to 12, with higher scores indicating a higher quality relationship. Grandmother's reports of their relationship with

their daughter were based on five items ($\alpha = .64$) producing a summed scale that ranged from zero to 20, with higher scores indicating a higher quality relationship.

Background factors. Participants' parents were asked at Wave I "In general, are you happy? (yes/no)." We used this item as a proxy to provide a general assessment of the parent's well-being and thus the overall home atmosphere. Individual characteristics included race/ethnicity and age. Age was measured as number of years at Wave III. Race/ethnicity was determined by two self-report items from Wave I: one item for Hispanic or Latino origin (yes/no) and one item for racial identity (check all that apply). If more than one category was indicated, participants who indicated they were of Hispanic or Latino origin were designated as Hispanic and eliminated from any other race categories. For the remaining participants who indicated multiracial backgrounds, if black or African American was one of the categories then that became their designated race. The process was repeated for the remaining race categories in the following order: Asian, Native American, other, and white. As noted earlier, only African American, Hispanic, and Caucasian participants were included in this study.

Family of origin characteristics are from Wave I parent interview data. They included grandmother's education, measured as number of years, if the grandmother was on public assistance (yes/no) at the time of the interview, and if the grandmother was married (yes/no). Together, these three variables provide a general sense of the family/household environment. *Family of procreation* characteristics are from participant Wave III interviews. Again, to provide a general sense of the family/household environment we included participant's years of education, if the participant had more than one child (yes/no), if the participant was on public assistance at the time of the interview, if she was married, and if the father was present at the birth of the most recent child. Characteristics of the most recent pregnancy and child included if the child was born within the 12 months prior to the interview, if the pregnancy was intended (yes/no), if the child was born LBW (birth weight below 2500g), if the child was born premature, if there were any health problems at the time of birth, the child's age, and the child's sex.

Data Analysis

Analyses for this study were conducted using SPSS version 13.0 Complex Samples Add-on to adjust for the sampling design (Chanatala & Tabor, 1999). Preliminary analyses included additional family of origin, family of procreation, and child characteristics variables that were tested in separate regression models using $p < .10$ as significant to provide a more parsimonious list of variables for the final models. Hence, the reason for different sets of variables being tested for the depression and child behavior models. Preliminary analyses were not conducted with individual characteristic variables and mother-daughter relationship variables.

We used the Complex Samples General Linear Model (GLM) procedure in SPSS to conduct simultaneous linear regression analyses. The first depression model examines the predictors associated with depression at Wave I; therefore, variables from Wave III were not included. Daughters' reports of mother-daughter relationship quality at Wave III, family of procreation characteristics, and Wave I depression were added to the Wave III depression model. It should be noted that preliminary analyses did not show any of the child characteristics to be associated with Wave III depression.

For the child behaviors model, preliminary analyses indicated that the only family of origin variable associated with child behaviors was grandmother's education at Wave I. Daughters' education at Wave III and public assistance were the only family of procreation variables to make into the final child behaviors model. In addition, preliminary analyses showed that four

pregnancy/child characteristics were associated with child behaviors: pregnancy intendedness, birth weight, sex of the baby, and age.

Although data used in this study were longitudinal and some aspects of our analyses take this into consideration, we are cautious about interpreting cause-and-effect relationships. We have structured our models so that depression at Wave I is a dependent variable, yet it may actually function as an independent variable in some instances. For example, the difference that we see in mean scores for participants who reported that they were on public assistance ($M = 8.33$, $SE = .35$) at Wave III compared to those who were not ($M = 7.02$, $SE = .25$) may be dependent on depression at Wave I (i.e., depression at Wave I is not dependent on Wave III public assistance). Consequently, we have reported mean scores and correlations for Wave I depression in relation to Wave III independent variables.

