Using Baby Books to Increase New Mothers' Safety Practices

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Abstract

Objective: To determine whether educational baby books are an effective method for increasing low-income, first-time mothers' safety practices during their child's first 18 months.

Methods: Primiparous women (n = 167) were randomly assigned to 1 of 3 groups: an educational book group, a noneducational book group, or a no-book group. Home visits and interviews measured safety practices when women were in their third trimester of pregnancy (baseline) and when their children were 2, 4, 6, 9, 12, and 18 months of age.

Results: Women in the educational book group had fewer risks in their homes and exercised more safety practices than the no-book group (– 20% risk reduction; effect size = −.30). When the safety practices involved little time or expense (eg, putting away sharp objects), the educational book group was significantly more likely to engage in these behaviors than the no-book group (40% higher practices; effect size = 0.19) or noneducational book group (27% higher practices; effect size = 0.13). However, no differences were found between groups for behaviors that required high effort in time, money, or hassle (eg, installing latches on cabinets).

Conclusions: Educational baby books appear to be an easy and low-cost way to increase the safety practices of new mothers, especially if the practices involve little to no time, money, or hassle.

Keywords: anticipatory guidance; health promotion; injury prevention; patient education; safety practices

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What's New

This randomized study demonstrates that parent-education intervention via distribution of educational baby books can reduce the number of risks in the home and the observed safety practices by low-income, primiparous mothers.

IN THE UNITED States, after the neonatal period, unintentional injuries are the leading cause of death for infants and toddlers.[1] In an effort to prevent these injuries, the American Academy of Pediatrics (AAP) recommends that pediatricians use doctor visits to educate parents about risks and safety practices.[2–4] Although studies of the effectiveness of using pediatric visits for parent education are promising (eg, increasing knowledge, changing attitudes),[5–7] few explore the impact of parent education efforts on actual parenting safety practices.[8–10]

In order to test whether increasing knowledge about injury prevention and health promotion results in safer environments for infants and toddlers, the NICHD-funded Baby Books project embedded anticipatory guidance material from the *Bright Futures Guidelines for Health Supervision*[4] into baby books that were given to low-income, primiparous women to read to their infants. Previous work has found these books to be effective for increasing new mothers' knowledge of injury prevention and health promotion.[11] Here, we explore whether increased knowledge results in better safety practices. Through in-home interviews and observations, safety practices (eg, use of safety devices, removing small objects) were assessed during pregnancy and when children were 2, 4, 6, 9, 12, and 18 months of age.

Methods

Primiparous women (n = 198) in their third trimester of pregnancy were recruited from the waiting room of obstetric resident continuity clinics in an urban area in the South and enrolled in the Baby Books project, a study of the effectiveness of embedding educational information into baby books to increase maternal knowledge of safety practices and typical child development. Because this is a text-based intervention requiring a first-grade reading ability, all potentially eligible women were asked to complete a brief (<4 minute) reading assessment, created for the project, that involved 2 short stanzas and 4 comprehension questions (eg, Stanza: "Near a tree, was a little frog, who jumped across the creek and onto a log." Question: "What did the frog jump onto?"). Only those who answered all questions correctly were eligible for participation. From the pool of enrolled participants, 167 gave birth to live infants and participated in post random assignment data collection; 145 remained in the study until their child was 18 months.

Participants included ethnically diverse, low-income, primiparous women who were assigned to 1 of 3 groups by simple random assignment. One group received an educational intervention book during the third trimester of pregnancy and additional books when their babies were 2, 4, 6, 9, and 12 months old. Another group was given books with the same illustrations, but different,

noneducational text on the same schedule, and the third group was not given any books (Figure 1). Women were blinded to the experimental hypotheses and told that the study was about reading to babies. Comparisons between the 3 groups found no significant differences at baseline on any demographic (eg, race, income), behavioral (eg, safety practices, reading), attitude (eg, parenting attitudes, beliefs about reading), or social (eg, social support, family structure) variables, supporting the effectiveness of random assignment. Thirty-two of the 167 women did not have complete data for analyses (Figure 2). Twenty-two dropped out of the study before their child was 18 months, and 10 missed at least 1 wave of data but did not discontinue participation. Assessment for differential attrition found only 2 differences out of 28 comparisons between women who completed all 7 waves and those who did not. The former were more likely to report reading to their fetus during pregnancy and were slightly older than the latter. Institutional review boards at 2 universities approved the consenting, intervention, and data collection procedures (Figure 2, Table 1).

