The Value of Book Distribution in a Clinic-Based Literacy Intervention Program

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Summary: The purpose of this study was to determine whether anticipatory guidance at well-child visits (WCV) that included early literacy development and the provision of books by the examining physician changed family literacy practices. It was conducted in an inner-city pediatric clinic that serves as the continuity practice site for pediatric and pediatric/internal medicine residents. There were 352 children (181 treatment: 171 control), aged 2 to 24 months, enrolled in this prospective, controlled study. The health care providers underwent training on literacy and on how to incorporate this information during WCV. Anticipatory guidance on safety, development, and early literacy was given to all parents. Additionally, the treatment group received an age-appropriate book at each WCV. There were 1,263 visits made (686 treatment, 577 control). Questionnaires were completed by parents on physician helpfulness and by physicians on parental receptiveness. Parental ratings on physician helpfulness were higher in the treatment group than in the control group ($p \leq 0.05$). Physician's rating of parental receptiveness was also higher in the treatment group than in the control group ($p \leq 0.05$). Two years after enrollment, mother-child pairs who received guidance and a book were two times more likely to report enjoyment in reading together than the controls who received guidance but no book. We conclude that anticipatory guidance that included early literacy development and distribution of books at WCV resulted in increased family literacy orientation, parental receptiveness, and perception of physician helpfulness. *Clin Pediatr.* 2000;39:535-541

Introduction

In 1982, 23 million adults were reported illiterate in the United States.[1] A 1992 survey by the United States Department of Education's National Center for Education Statistics estimated that 21% of the adult population or more than 40 million Americans over the age of 16 had only rudimentary reading and writing

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skills.[2] Illiteracy is clearly on the increase in the United States.

Reading failure disproportionately affects children from socially disadvantaged homes and contributes to the propagation of the cycle of poverty.[3] The process of learning to read and write begins early in life. Speaking, reading, and writing are interrelated and develop concurrently in young children.[4] Adults play a key role in facilitating early literacy development through demonstration and by encouragement of reading and writing activities with children.

Exposure to children's books is particularly important to the preschool child's emerging literacy.[5-9] Children learn verbal cues through repetition. Reading books provides an opportunity for this type of recurring dialogue.[10] It has been demonstrated that children learn new vocabulary words more easily when both the caregiver and child share a common focus, i.e., books.[6] More importantly, book sharing and reading during the child's early stages of development have been shown to be key factors in later school success.[6,11]

Previous studies emphasized literacy issues in a clinic setting and measured effects on literacy activities in the family.[12-14] In the program, Beginning with Books, 9.4% of families initially surveyed reported that they never read to their children. After its initiation, all children whose families responded to a written survey were read to at least occasionally.[12] Another study demonstrated that parents who received a book were more likely to share the books with their children and to report that looking at books was a favorite activity. They found this association strongest in families receiving Aid to Families with Dependent Children.[13] Recently, High et al[14] reported an increased enjoyment of and participation in literacy activities within the families who received developmentally appropriate educational materials and books and in families where reading was promoted as part of a bedtime ritual. Other reports of literacy programs in a primary care setting reaffirm the positive effects that these programs provide, illustrating the importance and the potential impact they may have.[15-17]

Since pediatricians have repeated contact with children and their parents, many times beginning shortly after birth, they have several opportunities to stress the importance of early literacy practices. The Reach Out and Read (ROAR) program was the first to promote early literacy in a pediatric primary care setting.[18] Using ROAR as our model, the current study was developed. We hypothesized that regular promotion of early literacy augmented by distribution of books would enhance family literacy practices and improve the rapport between physician and parent. This study was conducted to determine whether anticipatory guidance at well child visits (WCV) that included discussion of early literacy development and the provision of books by the examining physician changed family literacy orientation and improved the communication between the physician and the parent.

Methods

This study was conducted in an inner-city pediatric clinic that serves as a continuity practice site for 34 Pediatric and Internal Medicine/Pediatrics combined residents of the University of Louisville. The clinic serves children who are predominantly Medicaid recipients (90%) and African-American (85%).

