

Effects of Maternal Employment and Prematurity on Child Outcomes in Single Parent Families

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- ▶ **Background:** Effects of maternal employment for preschool children vary based on specific characteristics of the mother's employment, the family's economic status, and the mother's attitudes about employment. However, there is limited research on a growing group of children at developmental risk—those born prematurely and living in a single-parent family.
- ▶ **Objective:** To examine the effects of maternal employment and prematurity on child cognition and behavior in single-parent families.
- ▶ **Methods:** Sixty preterm and 61 full-term preschool children were recruited through NICU admission records and birth records. Data were collected with the Kaufmann Assessment Battery for Children, Peabody Picture Vocabulary Test, Child Behavior Checklist, Parenting Stress Index, and the Life History Calendar.
- ▶ **Results:** Greater hours employed was related to higher achievement and mental processing scores only. Less discrepancy between actual and desired employment was related to higher achievement, mental processing, and language scores and lower behavior scores. Prematurity was not related to child cognitive and behavioral performance. Only the relationship between discrepancy and language remained after statistical control.
- ▶ **Conclusions:** The concerns about negative effects of maternal employment on young children may be overstated, especially in low-income, single-mother families. These findings are especially important in the context of welfare reform.
- ▶ **Key Words:** maternal employment • prematurity • single-parent families

For the first time in United States' history, employment rates for single mothers have surpassed those for married mothers, due in large part to welfare reform. In 1997, 63.6% of married mothers and 65.1% of single mothers with children under 6 years of age were employed (US Bureau of the Census, 1998). Concerns about the well-

being of children with employed mothers are longstanding. These concerns are of greater import for children of single mothers who have fewer resources and children at developmental risk. Premature birth, which occurs more frequently for poor single women (National Center for Health Statistics, 1995), represents a significant source of developmental risk, and a growing number of infants born prematurely survive. The purpose of this study was to examine the effects of the mother's employment (current employment status and number of hours employed per week, employment history since the child's birth, and discrepancy between actual and desired employment) and the child's gestational status (preterm versus full-term birth) on cognitive and behavioral performance of preschool children in a sample of female-headed, single-parent families.

There is considerable research reporting the effects of maternal employment on preschool children and limited research on these effects for preschool children with developmental risk, especially for preterm children in single-parent families, where the developmental risk is greater (Singer, Yamashita, Lilien, Collin, & Baley, 1997). In view of changes in the welfare system mandating employment of poor single women, studies on the effects of maternal employment on preterm children are especially important and timely, providing data on which to base public policy and advocate effectively for these children.

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The organizing framework for this study is family systems theory (Bronfenbrenner, 1986; 1988). The theory posits that factors affecting one family member will have an effect on other family members, subsystems within the family (such as the parent-child dyad), and the family system as a whole. In this study, mother's employment and child gestational status are the family member factors expected to affect the child's cognitive and behavioral performance.

In the few studies on the effects of maternal employment on preterm children, findings are mixed. In an early study, preterm toddlers with employed mothers scored lower on tests of cognitive development than preterm toddlers of nonemployed mothers, controlling for birthweight and number of parents in the home (Cohen, 1978). In subsequent research with preterm infants in two-parent families, more hours employed per week was related to higher motor development scores for preterm infants at 3 months of age (Youngblut, Loveland-Cherry, & Horan, 1991), but was not related to mental and motor development at 9, 12, or 18 months (Youngblut, Loveland-Cherry, & Horan, 1993; 1994). Greenstein (1995), reporting on a large national sample which included 40% single-mother families and 8% preterm children, found no effect of prematurity or mother's current marital status on receptive vocabulary scores for preschool children. The only effect of maternal employment in that sample was for Black male children who scored higher on vocabulary when their mothers were employed during their first 4 years of life.

Maternal employment in single-parent families has either positive effects or no effects for children. Milne, Myers, Rosenthal, and Ginsburg (1986) found higher reading and math achievement scores for Black, but not White, elementary school children with employed single mothers. Alessandri (1992) found that girls with single mothers who were employed full-time had higher academic achievement than girls with nonemployed single mothers. However, Hall, Gurley, Sachs, and Kryscio (1991) found no differences between employed and nonemployed low-income single mothers in their perceptions of their preschool child's behavior. These findings remained after statistically controlling for income, race, social desirability, level of stress, coping, and parenting attitudes. Maternal employment had no negative effects on behavior (Kurtz & Derevensky, 1994; Pett, Vaughan-Cole, & Wampold, 1994) or academic achievement (Kinard & Reinherz, 1986) for children of divorced mothers.