The educational baby books contained information from the second edition of the *Bright Futures Guidelines for Health Supervision*[12] about infant physical, cognitive, and emotional development, safety practices in the home, car and outside, maternal self-care, benefits of breastfeeding, discipline strategies, and nutrition recommendations. Previous research has found these books to effectively increase maternal knowledge of anticipatory guidance material (with standardized effect sizes of >0.30 for each comparison).[11]

MEASUREMENT

Participants were interviewed in their homes during their third trimester of pregnancy (baseline) and when their baby was 2, 4, 6, 9, 12, and 18 months old. Home-based data collection occurred within a 12-day window (6 days before or after the infant's targeted age). At completion of the baseline visit, women were randomly assigned to a study group. Post random assignment data collection began when infants were 2 months old. At each visit, a trained researcher, blinded to experimental assignment, completed a home safety assessment in which the presence and amount of sharp and small objects, plastic bags, long cords, poisonous substances (eg, medicines, cleaning products), large uncovered containers of water (eg, buckets, fish tanks), safety devices (eg, drawer and cabinet latches, window guards, outlet covers, stair gates, pool covers/gates, radiator/vent guards), baby walkers, dirty ashtrays, smoke detectors, guns, and bullets were recorded. Researchers also measured the hot water temperature and interviewed participants about their car seat use and placements, safety practices when outside in the sunlight (eg, sunscreen, hat) and frequency of feeding their child foods commonly associated with choking risk (ie, hot dogs, whole grapes, whole nuts, popcorn). Chosen risks and safety practices are discussed in the *Bright Futures Guidelines for Health Supervision*[4] and *The Injury Prevention Program* (TIPP) guide[13] and all safety practices, with the exception of covering large containers of water, are mentioned in the educational books.

ANALYSIS PLAN

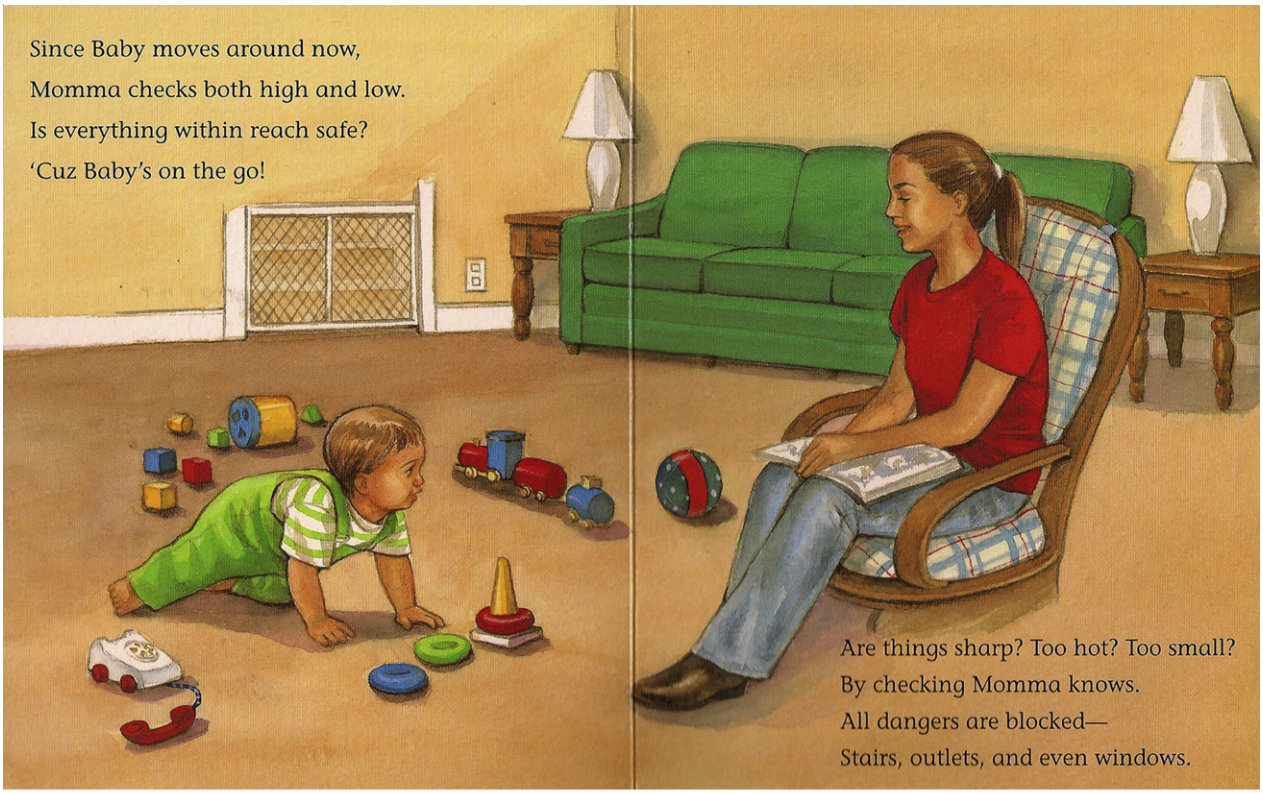
Data were gathered up to 7 times from each mother over the period from pregnancy to when their child was 18 months old. The initial measurement wave, occurring during pregnancy (before random assignment), gathered extensive demographic information. Safety practices were measured in all waves, including baseline.