Following approval by the Institutional Review Board of the University of Louisville, families with children aged 2 to 24 months who came to the clinic for a well child visit were invited to participate. All children were eligible including those identified with syndromes, chromosomal disorders, and mental retardation. After informed consent was obtained from the parent or guardian, demographic data were recorded including race, number of children in the home, parental marital status, and educational level of parents. The control and treatment groups were made up of three cells each, according to age: 2 to 6 months, 7 to 15 months, and 16 to 24 months. Patients were assigned into one of the cells depending on the age at recruitment. A minimum of 50 children was recruited for each cell. Consecutive families were entered alternately to either the treatment group who received anticipatory guidance and an age- and culturally appropriate book or to the control group who received the same anticipatory guidance but no book.

Families of both groups received anticipatory guidance from the physician for 2 years during well child visits at 2, 4, 6, 9, 12, 15, 18, 24, 36, and 48 months of age. Structured age-appropriate encounter forms were used for well child visits. These forms utilized cues to prompt the physician to ask questions on development, safety, and other anticipatory guidance issues as outlined in the American Academy of Pediatrics Guidelines for Health Supervision. Physicians suggested to parents early literacy practices such as reading aloud to their children

at least once a day or to share books by pointing, identifying, describing, or counting the pictures and colors depicted on the pages and to tell stories about them. Physicians also described age-appropriate behaviors that parents could expect during book sharing such as infants putting the book in the mouth, toddlers wanting to hold the book by himself/herself, and toddlers and preschoolers wanting a favorite book read many times.

In the treatment group, physicians were encouraged to read to the infant or child in the examining room, using an age- and culturally appropriate book to visually demonstrate to the mother the responses of their child to this effort. The physicians gave the child the book used for demonstration at the end of the guidance session and recorded in the patient's chart the name of the book and the date it was given.

At the end of each WCV, parents of both groups were asked by the exit triage nurse to complete a brief written questionnaire on how helpful the doctor was during their WCV and whether the physician provided guidance on safety, development, and on how to use a book. A rating scale of 1 (not helpful) to 5 (very helpful) was used. The triage nurse reviewed the questionnaire for completeness and verbally asked the parent for items that were not completed. Also at the end of the visit, the physicians rated the receptiveness of the adult to the information given on a scale of 1 (not receptive) to 5 (very receptive). Physicians were encouraged to write their observations of mother and child during the reading demonstration and after the book was given. The examining physicians were unaware of the parent questionnaire and the parents were unaware of the physicians' evaluation of their receptiveness. A one-tailed student's *t*-test was used to determine the difference between the treatment and control groups.

Before the start of the study, attending faculty, residents, and nursing staff received training on early literacy development through lectures and demonstrations of ways to incorporate this information into the WCV. Incoming interns also received similar training. Sporadically before and during the study period, families in the waiting room observed volunteers modeling book reading/sharing with infants and children. Additionally, a book cabinet filled with used children's books was accessible to both groups as well as to the rest of the clinic population for a very minimal price if they wished to expand their home library.

Two years after entry into the study, parents were asked specific questions on reading, safety, and development by graduate students who had undergone specific training regarding interviewing techniques related to family literacy practices. A structured questionnaire was used to allow comparisons between families (Figure 1). The graduate students interviewed the parents on their beliefs and knowledge about literacy development. They also looked for any evidence of literacy practices in the home. Chi-square analysis was used to assess the data.

Results

Between May and November 1993, 352 families were entered into the study with 181 and 171 in the treatment and control groups, respectively. The participants comprised 30% of the eligible families from the clinic population. None of the families invited refused participation. Mean age at enrollment was identical in both groups (11.8 months treatment, 11.6 months control). On completion of the study, there were 177 children (97 treatment, 80 control) with a mean age of 34.5 months and 32.4 months, respectively. Children were considered lost to follow-up (treatment 84, control 91) when they failed to return for WCV 2 years after enrollment, changed their primary care physician, or moved out of state. Additionally, a minimum of three attempts were made by telephone and home visits to contact each family before designating the family as lost to follow-up. Attrition rate was 46% and 53% for treatment and control groups, respectively.

