Factors Associated With Increased Reading Frequency in Children Exposed to Reach Out and Read

Sharon Rikin, MD; Kevin Glatt, BA; Pippa Simpson, PhD; Yumei Cao, PhD; Ogugua Anene-Maidoh, MD, PhD; Earnestine Willis, MD, MPH

From the Medical College of Wisconsin, Milwaukee, Wisc
The authors declare that they have no conflict of interest.
Address correspondence to Earnestine Willis, MD, MPH, Department of Pediatrics, Center for the Advancement of Underserved Children, Medical College of Wisconsin, 8701 Watertown Plank Rd, Milwaukee, WI 53226 (e-mail: ewillis@mcw.edu).
Received for publication March 3, 2015; accepted August 22, 2015.

ABSTRACT

OBJECTIVE: A 2014 American Academy of Pediatrics Policy Statement on Literacy Promotion recommends providers endorse daily caregiver–child reading during health supervision visits. Reach Out and Read (ROR) is a widely used model of office-based early literacy promotion. We hypothesized that exposure to ROR and other variables such as reading as part of a bedtime routine positively correlate with caregiver–child reading frequency.

METHODS: This is a cross-sectional study based on a convenience sample of caregivers at 8 ROR-Milwaukee sites, which serve predominantly low-income populations in Milwaukee. On the basis of results of previously validated questionnaires, odds ratios were calculated to determine which variables are significantly associated with caregivers' reading to children 0 to 2 (rarely), 3 to 6 (often), and 7 (daily) days per week. Random forest analysis was performed to examine relative importance of variables in predicting caregivers' reading frequency.

RESULTS: A total of 256 caregivers were eligible for analysis; those who reported receiving ≥4 books from pediatricians read to children more days per week compared to those receiving fewer books (5.07 vs 3.61, $P < .001$) and were more likely to read daily (odds ratio 3.07, 95% confidence interval 1.80–5.23). Caregivers' interest in reading, number of children's books in the home, reading as part of a bedtime routine, and number of books received from pediatricians were among the most important variables in distinguishing rarely, often, and daily reading caregivers.

CONCLUSIONS: Exposure to ROR-Milwaukee's intervention is associated with increased reading frequency. Identified variables such as reading as a bedtime routine and number of children's books in the home should be targets for future literacy-promoting interventions.

KEYWORDS: literacy; pediatrics; primary care

ACADEMIC PEDIATRICS 2015;15:651–657

WHAT'S NEW

This multisite study supports previous data demonstrating increased reported caregiver–child reading frequency in families participating in Reach Out and Read. Uniquely, it also identifies the interplay of multiple variables which predict reading frequency which may be targets for literacy-promoting interventions in the primary care setting.

THE COGNITIVE, SOCIAL, and emotional development of children is influenced strongly by the frequency with which their caregivers read to them in early life.[1–5] Impoverished, single-parent, black, and Latino families have lower frequencies of caregiver–child reading,[6] leading to disparities in language development, vocabulary, and reading comprehension of children by the time of school entry.[7] Reach Out and Read (ROR), a widely used model in pediatric office-based literacy promotion, has repeatedly demonstrated an ability to combat disparities in child development by increasing both reading frequency and child language development in disadvantaged groups.[8–12] This study seeks to examine the relative importance of ROR and other factors which may influence caregivers' reading frequencies and thus the development of early childhood literacy.

Reading may stimulate cognitive development more than other forms of caregiver–child interaction as reading contains a higher frequency of characteristics that are positive predictors of language development than toy play, mealtime, or dressing.[13] Caregivers' reading aloud to children from an early age has also been associated with improved development of preschool language skills and interest in reading.[14] Studies have demonstrated that shared reading as early as 6 months is associated with improved language development at 2 years and subsequent reading activities.[1,2] Additionally, research has shown that frequent book sharing (with more than 3 times per week considered high frequency in studies performed by the US Department of Education, developmental pediatricians, and other literacy researchers)

correlates positively with emergent literacy skills in children.[12,15,16] This suggests that increasing the frequency to daily could improve developmental outcomes. The American Academy of Pediatrics endorses daily reading as a tool to prepare children for school.[17]