For our main analyses, each mother's post-random-assignment measurement wave constitutes a separate observation. Our hypotheses focus on 3 dependent variables: the number of risks in the environment, and the low- and high-effort composite safety measures. To provide a more complete picture of intervention impacts, we also present results from post hoc analyses of individual safety items.

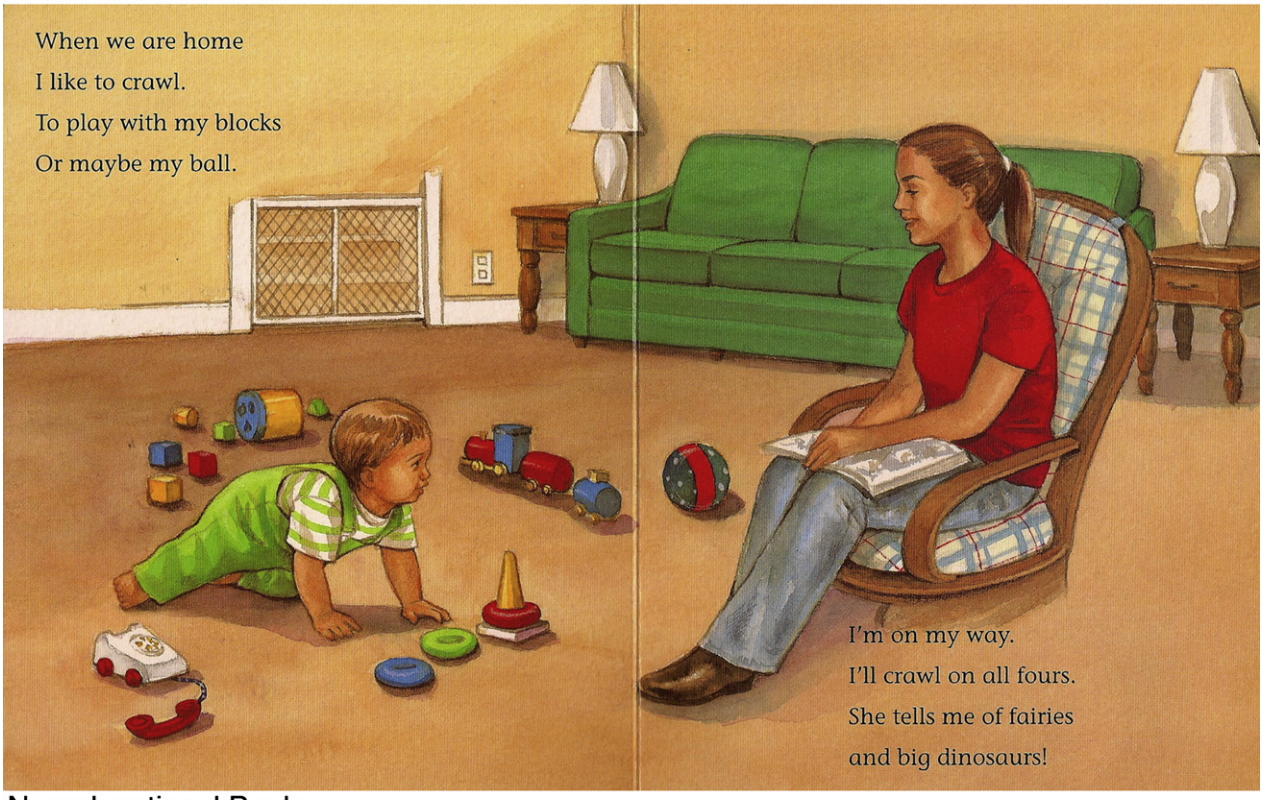
The key independent variable was assignment to the educational book, noneducational book, and no-book groups. To increase the precision of the estimated intervention effects, we also controlled for pre-random-assignment measures of the given dependent variable (ie, home safety assessment at baseline), and baseline demographic variables: mother's age, race/ethnicity (black, non-Hispanic vs other), years of schooling, current health, marital/relationship status (married/living as married vs other), income, employment status, and receipt of Special Supplemental Nutrition Program for Women, Infants and Children and food stamps. To control for variation in child age within and across each assessment point, a cubic function of child's age is included in all regression analyses. To account for missing values in independent variables, missing data were recoded to 0 and included in the model with a series of dummy variables indicating absence.[14] The majority of the baseline individual safety practice variables were missing less than 10% of the data, whereas window guards had the most missing data, at 27%. Participant characteristics likewise had limited missing data, with the exception of participant income (37% missing at baseline). All data were analyzed with STATA 10.1 MP for Windows (StataCorp, College Station, Tex).