No differences were noted between the two groups as to race, parental marital status, number of children in the home, or educational level of the parents. Racial prevalence (85% African-American) and socioeconomic level were identical to that of the clinic population. More than 90% of the participants in each group were headed by a single parent, typically the mother, and living at or near poverty level, which was consistent with the total clinic population. The majority of the families (69%) had two or more children living in the home, including 30% who had three or more children. The majority (91%) of the parents in both groups graduated from high school including 2% with high school equivalency. Less than 10% of all parents had education beyond high school.

Attending physicians (four), nurse practitioner (one), and Pediatrics and Med/Ped residents

Begin the visit by asking the mother:

"Would you tell me about the things you and the doctor discussed on your last clinic visit? Can you use these ideas with your little ones?"

From what the mother tells you, answer the two questions below. Ask follow-up questions of the mother as necessary to answer the questions. Additional comments about the visit may be added at the bottom of the page.

1. The information given by the doctor was: *(circle one)*

   very helpful helpful not helpful

2. The information given by the doctor included: *(check all that apply)*

   _____ Safety _____ Normal development of the child

   _____ How to use books with children

   _____ Changes to expect in child's development in the following weeks/months

3. Name three things your child likes to do: _____

4. Do you and your child enjoy reading together? _____

5. Does your child have a favorite book? _____

   Can you name the book? _____

Please add notes in the following areas based on observations during the home visit:

- Presence of literacy materials in the home:
- Evidence of literacy practices:
- Parental beliefs about literacy:
- Parental knowledge and expectations in the area of child development:
- Issues that support or deter literacy development of children and adults in the home:

Figure 1. Home Visit Survey at 2-Year Follow-Up

(34) provided 1,263 anticipatory guidance sessions (686 treatment, 577 control) with the average number of sessions given for each age group shown in Table 1. Participants in both groups who were 12 months old or younger received 74% of the total guidance sessions given.

Ratings by parents on the helpfulness of the physicians during their anticipatory guidance sessions were higher in the treatment group (mean 4.41: SD 0.9) than in the control (mean 4.30: SD 1.6) [$p \leq 0.05$]. The physicians' ratings of the parental receptiveness to the anticipatory guidance sessions were also higher in the treatment (mean 4.08: SD 0.92) than in the control group (mean 3.97: SD 1.05) [$p \leq 0.05$]. Parental report on the content of the guidance sessions showed that in 94% of the sessions, the physician/nurse practitioner (MD/NP) discussed book reading/sharing, 90% normal development, 82% safety, and 77% the changes to expect in their child's development. Samples of physicians' observations of mother and child during the reading demonstration and book distribution are shown in Table 2.

Two years after enrollment, 49% or 173 of 352 families (88 treatment, 85 control) were available for interview. Parents were asked what three activities they enjoyed with their child. We found that 38% of treatment fam-

Table 1

ANTICIPATORY GUIDANCE SESSIONS BY AGE GROUP

Age (Months)	Treatment Group			Control Group		
	No. Enrolled	Maximum No. of Visits	Mean	No. Enrolled	Maximum No. of Visits	Mean
2–3	25	8	5.3	19	8	4.5
4–6	32	7	4.7	32	7	4.6
7–9	21	7	5.1	23	7	4.0
10–12	28	6	3.9	31	6	3.4
13–15	18	5	3.1	14	5	2.6
16–18	22	4	2.2	22	4	2.2
19–21	6	3	2.5	9	3*	2.4
22–24	29	3†	2.2	21	3	1.9

*Two visits/forms completed during sick visit. †One visit/form completed during sick visit.

