Pathways Between Maternal Depression and Early Child Language Development in Low-Income Families

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Three findings motivated this study:

1. Mothers living in poverty are at increased risk for depression relative to non-impoverished mothers (Peterson & Albers, 2001).

2. Maternal vocabulary use is positively related to children's lexical development in low-income families (Pan, Rowe, Singer, & Snow, in press).

3. Depressed mothers speak less to their toddlers than non-depressed mothers. In turn, their children are at increased risk for delays in language development (Murray, Kempton, Woolgar, & Hooper, 1993).

The following study was undertaken to examine the relationships between maternal depression, early maternal vocabulary use, and children's later lexical development in low-income families.

It was hypothesized that:

1. Maternal depression would be associated with reduced maternal productive vocabulary.

2. Maternal depression would be negatively associated with the size of children's productive and receptive vocabularies.

3. Maternal depression would have a significant impact on children's lexical development due to reduced early maternal vocabulary use.

SAMPLE

- Participants were 116 mother-toddler pairs from low-income homes who applied for Early Head Start services.

- Participants came from two sites, with 66 families from an urban area of the Northeast, and 50 families from a rural area of New England.

- Mothers ranged in age from 14 to 43 years at time of child's birth (M = 23 years 1 month, SD = 7 years, 5 months).

- Almost half (43.9%) of the urban mothers had given birth prior to their 18th birthday, but only 8.0% of the rural mothers had.

- Participating children were 63 (54.3%) boys and 53 (45.7%) girls.

	Total	Urban Site	Rural Site
First born/only	69 (59.5%)	47 (71.2%)	22 (44.0%)
Later born	47 (40.5%)	19 (28.8%)	28 (56.0%)
Black, non-Latino	43 (37.1%)	42 (63.6%)	1 (2.0%)
White, non-Latino	46 (39.7%)	0 (0.0%)	46 (92.0%)
Latino	24 (20.7%)	22 (33.3%)	2 (4.0%)
Mixed/other	3 (2.6%)	2 (3.0%)	1 (2.0%)
< High school	49 (42.2%)	37 (56.1%)	12 (24.0%)
= High school/GED	34 (29.3%)	11 (16.7%)	23 (46.0%)
> High school	33 (28.4%)	18 (27.3%)	15 (30.0%)

METHOD

- Mothers completed Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977) when their children were 14 months of age.
- Mother-child dyads were videotaped in a 10-minute, semi-structured play session when children were 14 and 36 months.
- All mothers given same materials – a book and two bags of toys – and instructed to interact with their children as they normally would.

- CHILDES (MacWhinney, 2000) facilitated transcription and analysis of videotaped sessions.
- The FREQ program was used to measure how many different words ("types") appeared in mothers' speech during the 14-month session.
- The VOCD program was used to measure the diversity of children's productive vocabularies (D-values) during the 36-month play session.
- Children's receptive vocabularies assessed at 36 months with the Peabody Picture Vocabulary Test (PPVT-III; Dunn & Dunn, 1997).

RESULTS

- Maternal CES-D scores ranged from 0 to 49, (M = 12.95, SD = 9.93).
- Forty of the mothers (34.5%) received CES-D scores in the depressed range.
- Maternal depression did not significantly differ based on any demographics.

- Mothers ranged from 23 to 221 different word types used during the 14-month play session (M = 127.33, SD = 45.92).
- Maternal age was positively associated with the number of word types mothers used with their children at age 14 months (r = .28, p < .01).
- Number of maternal word types was unrelated to any other demographics, once maternal age had been taken into consideration.

- Children's D-values ranged from 7.63 to 70.90 during the 36-month play sessions (M = 38.35, SD = 12.51).
- Children's D-values were not significantly related to any demographic variables.

2

- Children's PPVT-III scores ranged from 40 to 123 (M = 84.23, SD = 17.06).
- Overall, children's PPVT-III scores fell below age norms, and 40.0% scored below tenth percentile.
- Maternal age was positively correlated with children's PPVT-III scores (r = .29, p < .01).
- Children's PPVT-III scores were unrelated to any other demographics, once maternal age had been taken into consideration.

Correlations Among Maternal and Child Variables

|	Mother CES-D	Mother word-types	Child PPVT-III	Child D-values
Mother CES-D	–	– .29** (113)	– .28** (115)	–.23* (107)
Mother word types		–	.45*** (112)	.24* (107)
Child PPVT-III			–	.27** (106)
Child D-values				–

*p < .05. **p< .01. ***p< .001.

Comparison of Maternal Word-Types at Age 14 Months Based on Maternal Depression
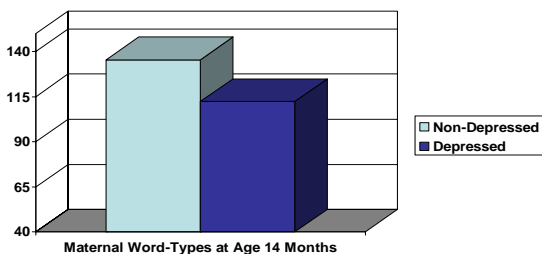
Non-Depressed M = 135.51, SD = 44.71, Depressed M = 112.40, SD = 44.84
t (111) = 2.63, p < .05

Comparison of Child Receptive Vocabularies at Age 36 Months Based on Maternal Depression
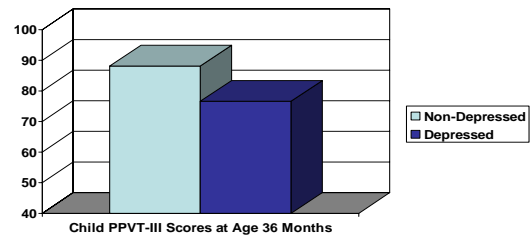
Non-Depressed M = 88.14, SD = 14.71, Depressed M = 76.59, SD = 18.85
t (113) = 3.62, p < .001

Prediction of Child Expressive Vocabularies

Step	Variable Entered	B	SE B	β
1	Maternal CES-D	– 0.23	0.12	–.18
2	Maternal Types	0.05	0.02	.19*

*p < .05. **p< .01. ***p< .001.

R^2 = .05* for Step 1; ΔR^2 = .03* for Step 2
Model F (2, 106) = 5.10**

Prediction of Child Receptive Vocabularies

Step	Variable Entered	B	SE B	β
1	Maternal Age	.48	.20	.20*
2	Maternal CES-D	– .32	.15	– .19*
3	Maternal Types	.23	.03	.34***

R^2 = .10** for Step 1; ΔR^2 = .08** for Step 2;
ΔR^2 = .10*** for Step 3
Model F (3, 111) = 13.20***

DISCUSSION

Consistent with other research, we found a high rate of depression in this diverse sample of low-income mothers. Rates of depression did not differ based on any demographic variables.

Maternal depression was associated with reduced maternal vocabulary use during play with their children at 14 months of age.

The amount of vocabulary mothers used with their children at 14 months predicted how well developed those children's receptive and expressive vocabularies would be at age 36 months.

The higher a mother's level of depression at 14 months, the lower her child's productive and receptive vocabularies at age 36 months.

Children with younger mothers displayed poorer receptive vocabularies than those of older mothers.

Past research has shown that in low-income families, children's early productive vocabularies are good predictors of their academic progress in elementary school (Walker, Greenwood, Hart, & Carta, 1994).

The impact of maternal depression on early maternal vocabulary use explains part of the variation we see in children's lexical development at age three.

However, other factors such as maternal age also seem to play a role. Further research is needed to determine what these factors are.

Our results suggest that it is important to consider maternal mental health when attempting to support children's lexical development in this at-risk population.

References

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