ROR is a national organization that attempts to reduce early reading disparities and improve the quantity and quality of caregivers' reading to children by promoting early literacy during health supervision visits.[18,19] Medical providers distribute books to caregivers during health supervision visits from age 6 months to 5 years, give age-appropriate literary guidance on how the children will likely interact with the book, and model developmentally appropriate reading. By the time a child is 5 years old, he or she will have a library of about 10 books from the ROR program. A large body of peer-reviewed research suggests that the ROR intervention increases the frequency of parents reading to children,[9,11] enhances children's receptive and expressive language capacity,[9–11] and increases caregiver interest in reading.[12] These findings are cited in a 2014 American Academy of Pediatrics Policy Statement on Literacy Promotion, which calls for literacy promotion during health supervision visits from birth to 5 years of age, and which recommends pediatricians promote daily reading to families in addition to providing a developmentally appropriate book.[20] Since its inception in 1991, ROR has spread to over 5000 clinics in the United States, distributing books to over 4 million children.[18]

This study adds to the existing literature, which suggests that ROR enhances early childhood literacy. Figure 1 represents a conceptual model of the development of early childhood literacy. This model highlights the many interrelated factors and potential confounders that may influence literacy development. Previous studies have examined how literacy-promoting interventions improve caregiver reading frequency and enhance literacy development.[1–3,8–12] Additionally, other studies have investigated how caregiver literacy-oriented beliefs influence reading habits.[21,22] However, the complex interaction among pediatrician-delivered interventions, caregiver characteristics, caregiver attitudes, and caregiver practices in relation to reading frequency has not yet been explored.

We hypothesized that exposure to the ROR-Milwaukee (ROR-M) intervention would positively correlate with shared reading frequency. We also sought to understand the relative importance of variables such as caregiver characteristics, attitudes, and practices in predicting reading frequency in families seeking routine health care at ROR-M sites.

METHODS

STUDY DESIGN AND SETTING

This is a multisite cross-sectional study based on caregivers' report. After approval by the Medical College of Wisconsin's institutional review board, the study took place from September 2013 to May 2014 in Milwaukee, Wisconsin, at the 8 ROR-M sites serving a predominantly low-income population in the central city. During 2014, there were 13,648 annual well-child encounters for children 0 to 5 years old across the 8 sites. Insurance coverage for patients was predominantly Medicaid (91.97%), private or health maintenance organization non-Medicaid (4.69%), or self-pay/uninsured 1.58%.

PARTICIPANTS

Convenience samples of families presenting for routine health care at each site were given the opportunity to enroll onto this study. Eligible study subjects were caregivers with children between the ages of 6 to 59 months. If 2 caregivers for a child were present, the first to volunteer completed the survey. If the child's caregiver was under 18 years old, the survey was not administered. If 2 children in the same family within the age range of the study presented at the same time, only the first child referenced by the caregiver was enrolled. Children with birth weight <2500 g or severe neurodevelopmental disability were excluded. No incentives were given for participation.

VARIABLES AND DATA SOURCES

A 25-item questionnaire (available in English and Spanish) was adapted from the Before-and-After-Books and Reading survey,[23] designed in 1998 by members of

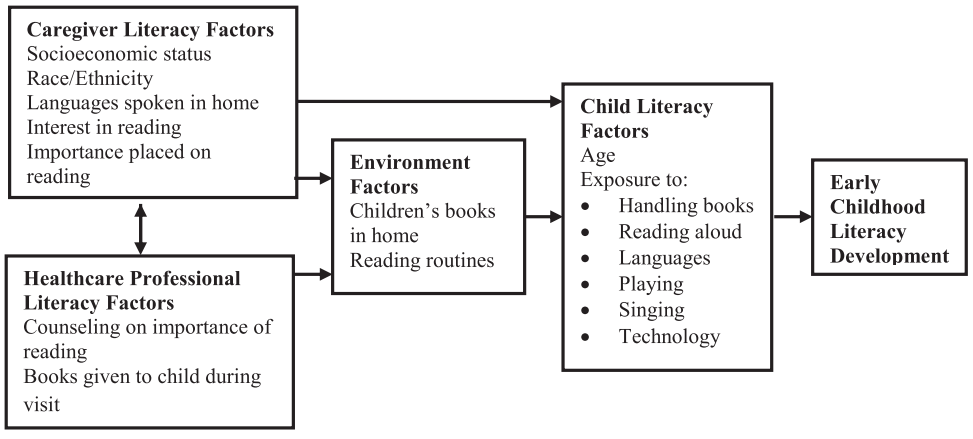

Figure 1. *Model of mediators in early childhood literacy development.*

the Academic Pediatric Association Special Interest Group for Literacy Promotion in Primary Care and from the StimQ READ subscale, which assesses home literacy environment.[24] The survey assessed 1) demographic characteristics of caregivers and children; 2) exposure to ROR-M intervention as measured by number of children's books received from pediatricians and age of child when a book was first received from a pediatrician; 3) caregivers' literacy-related attitudes and behaviors, such as caregivers' interest in reading, how caregivers prepared the child for bed, and the reported number of children's books in the household; and 4) frequency of reading as days per week.