Given its count nature and dispersion (specifically, its lack of overdispersion as indicated by a likelihood ratio test), the total number of risks in the environment was estimated with a Poisson regression. The continuous safety composite measures were analyzed using a general linear model (GLM) regression with a logit link and the binomial distribution. The dichotomous measures of individual safety practices were analyzed with logistic regression. To account for the wave-within-person clustered nature of the data, all standard errors were adjusted for nonindependence using the Huber-White sandwich estimator.[15,16]

Previous studies of injury prevention activities have found that some safety practices (eg, turning pot handles away from the stove edge) are easier to enact than others (eg, using outlet covers).[17–19] Furthermore, interventions



Educational Book



Noneducational Book

Figure 1. *Sample pages from 9-month book.*

that provide safety devices (eg, car seats, smoke detectors) may overcome some of the effort of using these devices (ie, expense and hassle of installation) and result in greater use compared to parents that do not receive these free devices.[20,21] On the basis of this and other literature on injury prevention, as well as a desire to avoid multiple testing problems, we created composite indices consisting of high-effort and low-effort practices. The high-effort composite comprises safety practices that involve expense to purchase a device and/or hassle and

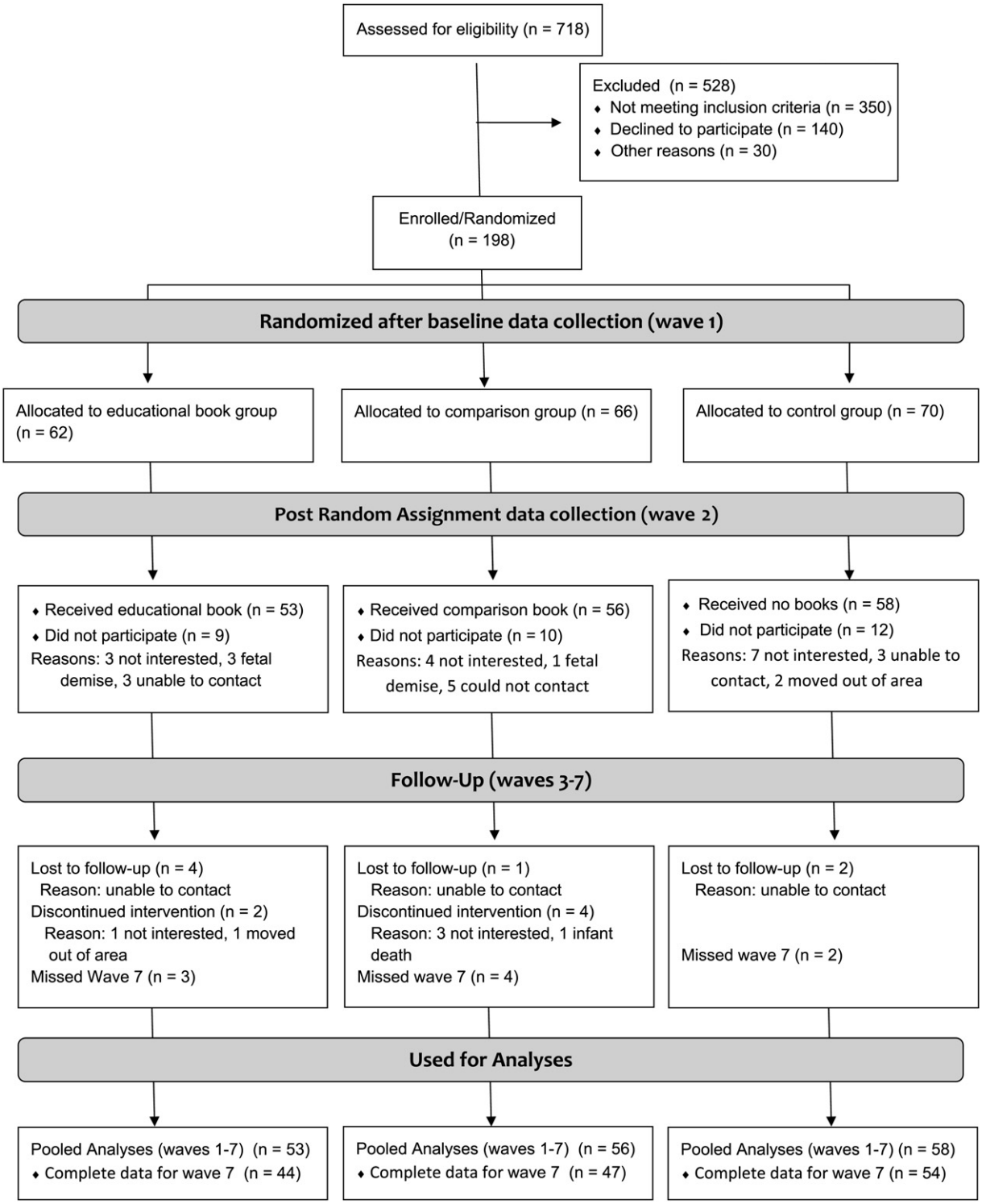


Figure 2. *CONSORT flow diagram for 3-group randomized design.*

time to install or use the device. The low-effort composite consists of safety practices that involve little cost, time or hassle to implement.