Studies of the effects of maternal employment on the child have investigated not only employment status and number of hours worked, but also mother's employment history and employment preference. Maternal employment during the child's first or second year of life has been reported to have a negative effect on preschool children's adjustment and compliance (Belsky & Eggebeen, 1991)

and receptive vocabulary (Baydar & Brooks-Gunn, 1991; Desai, Chase-Lansdale, & Michael, 1989). However, the findings of Desai and colleagues held only for sons in higher income families; in contrast, daughters in higher income families had higher receptive vocabulary. In low-income families, maternal employment in the first year or two of life had no effect on children's receptive vocabulary in one study (Desai et al., 1989) but had positive effects for children in another (Vandall & Ramanan, 1992).

Research on the effects of the stability of the mothers' employment on children also has reported mixed results. Greenstein (1993) found that preschool children whose mothers were continuously employed since their birth had fewer behavior problems. In families where the mother was either not employed or employed intermittently, quality of the home environment was an important factor in predicting child behavior. Moorehouse (1991) also found positive effects for stability in employment pattern. In that study, 6-year-old children whose mothers changed their employment during the previous 3 years scored significantly lower on teachers' ratings of their cognitive and social competence than children whose mothers were continuously employed. In another study, Desai et al. (1989) found no effect of continuous or intermittent maternal employment on 4-year-old children's receptive vocabulary.

Discrepancy between actual and desired employment often is found to have negative effects for children, especially when employed and nonemployed mothers are both included in the study. Discrepancy between actual and desired employment has been associated with behavior problems for school-age (Barling, Fullagar, & Marchl-Dingle, 1988) and kindergarten children (Auerbach, Lerner, Barasch, & Palti, 1992). Mothers' greater choice in whether to be employed was related to higher motor development scores at 9 and 12 months (Youngblut et al., 1993) and higher mental development scores at 18 months (Youngblut et al., 1994) for preterm infants in two-parent families.

However, for employed mothers, the discrepancy between actual and desired employment may have no effect for children's behavior and development. Indeed, Youngblut, Singer, Madigan, Swegart, and Rodgers (1998) found that discrepancy was not related to parenting strains for employed single mothers, but was associated with greater parenting strains for nonemployed single mothers. In a sample of poor, Black, single, employed mothers of preschoolers, Jackson (1993) found that employment preference was not related to mothers' perceptions of their preschool children's behavior. However, mothers who preferred to be employed expressed greater life satisfaction and less role strain than those who preferred not to be employed. MacEwen and Barling (1991) also found no relationship between employed married mothers' satisfaction with their employee roles and their children's behavior. Thus, as in an early study by Farel (1980), discrepancy between the mother's actual and desired employment may

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be particularly important for families where the mother is not employed.

In summary, research findings to date on the effects of maternal employment on the development of children in single-parent families show positive effects or no effect. Studies examining maternal employment begun in the first year or two of life demonstrate negative effects on preschool children's receptive vocabulary scores, adjustment, and compliance; however, family income has been found to mediate these effects. For employed mothers who wish to work, research has demonstrated greater life satisfaction and less parenting role strain. Research on employed mothers not wanting to work has shown no reported negative effects on child behavior or development. Nonemployed mothers wishing to work report parenting strain. There are few studies of the effects of maternal employment on a growing group of children at developmental risk, those born prematurely. Research is even more limited in this group born to single mothers, who deliver a greater portion of these newborns. The aims of this research were to:

1. Describe the main and interaction effects of maternal employment (employed vs. not employed) and gestational status (preterm vs. full-term) on the child's intellectual functioning and behavior;
2. Explore the relationships between maternal employment (number of hours employed, employment history since the child's birth, and discrepancy between mothers' actual and desired employment) and the cognitive and behavioral performance of preterm and full-term preschool children; and
3. Examine whether these relationships remained after controlling for family system and individual (mother and child) factors. These aims are part of a larger study of maternal employment effects for families with preterm and full-term preschool children (Youngblut & Brooten, 2000; Youngblut, Singer, Madigan, Swegart, & Rodgers, 1997; Youngblut et al., 1998)

