

How Many Parents are Reading with their Young Infants in Rhode Island?

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Children who begin school with a love of books and with the requisite literacy-related knowledge and skill, including verbal abilities, familiarity with the basic purposes and mechanisms of reading, and the ability and desire to attend to the sounds of language, are less likely to have difficulty learning to read. Research indicates that there is a relationship between early book sharing and children's development of language skills and acquisition of vocabulary.¹⁻³ In Rhode Island, toddlers whose families received new children's books and guidance about the importance of shared reading at their well-child visits starting when they were 6 months old understood and used more words by the time they were 18–24 months old, compared to those not receiving this guidance.¹

In 2014, the American Academy of Pediatrics (AAP) released its first literacy policy statement formally recommending that pediatric providers promote early literacy experiences including shared reading for families with young children starting at birth and continuing at least until the age of kindergarten entry.⁴ This aligns with current Bright Futures Guidelines formulated by Health Resources and Services Administration (HRSA) and leaders in child health and development as well as with recommendations from Reach Out and Read (ROR), a national pediatric literacy program, that encourages pediatricians to be advocates for reading aloud to infants and toddlers.⁵⁻⁶ Despite the expanded endorsement and the well-documented benefits of shared reading on early brain and child development, nationally, only 37.0% of children from birth to age 5 are being read to every day. In Rhode Island 49.3% of the children under the age of 5 are being read to every day.⁷

The purpose of this study is to describe the prevalence of and disparities in shared-reading experiences of parents and infants 2 to 6 months old in Rhode Island. In addition, it describes the prevalence of risk behaviors and outcomes by early onset of shared reading in infants. Investigating this indicator will help us understand the implications of presence or absence of this parenting behavior and be able to formulate public health approaches to encourage literacy and language skills in the critical first few months of life.

METHODS

PRAMS is an ongoing state-based surveillance system of maternal behaviors, attitudes, and experiences before, during, and shortly after pregnancy and is conducted by the Centers for Disease Control and Prevention's (CDC) Division of Reproductive Health in collaboration with state health departments.⁸ We also looked at prevalence data from RI PRAMS from 2009–2018, when the question about early reading was first added to RI's PRAMS survey. The survey is sent in English and Spanish to a sample of mothers 2 to 6 months after the birth of a live infant. Mothers' survey responses are linked to extracted birth certificate data items and are weighted to represent all women delivering live infants in Rhode Island.

Aggregate data from the 2016–2018 Rhode Island Pregnancy Risk Assessment Monitoring System (RI PRAMS) was analyzed. In the 2016–2018 RI PRAMS, 5,761 mothers were sampled from a total of 29,905 mothers who had a live infant during the period. Of those who were sampled, 3,350 mothers responded to the survey (3-year combined weighted response rate was 59.0%), which was analyzed for this study.

The prevalence of shared reading with infants was assessed via responses "yes" and "no" to the question, "Are you or any other family member currently reading or looking at books with your baby?" Among those who read to their infants, reading frequency in the past week was assessed via the following responses "Did not read to the baby this week", "1–3 days this week", "4–7 days this week" to the question: "During the past week, how many days did you or other family members read or look at books with your baby?"

To identify disparities, the prevalence of shared reading of parents and infants 2 to 6 months old was examined by maternal demographic characteristics, age, race/ethnicity, education, marital status, annual household income, insurance coverage postpartum, participation in the Women, Infants, & Children (WIC) Nutrition Program, maternal disability, infant gender, infant age, birth weight, birth parity, survey language and core city residence (Central Falls, Pawtucket, Providence and Woonsocket). Maternal health indicators and risk behaviors (pregnancy intention, prenatal care in the first trimester, infant safe sleep, postpartum depression, breastfeeding, postpartum checkup, cigarette use during pregnancy, social support postpartum, baby crying/fussiness and number of children's book in the home) and

birth outcomes (low birth weight <2,500 grams and preterm birth <37 weeks gestation) were analyzed to determine the association with shared reading.

All data analyses were performed using SAS® software 9.4 (Copyright © [2019] SAS Institute Inc. SAS and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc., Cary, NC, USA.), where chi-square and Student's t-tests were performed for descriptive analyses to report demographics and to compare the outcomes.

RESULTS

Prevalence and trends of families having begun to read with their infants, 2009–2018

Figure 1 shows the prevalence of and trend in reading with infants by mothers or any other family member. Although the prevalence of reading fluctuated year by year, the linear trend analysis indicated that the overall prevalence increased from 2009 to 2018 (p-value < 0.0001). A noticeable increase in reading prevalence was found in the year following the AAP policy statement implementation, from 78.7% in 2014 to 84.7% in 2015 (p-value < 0.01). We also observed that the reading prevalence was higher for all years after the AAP policy statement implementation, compared with the previous period. The average proportion before and after the AAP recommendation was respectively 76.2% and 81.1% (p-value <0.01), a percent increase of 6.5%.

