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Attitudes About Shared Reading Among At-Risk Mothers of Newborn Babies

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Abstract

Background—Attitudes about shared reading among at-risk mothers of newborn babies have not been the focus of previous study. Better understanding of factors associated with these attitudes would facilitate pediatricians' provision of anticipatory guidance.

Objective—To assess sociodemographic correlates of attitudes regarding and resources available for shared reading among multi-ethnic, low socioeconomic status (SES) mothers of newborns.

Methods—This was a cross-sectional analysis of consecutive mother-infant dyads enrolled during the postpartum period in an urban public hospital. Dependent variables: attitudes and resources related to shared reading with infants. Independent variables: family sociodemographics, reading difficulties, and social risks.

Results—211 mother-newborn dyads were assessed. 23.7% reported not planning to look at books together until 12 months or later. 42.2% reported no baby books in the home. 19.9% reported concerns about shared reading. In multiple logistic regression analyses, independent significant associations with not planning to share books together in infancy were lower maternal education, English-speaking, and firstborn. Independent significant associations of not having baby books were English-speaking, firstborn, and perceived difficulty reading in their native language.

Conclusions—Many at-risk mothers of newborn babies do not report plans to read in infancy and do not have books in the home. Consideration should be given to universal provision of early anticipatory guidance addressing shared reading, either during the postpartum period or during initial well-child care visits.

Keywords

Early Childhood; Developmental Outcomes; Literacy; Parenting; Infancy

INTRODUCTION

The home literacy environment is important in influencing language and literacy development¹. While most studies documenting associations between shared reading and developmental outcomes have involved children 2 years and older², shared reading in younger children is also important. DeBaryshe showed that earlier onset of reading in infancy was associated with improved language at 2 years³. Tomopoulos showed an association between shared reading

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at 18 months and cognitive and language development, and that shared reading at 6 months predicted later reading activities ⁴.

Studies have been performed assessing variations and predictors of shared reading during infancy. DeBaryshe determined an average age of onset for shared reading of 8 months in middle class mothers ³. Karass found that increased income in middle class mothers was associated with more frequent shared reading in infancy ⁵. Kuo found that 70% of economically and ethnically diverse parents read at least 3 times per week to their 4-9 month olds, with children with more books in the home read to more frequently ⁶.

Mothers' attitudes regarding parenting influence actual parenting behaviors ⁷. However, there has been no study of maternal attitudes in early infancy regarding shared book reading. Better understanding of the factors associated with attitudes about shared reading would be helpful to pediatricians in providing anticipatory guidance to families and implementing programs such as Reach Out and Read (ROR) ⁸⁻¹¹.

In this study, we sought to add to the limited body of research concerning attitudes about and resources available for shared reading in a sample of multi-ethnic, at-risk mothers of newborns. We addressed three questions: 1) What are attitudes regarding plans to begin shared reading in infancy? 2) Are there books for babies in the home at the time of delivery? 3) Are there concerns regarding ability to engage in effective shared reading?

METHODS

Study Sample

This was a cross-sectional analysis of mother-infant dyads enrolled in a longitudinal study of early child development. Consecutive enrollment of eligible dyads occurred from November, 2005 - August, 2006 in the post-partum unit of Bellevue Hospital Center, an urban public hospital serving at-risk families. Inclusion criteria were: intention to receive pediatric care at Bellevue, language English or Spanish, no medical complications, no Early Intervention eligibility. Written, informed consent was obtained. This study was approved by the NYU School of Medicine IRB and Bellevue Research Committee.

Procedure

Mothers were interviewed during hospital stays following delivery. Interviews occurred at times of mothers' preference when they were awake, alert and without visitors (except fathers), typically (93.0%) on the second postpartum day or later.

Data Obtained

1. Dependent variables—For the first study question about attitudes regarding shared reading in infancy, mothers were asked whether they planned to read children's books together with their children. Those answering affirmatively were asked, "At what age do you think you will start reading aloud with children's books with your child?" Responses were categorized by whether mothers planned to begin shared reading in infancy (before 12 months).

For the second study question regarding resources for shared reading in the home, mothers were asked "Do you have any books for babies in your home right now?" Those answering affirmatively were asked to name some books and estimate the number of books in the home. This was designed to reduce social desirability bias ^{12, 13}. Responses were categorized by whether mothers reported at least 1 baby book. This cutoff was chosen based on this sample's distribution, with more than 40% of mothers not reporting any baby books in the home.

For the third study question regarding concerns about effective shared reading, there are no established questionnaires; therefore, mothers were asked an open-ended question: “Tell me about anything in your home or in your life that might get in the way of reading children’s books together with your baby”. Responses were categorized by whether mothers reported at least one concern.

