



# Associations between Public Library Use and Reading Aloud among Families with Young Children

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**Objective** To measure public library use in a sample of families with young children and examine associations with reading aloud.

**Study design** We interviewed 200 parents of 6- to 18-month-old children visiting a hospital-based pediatric clinic. We assessed public library card ownership, public library visitation, and awareness of public library programming. We assessed reading aloud using the StimQ READ questionnaire. We used multivariable logistic and linear regression to examine associations while adjusting for sociodemographic characteristics.

**Results** In multivariable analysis, parents who owned a public library card had greater odds of reading aloud daily to their 6- to 18-month-old child (aOR, 2.0; 95% CI, 1.0-3.8) and higher StimQ READ scores ( $\beta = 0.9$ ; 95% CI, 0.2-1.6). Parents who visited a public library once a month or more often had greater odds of reading aloud daily (aOR, 3.4; 95% CI, 1.8-6.7) and higher StimQ READ scores ( $\beta = 1.3$ ; 95% CI, 0.6-2.0). Parents whose 6- to 18-month-old child had ever visited a public library did not have greater odds of reading aloud daily (aOR, 1.4; 95% CI, 0.7-2.9), but did have higher StimQ read scores ( $\beta = 1.2$ ; 95% CI, 0.4-2.0). Parents who felt informed about available public library programs for children had greater odds of reading aloud daily (aOR, 2.5; 95% CI, 1.3-5.1) and higher StimQ READ scores ( $\beta = 1.1$ ; 95% CI, 0.4-1.9).

**Conclusion** In this sample of families with young children, we found positive associations between public library use and reading aloud. (*J Pediatr* 2016;173:221-7).

Children develop literacy skills long before they learn to read and write.<sup>1,2</sup> These skills, collectively referred to as emergent literacy, include interest and enjoyment with books, phonological awareness, letter knowledge, and vocabulary.<sup>3</sup> Emergent literacy begins in infancy and demonstrates robust developmental continuity throughout childhood.<sup>4,5</sup> Differences in emergent literacy may partly explain the gaps in academic achievement that pervade the US educational system.<sup>6-9</sup> Among the most powerful predictors of emergent literacy is reading aloud between parents and children.<sup>10-15</sup> Reading aloud provides rich linguistic, cognitive, and social stimulation for a young child's developing brain.<sup>16-19</sup> The American Academy of Pediatrics (AAP) recommends that parents read aloud daily to their children starting in infancy<sup>20</sup>; however, many children, particularly children living in poverty, are read to infrequently.<sup>21-26</sup> Neuroimaging studies suggest that poverty and deprivation can impair structural brain growth.<sup>27-30</sup> These findings underscore the need to reduce disparities in early child development.

Public libraries may hold unique opportunities for promoting emergent literacy across populations. As community anchor institutions, public libraries provide access to a wide range of information, resources, and programming. In 2011, there were more than 1.5 billion visits to the nearly 9000 US public libraries and their 17 000 associated branches.<sup>31</sup> More than 95% of the US population lives within a public library service area, and library computers are highly used in low-income communities.<sup>31,32</sup> Nearly all public libraries offer programs and activities for children aged 0-4 years.<sup>33</sup> Most parents, particularly low-income parents, view public libraries as important for their children.<sup>34</sup> A 2012 survey conducted by the Pew Research Center found that 73% of parents owned a public library card and 67% visited a public library at least once a month.<sup>34</sup>

To our knowledge, previous research has not evaluated relationships between public library use and emergent literacy. Our objectives were to measure public library use in a sample of families with young children and to examine associations with reading aloud.

## Methods

We interviewed 200 parents of 6- to 18-month-old children visiting a hospital-based pediatric clinic in Boston, Massachusetts. We based the sample size on previous studies of literacy promotion in pediatric clinics.<sup>35-39</sup> We considered parents eligible for interview if: (1) their clinic visit was for routine 6- to 18-month-old

AAP American Academy of Pediatrics  
LSS Library Services Survey  
ROR Reach Out and Read

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well-child care; (2) they lived with their 6- to 18-month-old child at least 5 days per week; and (3) they were verbally fluent in English. We excluded parents of children with special healthcare needs<sup>40</sup> that might influence public library use or reading aloud. We excluded non-English speakers, because study materials were not available in other languages. We obtained informed consent from all participants. The Internal Review Board of Boston Children's Hospital approved the study.

