



Using baby books to change new mothers' attitudes about corporal punishment[☆]

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ABSTRACT

Objective: Research has found corporal punishment to have limited effectiveness in altering child behavior and the potential to produce psychological and cognitive damage. Pediatric professionals have advocated reducing, if not eliminating its use. Despite this, it remains a common parenting practice in the US.

Methods: Using a three-group randomized design, this study explored whether embedding educational information about typical child development and effective parenting in baby books could alter new mothers' attitudes about their use of corporal punishment. Low-income, ethnically diverse women ($n = 167$) were recruited during their third trimester of pregnancy and followed until their child was 18 months old.

Results: Findings from home-based data collection throughout this period suggest that educational baby books compared with non-educational baby books or no books can reduce new mothers' support for the use of corporal punishment (respective effect sizes = .67 and .25) and that these effects are greater for African-American mothers (effect sizes = .75 and .57) and those with low levels of educational attainment (high school diploma, GED, or less) (effect sizes = .78 and .49).

Conclusion: Given their low cost and ease of implementation, baby books offer a promising way to change new mothers' attitudes and potentially reduce the use of corporal punishment with infants and toddlers.

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US parents have long supported corporal punishment as a method for disciplining children (Paolucci & Violato, 2004) and surveys have typically found that the use of corporal punishment is widespread (Gallup Organization, 1995). Corporal punishment often begins as early as infancy and, in a 1995 survey of 991 households, Straus and Stewart (1999) found that 32% of parents reported spanking their infants and 72% spanked their toddlers. This same survey found that the frequency and severity of corporal punishment peaked when children were between 3 and 5 years of age. Furthermore, younger parents, those with lower socio-economic status, and mothers in particular were more likely to use corporal punishment with their children.

While the use of corporal punishment is common, research has found negative consequences of its use for children (Slade & Wissow, 2004). A meta-analysis found corporal punishment, defined as the use of physical force in an effort to control behavior and without intention to cause harm, to be associated with increased child and later adult aggression, increased delinquent, antisocial, and criminal behavior, increased risk of abusing one's own child or spouse, reduced moral

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internalization, increased risk of being a victim, and decreased adult mental health (Gershoff, 2002). The only beneficial effect found was that corporal punishment was associated with immediate compliance.

Given the association of corporal punishment with poor psychological and behavioral outcomes, more effort has been placed on discouraging parents from using corporal punishment, especially for younger children. For instance, the American Academy of Pediatrics recommends that other forms of discipline be used (such as time out and redirection) and that corporal punishment not be used with infants (American Academy of Pediatrics, 1998). Given its common use, and evidence of its negative impact, ways to change parents' attitudes about the use of corporal punishment appear to be warranted. One possible mechanism for reducing the use of corporal punishment, especially with very young children, could be through parental education.

Previous studies have found parent education to be beneficial for changing parental attitudes and practices about the use of corporal punishment. For instance, the Parents as Teachers program found that the use of regular parent group meetings and home visits by a certified parent educator could significantly change parental attitudes about physical forms of discipline (Wagner, Spiker, & Linn, 2002). Similarly, Nicholson, Anderson, Fox, and Brenner (2002) found that, after a 10-week parent education program, the intervention group used significantly fewer verbal and physical forms of discipline than the comparison group. Fennell and Fishel (2007) found that the Systematic Training for Effective Parenting (STEP), a 9-week parent education program, to be effective in changing parents' attitudes about their child and support of physical modes of discipline. The Nurturing Parenting Program, a program designed for adult and adolescent parents, reduced parents' support of the use of corporal punishment (Kaplan & Bavolek, 2007). Numerous other programs have found parent education to be effective in reducing the use of corporal punishment and occurrence of child maltreatment (e.g., Dubowitz, Feigelman, Lane, & Kim, 2009; Duggana et al., 2004; Huebner, 2002). However, these educational interventions tend to be time intensive and expensive to implement, suggesting that other mechanisms for educating parents should be explored.