Results

Table 1 shows demographic characteristics and mean CES-D scores. The mean age at Wave III was 22.1 years and more than half (54%) of the women had an ethnic background characterized as non-Hispanic white. Wave I data (family of origin) showed that participants' mothers had on average 12.5 years of education (high school), nearly 14% of the of the grandmothers reported being on public assistance, and 35% were married. Family of procreation characteristics (Wave III) showed that participants had on average 12.1 years of education, 27% of the participants reported being on public assistance, and 42% were married. Nearly 30% of the participants reported having more than one child at Wave III, and 80% reported that the father was present at the birth of their most recent child. The mean age for the most recent child born was 1.7 years with 30% of the children being born within the year prior to the interview. Fifty seven percent of the births were the results of an unintended pregnancy. Eight percent of the children were low birth weight; 26% were early births; and 8% had health problems at birth.

Table 1
Mean CES-D and Child Behavior Scores and Demographic Characteristics

	Number ^a	Percent	CES-D Wave I (mean, <i>SE</i>)	CES-D Wave III (mean, <i>SE</i>)	Child behavior (mean, <i>SE</i>)
Overall	1221				
Wave I CES-D	1140	93.4	7.37 (.21)		
Wave III CES-D	1137	93.1		5.18 (.15)	
Wave III child behavior	1120	91.7			2.41 (.15)
Mother-daughter relationship characteristics					
Mother report of relationship w/daughter ^b , mean (<i>SE</i>), <i>r</i>	14.89 (.14)		-.17	-.10	-.01
Daughter report of relationship w/mother ^b , mean (<i>SE</i>), <i>r</i>	16.26 (.16)		-.20	-.11	-.04
Daughter report of relationship w/mother ^c , mean (<i>SE</i>), <i>r</i>	10.29 (.09)		-.09	-.18	.04
Mother's well-being ^b					
Happy					
Yes	1138	93.2	7.18 (.20)	5.04 (.16)	2.38 (.09)
No	70	5.7	9.36 (.75)	6.68 (.75)	2.78 (.35)
Individual Characteristics					
Race/ethnicity					

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Black	341	27.9	7.71 (.39)	5.64 (.37)	2.50 (.17)
Hispanic	219	17.9	8.22 (.50)	5.47 (.46)	2.64 (.25)
White	661	54.1	7.12 (.25)	4.99 (.17)	2.34 (.11)
Age ^c , mean (<i>SE</i>), <i>r</i>	22.1 (.13)		-.02	-.08	-.03
Family of origin characteristics ^b					
Mother years of education, mean (<i>SE</i>), <i>r</i>	12.5 (.11)		-.10	-.04	-.09
Public Assistance					
Yes	168	13.8	9.21 (.72)	6.21 (.51)	2.50 (.23)
No	1045	85.6	7.05 (.20)	5.03 (.18)	2.37 (.09)
Mother Married					
Yes	786	64.4	7.09 (.21)	4.95 (.19)	2.43 (.10)
No	430	35.2	7.93 (.40)	5.61 (.29)	2.36 (.12)
Family of procreation characteristics ^c					
Participant education, mean (<i>SE</i>), <i>r</i>	12.11 (.11)		-.14	-.08	-.05
More than 1 child					
Yes	357	29.2	7.64 (.33)	5.56 (.30)	2.48 (.14)
No	864	70.8	7.24 (.25)	5.03 (.20)	2.38 (.11)
Public assistance					
Yes	329	26.9	8.33 (.35)	5.88 (.25)	2.67 (.17)
No	892	73.1	7.02 (.25)	4.95 (.20)	2.32 (.10)
Participant married					
Yes	509	41.7	7.36 (.28)	4.81 (.26)	2.38 (.13)
No	712	58.3	7.35 (.27)	5.45 (.21)	2.43 (.11)
Father present at most recent child birth					
Yes	971	79.5	7.23 (.22)	4.94 (.18)	2.41 (.10)
No	242	19.8	7.73 (.45)	6.12 (.31)	2.37 (.19)
Most recent child characteristics ^c					
Age of child, mean (<i>SE</i>), <i>r</i>	1.72 (.06)		.05	.05	.12
Born within 12 months prior to interview					
Yes	370	30.3	7.09 (.29)	4.86 (.28)	2.15 (.11)
No	850	69.6	7.49 (.26)	5.31 (.18)	2.53 (.12)
Sex of child					
Female	601	49.2	7.61 (.24)	5.58 (.24)	2.27 (.11)
Male	618	50.6	7.12 (.26)	4.81 (.20)	2.54 (.13)
Intended pregnancy					
Yes	483	39.6	7.34 (.30)	5.02 (.26)	2.44 (.13)
No	695	56.9	7.27 (.27)	5.18 (.20)	2.36 (.10)
Low birth weight (< 2500g)					
Yes	93	7.6	7.45 (.66)	5.66 (.54)	3.23 (.34)
No	1115	91.3	7.36 (.20)	5.11 (.18)	2.33 (.09)
Early birth					
Yes	311	25.5	6.81 (.29)	5.01 (.30)	2.49 (.16)
No	902	73.9	7.55 (.27)	5.22 (.22)	2.37 (.10)
Health problems at birth					
Yes	95	7.8	6.98 (.66)	5.71 (.59)	2.57 (.32)
No	1119	91.6	7.36 (.20)	5.11 (.18)	2.39 (.09)