Study Size

Study participants were recruited to have an even distribution across the 6 larger clinical sites, which have incorporated the ROR model into their clinical practice from 4 to 14 years. A proportionally smaller sample was recruited between the 2 smallest clinical sites, which have been partnering with ROR for less than 2 years.

Statistical Methods

The frequency that caregivers read to children (shared reading) was selected as the outcome variable. Previous studies have conducted analysis of shared reading frequency as a continuous variable, sometimes as a di- or trichotomized variable with such split points as ≥3 days per week or ≥6 days per week,[12,16] and others have used a combination of literacy-oriented behaviors to create a reading frequency score.[21,22,25] We chose to split reading time into 0 to 2 days per week (rarely), 3 to 6 days per week (often), and 7 days per week (daily) reading in order to risk stratify the study population. By understanding potentially distinct predictive variables between the groups, providers can target interventions on the basis of their patients' unique risk factors for primary prevention of low literacy. To consider possible correlates we used multivariable analysis. For all multivariable analyses the following 19 variables were included.

Caregiver Literacy Factors

Relation of caregiver to child, caregiver's education, caregiver reads for pleasure, caregiver has library card, ethnicity, caregiver's interest in reading to child, reading listed as a top 3 favorite activity to do with child, caregiver associates reading with child's success in school.

Health Care Professional Literacy Factors

Number of books received from health care professional, age book first received from health care professional, number of clinic visits in last year.

Environment Factors

Number of children's books in home, reading to child at night, English spoken at home, Spanish spoken at home, spoken, home language other than English or Spanish, more than 1 language spoken in the home.

Child Literacy Factors

Child's gender, child's age.

Crude odds ratios and confidence intervals were calculated in SPSS 21 (IBM, Armonk, NY). Although logistic regression is often used to investigate the relationship of variables with a binary outcome, when the interrelationship of variables is complex, a logistic regression can miss important relationships. As a result of the highly interdependent relationship between many variables of interest and the fact that these variables were assessed via Likert scale, the nonparametric method of classification and regression trees (CART) was used for analysis.[26] CART selects the most important predictors from a large number of variables allowing for any number of interactions to explain the outcome. It builds classification trees to predict categorical outcomes. At each stage, all of the variables are examined for the best split. In the current analysis, we used often versus rarely reading, daily versus often reading, and daily versus rarely reading as the outcomes. The options were 15 and 5 or the minimum number of cases in the parent node and in the terminal node, respectively; the optimization method was Gini; 10% leave-out samples were used for cross-validation each time for 10 test runs. CART was performed using CART software (Salford Systems, San Diego, Calif).

Random Forest (RF) Analysis

RF, a collection of CART, was used to examine the relative importance of variables in predicting caregiver–child reading frequency. RF can determine the relative importance of interrelated variables in predicting an outcome. It does so by overcoming low prediction accuracy and high variance that normally limit classification and regression trees. In RF analysis, hundreds of trees are constructed on a different random subsample of data. A random sample of potential predictors at each node is then selected for splitting at any node. The remaining data, the Out of Bag samples, are used to examine the performance of each tree. We used 500 trees with the number of predictors considered for each node approximately the square root of the number of potential predictors; parent node minimum cases was 2. The variable importance is assessed using standard method (a variable in each tree is tested by scrambling its values and measuring how much decline in model accuracy). The target variables are often versus rarely reading, daily versus often reading, and daily versus rarely reading. RF was performed by the SPM Salford Predictive Modeler software suite Random Forests (Salford Systems, San Diego, Calif).