Characteristics associated with the use of corporal punishment

Survey and intervention studies have found support for the use of corporal punishment to be greater for certain types of parents (Socolar & Stein, 1995; Straus & Stewart, 1999). In particular, African-American parents and those with low educational attainment are more likely to believe in the effectiveness of physical discipline and to use it with their children (Flynn, 1996; Grogan-Kaylor & Otis, 2007; Youssef, Attia, & Kamel, 1998). Further, research has found that interventions focused on reducing the use of corporal punishment and increasing the use of non-physical forms of discipline may be more effective for European-American and upper and middle-class families as compared to African-American and lower class families (Heffer & Kelley, 1987). For instance, in an evaluation of Early Head Start, researchers found that, overall, the program reduced parents' use of corporal punishment as compared to families in the control group. However, when race was considered, this difference did not hold for African-American families (Administration on Children, 2001, 2002). Taking a subset of this evaluation sample, Ispa and Halgunseth (2004) found that African-American mothers often believed that corporal punishment was highly effective, that newly taught methods could be used to supplement corporal punishment but not replace it, that toddlers would not outgrow problem behavior without physical discipline, and that physical discipline would help keep children safer.

Although belief in physical discipline may be stronger in some groups, parenting interventions specifically targeting low-income and minority families have proven to be effective in reducing support of corporal punishment. For instance, Gross et al.'s (2009) 11-week program involving video taped vignettes, facilitated parent groups, and weekly homework assignments resulted in reduced use of corporal punishment for low-income, Latino and African-American parents. Similarly, Nicholson et al.'s (2002) 10-week parent program involving weekly, 90 minute facilitator-led parent groups for low-income, predominately African American parents increased knowledge about effective discipline and reduced parental stress. Myers et al.'s (1992) 15-week parent education program was effective in reducing beliefs in the use of corporal punishment for African American families. While beneficial, these parent education programs are time intensive and reliant on a facilitator to provide the intervention.

In light of the promising benefits of parent education for reducing the use of corporal punishment, this study tested whether providing educational information in the form of baby books could alter new mothers' attitudes about both parenting in general and the use of corporal punishment in particular. Baby books are relatively low cost and are not reliant on a researcher or facilitator to provide the information. Also, in light of the higher endorsement of physical discipline by African-American and less educated families, this study explored if educational baby books would be more effective in changing beliefs about corporal punishment for these specific types of parents.

Method

The NICHD-funded Baby Books Project tests whether baby books—books read by mothers to babies—are an effective way to educate new mothers about injury prevention, effective parenting, and typical child development. Taking content from the *Bright Futures Guidelines for Health Supervision* (Hagan, Shaw, & Duncan, 2008), the project embeds age-appropriate educational material into professionally illustrated books. Because baby books are written at a low reading level, have pictures to supplement the content, and tend to be read over and over again, we hypothesized that this medium would be

Table 1
Participant characteristics by group and test for differences.

	N	Educational book N = 53	Non-educational book N = 56	No-book N = 58	Test statistic
Education	167				$\chi^2_6 = 9.59, p = 0.14^a$
Some high school		25%	32%	19%	
Completed high school		26%	27%	38%	
Some college		36%	32%	21%	
College degree		13%	9%	22%	
Race	167				$\chi^2_2 = 2.51, p = 0.29^a$
Other		32%	39%	47%	
Black non-Hispanic		68%	63%	53%	
Marital status	167				$\chi^2_2 = 2.62, p = 0.27^a$
Other		81%	86%	74%	
Married or living as married		19%	14%	26%	
Income	167				$\chi^2_{18} = 19.62, p = 0.36^a$
Less than \$8,000		23%	13%	10%	
\$8,000–\$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 income		26%	45%	40%	
	N	Educational book N = 53	Non-educational book N = 56	No-book N = 58	Test statistic
		Mean (SD)	Mean (SD)	Mean (SD)	
Maternal age	167	23.1 (4.1)	22.5 (4.4)	23.5 (4.4)	$F_{2,165} = 1.19, p = 0.31^b$
# of kinds of pub. assist. M recv. at W1 (max = 7)	167	1.4 (1)	1.3 (1)	1.2 (1)	$F_{2,164} = 0.64, p = 0.53^b$

^a Chi² test.