2. Independent variables—Independent variables assessed were sociodemographics, perceived reading difficulties, and social risks. Sociodemographic data included mother’s education level, country of origin, ethnicity, language, marital status, and child’s birth order and gender. Education was categorized as $\leq 6^{\text{th}}$ grade, $7^{\text{th}}-11^{\text{th}}$ grade, and $\geq 12^{\text{th}}$ grade based on previous work ¹⁴. Marital status was categorized as single (single/separated/divorced) or with partner (living together/married), reflecting the frequency of cohabitation without marriage and difficulty distinguishing marriage from cohabitation ¹⁵. SES was estimated using Hollingshead Four Factor Index of Social Status, a 5 point scale (highest resource level=1; lowest level=5) ¹⁶.

Perceived reading difficulty in mothers’ preferred language was assessed using questions from the Early Head Start Research and Evaluation Project 14 Month Parent Interview ¹⁷. Mothers were asked whether they had difficulty reading newspapers, medication directions, or food labels. Mothers reporting difficulty in any area were classified as having perceived reading difficulty. Although we did not directly assess literacy, mothers’ feelings of self-efficacy related to parenting have been shown to influence interactions with infants ¹⁸.

Social risk factors assessed were history of homelessness, contact with child protection, domestic violence, mental illness, difficulty paying bills, and late prenatal care ¹⁹. In analyses, families were considered at increased social risk if at least one of these factors was present.

Statistical analysis

For each of the three study questions, we performed descriptive analyses and assessed whether there were associations with sociodemographic factors. Simple analyses included Fisher exact tests for 2×2 tables and Spearman correlations for ordered data. Adjusted analyses were performed using stepwise multiple logistic regression: In the first step, all independent variables were entered into the model. In subsequent steps, each variable with $p > .15$ was sequentially removed leaving a final model in which only variables with $p < 0.15$ were retained.

RESULTS

Study Sample

293 mother-newborn dyads met eligibility criteria, of whom 211 (72.1%) were enrolled and 82 (27.9%) refused. Descriptive information is provided in Table 1. 50 families (23.7%) did not report plans to read in infancy. 89 (42.2%) did not report baby books in the home. 42 (19.9%) reported concerns about effective shared reading, including: childcare (3.3%), work/school (4.7%), household chores (4.3%), insufficient time (2.8%), illness or fatigue (2.8%), television viewing (0.9%), and culture/language issues (0.9%).

Attitudes and resources related to shared reading: unadjusted analyses

Associations with attitudes and resources regarding shared reading are shown in Table 2. Increased maternal education and primary language English were associated with increased likelihood of reporting plans to read aloud in infancy. Families with second or later babies, higher SES, and primary language English were more likely to report baby books in the home; those with perceived reading difficulties were less likely to report books. Concerns about effective shared reading were reported more often for families with more education, higher

SES and English language spoken, but also for those whose mothers who had perceived reading difficulties.

Variables Independently Associated with Attitudes and Resources

In stepwise multiple logistic regression models (Table 3), greater maternal education, primary language English, and mother not single (as a trend) were associated with increased adjusted odds ratio (AOR) for reporting plans to engage in shared reading in infancy, while firstborns, female babies, and perceived reading difficulties (the latter two as trends) were associated with decreased AOR (model $p < 0.001$). English language was associated with increased AOR for reporting at least one baby book in the home, while perceived reading difficulties and firstborns were associated with decreased AOR (model $p < 0.001$). English language and perceived reading difficulties (as a trend) were associated with increased reported concerns about effective shared reading, while firstborns were associated with decreased concerns (model $p < 0.001$).

DISCUSSION

In this study, almost 25% of mothers of newborns delivering in an urban public hospital did not report plans to share books in infancy, and over 40% did not have baby books in their homes. Mothers without plans to share books in infancy or baby books at home tended to have lower education and SES, firstborns, perceived reading difficulties and not speak English. With the exception of SES, each of these retained significance after adjustment for potential confounders.

Almost 20% of mothers reported concerns about effectively sharing books with their infants. Mothers with concerns about effective shared reading were from disparate groups: While many had higher levels of education, others reported perceived reading difficulties. It is possible that mothers with higher levels of education consider obstacles as they plan for shared reading. On the other hand, mothers reporting perceived reading difficulties may be less likely to engage in shared reading due to lack of confidence in their abilities.

These findings are important because they represent the only descriptions of which we are aware regarding attitudes and resources related to shared reading among mothers of newborns. These findings may have implications for programs such as ROR that recommend reading aloud beginning at 6 months, as anticipatory guidance about shared reading may be appropriate for mothers earlier in infancy and possibly prenatally.