Results

Participants

A total of 353 caregivers were enrolled onto the study, representing 400 individual children. Of the 400 questionnaires completed, 256 met the eligibility criteria and were included in the study analysis (Figure 2). The majority of caregivers identified as black (68.0%) or Latino (27.7%),

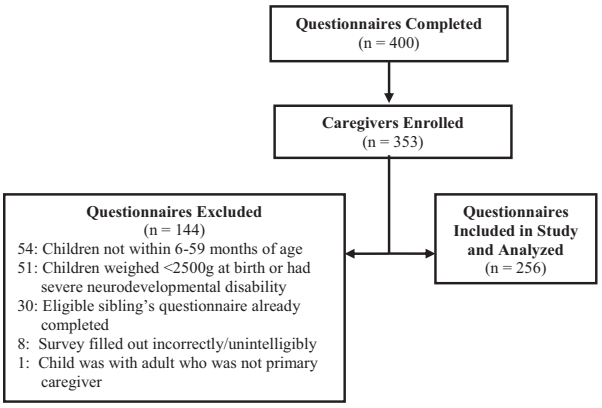

Figure 2. *Study flowchart.*

most spoke English (85.5%) and/or Spanish (32.0%), and the majority had completed high school (72.9%). The children's ages ranged from 6 to 59 months, with similar distribution across different age groups (Table 1).

In general, caregivers expressed positive literacy-oriented attitudes (Table 2), such as reading for personal pleasure (78.8%), having a library card (62.7%), and interest in reading to child (82.0%). Fewer caregivers identified reading as a favorite thing to do with their child (49.2%), to read as a bedtime routine (27.6%), or to view reading as important for school preparation (50.6%).

Most children were seen for a well-child visit within the previous year (86.7%). About a third (33.6%) of caregivers reported having never received a book from a pediatrician, with 28.1% having received 1 to 3 books and 38.3% having received ≥4 books. Of those who received books, 75% received a number of books for age consistent with the pediatric periodicity schedule (ie, a book at well-child checks at 6 months, 9 months, and 12 months).

Table 1. Characteristics of Study Participants

Characteristic	%	n
Caregiver education		
Did not complete high school	27.1	69
Completed high school or GED	38.8	99
At least some college	34.1	87
Missing		1
Languages spoken at home*		
English	85.5	219
Spanish	32.0	82
Other	3.9	10
Race/ethnicity		
Asian	1.6	4
Black	68.0	174
Latino	27.7	71
Other	0.4	1
White	2.3	6
Relation to child		
Father	8.6	22
Mother	88.7	227
Other	2.7	7
Child's age		
6–11 mo	14.8	38
12–23 mo	26.2	67
24–35 mo	22.7	58
36–47 mo	15.2	39
48–71 mo	21.1	54
Child's gender		
Male	52.7	135
Female	47.3	121

*Caregivers could indicate speaking >1 language at home.

Table 2. Caregiver Literacy-Oriented Attitudes and Behaviors

Characteristic	%	n
Caregiver reads for pleasure	78.8	201
Caregiver has library card	62.7	160
Interest in reading to child		
Always or often interested	82.0	210
Sometimes interested	13.7	35
Rarely or never interested	4.3	11
Reading is one of favorite 3 things to do with child	49.2	126
What caregiver does to help child prepare for sleep at night		
Reading mentioned	27.6	70
Reading not mentioned	72.4	184
What caregiver thinks will help child be successful in 1st grade		
Reading mentioned	50.6	129
Reading not mentioned	49.4	126
No. of children's books at home		
0–4	16.5	39
5–9	19.0	45
10–19	22.9	54
20–39	22.5	53
≥40	19.1	45

MAIN RESULTS

Frequency of reported caregiver–child reading ranged from 0 to 7 days per week, with 0 to 6 days following a normal bell curve distribution and daily reading being a positive outlier. Slightly less than a third (31.4%) of caregivers reported reading to children rarely, about a third (32.6%) read often, and over a third (36.0%) read daily. Caregivers receiving ≥4 books from pediatricians had a higher frequency of reading to children than caregivers receiving 0 to 3 books (5.07 vs 3.61, $P < .001$) and were more likely to read daily to children (odds ratio 3.07; 95% confidence interval 1.80–5.23) (Figure 3). Specifically, 52% of caregivers receiving ≥4 books from pediatricians reported daily reading compared to 28.2% of caregivers receiving 1 to 3 books and 24.4% of caregivers

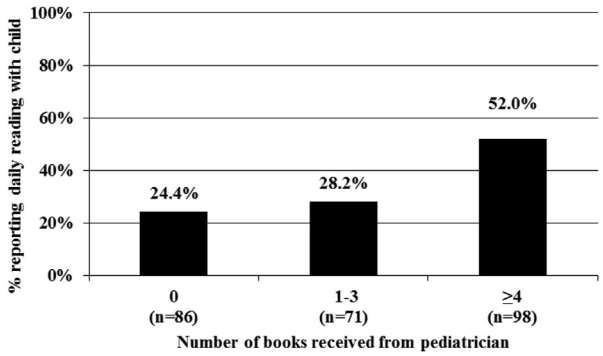

Figure 3. *Relationship between number of books from pediatricians and caregivers reading daily to children.*

receiving no books. Caregivers receiving 1 to 3 books from pediatricians and caregivers receiving 0 books had similar frequencies of reading to children (3.83 days/week vs 3.42, $P = .243$) and were similarly likely to read daily to children (odds ratio 1.21; 95% confidence interval 0.60–2.48).