^b Kruskal-Wallis test.

an effective way to educate parents about more effective parenting methods, especially alternatives to the use of corporal punishment for young children.

Participants

Primiparous women ($n = 198$) in their third trimester of pregnancy were recruited from the waiting rooms of obstetric resident continuity clinics in an urban area in the South. Since these were resident continuity clinics, the patient population was low-income, relying on care from physicians in training rather than board certified obstetricians. To determine eligibility, all interested participants were asked to complete a brief reading assessment in English that involved two rhyming stanzas written at a first-grade reading level and four comprehension questions. Only those who answered all questions correctly were eligible for participation. From this pool, 167 women participated in data collection after randomization and 145 were retained in the study until their child was 18 months.

Participants included ethnically diverse, low-income women who had never had any children (biological, adoptive, step, or foster). Sixty-three percent were African-American and 31% were Caucasian. Nine percent were of Hispanic origin. The women ranged in age from 18 to 40 years ($M = 23.1, SD = 4.6$). See Table 1 for details. This sample was representative of women in these clinics who were having their first child and were at least 18 years of age.

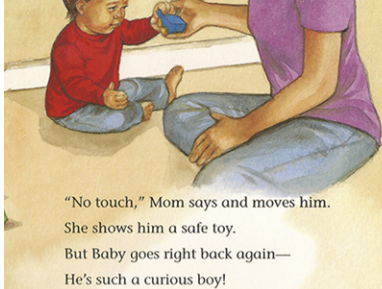
Procedure

Data were collected in the homes of participants at seven time points: during the third trimester of pregnancy and when their infant was 2, 4, 6, 9, 12, and 18 months of age. Following baseline data collection (pregnancy), women were randomly assigned to one of three groups. 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 non-educational text on the same schedule, and the third group did not receive any books. All books were written at a first grade reading level and participants were blind to the research hypothesis. Instead, women were told that they were participating in a study about reading to babies in which they may receive free books.

The educational information was focused on the *Bright Futures Guidelines for Health Supervision* (Hagan et al., 2008), providing age-appropriate recommendations 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. Six books

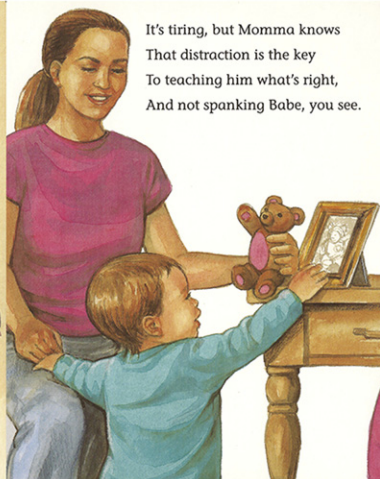
Educational Book

Sometimes it's hard on Mom to
Keep Baby safe, for sure.
He reaches for the outlet once,
Twice, three times more!

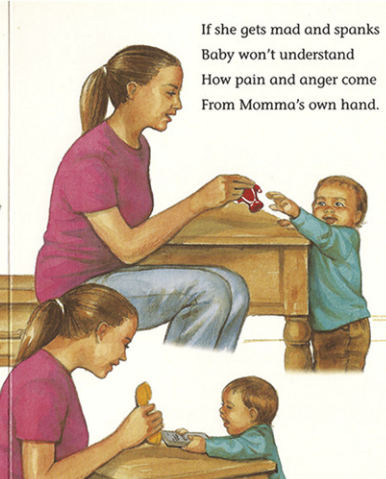


"No touch," Mom says and moves him.
She shows him a safe toy.
But Baby goes right back again—
He's such a curious boy!

It's tiring, but Momma knows
That distraction is the key
To teaching him what's right,
And not spanking Babe, you see.