Most of our results concerning early attitudes about reading are consistent with those from existing studies of shared reading practices of low SES mothers of older infants and children. In High's study of 7-month-olds in low SES families, only 27% had "Child Centered Literacy Orientation"²⁰. In 4 to 35-month-olds, Kuo found that 28% of low income mothers engaged in shared reading fewer than 3 days per week. In that study, maternal education was associated with increased shared reading, and minority group membership was associated with decreased frequency⁶. Karass showed that parenting stress and reduced income were associated with less frequent shared reading with 8-month-olds⁵. In a study of Latina families with children age 2-60 months, Sanders showed lower frequency of shared reading among mothers with lower education or born in Mexico²¹.

One finding that differed from prior studies was the trend for mothers to report planning to engage in book sharing later with girls than boys in multivariate analysis; similar results were not found in the studies described above^{5-6, 21}. Results are conflicting regarding how low SES immigrant families regard girls and boys. For example, in Mexican-American families,

girls may have less freedom and more chores yet achieve more in school²². Additional study of our cohort will show whether there are gender differences in shared reading later in infancy.

There are several limitations to these results. This was a correlational study and we could not prove causal relations between independent and dependent variables. In addition, attitudes and resources during the newborn period may not predict later reading behaviors; longitudinal study (in progress) would be needed to confirm this relationship. Assessment may have been subject to social desirability bias; it is possible that we may have overestimated the proportion of mothers that plan to read books in infancy or have baby books in the home. Reliability and validity of assessments may have been reduced due to maternal fatigue, as interviews took place in the days following delivery. In addition, although we included many variables in the regressions, we may have omitted important confounders, including income, and a direct assessment of maternal literacy. It also would have been useful to collect information about paternal attitudes, which also impact developmental outcomes²³. Only mothers were studied because they are usually infants' primary caregivers²⁴, and because it can be difficult to collect reliable and valid information about other household members. Further study regarding fathers' involvement might provide insight into the trend we found indicating that mothers involved in relationships reported plans to engage in shared reading earlier than single mothers.

In conclusion, many at-risk mothers of newborn babies do not report plans to read in infancy and/or do not have books in the home, in association with family characteristics such as low maternal education, not speaking English, having a firstborn, and having perceived reading difficulty. Concerns about effective shared reading include work, chores and fatigue and may need to be addressed if pediatric providers are to facilitate mothers' reading aloud with young infants. Consideration should be given to universal provision of early anticipatory guidance addressing shared reading, either during the postpartum period or during early well-child visits.

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Table 1

Summary data for enrolled mother-infant dyads

Variable	n (%)
<u>Independent variables</u>	
Maternal education	
0-6 th grade	50 (23.7%)
7 th -11 th grade	66 (31.3%)
12th grade or higher	95 (45%)
Country of origin	
US	42 (19.9%)
Outside US	169 (80.1%)
Ethnicity	
Latina [*]	183 (86.72%)
Other [†]	28 (13.3%)
Marital Status	
Single	52 (24.6%)
Partner	159 (75.4%)
Firstborn child	
No	119 (56.4%)
Yes	92 (43.6%)
Baby's gender	
Female	108 (51.2%)
Male	103 (48.8%)
Hollingshead SES Class [‡]	
2	8 (3.8%)
3	20 (9.5%)
4	56 (26.5%)
5	127 (60.2%)
Difficulty Reading in Native Language	
No	182 (86.3%)
Yes	29 (13.7%)
High Risk [§]	
No	149 (70.6%)
Yes	62 (29.4%)
<u>Dependent variables</u>	
Mother plans to share books in infancy ^{//}	
No	50 (23.7%)
Yes	161 (76.3%)
Any baby books in the home	
No	89 (42.2%)
Yes	122 (57.8%)
Concerns about effective shared reading	
No	169 (80.1%)
Yes	42 (19.9%)

* Latina families were primarily from Mexico, Ecuador and the Dominican Republic.

[†] Families that were not Latino were of diverse backgrounds including African-American, West African (Senegal), European-American (Poland, Italy, Germany), South Asian (Bangladesh) and East Asian (Taiwan).

[‡] Hollingshead Socioeconomic Status, with lower number representing higher SES and greater family resources.

[§] High social risk defined as having at least one risk factor present (history of homelessness, domestic violence, mental illness, contact with child protection, difficulty paying bills, and late prenatal care).

^{//} Mother plans to begin shared reading prior to age 12 months.