To form these 2 indices, we used a face validity sorting procedure in which a targeted sample of 20 pediatricians and 21 parents (9 parents were also pediatricians), recruited from the surrounding community and hospitals and not affiliated with this project, were asked to sort each safety practice as involving high or low effort to implement.

Interrater reliability supported our categorization, with kappa coefficients of 0.78 for high effort and 0.87 for low effort (Tables 2 and 3). Although passive and active actions have been used in other studies,[22] participants categorized any device that needed installing as high effort, even if they noted that continued use required lower effort after installation (eg, cabinet latches). In using the composites, we considered the applicability of each practice in scoring the behavior. Because the number of relevant risks differed by family (eg, not all have stairs), the low- and

Table 1. Participant Characteristics by Group and Test for Differences

Characteristic	N	Educational Book (N = 53)	Noneducational Book (N = 56)	No Book (N = 58)	Test Statistic	*p*
Education	167				$\chi^2_6 = 9.59$	.14*
Some high school		25%	32%	19%		
Completed high school		26%	27%	38%		
Some college		36%	32%	21%		
College degree		13%	9%	22%		
Race	167				$\chi^2_2 = 2.51$	.29*
Other		32%	38%	47%		
Black non-Hispanic		68%	63%	53%		
Marital status	167				$\chi^2_2 = 2.62$	.27*
Other		81%	86%	74%		
Married or living as married		19%	14%	26%		
Income	167				$\chi^2_{18} = 19.62$	.36*
Less than $8000		23%	13%	10%		
$8000–12 000		15%	9%	12%		
$12 001–16 000		8%	11%	2%		
$16 001–21 000		4%	9%	7%		
$21 001–26 000		9%	4%	7%		
$26 001–30 000		4%	2%	2%		
$30 001–40 000		4%	5%	5%		
$40 001–50 000		4%	0%	3%		
Over $50 000		4%	4%	12%		
Missing oncome		26%	45%	40%		
Maternal age, mean (SD)	167	23.1 (4.1)	22.5 (4.4)	23.5 (4.4)	$F_{2,165} = 1.19$	.31†
No. of kinds of public assistance mother received at wave 1 (max = 7), mean (SD)	167	1.4 (1)	1.3 (1)	1.2 (1)	$F_{2,164} = 0.64$	.53†

*χ^2 test.
†Kruskal-Wallis test.

high-effort indices were constructed as the proportion of safety practices given possible risk (eg, using a gate if there are stairs).

In addition to the high- and low-effort composites, the total number of risks in the environment was calculated as the sum of each kind of risk recorded (eg, small objects on the floor, water temperatures higher than 120°F). Given the pooled nature of our observations, we calculated risks per wave by dividing the total number of risks across all waves by the number of waves completed. The total number of risks in the environment and safety practices were explored separately because the absence of some risks does not necessarily indicate an overt safety practice. For instance, if a radiator is turned on and not covered or

Table 2. Individual Safety Variables, Interrater Reliability for Amount of Effort to Implement, and Study Group Means*

Safety Practice Item (Dichotomous)	Educational Book (n = 285)†	Noneducational Book (n = 299)†	No Book (n = 326)†	Interrater Reliability (kappa)
Low-effort items				
No small objects	0.67 (0.47)	0.62 (0.49)	0.60 (0.49)	0.64
No sharp objects	0.96 (0.20)	0.93 (0.26)	0.87 (0.33)	0.85
No plastic bags	0.90 (0.30)	0.90 (0.30)	0.90 (0.31)	0.86
No long cords	0.16 (0.37)	0.19 (0.39)	0.13 (0.34)	0.61
No poisonous substances	0.78 (0.26)	0.77 (0.26)	0.77 (0.27)	0.81
No baby walker	0.68 (0.47)	0.52 (0.50)	0.60 (0.49)	0.89
No large containers water	0.98 (0.15)	0.92 (0.26)	0.87 (0.33)	0.93
Not feeding choke foods	0.92 (0.26)	0.84 (0.37)	0.86 (0.35)	0.89
Waters temp <120°F	0.40 (0.49)	0.36 (0.48)	0.35 (0.48)	0.78
Correct car seat facing	0.92 (0.27)	0.84 (0.37)	0.88 (0.33)	0.81
Not smoking in house	0.96 (0.18)	0.90 (0.30)	0.89 (0.31)	0.89
No full ashtrays	0.95 (0.21)	0.90 (0.31)	0.90 (0.30)	0.96
Having a car seat	0.99 (0.09)	1.00 (0.06)	0.99 (0.08)	0.72
Having a smoke detector	0.97 (0.17)	0.96 (0.19)	0.94 (0.23)	0.77
High-effort items				
Outlet covers	0.24 (0.43)	0.19 (0.39)	0.27 (0.45)	0.79
Latches on cabinets	0.10 (0.30)	0.10 (0.31)	0.14 (0.35)	0.74
Latches on drawers	0.04 (0.20)	0.02 (0.13)	0.06 (0.23)	0.74
Gates for stairs	0.09 (0.29)	0.13 (0.34)	0.13 (0.34)	0.64
Guards for windows	0.25 (0.43)	0.35 (0.48)	0.35 (0.48)	0.84