Method

Sample: The sample consisted of 121 female-headed single-parent families, half ($n = 60$) with preterm preschoolers (3, 4, or 5 years old) and half ($n = 61$) with full-term preschoolers (3, 4, or 5 years old). Families with preterm preschoolers were identified from the admission records of three Level III Neonatal Intensive Care Units (NICUs) in the Midwest; families with full-term preschoolers were identified from birth records of newborn nurseries in two of these hospitals. A systematic random sample of families with full-term infants and all families with preterm infants born between 1988 and 1993 were sent a letter briefly describing the study; 71% of the eligible families agreed to participate.

Inclusion criteria for the preterm children were: born prior to 36 weeks gestation, appropriate birthweight for gestational age, and hospitalized for at least 4 days in a level III NICU at birth. Inclusion criteria for the full-term children were: birth between 38 and 42 weeks gestation, discharged home with the mother after birth, and without preterm siblings who were born within 10 years of the study child's birth. For both groups, the child had to have the ability to progress intellectually. This was determined by asking mothers if they had been told their child had more than a 2-year developmental delay. None of the families were excluded on this basis.

Families were eligible to participate if the mother was not currently married and had not lived with a man serving in the father role for ≥ 6 months prior to recruitment. Five index children were being raised by a single woman other than the birth mother (1 adoptive mother, 2 grandmothers, and 2 foster mothers). In each case, the child had lived with the family for most of the child's life and the woman was performing the role of "mother" to the child. Thus, these women are referred to here as "mothers."

Most mothers were African American (66.1%), had completed high school (76.9%), had never been married (70.2%), and had sole custody of the study child (92.5%). The sample was comprised of primarily low-income families; 61.1% received public assistance, 66.1% received less than \$3,000 annually through the mother's employment, and 93.3% had total family incomes under \$20,000 per year. Only 17.4% of the mothers received child support from the child's father. Table 1 compares family characteristics for the preterm and full-term groups. Families in the two groups did not differ significantly on any of the demographic variables, except for the child's birthweight and gestational age.

About half of the children in the sample were male (52.9%) and first-born (44.6%). Birthweight ranged from 470 to 2,460 grams for the preterm group; 12 (20%) had birth weights less than 1,000 grams, 23 (38.3%) had birth weights between 1,000 and 1,499 grams, and 25 (41.7%) had birth weights between 1,500 and 2,500 grams. Birthweight for the full-term group ranged from 2,515 to 4,965 grams. Gestational age ranged from 24 to 35 weeks for the preterm children and from 36 to 42 weeks for the full-term children. Although the bottom cutoff for gestational age at birth for full-term children was 38 weeks, 4 full-term children who were 37 weeks gestation at birth were recruited. Because these children were healthy, not hospitalized in the NICU, and discharged home with their mothers after birth, they were included in the full-term sample.

The preterm children had spent an average of 46.1 days ($SD = 33.34$, range 4 to 128 days) in the NICU at birth. One-third were discharged by 1 month of age, another third by 2 months of age. A few preterm preschoolers had experienced complications of prematurity. Thirteen experi-

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TABLE 1. Comparison of Families With Preterm and Full Term Preschoolers

