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Maternal Employment Effects On Family and Preterm Infants at Three Months

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Abstract

The purpose of this study was to investigate the effects of maternal employment status and the mother's degree of choice and satisfaction regarding her employment status on family functioning and, on the preterm infant's development at three months chronologic age. Families with preterm infants ($N = 110$) were categorized as employed, nonemployed, and on leave of absence based on the mother's employment status at three months postpartum. There were no significant differences across employment groups on family functioning and child development. The infant's motor development was positively correlated with number of hours employed per week and degree of choice for the employed, mother families, but negatively correlated with choice for the nonemployed mother families. These results suggest that maternal employment may not be detrimental for infants born prior to term. Indeed, it may be beneficial, especially if the mother has a choice in the matter.

Over half (55%) of mothers with children under three years old are employed (Shank, 1988). For some of these women, employment is optional; for others it is a necessity. In either case, the mother's employment places her in multiple roles and adds complexity to her life and the lives of her loved ones. A prime concern for these women is the effect that their employment will have on their children and on their families. When the child is perceived as being at risk, such as those born prematurely, the mother's concerns may increase substantially. Thus, the purpose of this study was to identify the effects of maternal employment status on family functioning and preterm infant developmental progress at three months chronologic age.

Only one study of maternal employment with preterm infants has been reported (Cohen, 1978). The sample consisted of 44 mothers and their 21-month-old preterm infants. Cohen reported negative effects of employment on cognitive development and on maternal positive attentiveness and reciprocal positive interaction. However, the means for cognitive development for children in both employed mother (EM) and nonemployed mother (NEM) groups were within five points of the standardized mean of the test, and the mother-child interaction differences disappeared when single-parent families were eliminated from the analysis. Thus, many questions remain about the effects of maternal employment for the preterm infant.

A considerable body of research exists in which the effects of maternal employment on healthy children are reported; however, the results are conflicting. Some studies have found negative effects on cognitive measures (Schacter, 1981) and on child attachment to the mother (Barglow, Vaughn, & Molitor, 1987; Benn, 1986; Belsky & Rovine, 1988; Schwarz,

1983; Vaughn, Gove, & Egeland, 1980). In other studies, either no effects or positive effects on cognitive measures have been reported (Hock, 1980; Stith & Davis, 1984; Zimmerman & Bernstein, 1983) and on child attachment to the mother (Easterbrooks & Goldberg, 1985; Hock, 1980; Owen, Easterbrooks, Chase-Lansdale, & Goldberg, 1984). Despite recommendations to widen the scope of study to include other family members (Bronfenbrenner, 1985; Hoffman, 1989), research has been focused exclusively on the mother-child relationship, ignoring the context of the family.

The conflicting results indicate that the maternal employment picture is more complex than simply whether or not the mother works. Benn (1986) suggests that the degree of maternal integration of worker and mother roles is important as well as the timing of the mother's return to employment. Belsky and Rovine (1988) and Goldberg and Easterbrooks (1984) found an association between marital quality and security of attachment. In a series of studies (Hock, 1980; Hock & Clinger, 1980; Hock, 1984), an interaction effect was found between the mother's anxious feelings about separation from her child and the mother's employment status. In the strange situation, infants of nonemployed mothers were more upset by a stranger, while infants of employed mothers displayed more negative reunion behaviors. Alvarez (1985) noted that EM children fared better when their mothers felt they were employed by choice. Other researchers (Farel, 1980; Hoffman, 1961; Yarrow, Scott, de Leeuw, & Heinig, 1962) have found a similar effect for the interaction of maternal employment attitudes and employment status.

In this study it was hypothesized that the mother's degree of choice and satisfaction with her employment status, rather than whether or not she was employed, would determine the impact of her employment status on the child and the family. In addition, congruence between the mother's actual employment status and her attitudes about employment was posited to have a positive impact on both family and child outcomes.