Prevalence of families having begun to read with their infants by demographics, 2016–2018

Overall, the prevalence of having started to read with young infants in Rhode Island was 80.7% (95% CI: 79.2%–82.3%) between 2016 and 2018. Disparities in this book-sharing experience were seen among socio-demographic characteristics (Table 1). Women who were younger than 20 (69.7%), Hispanic (74.6%), had less than 12 years of education (69.5%), had an annual household income less or equal to \$24,000 (75.6%), were uninsured (66.3%), participated in the WIC program (75.5%), had an infant 2–3 months of age (76.8%), had their second or later birth (78.0%), completed the survey in Spanish (70.0%) and resided in a core city

(76.2%) were less likely to read to their infant. Among those asked how many days they read to their infants in the past week, 8.7% did not read, 53.8% read 1–3 times, and 37.4% read 4–7 days. Among those who were not currently reading to their infants, 73.4% planned to initiate reading by infant's 11 months of age, 24.5% between 1–2 years, 0.8% between 3–4 years and 1.6% did not plan to read to their infants.

Behaviors and birth outcomes by families reading with infants, 2016–2018

Figure 2 shows the prevalence of risk behaviors and birth outcomes in families already reading versus those not yet reading with their 2–6 month olds in Rhode Island. Compared to women who read to their infants, women who did not read to their infants were more likely to have an unintended pregnancy (42.5%, p-value <0.01), not to place her infant to sleep on their back (21.7%, p-value <0.01), diagnosed with postpartum depression (15.9%, p-value <0.05),

Figure 1. Prevalence and trends of families having begun to read with their 2–6 month olds by year, Rhode Island women who delivered a live birth, RI PRAMS, 2009–2018

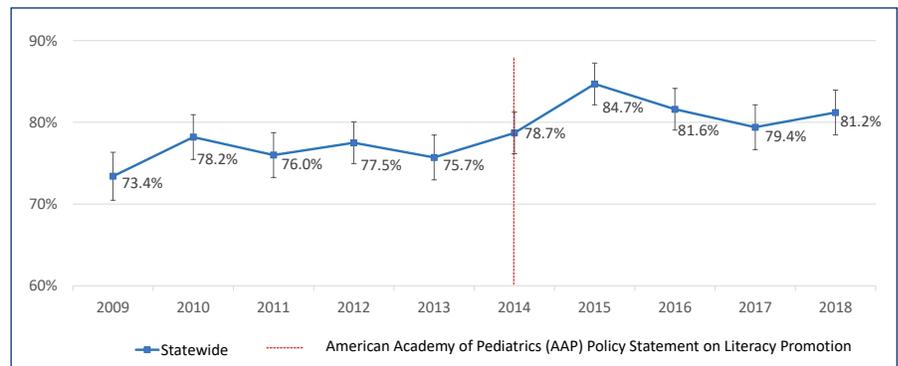


Figure 2. Prevalence of risk behaviors and birth outcomes in families already reading versus those not yet reading with their 2–6 month olds, Rhode Island women who delivered a live birth, RI PRAMS, 2016–2018 combined

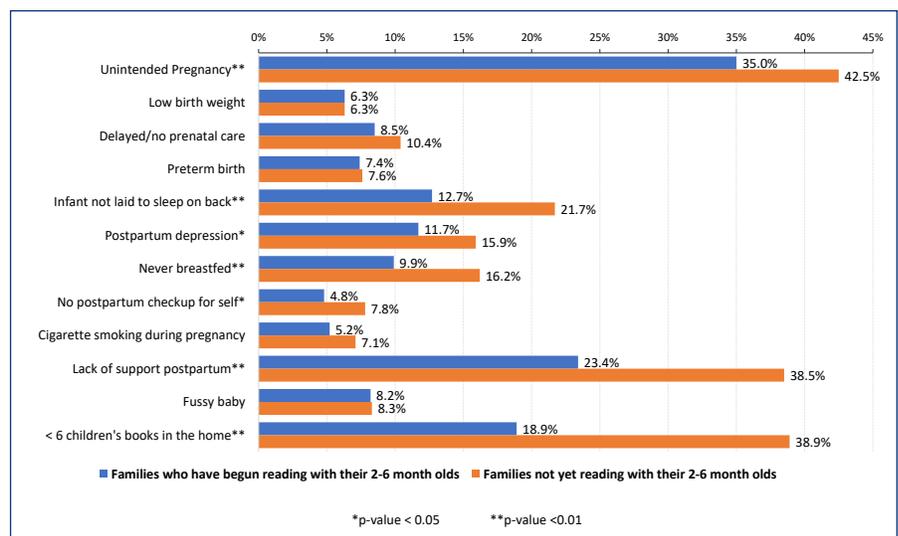


Table 1. Prevalence of families having begun to read with their infants 2–6 month olds by socio-demographic characteristics, Rhode Island women who delivered a live birth, RI PRAMS, 2016–2018 combined