^aCategories do not always sum to 1221 because of missing data. ^bWave I. ^cWave III.

Bivariate correlations of the main variables of interest (i.e., mother-daughter relationship quality and child behavior) also are presented in Table 1. Mothers' and daughters' reports of their relationships at Wave I had a negative relationship with Wave I depression such that higher quality relationships were associated with lower levels of depression. Similarly, relationship quality at Wave I had a negative relationship with Wave III depression, though not to the same magnitude and not as strong as Wave III relationship quality, which had a negative association

with depression at both Waves. Looking at child behavior, a relatively moderate, positive relationship exists with Wave III CES-D scores ($r = .15$) such that more “difficult” behaviors are associated with higher levels of depressive symptoms.

The multivariate linear regression models for Waves I and III CES-D scores are presented in Table 2. The Wave I model indicates that grandmother’s and daughter’s reports of the quality of their relationship were related to CES-D scores. Lower levels of depressive symptoms were associated with more positive relationships. No significant associations were found for the individual or family of origin variables. We accounted for approximately 9% of the variation in Wave I CES-D scores with this model.

For the Wave III model, daughters’ report of the relationship with their mother at Wave III and Wave I CES-D scores were associated with Wave III CES-D scores. As with the Wave I model, higher quality relationships were associated with lower levels of depressive symptoms. Increases in Wave I CES-D were associated with higher Wave III CES-D scores. Wave I reports of the mother-daughter relationship were not associated with Wave III scores nor were any of the individual, family of origin, or family of procreation variables. Approximately 10% of the variation in Wave III CES-D scores were accounted for with this model.

Table 2

Linear Regression Models of Variables Associated with CES-D Scores at Waves I and III