*Data are presented as means and SDs. Means and SDs are averaged across 6 waves.
†Sample (n) pooled across 6 waves.

Table 3. Study Group Means and Standard Deviations for Total Risk and Safety Practice Indices and Interrater Reliability for Amount of Effort to Implement*

Safety Risk or Safety Practice Composite Indices	Educational Book (n = 285)†	Noneducational Book (n = 299)†	No Book (n = 326)†	Min	Max	Interrater Reliability (kappa)
Total number of risks in environment (count)	2.41 (1.69)	2.70 (1.68)	2.83 (1.86)	0	10	
Fraction of applicable low-effort safety practices used	0.85 (0.09)	0.81 (0.10)	0.80 (0.11)	.37	1	0.87
Fraction of applicable high-effort safety practices used	0.30 (0.21)	0.31 (0.21)	0.32 (0.20)	0	1	0.78

*Data are presented as means and SDs. Means and SDs are averaged across 6 waves.
†Sample (n) pooled across 6 waves.

blocked, this would constitute a risk in the environment. Conversely, not having the radiator on would reduce the riskiness of the environment. However, having a cool radiator would not increase the amount of safety practices observed in the home. Only an overt action to cover or block the radiator was recorded as a safety practice.

RESULTS

Descriptive information about study group values for the composite and individual safety measures is shown in Tables 2 and 3; mean comparisons between groups are provided in Tables 4 and 5. Total risks in the environment were highest for the no-book group, followed by the noneducational book group. Implementation of low-effort, but not high-effort, safety practices was highest for the educational book group.

Table 4 formalizes group differences in the safety composites by showing pairwise comparisons between the following: 1) educational book and no-book groups; 2) educational and noneducational book groups; and 3) noneducational book and no-book groups. Results show that the educational book group had significantly fewer risks than the no-book group. Given the Poisson regression framework, the "−0.23" coefficient on the total risk index means the educational book group was 0.23 lower on the log of the risk count than the no-book group. This translates into an approximately 20% reduction in risks (effect size = −0.30, $p < .01$). Although the total number of risks in the environment was lower for the educational book relative to the noneducational book group, this difference was not statistically significant.

Comparisons between groups on the 2 safety practice composites reveal that low-effort, but not high-effort, safety practices were significantly higher for the educational book group relative to both comparison groups. Given the logistic regression framework of the general linear model, the low-effort composite's "+0.34" coefficient means that the odds of demonstrating a given safety practice were 40% higher (exp[.34] = 1.40) for the educational book group than the no-book group (effect size = 0.19). The odds of low-effort safety practices implemented by the educational book group were also significantly higher (27% higher) than for the noneducational book group (effect size = 0.13).

To provide additional descriptive detail on individual safety practice between groups, we estimated a set of post hoc logistic regressions. Notable low-effort practices that differed between the educational book and no-book groups included fewer small or sharp objects within baby's reach, fewer uncovered large containers of water, lower likelihoods of feeding children foods commonly associated with choking and smoking in the house, and more correctly oriented car seats, using smoke detectors, and not having full ashtrays. Although composite safety practices were stronger for the educational book versus no-book group comparison than for the educational book versus noneducational book comparison, there was some indication of a beneficial effect of reading (irrespective of content) on new mothers' safety practices for some safety items. Interestingly, the no-book group was less likely to have long cords lying around than the other book groups (Table 5).