Characteristic	Preterm <i>M</i> (<i>SD</i>)	Full Term <i>M</i> (<i>SD</i>)	Statistic
Mother's age	29.90 (6.86)	29.20 (6.17)	<i>t</i> = .58
Proportion child's life employed	.27 (.37)	.22 (.32)	<i>t</i> = .78
Discrepancy	20.80 (12.94)	21.00 (14.59)	<i>t</i> = .08
Number of children	2.50 (1.55)	2.50 (1.34)	<i>t</i> = .13
Child's age (months)	48.70 (9.92)	48.40 (9.96)	<i>t</i> = .18
Birthweight (grams)	1444.10 (527.21)	3331.30 (514.18)	<i>t</i> = 19.93*
Gestational age at birth (weeks)	30.50 (3.17)	39.60 (1.60)	<i>t</i> = 19.98*
Proportion child's life single	.89 (.26)	.88 (.24)	<i>t</i> = .23
Mother's race	<i>N</i> (%)	<i>N</i> (%)	
White	16 (13%)	23 (19%)	$\chi^2 = 4.05$
Black	44 (36%)	36 (30%)	
Hispanic	0 (0%)	2 (2%)	
Mother's education			
<High school	12 (10%)	16 (13%)	$\chi^2 = 1.15$
High school grad	20 (16%)	22 (18%)	
>High school	28 (23%)	23 (19%)	
Family income			
<\$20,000	51 (85%)	60 (98%)	$\chi^2 = 5.23$
\$20,000–39,999	6 (10%)	1 (2%)	
≥\$40,000	3 (5%)	0 (0%)	
Mother's employment status			
Employed	17 (14%)	17 (14%)	$\chi^2 = .003$
Nonemployed	43 (35%)	44 (36%)	
Child's sex			
Female	32 (26%)	25 (21%)	$\chi^2 = 1.85$
Male	28 (23%)	36 (30%)	

**p* < .01.

enced an intraventricular hemorrhage; 10 were Grade I, and there was one child each with Grades II, III, and IV. Two children were diagnosed with cerebral palsy and two with bronchopulmonary dysplasia.

At the time of the study, 34 (28.1%) women were employed, 27 full-time (≥ 30 hours per week) and 7 part-time (< 30 hours per week), $M = 34.3$ hours/week ($SD = 10.23$). Women's self-reported "usual" occupations were classified as homemakers (42.2%), unskilled (7.4%), skilled or semi-skilled (19.8%), clerical or sales (14.1%), and professionals (16.5%).

Instruments: Child Cognitive Functioning: The Kaufman Assessment Battery for Children (KABC) was designed for children between 2.5 and 12.5 years old and contains two scales: achievement and mental processes. The achievement scale assesses the child's knowledge of facts, language concepts, and school-related skills. The mental processes scale is a composite index, combining sequential and simultaneous processing subscales to yield a global estimate of intellectual functioning. Items are presented to the child and his/her responses scored. Pictures and diagrams are fre-

quently used as test materials, with few verbal responses required. As recommended, raw scores were standardized by age of the child in this study. Extensive testing supports the construct validity of the measure (Merz, 1984). Internal consistency reliabilities are reported to range from .77 to .82 for the subscales and from .86 to .89 for the total test; test-retest reliabilities range from .83 to .88 (Bracken, 1987). Interrater reliability (percent agreement), assessed monthly in the current study, ranged from 83–100% ($M = 95.8\%$). Retraining occurred when the interrater reliability in a given month fell below 90%.

The Peabody Picture Vocabulary Test-Revised: The PPVT-R (Dunn & Dunn, 1981) was used to measure receptive vocabulary as an indicator of verbal intelligence; it can be used with people from 2.5 years of age through adulthood. Children were presented with pictures and their responses scored. As recommended, raw scores were standardized by age of the respondent. Construct validity is supported through correlations with various IQ scales in previous research. For preschoolers, test-retest reliability is reported to range from .76 to .79 and internal consistency,

from .73 to .84 (Bracken, 1987). Interrater reliability, assessed monthly in the current study, ranged from 95–100% ($M = 99.0\%$).

Child Behavioral Performance: The Child Behavior Checklist (CBCL; Achenbach, 1991) was used to measure children's behavior problems. The internalizing scale measures frequency of withdrawn behavior, anxious or depressed behavior, and somatic complaints; the externalizing scale measures frequency of aggressive and delinquent behaviors. Mothers rated their children on each of 118 behaviors on a 3-point scale ranging from "not true" to "often true." After summing the mothers' ratings, raw scores were normed according to the child's age and sex. The behavior problems subscales of the CBCL have been widely used with documented evidence for their construct validity. Achenbach reports moderate to strong correlations between the internalizing and externalizing subscales and similar scales of the Quay-Peterson Revised Behavior Problem Checklist ($r = .52-.88$); test-retest reliabilities of .84 to .95; and internal consistency reliability of .90 for the internalizing subscale and .93 for the externalizing subscale. In this study, coefficient alpha was .83 and .91 for internalizing and externalizing subscales, respectively.