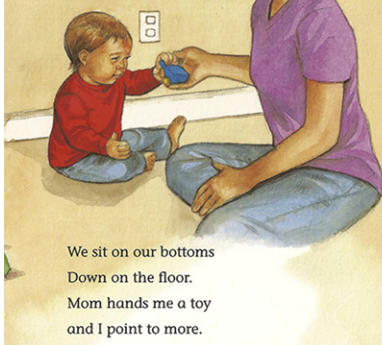


If she gets mad and spansks
Baby won't understand
How pain and anger come
From Momma's own hand.



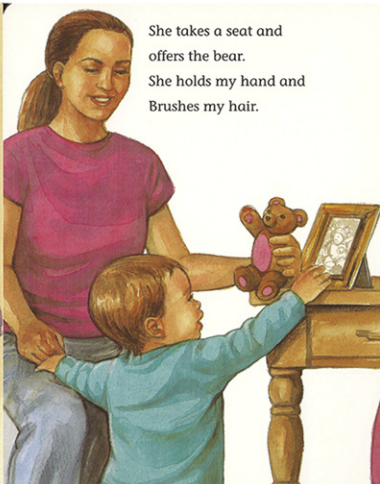
Non-educational Book

Momma joins in
And plays a new game.
She holds up a toy
That I try to name.



We sit on our bottoms
Down on the floor.
Mom hands me a toy
and I point to more.

She takes a seat and
offers the bear.
She holds my hand and
Brushes my hair.



She hands me a toy.
This one's a fish.
She blows her eyelash
And we make a wish.

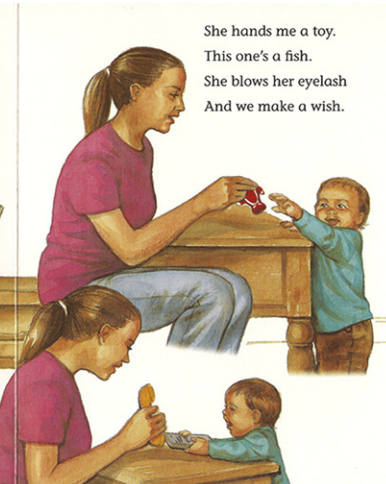


Fig. 1. Sample pages from 9 month educational and non-educational books.

were developed for this project, corresponding to the six recommended well-child visits for the first year (i.e., newborn, 2, 4, 6, 9, and 12 months). Previous work with this sample has found these educational baby books to be effective for increasing mothers' knowledge about injury prevention and typical development (Reich, Bickman, Saville, & Alvarez, 2010) and altering safety practices in the first 18 months (Reich, Penner, & Duncan, 2011). While the books addressed the cognitive abilities of infants at different ages, information about discipline focused on not striking or spanking children, using redirection and distraction, and praising good behavior. See Fig. 1 for sample pages from the 9-month book for both the educational and non-educational book groups.

Group equivalence assessments

Comparisons between the 3 groups (i.e., educational book group, non-educational book group, and no-book group) found no significant differences on a variety of baseline characteristics such as age, income, race, marital status, education, substance use, receipt of public assistance, intentions and feelings about the pregnancy, depressive feelings and reading practices and beliefs (all p -values 0.10 or greater), supporting the effectiveness of random assignment. Thirty-two of the 167 women did not have complete data for analyses, but there were no significant differences between the groups in the rate of complete data or attrition. Assessment for differential attrition found only 2 differences out of 28 comparisons between women who completed all 7 waves and those who missed a wave and/or discontinued participation in the study. The only statistically significant differences were that women who remained in the study were more likely to report reading to their fetus during pregnancy (effect size = .48, $p=0.0003$) and tended to be slightly older than those who discontinued participation (effect

Table 2
Means, standard deviations, and range of the normed-referenced AAPI.