CART and RF analyses were performed for often versus rarely reading, daily versus often reading, and daily versus rarely reading. Figure 4 shows a CART analysis for daily versus often reading. Of the 19 variables sampled for RF analysis, 6 variables were identified as important for all 3 outcomes with increased reading frequency (Table 3).

Odds ratios were also calculated for comparison of variables between often versus rarely reading, daily versus often reading, and daily versus rarely reading. Positive associates are reported in Table 4. Caregivers who reported reading to children often were more likely than rarely reading caregivers to report reading to children as part of a bedtime routine; to be always or often interested in reading to children; and to list reading as a top 3 favorite activity to do with their child. Caregivers who reported reading to children daily were more likely than often-reading caregivers to report having ≥40 children's books at home for that child; to be always interested in reading to their child; and to have at least a high school education. Caregivers who reported reading to children daily were more likely than rarely reading caregivers to report reading to children as part of a bedtime routine; to be always interested in reading to their child; and to list reading as a top 3 favorite activity to do with their child.

DISCUSSION

In a multisite study of ROR, we demonstrated that receiving books from pediatricians is one of the most important variables that distinguish families with frequent shared reading (>3 days per week) from those with less frequent shared reading. Additionally, our analysis showed ROR has a dose-dependent effect, with caregivers receiving ≥4 books from ROR reading more frequently to children. This supports the findings of previous ROR studies, which demonstrated increased reading frequency in families participating in