Table 2

Associations with Attitudes and Resources Regarding Shared Reading

	Mother plans to share books in infancy, n (%) [*]		Has at least one baby book in the home, n (%) [†]		Concerns about shared reading, n (%)		p [‡]
	No	Yes	No	Yes	No	Yes	
Maternal education (yrs)							
0-6	22 (44.0%)	28 (56.0%)	24 (48.0%)	26 (52.0%)	45 (90.0%)	5 (10.0%)	.03
7-11	12 (18.2%)	54 (81.8%)	31 (47.0%)	35 (53.0%)	55 (83.3%)	11 (16.7%)	
12+	16 (16.8%)	79 (83.2%)	34 (35.8%)	61 (64.2%)	69 (72.4%)	26 (27.4%)	
Country of origin							
US	5 (11.9%)	37 (88.1%)	13 (31.0%)	29 (69.0%)	30 (71.4%)	12 (28.6%)	.13
Outside US	45 (26.6%)	124 (73.4%)	76 (45.0%)	93 (55.0%)	139 (82.2%)	30 (17.8%)	
Language spoken at home							
English or Bilingual	8 (11.9%)	59 (88.1%)	20 (29.9%)	47 (70.1%)	42 (62.7%)	25 (37.3%)	<.001
Spanish	42 (29.2%)	102 (70.8%)	69 (47.9%)	75 (52.1%)	127 (88.2%)	17 (11.8%)	
Marital status							
Single	15 (28.8%)	37 (71.2%)	23 (44.2%)	29 (55.8%)	38 (73.1%)	14 (26.9%)	.16
Partner	35 (22.0%)	124 (78.0%)	66 (41.5%)	93 (58.5%)	131 (82.4%)	28 (17.6%)	
First born child							
No	23 (19.3%)	96 (80.7%)	34 (28.6%)	85 (71.4%)	92 (77.3%)	27 (22.7%)	.30
Yes	27 (29.3%)	65 (70.7%)	55 (59.8%)	37 (40.2%)	77 (83.7%)	15 (16.3%)	
Baby's Gender							
Female	30 (27.8%)	78 (72.2%)	43 (39.8%)	65 (60.2%)	83 (76.9%)	25 (23.1%)	.30
Male	20 (19.4%)	83 (80.6%)	46 (44.7%)	57 (55.3%)	86 (83.5%)	17 (16.5%)	
Socioeconomic Status [‡]							
3	4 (14.3%)	24 (85.7%)	8 (28.6%)	20 (71.4%)	18 (64.3%)	10 (35.7%)	.03
4	10 (17.9%)	46 (82.1%)	19 (33.9%)	37 (66.1%)	42 (75.0%)	14 (25.0%)	
5	36 (28.3%)	91 (71.7%)	62 (48.8%)	65 (51.2%)	109 (85.8%)	18 (14.2%)	
Perceived Difficulty Reading in Native Language							
No	40 (22%)	142 (78%)	71 (39.0%)	111 (61.0%)	151 (83%)	31 (17%)	.02
Yes	10 (34.5%)	19 (65.5%)	18 (62.1%)	11 (37.9%)	18 (62.1%)	11 (37.9%)	
High Social Risk [§]							
No	112 (75.2%)	37 (24.8%)	65 (43.6%)	84 (56.4%)	122 (81.9%)	27 (18.1%)	.35
Yes	13 (21%)	49 (79%)	24 (38.7%)	38 (61.3%)	47 (75.8%)	15 (24.2%)	

* Mother plans to begin shared reading prior to age 12 months.

[†] p based on Fisher exact test for 2 x 2 tables; p based on Spearman r for ordinal categorical variables (education and Hollingshead SES)

[‡] Hollingshead SES, with lower number representing higher SES and more family resources

[§] High social risk defined as having at least one risk factor present (history of homelessness, domestic violence, mental illness, contact with child protection, difficulty paying bills, and late prenatal care)

Table 3
Stepwise multiple logistic regression models predicting attitudes and resources related to shared reading

Dependent variable	Independent variable	AOR [†]	95%CI [‡]	p
Planning to engage in shared reading in infancy	Maternal education ≥ 12 y	3.2	1.2 - 8.3	.02
	Maternal education 7-11	3.1	1.3 - 7.7	.01
	English-speaking	3.7	1.3 - 10.4	.02
	Not Single	2.1	.90 - 4.9	.09
	Firstborn	.37	.18 - .78	.009
	Female Gender	.51	.25 - 1.05	.07
	Perceived Difficulty Reading in Native Language	.40	.15 - 1.07	.07
Has at least one baby book in the home	English-speaking	4.35	2.05 - 9.20	<.001
	Firstborn	.18	.09 - .35	<.001
	Perceived Difficulty Reading in Native Language	.25	.10 - .63	.003
Has concerns about shared reading	English-speaking	5.04	2.32 - 10.96	<.001
	Firstborn	.44	.20 - .97	.04
	Perceived Difficulty Reading in Native Language	2.45	.98 - 6.10	.05

* Planning to read at prior to age 12 months

[†] AOR: adjusted odds ratio based on stepwise logistic regression models allowing for entry of all independent variables (mother's education level, country of origin, ethnicity, primary language spoken in the home, marital status, child's birth order and gender, family Hollingshead SES, perceived reading difficulties, and social risks) with p<.15.

[‡] CI: Confidence interval