	Wave 1 CES-D		Wave 3 Depression	
	B	95% CI	B	95% CI
Mother-daughter relationship characteristics				
Mother report of relationship w/daughter ^a	-0.19*	(-0.32, -0.06)	-0.06	(-0.19, 0.06)
Daughter report of relationship w/mother ^a	-0.20*	(-0.33, -0.07)	-0.01	(-0.13, 0.11)
Daughter report of relationship w/mother ^b	-	-	-0.24*	(-0.42, -0.07)
Mother well-being, happy - yes/no ^c	-1.78	(-2.72, 0.36)	-0.63	(-2.09, 0.83)
Individual Characteristics				
Race/ethnicity				
Black	0.59	(-0.28, 1.46)	0.40	(-0.40, 1.21)
Hispanic	0.56	(-0.47, 1.61)	-0.02	(-0.84, 0.81)
White ^c	-	-	-	-
Age ^b	-0.02	(-0.25, 0.21)	-0.11	(-0.31, 0.09)
Family of origin characteristics ^a				
Mother years of education	-0.15	(-0.34, 0.05)	-0.01	(-0.17, 0.15)
Public assistance - yes/no ^c	1.43	(-0.19, 3.05)	-0.12	(-1.25, 1.02)
Mother married - yes/no ^c	-0.15	(-1.01, 0.70)	-0.23	(-0.97, 0.52)
Family of procreation characteristics ^b				
Participant years of education, mean	-	-	-0.02	(-0.22, 0.19)
More than 1 child - yes/no ^c	-	-	0.26	(-0.41, 0.93)
Public assistance - yes/no ^c	-	-	0.38	(-0.41, 1.16)
Participant married - yes/no ^c	-	-	0.18	(-0.55, 0.90)
CES-D Wave I	-	-	0.20*	(0.12, 0.28)
Total R ²	.09	-	0.10	-

^aWave I. ^bWave III. ^creference group

* $p < .05$.

Table 3
Linear Regression Model of Variables Associated with Child Behaviors at Wave III

	Wave III Child Behavior	
	B	95% CI
Mother-daughter relationship characteristics		
Mother report of relationship w/daughter ^a	0.00	(-0.05, 0.05)
Daughter report of relationship w/mother ^a	-0.04	(-0.09, 0.01)
Daughter report of relationship w/mother ^b	0.08*	(0.02, 0.15)
Mother well-being, happy - yes/no ^c	0.02	(-0.65, 0.68)
Individual Characteristics		
Race/ethnicity		
Black	0.08	(-0.32, 0.48)
Hispanic	-0.07	(-0.57, 0.44)
White ^c	-	-
Age ^b	-0.07	(-0.16, 0.02)
Family of origin characteristics ^a		
Mother years of education	-0.08	(-0.19, 0.03)
Family of procreation characteristics ^b		
Participant years of education	0.01	(-0.09, 0.55)
Public assistance - yes/no ^c	0.18	(-0.19, 0.55)
Most recent child characteristics ^b		
Intended pregnancy – yes/no ^c	0.25	(-0.04, 0.53)
Low birth weight (< 2500g) – yes/no ^c	0.88*	(0.22, 1.55)
Sex – male/female ^c	-0.36*	(-0.69, -0.03)
Age	0.18*	(0.05, 0.31)
CES-D Wave III	0.06*	(0.03, 0.09)
Total R ²	0.08	-

^aWave I. ^bWave III. ^creference group

* $p < .05$.

Children's behavior at Wave III was related to the mother-daughter Wave III relationship quality, low birth weight, child's sex, age, and Wave III depression (see Table 3). Interestingly, higher quality mother-daughter relationships at Wave III were associated with higher child behavior (i.e., more difficult) scores. Higher child behavior scores were characteristic of low birth weight (< 2500g), female, and older children. Increased depressive symptoms also were associated with higher child behavior scores. Approximately 8% of the variation in child behavior scores were accounted for with this model.

Discussion

In the current study, young women were less likely to be depressed prior to childbirth when the mother-daughter relationship was perceived as positive. No other family of origin or demographic factor was significant in relation to Wave I depression when combined linearly with quality of the mother-daughter relationship. However, at Wave III, depression in daughters, who at this time had become mothers themselves, was predicted by their earlier (Wave I) perception of the mother-daughter relationship as well as their previous (Wave I) level of depression. This finding indicates that young mothers were more likely to be depressed when they were depressed five years earlier, but they were less likely to be depressed if their

relationship with their mothers at that same time was positive. Although the relatively low percent of variance explained by the linear combination of demographic, family of origin, and family of procreation factors implies that there are other factors to consider in explaining maternal depression, it may be helpful to explore the extent to which a positive mother-daughter relationship in adolescence mediates the relationship between a history of depression and early maternal depression.