Current Employment: Current employment was classified as employed or not employed based on mothers' stated employment during interview. Mothers provided number of hours per week they currently work.

Employment History: Mothers gave detailed descriptions of their employment pattern since the study child's birth on a Life History Calendar (LHC) (Freedman, Thornton, Camburn, Alwin, & Young-DeMarco, 1988). This included when they began employment after the child's birth, the jobs they had held, the months they started and stopped each job, and the number of hours employed per week in each job. Validity and reliability of the LHC is enhanced through its use of memory cues, relating one event to other events that occurred at about the same time. When Freedman et al. compared data obtained in 1980 about the respondent's current situation with data obtained retrospectively with the LHC in 1985 ($N = 900$), agreement ranged from 72% to 92%. The LHC constructed for the current study contained five segments (years), each with 12 blocks (months). Major life events, such as residential moves, births, deaths, and hospitalizations of the study child, also were recorded to aid the mother's memory. Recording began with the month and year of the study child's birth. From the LHC data, two additional employment variables were created: the proportion of the child's life the mother was employed and whether the mother was employed during the child's first year of life (yes/no).

Improvements in neonatal care have resulted in high-risk neonates surviving with less impairment

Discrepancy Between Actual and Desired Employment: Discrepancy between actual and desired employment was measured with a computed discrepancy score. Mothers indicated the number of hours per week they would prefer to work outside the home. Discrepancy scores were then computed by subtracting the actual number of work hours from the preferred number of work hours and taking the absolute value. Higher scores indicate greater discrepancy. Only five of the nonemployed mothers in this sample indicated they preferred not to work. Nonemployed mothers reported considerably more discrepancy than employed mothers, $M = 25.9$ ($SD = 13.13$) and $M = 9.5$ ($SD = 6.48$), respectively, $t = 8.80$, $p < .01$.

Mother-Child Relationship: Mother-child relationship was measured with the 7-item attachment subscale of the Parenting Stress Index (PSI). Mothers rated each item on a 5-point Likert scale from 1 "strongly agree" to 5 "strongly disagree." Higher scores indicate higher levels of strain. Sample items include: "It takes a long time for parents to develop close, warm feelings for their children" and "Sometimes my child does things that bother me just to be mean." Construct validity of the PSI is supported by group differences between parents of children with and without disabilities. Abidin (1990) reported internal consistency of .75 for the attachment subscale. Internal consistency in this study was .66.

Procedure: The study was approved by the appropriate Human Subjects Review committees at the university and each of the three hospitals. A trained interviewer then contacted the family to screen for inclusion criteria, answer questions, and schedule a data collection visit in the family's home. Interviewers offered to read self-complete instruments to mothers.

Results

Aim 1: Describe the main and interaction effects of maternal employment (employed vs. not employed) and gestational status (preterm vs. full-term) on the child's intellectual functioning and behavior.

Children of employed mothers scored significantly higher on achievement than children of nonemployed mothers, regardless of gestational status. In addition, employed mothers of preterm preschoolers reported significantly fewer externalizing behavior problems than other mothers (Table 2). The main and interaction effects of current maternal employment (employed vs. not employed) and child gestational status at birth (full-term or preterm) on the cognitive (KABC mental processes and achievement, PPVT-R) and behavioral measures (CBCL internalizing [withdrawn behavior, anxious or depressed behavior, and somatic complaints] and externalizing [aggressive and delinquent behaviors] behavior problems) were analyzed

TABLE 2. Descriptive Statistics for Child Cognitive and Behavioral Measures for Gestational Status by Employment Status Groups