Method

Sample

A convenience sample of 110 families was recruited from two Level III neonatal intensive care units (NICUs) as part of a large, longitudinal study of parental reactions to the birth of a premature infant. Criteria for inclusion in the study were that the infant was less than 37 weeks gestation, size appropriate for gestational age, hospitalized in the NICU for more than one week but less than three months, and free of anomalies that would preclude developmental progress, and that the mother was living with a male partner acting as the father. Most parents were married (95.5%, $n = 105$), white (94%, $n = 103$), completed at least a high school education (106 [96.4%] mothers and 104 [94.5%] fathers), with family incomes of \$20,000 or more ($n = 84$, 76.3%). Most of the fathers were employed (99%, $n = 109$). Forty mothers (36.4%) were employed outside the home, 30 (27.3%) of them full-time. Half of the mothers ($n = 55$) were not employed, and 15 (13.6%) stated they were on a leave of absence.

Fifty-nine (53.6%) of the preterm infants were male. Mean gestational age at birth was 32.6 weeks ($SD = 2.3$); mean birthweight was 1784.2 grams ($SD = 527.9$). Average length of stay in the NICU was 31.6 days ($SD = 16.6$). At the time of interview, 98 infants (89.1%) were within two weeks of their three-month birthday ($M = 13.7$ weeks, $SD = 1.87$). The remaining 12 infants (10.9%) were seen at 4 to 5 months of age.

Procedure

Families were referred to the study by a neonatologist at each site. Data were collected in a 2.5 hour home visit. Hospital chart review by the research assistant at each site provided

information about the infant's NICU stay. This limited the interviewers' knowledge of the infant's NICU experience to what the families told them.

Instruments

The mother's degree of choice about her employment status and her satisfaction with that choice were each measured with a single Likert-type item. Mothers rated each item on a 10-point scale, with "10" as high choice or high satisfaction. Beliefs and Attitudes about maternal employment were measured with the Home/Employment Orientation (HEO) scale (Youngblut, Loveland-Cherry, & Horan, 1990). The HEO scale consists of eight Likert items ranging from 1 (*strongly disagree*) to 8 (*strongly agree*). The other points in the scale are not explicitly defined. The mothers' responses were summed to create total Home/Employment Orientation scores. Higher scores indicate stronger employment orientation. Internal consistency reliability was good ($\alpha = .80$).

Congruence was created by comparing the mother's stated employment status at three months postpartum with her attitudes about employment from the HEO scale. Total scores on the HEO were categorized by considering scores less than 36 to represent home orientation and scores of 36 and above to represent employment orientation. Employed mothers with employment orientations and nonemployed mothers with home orientations received a rating of 2 for congruence, while employed mothers with home orientations and nonemployed mothers with employment orientations received a rating of 1 for incongruence. Leave of absence mothers did not receive a value for this variable and were omitted from analyses involving congruence.

Three dimensions of family functioning—family cohesion, family adaptability, and family relationships—were measured. The FACES III questionnaire (Olson, Portner, & Lavee, 1985) was used to measure cohesion and adaptability. Mothers rated each of the 20 items (10 for each concept) on a 5-point scale ranging from 1 (*almost never*) to 5 (*almost always*). Olson et al. report internal consistencies of .77 for cohesion and .62 for adaptability. Cronbach's alphas for the current study were .80 and .58, respectively. Family relationships was measured with the Feetham Family Functioning Survey (FFFS) (Roberts & Feetham, 1982). Mothers rated each of 25 items twice, indicating (a) "How much is there now?" and (b) "How much should there be?" on a 7-point scale from 1 (*little*) to 7 (*much*). A discrepancy score is calculated by subtracting responses to (a) from (b) and summing the absolute values. Scores can range from 0 to 150, with lower scores indicating higher satisfaction with family functioning. Roberts and Feetham report an internal consistency of .81 and a test-retest reliability of .85 for the discrepancy score. Cronbach's alpha for the current study was .80.

Child outcome was measured with the Bayley Scales of Infant Development (Bayley, 1969), which contains two sub-scales. The Mental Developmental Index (MDI) assesses sensory-perceptual, verbal communication, and early cognitive development, while the Motor Developmental Index (PDI) assesses development of gross and fine motor control. Bayley reports split-half reliabilities of .81 to .93 for the MDI and .68 to .92 for the PDI, and interrater reliabilities of 76.4% for the MDI and 75.3% for the PDI. Interrater reliabilities for the current study ranged from 76% to 86%. Raw scores were converted to standardized scores based on the infant's chronologic age according to Bayley's recommendations. Standardized scores range from 50 to 150 with a mean of 100. Scores below 80 often are interpreted as indicating developmental delay (Meisels, Plunkett, Pasick, Stiefel, & Roloff, 1987).