The positive relationship between depression at Wave I and at Wave III is consistent with existing scholarship on depression in young women (Beck, 2001; Gross et al., 2002), and there is much evidence in the literature for the importance of social support in decreasing postpartum depression (Beck, 2001; Glazier, Elgar, Goel, & Holzappel, 2004). However, the current findings regarding the significance of young mothers' perception of their relationship over time with their own mothers deserves further consideration. Although the precise mechanism for this relationship is beyond the scope of this analysis, the mother-daughter relationship appears to be instrumental in laying the foundation for a positive experience as a young woman assumes the role of mother.

Although the child behavior model accounted for only 8% of the variance, the strongest predictor was birth weight followed by sex and age of the child. The finding that children of depressed mothers are more likely to exhibit problematic behaviors than children whose mothers are not depressed is not surprising given the existing body of literature in this area (Civic & Holt, 2000; Field, 1995; Luoma et al., 2001; Luoma et al., 2004; Marchand & Hock, 1998); yet this model suggests maternal depression may be less powerful than some of the characteristics of the infant.

Interpreting the findings of this study regarding the positive relationship between the mother-daughter relationship and child behavior is less straightforward. Just as women who experienced emotionally deprived parent-child relationships are at greater risk for anxiety and disappointment in parenting their own children (Lier et al., 1995), one might expect a positive mother-daughter relationship to prepare women psychologically and instrumentally for assuming the role of mother (Ammaniti et al., 1992; Pajulo et al., 2004). Yet, the current findings indicate that child behaviors are more problematic when women perceive the mother-daughter relationship to be positive. Measure of the mother-daughter relationship consisted of only three items, and the strength of this relationship to child behavior is low; therefore, caution should be exercised in interpreting these results. Although a positive mother-daughter relationship may lower the risk of maternal depression, new mothers may feel less competent in caring for their infants when comparing themselves to their own mothers. Perhaps an enmeshed mother-daughter relationship blurs the intergenerational boundaries, fostering anxiety in new mothers and/or their infants. The mothers in this study were young, and it could also be that the grandmothers were very involved in childrearing because of the age of the parent. This high level of involvement might result in boundary issues, conflict, or behavior issues for the child.

An alternative explanation may be that mother-daughter relationships that have high levels of connectedness (i.e., highly positive) are indicative of a permissive parenting style. A permissive parenting style is characterized as having high levels of responsiveness (i.e., positive affect) and low levels of control (Baumrind, 1971; Baumrind, 1991; Maccoby & Martin, 1983). This style of parenting is often associated with problem behaviors in children and adolescents (Blum, McNeely, & Nonnemaker, 2002). These young mothers (i.e., the daughters) may be using a permissive parenting style with their young children, and this may be why their children are more likely to be problematic. The connection between mother-daughter relationship and child

behaviors is an area worth further exploration.

Implications

The results of this study suggest that the effect of maternal depression on child outcomes may be mediated by the nature of the mother-daughter relationship. However, child characteristics including the pregnancy and childbirth experience seem to be more important. It may be that a difficult pregnancy, birth, or early parenting experiences set into motion a series of events that bring earlier experiences with depression and the mother-daughter relation into play. Consequently new mothers who have a history of depression or who are at risk of having a low birth weight baby, or of having a difficult childbirth experience may be an optimum target for family life education programming. Parent education programs that address the transition to parenthood could include preventative information related to maternal depression. In addition, programming efforts designed to strengthen the mother-daughter relationship might increase social support for the new mother and prevent the onset of maternal depression.

Family therapy services offered through midwives, physicians, or other health care providers may be beneficial for women experiencing postpartum depression. Including grandmothers in therapy sessions might strengthen the mother-daughter relationship and lessen the depressive symptoms in the new mother. Finally, learning about factors that offset or mediate the impact of maternal depression might guide interventions that increase the resilience of children living with depressed mothers.

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