	Groups				Significant Effects	F
	EM Preterm (n = 17) M (SD)	NEM Preterm (n = 42) M (SD)	EM Fullterm (n = 17) M (SD)	NEM Fullterm (n = 44) M (SD)		
<i>Cognitive measures</i>					Employment ^a	2.63*
Achievement	91.9 (13.64)	85.9 (10.63)	94.1 (11.54)	87.1 (11.10)	Employment ^b	7.85**
Mental processes	97.9 (16.98)	91.4 (14.45)	95.9 (8.85)	92.6 (14.93)	None ^b	NS
PPVT-R	80.7 (16.51)	79.0 (18.42)	87.2 (12.72)	78.3 (17.84)	None ^b	NS
<i>Behavioral measures</i>					Interaction ^a	3.45*
Internalizing	46.9 (9.04)	49.4 (10.80)	44.9 (8.73)	47.8 (10.17)	None ^b	NS
Externalizing	46.5 (6.43)	54.7 (11.68)	54.2 (10.14)	54.0 (10.54)	Interaction ^b	3.79*

Note. EM = employed mothers; NEM = nonemployed mothers; PPVT-R = Peabody Picture Vocabulary Test—Revised.

^aMANOVA results.

^bANOVA results.

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

with two-way MANOVA because of the substantial intercorrelation among the three cognitive measures, $r = .52$ to $.66$, and between the two behavior measures, $r = .62$. Correlations between the cognitive measures and the behavior measures were weak, $r = -.13$ to $-.20$, indicating the need for separate MANOVAs. For the cognitive measures, the interaction effect of employment and prematurity and the main effect of prematurity were not significant. However, there was a significant main effect of employment. Post-hoc univariate ANOVA showed significant group differences only on children's achievement, with children of employed mothers scoring higher than children of nonemployed mothers. Analysis of the behavioral measures revealed a significant interaction effect of employment and prematurity. Post-hoc univariate ANOVA found a significant interaction effect on externalizing behavior problems only; employed mothers of preterm preschoolers reported fewer externalizing behavior problems than other mothers.

Aim 2: Examine the relationships between maternal employment (number of hours employed, employment history since the child's birth, and discrepancy between mothers' actual and desired employment) and cognitive and behavioral performance of preterm and full-term preschool children.

Employment was significantly related to child cognitive and behavioral performance measures, before controlling for the effects of other variables (Table 3). The more hours the mother was employed per week, the higher her child's achievement and mental processes scores. Children whose mothers worked during their first year of life had higher language scores (PPVT-R). Correlations of the proportion of the child's life the mother was employed with the cognitive and behavior measures were weak and not significant. Greater discrepancy between actual and desired employment was related to lower achievement, mental processes, and language scores; and more externalizing and internal-

izing behavior problems. Prematurity was not significantly related to the cognitive and behavioral measures.

Aim 3: Examine whether these relationships remain after controlling for family system and individual (mother and child) factors.

Multiple regression analyses (Tables 4 and 5) were used to investigate the effect of mother's employment, discrepancy between actual and desired employment, and gestational status on child cognitive and behavioral performance, controlling for mother's education, total family income, number of children in the family, proportion of the child's life in a single-parent family, and attachment strains. Two correlations among the independent variables were $>.60$: proportion of the child's life with an employed mother with current number of hours employed ($r = .64$) and with maternal employment during the child's first year of life ($r = .66$). Maternal employment was represented with an interval level variable (number of hours employed per week) in half the regressions and with a dichotomized variable (employed/not employed) in the other half. Likewise, employment history was represented with an interval level variable (proportion of the child's life with an employed mother) in half of the regressions, and with a dichotomized variable (employed/not employed in child's first year of life) in the other half. This was done to investigate the effects of timing of maternal employment (Baydar & Brooks-Gunn, 1991; Belsky & Eggebeen, 1991; Desai et al., 1989).

Current maternal employment, employment history, and gestational status were not significantly related to child cognitive and behavioral performance. Greater discrepancy between actual and desired maternal employment was significantly related only to lower receptive language scores. Several of the control variables were significant predictors of child cognitive and behavior problem measures. Higher family income was a significant predictor of both

TABLE 3. Correlations Among Employment, Control, and Child Cognitive and Behavioral Variables