	Age of child (months)	Educational book					Non-educational book					No-book				
		Mean	SD	N	Min	Max	Mean	SD	N	Min	Max	Mean	SD	N	Min	Max
Inappropriate expectations	2	4.44	1.53	50	1	8	3.94	1.30	50	1	6	4.29	1.34	56	1	8
	6	4.78	1.45	49	1	8	3.79	1.60	48	1	6	4.41	1.39	54	1	9
	12	5.15	1.85	47	1	10	4.32	1.39	50	1	8	4.96	1.56	55	1	9
	18	4.91	1.55	44	1	9	4.36	1.51	47	1	9	4.91	1.46	54	2	8
	Pooled	4.81	1.61	190	1	10	4.10	1.46	195	1	9	4.64	1.46	219	1	9
Empathy	2	3.62	1.81	50	1	7	3.20	1.62	50	1	7	3.45	1.61	56	1	7
	6	3.49	1.78	49	1	7	3.00	1.52	48	1	6	3.31	1.36	54	1	7
	12	4.00	2.00	47	1	7	3.30	1.74	50	1	7	3.76	1.55	55	1	7
	18	3.98	2.19	44	1	10	3.26	1.92	47	1	10	4.07	1.52	54	1	7
	Pooled	3.76	1.94	190	1	10	3.19	1.69	195	1	10	3.65	1.53	219	1	7
Corporal punishment	2	4.14	1.77	50	1	10	3.16	1.40	50	1	7	3.86	1.85	56	1	8
	6	4.27	1.75	49	1	8	3.33	1.85	48	1	7	3.96	2.10	54	1	10
	12	4.91	1.68	47	1	8	3.35	1.59	49	1	7	4.04	2.20	55	1	9
	18	4.52	1.82	44	1	10	3.40	1.80	47	1	8	4.07	2.01	54	1	8
	Pooled	4.45	1.77	190	1	10	3.31	1.66	194	1	8	3.98	2.03	219	1	10
Role reversal	2	3.96	1.94	50	1	9	3.00	1.54	50	1	7	3.75	1.67	56	1	8
	6	4.43	1.83	49	1	8	3.56	1.79	48	1	8	4.17	1.80	54	1	8
	12	4.72	2.44	47	1	10	3.94	2.03	50	1	8	4.95	1.93	55	1	10
	18	5.09	2.28	44	1	10	4.19	1.85	47	1	8	5.06	1.86	54	1	10
	Pooled	4.53	2.15	190	1	10	3.67	1.85	195	1	8	4.47	1.88	219	1	10
Power independence	2	4.44	2.02	50	1	8	4.38	1.87	50	2	10	5.45	1.95	56	1	10
	6	4.37	1.93	49	1	9	3.90	2.23	48	1	9	4.52	1.96	54	1	9
	12	5.07	2.58	46	1	10	4.41	1.91	49	1	10	5.44	2.36	55	2	10
	18	4.77	2.62	44	1	10	4.68	2.49	47	1	10	5.69	2.02	54	1	10
	Pooled	4.65	2.29	189	1	10	4.34	2.14	194	1	10	5.27	2.11	219	1	10

size = .66, $p = 0.02$). Institutional Review Boards at 2 universities approved the consenting, intervention, and data collection procedures. All participants were informed of the risks and benefits of the study and consented to participate.

Measures

In order to assess how educational baby books could change new mothers' attitudes about parenting in general and the use of corporal punishment in particular, the Adolescent-Adult Parenting Index (AAPI) (Bavolek & Keene, 2001) was administered to mothers when their child was 2, 6, 12, and 18 months of age (due to potential scheduling conflicts, for each wave mothers were surveyed within 6 days before or after their child was the target age). The AAPI is a 40-item survey of adult and adolescent parenting attitudes. Each item is rated on a 5-point Likert scale (1 = strongly agree to 5 = strongly disagree) with higher scores indicating more favorable parenting attitudes. The instrument has 5 subscales that assess (1) inappropriate expectations of children (e.g., "Good children always obey their parents"), (2) parental lack of empathy (e.g., "Children cry just to get attention"), (3) support of corporal punishment (e.g., "Spanking children when they misbehave teaches them how to behave"), (4) reversal of parent-child role responsibilities (e.g., "Children should offer comfort when their parents are sad"), and (5) oppression of children's power and independence (e.g., "Parents who are sensitive to their children's feelings and moods often spoil them"). For this study, changes in subscale 3 (support of corporal punishment) were expected to be greatest as the educational baby books target these behaviors directly. Items in this subscale address parents' attitudes toward using physical punishment as a method of discipline. Specifically, items assess parents' beliefs in the use of spanking, hitting, fear, and non-physical discipline such as time-out. The AAPI is a nationally normed instrument and has shown high reliability and validity with similar populations (e.g., Conners, Whiteside-Mansell, Deere, Ledet, & Edwards, 2006; Smyke, Boris, & Alexander, 2002). See Table 2 for details about the AAPI at each wave.