Results

Three employment status groups were created: employed mothers, nonemployed mothers, and leave of absence mothers. Differences among groups on the five indicators for the two outcome variables (family functioning and child outcome) were examined using anova with Scheffé tests for post hoc comparisons. None of the comparisons were statistically significant (see Table 1).

The sample then was divided into two groups according to the mother's congruence value. Employment status was significantly associated with congruence group, $\chi^2(1, N = 89) = 21.01, p < .0001$. Sixteen employed mothers (43.2%) and 47 nonemployed mothers (90.4%) were classified as congruent, while 21 employed mothers (56.8%) and 5 nonemployed mothers (9.6%) were incongruent. Differences between the two congruence groups were examined for significance with two sample *t*-tests (see Table 2). Mothers in the congruent group reported having more choice and being more satisfied with their choice. However, the groups did not differ on birthweight, gestational age, MDI, PDI, Cohesion, Adaptability, or the FFFS.

Correlations were calculated to see if specific aspects of the employment situation, such as amount of time away from home, the mother's degree of choice and satisfaction with her employment situation or her attitudes toward employment, were related to the outcome variables. All of the correlations between hours employed per week and the outcome indicators were low (absolute value of $r < .14$) and nonsignificant. For employed mother families only, number of hours employed was positively correlated with Bayley MDI scores ($r = .43, p < .01$) but was not significantly correlated with Bayley PDI scores ($r = .17$). For the total sample, only one of the correlations between the outcome indicators and choice and satisfaction was significant. Satisfaction was weakly related to adaptability ($r = .16, p = .05$). Mothers' HEO scores were negatively related to cohesion ($r = -.26, p = .004$), but were not significantly related to adaptability, FFFS, MDI, or PDI scores.

Differences in the strength of relationships among study variables were obtained when correlations were calculated for each employment group separately. For employed mothers and nonemployed mothers, the HEO scores were not significantly related to MDI or PDI values. However, for the leave of absence mothers, the correlation between HEO and Bayley PDI scores was the only significant relationship found. The more employment-oriented the mothers on leave of absence were, the higher the infant's PDI score ($r = .47, p = .05$). Choice and PDI scores were positively correlated ($r = .35, p = .02$) for employed mothers but negatively correlated ($r = -.26, p = .04$) for nonemployed mothers. Correlations between choice and MDI scores were not significant for either group. Satisfaction was not significantly correlated with child outcomes for employed mothers, but was significantly correlated ($r = -.25, p = .04$) with MDI scores for nonemployed mothers. Choice, satisfaction, and HEO were not significantly correlated with any of the family functioning variables for employed mothers or leave of absence mothers. In addition, these three variables were not related to adaptability or FFFS for the nonemployed mothers. However, choice and satisfaction were positively correlated with cohesion for nonemployed mothers ($r = .26, p = .04$ and $r = .32, p = .02$, respectively), while HEO scores were negatively correlated with cohesion for nonemployed mothers ($r = -.41, p = .003$).

Multiple regression analysis was conducted with each of the outcome indicators as dependent variables. Birthweight and gestational age were used as control variables and hours employed, HEO, choice, and satisfaction were used as predictors. When FFFS and adaptability were regressed on the predictors, none of the partial slope coefficients were significant. When cohesion was the dependent variable, HEO was significant ($\beta = -.15, t =$

-2.97, $p = .004$). However, the R^2 of .09 did not reach significance, $F(4,97) = 2.33$, $p = .06$. None of the employment-related variables were significant predictors of MDI scores. Number of hours employed was a significant predictor of PDI scores, $\beta = .26$, $t = 2.19$, $p = .03$, controlling for gestational age and birthweight. The increase in R^2 from .21 to .25 that resulted when number of hours employed was added to the regression was significant, $F(3,87) = 9.62$, $p < .001$. Predictors of PDI scores added after controlling for gestational age, birthweight, and number of hours employed were not significant and did not substantially change the value of the coefficient for hours employed or its associated significance level. When these regressions were done for employed mothers only, none of the predictors were significant for any of the outcome variables.