	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<i>Total Sample</i>														
1 Mother's education	.31**	-.29**	-.17	.10	-.04	.29**	.16	.31**	-.15	.15	.11	-.03	-.08	-.21*
2 Family income		.01	-.18	.13	-.08	.43**	.20*	.26**	-.16	.24**	.17	.15	-.01	.07
3 No. children in family			.11	.01	.08	-.17	-.24**	-.33**	.12	-.35**	-.06	-.32**	-.07	.21*
4 Proportion child's life single				.02	.06	-.09	-.09	-.13	.11	-.18	-.13	-.07	-.02	.14
5 Gestational status (1 = preterm)					.02	.01	.17	.07	-.008	-.06	-.01	-.04	-.09	.08
6 Attachment strains						-.19*	-.01	-.09	.28**	-.23*	-.15	-.17	.28**	.29**
7 Hours employed per week							.44**	.64**	-.51**	.29**	.20*	.17	-.18	-.12
8 Worked in first year of life?								.66**	-.14	.13	.08	.20*	-.06	-.06
9 Proportion child's life employed									-.34**	.16	.06	.13	-.10	-.09
10 Discrepancy										-.28**	-.24**	-.27**	.27**	.20*
11 Achievement (KABC)											.66**	.66**	-.13	-.19*
12 Mental processes (KABC)												.52**	-.16	-.15
13 PPVT-R													-.13	-.15
14 Externalizing behavior														.62**
15 Internalizing behavior														—

Note: KABC = Kaufman Assessment Battery for Children; PPVT-R = Peabody Picture Vocabulary Test—Revised.

**p* < .05.

***p* < .01.

TABLE 4. Multiple Regression^a of Child Cognitive Development on Employment and Control Variables

Independent Variables	Achievement			Mental Process			PPVT-R		
Mother's education	-.03	-.01	-.03	-.01	-.01	-.01	-.18	-.21*	-.17
Total family income	.17	.25*	.19	.08	.11	.13	.17	.21*	.18
Gestational status (preterm=1, fullterm=0)	-.02	-.04	-.02	.01	-.02	-.03	-.06	-.09	-.06
Number children in family	-.33**	-.30**	-.33**	.02	.07	.06	-.36**	-.31**	-.35**
Proportion child's life with single mother	.01	-.02	.01	-.06	-.07	-.06	.07	.07	.07
Attachment strains	-.08	-.09	-.09	-.04	-.06	-.06	-.07	-.07	-.07
Discrepancy	-.20	-.08	-.22	-.04	-.15	-.18	-.20	-.24*	-.23
Hours employed per week	.14	.10	—	.16	.07	—	.02	-.09	—
Employment (EM = 1, NEM = 0)	—	-.06	-.07	—	—	.01	—	.11	.05
Proportion child's life with employed mother	-.07	—	-.04	-.10	—	—	-.04	—	-.01
Resumed employment in 1st year of life	—	-.02	—	—	.07	.09	—	.16	—
F	3.29**	3.81**	3.19**	.85	1.10	1.08	2.48**	2.93**	2.49**
Adjusted R ²	.18	.20	.17	.00	.01	.01	.12	.15	.12

Note. For explanation of abbreviations, see footnote to Table 2.

*p < .05.

**p < .01.

^aall regression coefficients standardized.

higher achievement scores and higher PPVT-R scores. Higher maternal education was related to higher PPVT-R scores and fewer internalizing behavior problems. In addition, fewer children in the family was related to higher achievement and PPVT-R scores and greater externalizing behavior problems. Mother-child attachment strains were a significant predictor for behavior problems only, with greater strains related to greater externalizing and internalizing behavior problems.

Discussion

In this sample of female-headed, single-parent, primarily low-income families, more hours of maternal employment was related to better child outcomes in cognition and achievement. However, when family, child, and maternal factors were controlled, the beneficial effect of the mother's employment was no longer significant. This finding is consistent with those of other studies with low-income and/or single-parent families (Hall et al., 1991; Kinard & Reinherz, 1986; Kurtz & Derevensky, 1994; Pett et al., 1994). Thus, mothers' employment in single-parent families may result in more positive child outcomes not because of the employment itself but because of the greater financial resources and improved feelings of self-worth (Hall et al., 1991) the mothers' employment usually brings.

Less discrepancy between the mother's actual and desired employment was related to better child cognition, achievement, language, and behavioral performance. However, when other factors were controlled, only the positive effects for receptive language remained significant. Other studies also have found negative effects of discrepancy for the child (Auerbach et al., 1992; Barling et al., 1988; Youngblut et al., 1993; 1994). As others have suggested, mothers whose actual and desired employment status do not match may be depressed, with fewer emotional resources to be responsive and positive to their children (Farel, 1980; Hock & DeMeis, 1990).