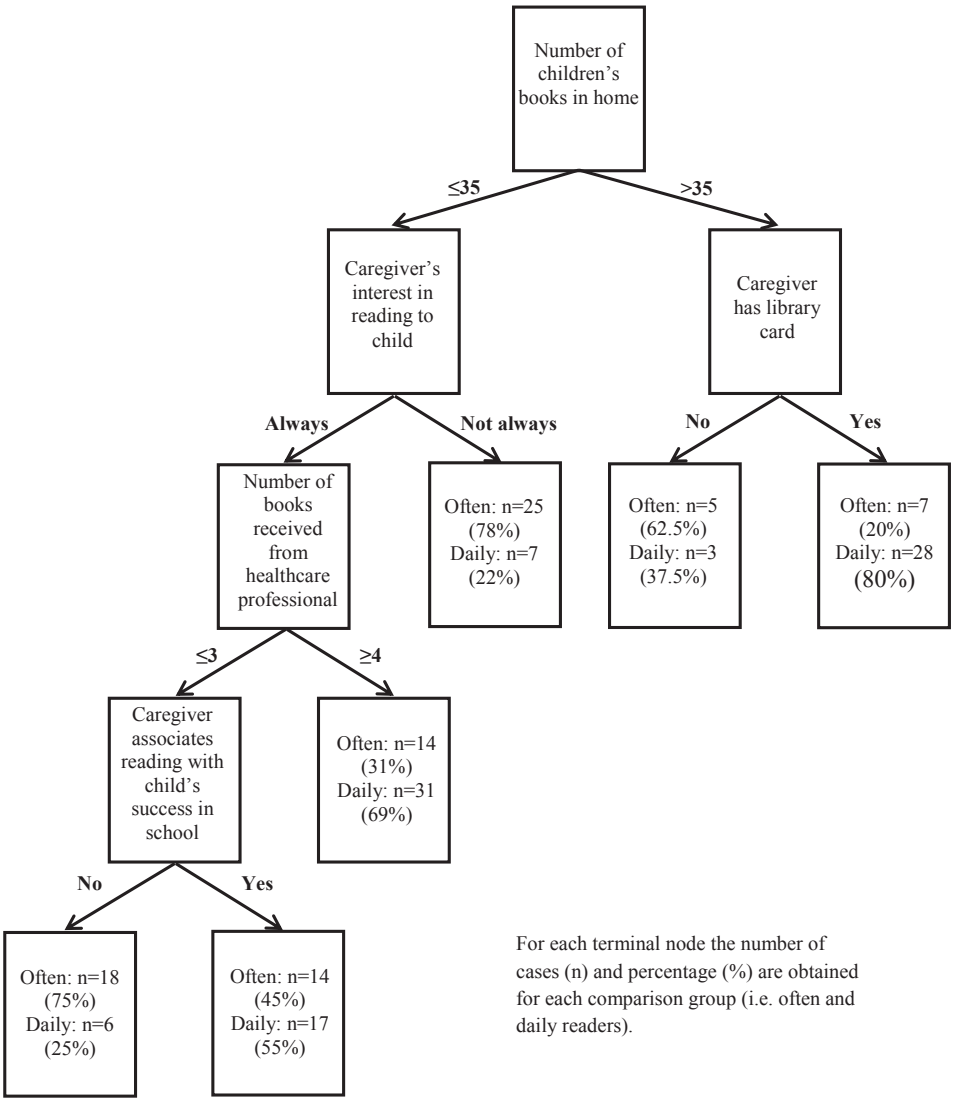

Figure 4. *Results of CART analysis for daily versus often reading.*

Table 3. Top-Ranked Variables Identified by Random Forest Analysis for Increased Reading Frequencies (Often Versus Rarely Reading, Daily Versus Often Reading, and Daily Versus Rarely Reading)

- Number of children's books in home.
- Caregiver interest in reading to child.
- Caregiver's education attainment.
- Reading to children as a bedtime routine.
- Number of books received from pediatrician.
- Caregiver associates reading with preparation for school success.

ROR.[9,11,12,20,23,27] Importantly, research has shown that caregiver reading frequency correlates positively with emergent literacy, academic, and social skills in children.[5–7,12] Thus, by affecting the variables which predict increased reading, ROR can be a powerful tool to improve early childhood literacy and address the social determinants of health.[19]

Reading as a part of a bedtime routine was associated with increased reading frequency. However, this ritual was reported by less than a third (27.6%) of participants. The American Academy of Pediatrics technical report *School Readiness* promotes routine reading in early education, including "reading together as a daily fun family activity" and "routines and regular times for meals, play, and sleeping, which help children know what they can expect and what is expected from them."[17] In a 2000 study of the ROR intervention, the providers recommended to caregivers that bedtime is a particularly good time to read with their children.[10] Part of the intervention's success was attributed to this anticipatory guidance, which may have facilitated reading by providing structure and routine.[11] Anticipatory guidance and caregiver coaching have been shown to be associated with caregiver behaviors in the areas of injury prevention, sleep promotion, and reading behaviors.[28–30] Future studies should explore how targeted anticipatory guidance toward reading as a bedtime routine influences caregiver reading behaviors.

Table 4. Variables Associated With Caregivers' Increased Shared Reading

Characteristic	Odds Ratio	95% Confidence Interval
Positive associations for often vs rarely		
Reading to child at night	7.52	2.47–22.73
Always or often interested in reading to child	6.25	2.66–14.71
Reading is top 3 favorite activity to do with child	4.72	2.39–9.34
More than high school education	4.57	2.12–9.89
≥10 children's books at home	3.51	1.77–6.94
Receiving ≥4 books from pediatrician	2.10	1.04–4.22
Positive associations for daily vs often		
Having ≥40 children's books at home	3.51	1.62–7.59
Always interested in reading to child	3.27	1.56–6.85
High school education or more	2.37	1.09–5.17
Speaks ≥1 language at home	2.24	1.06–4.70
Reading to child at night	2.21	1.18–4.17
Receiving ≥4 books from pediatrician	2.20	1.20–4.04
Positive associations for daily vs rarely		
Reading to child at night	16.67	5.62–50.00
Always interested in reading to child	11.24	5.35–23.81
Reading is top 3 favorite activity to do with child	6.46	3.28–12.72
≥5 children's books at home	6.38	2.40–16.95
High school education or more	5.12	2.42–10.85
Receiving ≥4 books from pediatrician	4.61	2.35–9.06
Speaks English at home	3.53	1.39–8.96
Receiving ≥1 book from pediatrician	3.06	1.59–5.88
Has library card	2.91	1.53–5.52
Child ≥12 months old	2.83	1.15–6.98
African American ethnicity (compared to Latino)	2.45	1.21–4.95
Associates reading with child's success in school	2.40	1.30–4.44
Speaks ≥1 language at home	2.14	1.02–4.51