	n ^a	Percent ^b	95% CI ^c	P-Value
Statewide	2,592	80.7	79.2–82.3	
Age				0.0069
< 20 yrs	91	69.7	60.6–78.8	
20 - 29 yrs	1,037	79.7	77.3–82.2	
≥ 30 yrs	1,464	82.4	80.5–84.4	
Race/Ethnicity				<.0001
White, Non-Hispanic	1,470	84.3	82.4–86.2	
Black, Non-Hispanic	168	81.0	74.7–87.3	
Hispanic	657	74.6	71.4–77.9	
Other, Non-Hispanic	276	77.5	72.5–82.4	
Education, years				<.0001
<12	218	69.5	63.6–75.5	
12	456	73.3	69.3–77.2	
> 12	1,736	84.6	82.9–86.3	
Marital status				0.0677
Married	1,572	82.1	80.3–84.0	
Unmarried	1,007	79.1	76.5–81.6	
Annual household income				<.0001
≤ \$24,000	753	75.6	72.6–78.7	
\$24,001 - \$32,000	203	76.7	71.0–82.5	
\$32,001 - \$57,000	341	79.9	75.7–84.1	
\$57,001+	1142	86.1	84.0–88.1	
Insurance coverage postpartum				<.0001
Medicaid	847	77.3	74.4–80.2	
Private Insurance	1,466	84.8	83.0–86.7	
Uninsured	95	66.3	57.8–74.9	
WIC program participation				<.0001
No	1,573	84.6	82.8–86.5	
Yes	1,003	75.5	72.9–78.2	
Maternal disability				0.1876
No	2,393	81.1	79.5–82.7	
Yes	190	76.7	70.3–83.1	
Infant gender				0.9029
Male	1,293	80.7	78.5–82.8	
Female	1,299	80.9	78.6–83.1	
Infant age				0.0047
2-3 months	318	76.8	72.3–81.3	
4-6 months	2,045	80.6	78.8–82.3	
>6 months	229	88.9	84.5–93.2	
Birth weight				0.8836
Low Birth Weight (<2500 g)	814	80.6	78.8–82.3	
Normal Birth Weight (≥ 2500 g)	1,778	80.8	79.1–82.4	
Parity				<.0001
1st birth	1,105	85.6	83.4–87.7	
2nd or later	1,457	78.0	75.8–80.0	
Survey language				<.0001
English	2,270	82.5	80.8–84.1	
Spanish	322	70.0	65.3–74.7	
Residence				<.0001
Core	1,031	76.2	73.6–78.8	
Rest of state	1,473	84.2	82.2–86.1	

Notes: a - Unweighted number of respondents who reported having begun to read with their infants; b - Weighted percentage; c - 95% Confidence Interval

never breastfed (16.2%, p-value <0.01), had no postpartum checkup for self (7.8%, p-value <0.05), had no social support postpartum (38.5%, p-value <0.01) and had fewer than 6 children's book in the home (38.9%, p-value <0.01).

DISCUSSION

This study found a high rate of shared-reading initiation among mothers of 2–6 month old infants in Rhode Island, with about 4 in 5 mothers reporting that they are participating in this experience. The lower rate of shared reading we found in more vulnerable populations is consistent with other reports and supports the need to bring this important message with culturally responsive approaches and supports to families with young children in less advantaged circumstances. Each year more than a third of children in the US enter kindergarten with their language and literacy skills 1 to 3 years behind their peers.⁴

Reach Out and Read has taken this on by supporting pediatric providers in offering new children's books and guidance about the importance of reading with young children during their 6-month to 5-year-old health maintenance visits and by focusing first on those families in greatest need. Reach Out and Read RI has recently obtained philanthropic support to begin this intervention in Rhode Island as soon as young families come in pediatric primary care offices. One means of assessing the impact of this work will be by using RI PRAMS data starting in 2020.

This work also found an increase in initiation of shared-reading activities in Rhode Island families with young infants following the 2014 AAP Literacy Policy Statement release. It is reassuring to know that this message is being heard, the needle is moving in the right direction, and yet, there is a great deal of work to be done to assure that all families with young children have the knowledge and the tools (high-quality children's books), resources, and supports to promote healthy early development in their infants.

LIMITATIONS

PRAMS data are based on self-report by the survey respondent, so they may be subject to recall bias or bias towards the socially-desirable answer. In addition, women are sampled 2–6 months after giving birth; however, 9.0% of the surveys included in this analysis were received 7 to 9 months postpartum. Despite these limitations, the PRAMS survey is the best source of data to assess population based shared reading activities in Rhode Island families with young infants.

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