DISCUSSION

The pediatric community has focused on parent education to reduce preventable injuries. Although some studies of tailored educational interventions are promising,[10,23,24] little research has included direct observations of safety practices[25] or considered use beyond small windows of

Table 4. Number of Risks and Safety Practice Indices Regression-Adjusted Treatment Effect

	Between-Group Comparisons, Coefficient (SE) [Effect Size]		
Safety Risk or Safety Practice Composite Indices	Educational Book vs No Book	Educational Book vs Noneducational Book	Noneducational Book vs No Book
Total number of safety risks in environment (Poisson)	−0.23* (0.08) [−0.30]	−0.12 (0.07) [−0.16]	−0.10 (0.06) [−0.14]
Low-effort safety practice composite (GLM)	0.34** (0.08) [0.19]	0.24** (0.07) [0.13]	−0.09 (0.07) [0.05]
High-effort safety practice composite (GLM)	−0.07 (0.10) [−0.04]	−0.05 (0.11) [−0.03]	0.01 (0.09) [0.00]

*$p < .01$.
**$p < .001$.
GLM = general linear model.

Table 5. Individual Safety Variables Regression-Adjusted Treatment Effect

Safety Practice Items (Dichotomous)	Logistic Regression Analysis of Between-Group Comparisons, Odds Ratio (SE) for: Educational Book vs No Book	Educational Book vs Noneducational Book	Noneducational Book vs No Book
Low-effort items			
No small objects	1.68* (0.42)	1.33 (0.34)	1.25 (0.28)
No sharp objects	4.52*** (2.05)	1.82 (0.83)	2.17* (0.76)
No plastic bags	1.04 (0.39)	1.12 (0.40)	1.17 (0.34)
No long cords	1.42 (0.40)	0.79 (0.21)	1.83* (0.46)
No poisonous substances	1.01 (0.82)	1.28 (0.72)	0.90 (0.56)
No baby walker	1.66 (0.43)	2.05** (0.52)	0.75 (0.20)
No large containers water	3.52* (2.25)	1.29 (0.64)	0.95 (0.48)
Not feeding choke foods	2.90** (1.08)	4.66*** (1.77)	0.71 (0.21)
Water temperature <120°F	1.44 (0.44)	1.07 (0.31)	1.07 (0.30)
Correct car seat facing	2.16* (0.77)	2.39* (0.86)	0.92 (0.26)
Not smoking in house	7.15** (4.92)	3.75 (2.89)	0.84 (0.41)
No full ashtrays	8.29** (6.40)	2.69 (1.75)	1.31 (0.72)
Having a car seat	…†	…†	…†
Having a smoke detector	11.65* (12.82)	1.25 (0.87)	1.17 (0.82)
High-effort items			
Outlet covers	0.91 (0.33)	1.10 (0.40)	0.93 (0.32)
Latches on cabinets	0.80 (0.41)	0.85 (0.40)	0.89 (0.35)
Latches on drawers	1.89 (1.72)	3.85 (4.44)	0.72 (0.53)
Gates for stairs	1.33 (0.82)	0.65 (0.32)	1.58 (0.82)
Guards for windows	0.78 (0.26)	0.75 (0.25)	1.25 (0.34)
Gate for pool	…†	…†	…†

*$p < .05$.
**$p < .01$.
***$p < .001$.
†Too little variability to estimate impacts.

time.[24] Typically, self-report is the only measure of safety use, and parents are interviewed within 30 days or less of receiving anticipatory guidance.[10,26,27] This study benefited from including home-based, observational data collection before birth and at regular intervals over the children's first 18 months.

PARENT EDUCATION

To date, most injury prevention research has found that parent education can improve knowledge of safety practices and in some cases reduce the rates of childhood injuries, although these interventions tend to be time intensive.[7,28] Recent studies that have explored the use of well-child visits as a mechanism for reducing pediatric injuries, maltreatment, and violence have been promising but have involved training pediatricians on a few target behaviors to address with families.[29,30] In looking at physician practices during well-child visits, research has found that many anticipatory topics are not addressed, and that pediatricians generally devote less than 10% of a well-child visit to parent education,[8,31–33] with some studies finding that accident prevention is not discussed at all.[34,35] Further, recent work has found that parents recall less educational information as more topics are covered.[36]

Investigations into the lack of parent education during routine well-child visits suggest that time constraints play a large role, as there are competing demands that the physician must manage.[37] Providers must use clinical judgment to decide which topics are appropriate for a particular family.[10,25] Furthermore, even when anticipatory guidance is provided, the information that physicians report discussing and what parents recall being discussed are often incongruent.[27]

In response to inconsistent dissemination and/or retention of educational information, some practices have relied on written material. Unfortunately, studies of pediatric brochures and handouts have found them to be minimally effective. For example, in a comparison of printed (TIPP sheets) and pictorial handouts for injury prevention, Powell and colleagues found that neither was effective in promoting parental knowledge about injury prevention topics.[38]

Another difficulty with printed material is text complexity. Freda's recent review of 75 AAP patient education brochures found that at least half were written at higher than acceptable readability levels for the general population.[39] Similarly, Davis and colleagues' comparison of parents' reading abilities and educational information published by pediatric organizations (eg, March of Dimes, AAP) found printed materials to be written at overly advanced reading levels.[40]

The use of baby books to provide anticipatory guidance to families bypasses many of these barriers. The text is written at a low reading level, the information is provided independent of physicians, and the materials are taken home with the families and are therefore not reliant on memory.