Caregiver attitudes and beliefs were predictive of increased reading frequency in the RF analysis and were likewise correlated with increased reading frequency in odds ratio analyses. However, the absolute number of caregivers who reported reading as a favorite activity to do with their child and reading as essential for success in school was remarkably low. Maternal attitudes and resources related to shared reading have been shown to be important predictors of reading behaviors by 6 months.[31] Celano et al[21] and DeBaryshe[22] also identified literacy-associated beliefs which are associated with increased shared reading frequency. In a home-based study, Weitzman et al[27] observed literary behaviors at home along with the HOME scale. The HOME scale is a standardized measurement of dimensions of the home environment including caregiver's emotional and verbal responsivity to the child, provision of appropriate play material for the child, and opportunities for variety in daily stimulation. They found that in addition to number of ROR encounters and parent education, the HOME score also predicted a child's home literacy profile. These findings highlight the need to support beliefs that may facilitate shared reading, such as the ability to improve a child's success in school.

Our study uniquely uses the RF analysis to identify the most critical variables, which distinguishes caregivers who read daily from those who read often or rarely. Our analysis suggests that variables such as caregiver interest in reading, number of children's books in the home, reading to children at night, and number of books received from pediatricians consistently rank among the most important variables in distinguishing rarely, often, and daily shared reading frequencies. Different orderings of variables in RF and odds ratio analyses suggest that what distinguishes daily from often readers is different than what distinguishes often from rarely readers and daily from rarely readers. For example, routinely reading to children at night was more predictive in distinguishing daily from often readers than it was in distinguishing often from rarely readers. Another example is that caregivers' educational attainment was more important in distinguishing daily from rarely readers than it was in distinguishing daily from often readers. Given these differences, it could be possible that components of the ROR intervention could be tailored to families depending on the baseline reading frequency of the caregivers. For example, caregivers who report rarely reading to children might especially benefit

from a discussion on making reading a part of bedtime routines.

There are several limitations in this study, and one of them is the lack of a true control group, limiting the ability to interpret the relationships between attitudes/behaviors and intervention. The use of convenience samples may lend to selection bias on the part of the interviewers. Another limitation of this study was that the outcome measure and all variables were based on caregivers' reports, which are prone to social desirability bias. Although our conceptual model of early childhood literacy development is extensive, many additional variables, mediators, and confounders also exist. These include a child's enrollment in day care or preschool, number of children in the household, number of caregivers, and exposures to other forms of language.[16,21] Future studies that randomize the different components of the ROR intervention (eg, book delivery, anticipatory guidance, modeling reading) and include more variables from a child's home environment may enhance the existing data.

CONCLUSIONS

This study supports previous data by demonstrating increased caregiver–child reading frequency in families with more exposure to ROR. It also identifies the relative importance of variables in predicting caregiver–child reading frequency, some of which are amenable to intervention in the primary care setting. By risk stratifying the pediatric population into groups such as rarely, often, and daily readers, pediatricians can target interventions to these unique groups. Primary care pediatric providers have critical opportunities to shape caregivers' literacy behaviors through anticipatory guidance such as recommending reading as part of daily rituals such as bedtime routines. By encouraging routine reading and providing books for families at risk for low literacy, pediatric providers can focus or enhance interventions for early childhood literacy.

ACKNOWLEDGMENTS

All phases of this study were supported by the Herzfeld Foundation, WE Energies, and the Davis Family Foundation. The funding sources had no involvement in study design or in data collection, analysis, or interpretation. The principal investigator of this study was Dr Earnestine Willis.