Discussion

The findings of this study suggest that maternal employment does not adversely affect the preterm infant's development at three months of age. This was true when either employment status groups or actual number of hours employed were used. Indeed, number of hours employed was positively related to the preterm infant's motor development. Since the study was a cross-sectional, nonexperimental design, the causal direction is not clear. One explanation for this correlation is that having an infant whose development is more normal allows the mother to be employed for more hours. However, it may be that maternal employment allows respite time for both the mother and the alternate caregiver, so that the infant experiences contingent and responsive care more often. In addition, exposure to additional caregivers may provide preterm infants with a wider range of stimuli that would enhance their motor development. Longitudinal research is necessary before causation is inferred.

Infants of employed mothers who reported having more choice regarding their employment decision had better motor development scores than infants whose mothers reported having less choice. Alvarez (1985) also found that a higher degree of choice had a beneficial effect for children of employed mothers. The negative relationship between choice and motor development and between satisfaction and mental development for nonemployed mothers is surprising. Perhaps nonemployed mothers reported more choice in not being employed and more satisfaction with that choice because their infants were more affected by their prematurity. However, previous analysis of variables associated with neonatal morbidity revealed no significant differences on severity of illness across employment status groups (Youngblut et al., 1990). Green and Solnit (1964) suggest that when a child survives an illness that the parents believe could be fatal, the parents become overprotective of the child. If the causal flow is from choice and satisfaction to development, perhaps nonemployed mothers who choose not to be employed are more protective of their infants and do not allow their infants to have experiences, such as unrestricted time on the floor, that would enhance their development. In addition, nonemployed mothers who report less choice about not being employed may be more encouraging of the infant's development in preparation for being employed in the near future.

The only significant analyses with family functioning variables were for the nonemployed mothers. For these mothers only, higher cohesion scores were associated with more choice regarding their employment status, higher satisfaction with that choice, and more home orientation. Perhaps this finding represents the negative effects on the family when the mother is unhappy with her employment status. The lack of relationship among these variables for employed mothers and mothers on leave of absence suggest that other factors may be more important influences for these families. It is likely that having a new baby in the house has a stronger influence on the family at three months postpartum than employment-related variables.

The lack of significant negative effects of maternal employment and employment-related variables on the preterm infant and the family is encouraging. However, effects that could emerge when the child is older cannot be ruled out with the results of this study. Therefore, studies are needed on older infants and children so that nurses can give appropriate advice to parents about the short- and long-term effects of the mother's employment status on the child.

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Table 1

Comparison of Employment Status Groups on Outcome Measures Using anova.

Variable	EM <i>M (SD)</i>	NEM <i>M (SD)</i>	LOAM <i>M (SD)</i>	<i>F</i>
Cohesion	38.20 (8.5)	40.83 (5.3)	40.7(5.9)	1.14
Adaptability	30.28 (5.4)	31.57 (4.6)	30.73 (6.4)	0.70
Relationships	27.68 (13.0)	25.19 (12.6)	26.60 (11.9)	0.41
Bayley Mental Scale (MDI)	86.18(15.5)	83.89 (17.1)	82.53 (15.8)	0.36
Bayley Motor Scale (PDI)	95.95 (24.78)	90.78 (22.73)	93.40 (26.01)	0.54

Note. EM = Employed mothers, NEM = nonemployed mothers, LOAM = Leave of absence mothers.

Table 2

Comparison of Congruence Groups on Outcome Measures Using Two Sample t-tests

Variables	Congruent <i>M (SD)</i>	Incongruent <i>M (SD)</i>	<i>t</i>
Birthweight (gMs)	1787.29 (528.99)	1883.58 (611.32)	.75
Gestational Age (wks)	32.80 (2.31)	32.29 (2.30)	-.95
Choice	8.46 (2.69)	4.88 (3.59)	-5.16 ^o
Satisfaction	8.53 (2.05)	6.04 (3.12)	-4.46 ^o
Cohesion	40.81 (5.23)	40.77 (6.68)	-.03
Adaptability	31.18 (5.15)	30.38 (3.90)	-.71
Relationships	25.84 (13.71)	25.57(10.91)	-.09
Mental Development	84.63 (15.69)	86.96 (15.55)	.64
Motor Development	91.37(20.86)	100.04 (26.90)	1.63

^o
 $p < .001$