Duration and timing of maternal employment contributed very little to child cognitive and behavioral performance when considered alone and after controlling for other variables. Employment during the child's first year was related to higher receptive language scores, but only when no statistical controls were applied, and proportion of the child's life with an employed mother was not related to child cognitive and behavioral performance, both with and without statistical controls. Although Belsky and Eggebeen (1991) and Baydar and Brooks-Gunn (1991) found negative effects of early employment, Vandell and Ramanan (1992) found positive effects of early maternal employment for children in low-income families. In a sample of mixed-income families, Desai et al. (1989) found that outcomes for children in low-income families were not related to either the child's age when the mother began employment or the mother's pattern of employment.

Prematurity had no effect on any of the child outcome measures in this study. This is in contrast to other studies of preterm children that have found significant cognitive delays (Hack et al., 1997) or behavior problems (Brandt et

TABLE 5. Multiple Regression^a of Child Behavior on Employment and Control Variables

Independent Variables	Externalizing Behavior Problems		Internalizing Behavior Problems	
Mother's education	-.11	-.11	-.29**	-.29**
Total family income	.07	.07	.17	.18
Gestational status (preterm = 1, fullterm = 0)	-.06	-.06	.09	.08
Number children in family	-.20	-.23*	.06	.07
Proportion child's life with single mother	-.09	-.10	.07	.07
Attachment strains	.28**	.28**	.27**	.26**
Discrepancy	.17	.20	.14	.14
Hours employed per week	.003	—	.07	—
Employment status (EM = 1, NEM = 0)	—	.02	—	—
Proportion child's life with employed mother	-.09	—	—	-.06
Resumed employment in 1st year of life	—	-.13	—	—
F	1.99*	2.53**	2.65**	2.84**
Adjusted R ²	.09	.12	.15	.14

*p < .05.
 **p < .01.
^aall regression coefficients standardized.

al., 1992) into the school-age years. Two aspects of our study may account for the conflicting findings. Our sample is a healthier, less impaired sample because children were recruited from birth records, not from developmental follow-up clinics. Preterm children in this sample were born later than those in the studies by Hack et al. and Brandt et al. Improvements in neonatal care, such as use of surfactant to speed lung maturity in very young preterm infants, have resulted in high-risk neonates surviving with less impairment. Indeed, neurologic impairment and respiratory risk, rather than prematurity, predicted negative outcomes in the study by Singer et al. (1997).

In addition, we considered the effects of environmental factors known to influence child outcomes. Other studies of preterm children often include both single-parent and two-parent families in their samples and do not control statistically for the differences in family structure or the effects of other family factors such as number of children in the family and family income. Although the sample was relatively homogeneous on income, both income and number of children had significant effects on child cognitive and behavioral performance in this study regardless of the child's gestational age at birth. It is also likely that the pervasive effects of poverty (Bolger, Patterson, Thompson, & Kupersmidt, 1995) are stronger than the effects of prematurity in a low-income sample by the time the child reaches preschool age. Indeed, Singer et al. (1997) found that neurologic risk, low social class, and minority race mediated the effects of birthweight and gestational age on outcomes of very low birthweight infants at 3 years of age. Thus, our lack of effects for prematurity is probably due to a healthier, less impaired preterm sample combined with the strong effects of poverty on child cognitive and behavioral performance.

In summary, current maternal employment, employment history, and discrepancy between actual and desired employment had little to no effect on child cognitive and behavioral outcomes in this sample of preterm and full-term children in single-parent, primarily low-income families. Prematurity also was not related to child cognitive and behavioral performance. However, fewer children in the family had consistent, positive effects for the child outcomes in this study. The concerns about negative effects of maternal employment on young children may be overstated, especially in low income, female-headed single-parent families. The current welfare reform legislation mandating employment for single mothers with young children holds the potential, given current research, of having no effect or positive effects on child development. Potential effects of maternal employment in single-parent families, however, will require ongoing monitoring, particularly for groups of children at developmental risk. ▣

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