Table 2

PHYSICIAN OBSERVATIONS OF MOTHER AND CHILD DURING READING DEMONSTRATION AND BOOK DISTRIBUTION

- "Mom reading, pointing to pictures; initially seemed disinterested but as we talked expressed more concern of literacy about her children."
- "Older sibling was actively looking at "Highlights" during visit."
- "Mother . . . allowed child to hold book and bite on it."
- "Older siblings looked at book with child."
- "This mother is very knowledgeable and is very interactive with her child. She was very receptive to new information and asked appropriate questions."
- "Mother read to child while in exam room."
- "Mom is young but is already directly talking to the baby."

ilies and 19% of the controls reported that they enjoyed reading together with their child ($p \leq 0.05$).

Discussion

Our study compared literacy promotion as part of anticipatory guidance during WCV with and without giving books. We found that parents were more receptive when a book was given by the examining physician. This finding suggests that the mere fact of having the book in hand to give to the parent will guarantee that some information will be transmitted. The likelihood that parents will engage their children in literacy activities at home is increased when they are provided with the tool that enables them to be their child's first teacher at an early age. The mother/child pairs in our study who received books were two times more likely to report enjoyment in reading together than those who did not get a book. This is in agreement with the earlier observations of others.[14-16] Whereas our mother/child pairs who received books were only two times more likely to report enjoyment in reading together, the parent/child pairs in the study of Needleman et al[13] were four times more likely to report this activity and three times as likely in the study by Golova et al.[15] The control group in the Needleman study had no exposure to the literacy intervention while both our treatment and control groups as well as the two groups in the study of Golova et

al[15] were exposed to guidance sessions on early literacy. This may account for the difference between the studies in the magnitude of improvement on literacy orientation after receiving a book.

The mother-child pairs who received books and a demonstration of book sharing or reading were more likely to enjoy reading together. Possibly, a book given immediately after the discussions on literacy development reinforced its importance and influenced the choice of subsequent leisure activities of mother and child. We speculate that the book sharing by the physician and reader models and the positive response elicited from the infants and children by this simple activity dramatically demonstrated to the parents the important role of this maneuver in developing early literacy, thus legitimizing it in their minds. It also reinforced book sharing as another avenue to share quality time with their child.

The parents in our study who received anticipatory guidance and a book perceived their physicians as more helpful than the parents who did not get a book. Since both treatment and control groups received the same information and guidance on early literacy, the higher parental ratings of physician helpfulness in the treatment group is likely due to the provision of books. It is also possible that the actual demonstration of book reading/sharing by the physician during the WCV of the treatment group contributed to the perception of the physician as helpful. We speculate that this parental perception may strengthen the relationship and rapport between parent and physician.

Parents in both treatment and control groups recalled 2 years after study entry that their physician talked about book reading and sharing. It appears that anticipatory guidance sessions even without a book left a lasting impression. This suggests that the repetitive nature of the WCV during the first 2 years of life render these parent/physician encounters an effective early avenue for literacy promotion.

Our study was similar to the other published reports.[12-14] All focused on well children from disadvantaged environments. Each had physician involvement for the distribution of books. Although similarities exist, we feel our study was unique in several aspects. The physicians received training on the promotion of early literacy development throughout the study period. This type of training has been shown to have a positive impact on the caregiver's attitude toward literacy development.[19] We began the literacy promotion at a much earlier age, stressing the book-sharing concept as early as 2 months old.

Our findings were very encouraging; however, there were limitations in the study. Assignment of participants to either treatment or control groups on alternate days achieved a representation of the clinic population in each group but the method was not a true randomization. The use of multiple physician participants with varying manner of reading demonstration and presentation of the literacy information may have affected the parent's perception of the usefulness of reading as an important source of early learning. Additionally, the graduate students who did parental interviews 24 months after enrollment were not blinded to the study question and thus potentially may have influenced the content of their report. The most limiting factor in our study was the small number of families available for interview at 24 months after study entry. This factor alone may have contributed to the absence of significant differences between the two groups.

Conclusion

The distribution of age- and culturally appropriate books enhanced the effectiveness of literacy intervention beyond what could be achieved by just anticipatory guidance alone. We further conclude that the gift of a book during well child visits resulted in the increased perception of parental receptiveness and physician helpfulness.

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