We reviewed the daily clinic schedule of well-child visits to identify potentially eligible parents. We recruited from the examination rooms while parents waited to see the pediatrician. After confirming eligibility, we invited parents to participate in a survey about how families with young children use public libraries. During pilot testing, parents requested to answer questions verbally to maintain physical contact with their children. Thus, we read the survey questions aloud from an iPad and manually entered the parents' responses.

The survey consisted of 47 questions and took approximately 7-10 minutes to complete as a structured interview. We recruited consecutively until reaching our target of 200 parents. During overlapping appointment times for multiple eligible parents, we recruited in alphabetical order of the child's last name. Parents received a children's board book and a calendar of upcoming activities for their local branch of the Boston Public Library. The first author recruited and interviewed all parents between June 18 and August 15, 2014.

### Assessment of Public Library Use

We used structured interview questions adapted from the Pew Research Center's Library Services Survey (LSS)<sup>34,41</sup> to assess: (1) whether the parent owned a public library card; (2) how often the parent visited a public library; (3) whether the accompanying 6- to 18-month-old child had ever visited a public library; and (4) whether the parent felt informed about available public library programs for children. We pilot-tested the questions with 15 parents to ensure clarity and feasibility. We assessed whether the parent owned a public library card with the question: "Do you own a public library card?" (yes/no). We assessed how often the parent visited a public library with the questions: "Have you visited a public library in person during the last 12 months?" (yes/no), and (if yes) "How often do you visit?" ("once a week or more often," "a few times a month," "once a month," "a few times a year," "once a year," or "less often"). We assessed whether the accompanying 6- to 18-month-old child had ever visited a public library with the question: "Has this baby ever visited a public library, or is he/she too young for that?" (yes, has visited/no, never visited or too young). We included the phrase "too young for that" to reduce social desirability bias.

We assessed whether the parent felt informed about available public library programs for children with the question: "Regardless of whether your children have participated in them, how informed are you about programs and activities available for children at the public library?" ("very informed," "moderately informed," "slightly informed," or

"not informed at all"). We considered parents informed if they reported feeling moderately or very informed, and uninformed if they reported feeling slightly informed or not at all informed.

### Assessment of Reading Aloud

We assessed reading aloud using the StimQ READ, a structured interview questionnaire that evaluates the number and diversity of books read to the child, the frequency of reading activities, and associated interactions.<sup>42</sup> There are separate infant and toddler versions of the StimQ READ that account for age-related differences in reading activities. Parents of 6- to 12-month-old children completed the StimQ READ-Infant, which includes such questions as: "Do you read books to your child especially made for infants that teach about activities of an infant's day such as mealtime, bathtime, bedtime, etc?" (yes/no). Parents of 13- to 18-month-old children completed the StimQ READ-Toddler, which includes such questions as: "Do you tell or read a bedtime story to your child, or does the baby go to sleep before you can do that?" (yes/no). Both versions of the StimQ READ assess the frequency of reading aloud with the question: "How many days a week do you read children's books to your child?" We calculated StimQ READ scores by summing the assigned point values for each question. The StimQ READ-Infant is scored on a scale of 0-19, and the StimQ READ-Toddler is scored on a scale of 0-18. In both versions, higher scores indicate more reading aloud and a more enriched home literacy environment. The StimQ READ has been validated in low-income populations and used in several previous studies on early child development.<sup>35,43-47</sup>

### Assessment of Sociodemographic Characteristics

We included questions on parent age, sex, race/ethnicity, education, single-parent status, and number of children living at home.

### Statistical Analyses

We summarized categorical variables using frequency and percentage, and continuous variables using mean and SD. We dichotomized measures of public library use as: (1) parent owns a public library card vs does not own; (2) parent visits a public library once a month or more often vs less often; (3) 6- to 18-month-old has ever visited a public library vs never visited; and (4) parent feels informed about available public library programs for children vs uninformed. We used multivariable logistic regression to examine associations among measures of public library use, and between measures of public library use and reading aloud (daily vs less often), while adjusting for sociodemographic characteristics. We measured the strength of associations using aORs with 95% CIs. We used multivariable linear regression to examine associations between measures of public library use and StimQ READ score, while adjusting for sociodemographic characteristics and StimQ READ version (Infant vs Toddler). We measured the strength of associations using  $\beta$  effect estimation with 95% CI. We used JMP version 11.0 (SAS Institute,

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