REFERENCES

1. DeBaryshe BD. Joint picture-book reading correlates of early oral language skill. *J Child Lang*. 1993;20:455–461.
2. Tomopoulos S, Dreyer BP, Tamis-LeMonda CS, et al. Books, toys, parents–child interaction and development in young Latino children. *Ambul Pediatr*. 2006;6:72–80.
3. Rosenkoetter S, Barton LR. Bridges to literacy: early routines that promote later school success. *Zero Three*. 2002;22:33–38.
4. Serpell R, Sonneschein S, Baker S, et al. Intimate cultures of families in the early socialization of literacy. *J Fam Psychol*. 2002;16:391–405.
5. Spagnola M, Fiese BH. Family routines and rituals: a context for development in the lives of young children. *Infants Young Child*. 2007;20:284–299.
6. West J, Denton K, Germino-Hausken E. *America's Kindergartners: Findings From the Early Childhood Longitudinal Study, Kindergartners Class of 1998–1999*. Washington, DC: National Center for Education Statistics. Available at: http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2000070; 2001. Accessed June 19, 2015.
7. Hart B, Risley TR. The early catastrophe: the 30 million word gap by age 3. *Am Educ*. 2003;4–9.
8. Zuckerman B, Khandekar A. Reach Out and Read: evidence based approach to promoting early child development. *Curr Opin Pediatr*. 2010;22:539–544.
9. Mendelsohn AL, Mogilner LN, Dreyer BP, et al. The impact of a clinic-based literacy intervention on language development in inner-city preschool children. *Pediatrics*. 2001;107:130–134.
10. High PC, LaGasse L, Becker S, et al. Literacy promotion in primary care pediatrics: can we make a difference? *Pediatrics*. 2000;105(4 Pt 2):927–934.
11. Theriot JA, Franco SM, Sisson BA, et al. The impact of early literacy guidance on language skills of 3-year-olds. *Clin Pediatr*. 2003;42:165–172.
12. Golova N, Alario AJ, Vivier PM, et al. Literacy promotion for Hispanic families in a primary care setting: a randomized, controlled trial. *Pediatrics*. 1999;103:993–997.
13. Hoff-Ginsberg E. Mother–child conversation in different social classes and communicative settings. *Child Dev*. 1991;62:782–796.
14. Payne AC, Whitehurst GJ, Angell AL. The role of the home literacy environment in the development of language ability in preschool children from low-income families. *Early Child Res Q*. 1994;9:427–440.
15. Donahue PL, Voelkl KE, Campbell JR, et al. *The NAEP 1998 Reading Report Card for the Nation and the States*. Washington, DC: US Dept of Education, Office of Educational Research and Improvement, National Center for Education Statistics; Publication NCES; 1999. 1999–500.
16. Sanders LM, Gershon TD, Huffman LC, et al. Prescribing books for immigrant children: a pilot study to promote emergent literacy among the children of Hispanic immigrants. *Arch Pediatr Adolesc Med*. 2000;154:771–777.
17. High PC. School readiness. *Pediatrics*. 2008;121:e1008–e1015.
18. Reach Out and Read. About Reach Out and Read. Available at: http://www.reachoutandread.org/about-us/. Accessed June 19, 2015.
19. Zuckerman B. Growing up poor: a pediatric response. *Acad Pediatr*. 2014;14:431–435.
20. Council on Early ChildhoodHigh PC, Klass P. Literacy promotion: an essential component of primary care pediatric practice. *Pediatrics*. 2014;134:404–409.
21. Celano M, Hazzard A, McFadden-Garden T, et al. Promoting emergent literacy in a pediatric clinic: predictors of parent–child reading. *Child Health Care*. 1998;27:171–183.
22. DeBaryshe B. Maternal belief systems: linchpin in the home reading process. *J Appl Dev Psychol*. 1995;16:1–20.
23. Needlman R, Toker KH, Dreyer BP, et al. Effectiveness of a primary care intervention to support reading aloud: a multicenter evaluation (the BABAR study). *Ambul Pediatr*. 2005;5:209–215.
24. Dreyer BP, Mendelsohn AL, Tamis-LeMonda CS. Assessing the child's cognitive home environment through parental report: reliability and validity. *Early Dev Parenting*. 1996;5:271–287.
25. Needlman R, Fried L, Morley D, et al. Clinic-based intervention to promote literacy: a pilot study. *Am J Dis Child*. 1991;145:881–884.
26. Breiman L, Friedman J, Stone CJ, et al. *Classification and Regression Trees*. Boca Raton, FL: Chapman & Hall/CRC; 1984.
27. Weitzman CC, Roy L, Walls T, et al. More evidence for Reach Out and Read: a home-based study. *Pediatrics*. 2004;113:1248–1253.
28. Adair R, Zuckerman B, Bauchner H, et al. Reducing night-waking in infancy: a primary care intervention. *Pediatrics*. 1992;89:585–588.
29. Dales PS, Bates E, Reznick JS, et al. The validity of a parent report instrument of child language at twenty months. *J Child Lang*. 1989;16:239–249.
30. Leffel KR, Suskind D. Parent-directed approaches to enrich the early language environments of children living in poverty. *Semin Speech Lang*. 2013;34:267–278.
31. Berkule SB, Dreyer BP, Klass PE, et al. Mothers' expectations for shared reading after delivery: implications for reading activities at 6 months. *Ambul Pediatr*. 2008;8:169–174.