Although increasing knowledge is a first step, ample public health research has found that increasing knowledge is necessary but not sufficient for changing behavior[41,42] and that increased knowledge has less impact for altering behaviors that are more costly or emotionally difficult to

change,[43] such as smoking,[44] asthma management,[45] and contraceptive use.[46] In this study, a similar pattern was found. Increases in knowledge from the books were not sufficient to produce group differences in overall safety behaviors. However, the amount of effort needed to change these behaviors proved key for understanding the intervention's patterns of effects. Behaviors that are relatively low effort, in terms of money and time, were more likely to change than those that involve more effort.

These findings may provide guidance for counseling parents during pediatric visits. Given the brevity of pediatric visits, physicians could target behaviors that are both important and likely to be changed. For instance, these findings suggest that rather than stressing the need for cabinet latches, discussing the need to keep poisonous substances out of reach, including storing them in higher cabinets, may be more effective. However, whether the amount of effort to implement safety practices is relevant for direct counseling versus being read in a baby book needs to be tested. Importantly, many of the low-effort safety behaviors that were changed in this study are associated with the leading causes of death in young children (eg, choking risks, incorrect car seat use, large open containers of water).[1]

In addition to identifying which safety practices are amenable to change, this study demonstrated that educational baby books are an effective way to increase new mothers' safety practices. Such an intervention is easy to implement because these books could be disseminated during pediatric visits, added to programs such as Reach Out and Read,[47] mailed to families, and offered through public assistance and community programs. With baby books, educational material can be provided at a very low reading level that is visually interesting and more likely to be read repeatedly, which learning theorists have shown supports retention.[48] Furthermore, giving educational baby books to families provides additional opportunities for parent-infant reading which influences mother-child interactions,[49] children's language development,[50,51] and future reading ability.[52]

Interestingly, the between-group effects were larger between the educational book and no-book groups, suggesting that providing books, irrespective of content, might help increase low-effort safety practices. One possible explanation is that mothers who spend time reading may feel more committed to protecting their child from immediate environmental risks. Studies have found some effects from the mere presence of an intervention, even if at low levels. For instance, in a study of parental involvement in young children's education, the 3-group randomized study of Pierson and colleagues found that some parental inclusion was more effective on educational outcomes than no involvement. However, low levels paled in comparison to high levels of inclusion.[53] In our study, it appears that some intervention (ie, provision of books) benefits safety practices, but not as much as high levels of the intervention (ie, provision of *educational* books). Future work should explore the potential benefits of reading promotion on infant and toddlers' safety in their environment.

LIMITATIONS AND FUTURE DIRECTIONS

Although this 3-group randomized study found educational baby books to be effective for increasing low-income primiparous women's safety practices, these findings may not be generalizable to other parent groups such as fathers, multiparous women, higher-income mothers, or speakers of other languages. Future research should test the effectiveness of these books with other adults who care for young children. Although no differences were found on income at baseline (including missing), not all women answered this question. It is possible that the effectiveness of educational baby books varies at different income levels. Further, although the vast majority of the participants were unmarried and changed living arrangements often, it is possible that other adults in the home contributed to the safety of the environment. Future studies should explore the role of other adults in the home on safety practices. Although the effect size differences between the educational book and comparison (noneducational book and no-book) groups were small to moderate in size, these findings are meaningful given the high prevalence of unintentional injuries in the United States.

This study also has several strengths. By keeping experimenter contact and measurement equivalent across all 3 groups, this study was able to assess the differences between groups, beyond any potential benefit of home visitation. Although the educational baby books were effective in reducing the number of environmental risks and improving some safety practices, future research should explore the use of the books without home-based data collection in order to assess the feasibility of the books when provided in less direct ways (eg, through mail, given at pediatric visits).

Also, because the benefit of these baby books was improved low-effort safety practices, future books could be written to target only those behaviors that are more susceptible to change (eg, removing sharp and small objects). That could free pediatric visits to stress harder-to-change behaviors such as gun storage and drawer latches. Additionally, some safety practices may be more effective in preventing injuries than others (eg, correct orientation of car seats vs emptying ashtrays) and future research could explore the impacts of targeting more effective, low-effort safety practices.

Using observational measures over an extended period of time, educational baby books appear to be a low-cost way to increase the safety practices of new mothers, as long as the practices involve little to no time, money, or effort. These findings help identify anticipatory guidance topics that may be more amenable to change and demonstrate a promising way to provide this information to families.

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