Analysis

To assess whether providing educational baby books changed new mothers' attitudes about parenting and the use of corporal punishment specifically, normed-referenced group differences were compared at each of the 4 waves (when babies were 2, 6, 12, and 18 months) and as a pooled effect across all waves of data. For analyses reported here, each mother's measurement wave after random assignment constituted a separate observation. Dependent variables consisted of the AAPI score on each of the subscales, with special focus on the corporal punishment subscale. The key independent variable was assignment to the educational book, non-educational book and no-book groups. Additional controls were included to increase precision and help balance any luck-of-the-draw differences across study groups at the point of random assignment.

Table 3
Pooled comparisons of the normed-referenced AAPI subscale scores between each group.

	Educational book vs. no-book				Educational book vs. non-educational book			Non-educational book vs. no-book		
	Age of child (months)	Coeff.	SE	N	Coeff.	SE	N	Coeff.	SE	N
Inappropriate expectations	Pooled	0.24	0.26	409	0.69**	0.23	385	-0.42	0.23	414
Empathy	Pooled	0.32	0.27	409	0.52*	0.25	385	-0.26	0.23	414
Corporal punishment	Pooled	0.81*	0.32	409	1.24***	0.29	384	-0.31	0.31	413
Role reversal	Pooled	0.34	0.278	409	0.86**	0.26	385	-0.55*	0.24	414
Power independence	Pooled	-0.31	0.288	408	0.17	0.257	383	-0.64*	0.26	413

The AAPI subscales are norm referenced. Control variables included in the model are a cubic function of child age from the current wave and controls from the prenatal wave (baseline) for times read to fetus per week during third trimester, prenatal PRBI teaching efficacy subscore, mom's age, mom's race, maternal education, maternal health, marital status, whether the mom lived solely with the infant or not, income, whether the mom was employed or not, whether the mom received WIC, whether the mom received food stamps. A dummy variable for each control variable was also included in the regressions for whether or not it was missing at prenatal wave. The bold values denote significant relationships.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

These control variables include a continuous variable for the number of times per week the mother read to the fetus during the third trimester (ranging from 0 to 16), the mother's prenatal teaching efficacy subscore from the Parental Reading Belief Inventory (ranging from 23 to 32), a cubic function for the child's age in years, which varied by wave, and baseline controls for mother's age in months, a dichotomous variable for race (coded 1 if African-American, 0 if otherwise), a continuous measure for mother's years of schooling (ranging from less than a high school diploma (coded as 11 years) to masters' degree or higher (coded as 18 years)), a continuous measure for mother's current health (ranging from 1 = poor to 5 = excellent), a dichotomous measure for marital status (coded 1 if married/living as married, 0 if not), a continuous variable for the mother's income (ranging from \$4,000 to \$50,000), a categorical variable for living with no one else but the child (1 if yes, 0 if otherwise), a categorical variable for if the mother is employed (coded 1 if employed full or part time, 0 if otherwise), a categorical variable for if the mother receives federal food and nutrition services for Women, Infants, and Children (WIC), and a categorical variable for if the mother receives food stamps benefits (program currently known as SNAP). To account for missing values in these independent variables, missing data were recoded to zero, and included in the model with a series of dummy variables indicating absence. Participant characteristics had limited missing data, with the exception of participant income (37% missing at baseline). Given our interest in exploring attitudes for African-American parents and since this group was the majority of the sample, race was dichotomized as African-American or other. Unfortunately, Latina mothers were not prevalent enough in our sample to include as a separate group.

Ordinary Least Squares regression was used for all of our analyses. To account for the wave-within-person clustered nature of the data, all standard errors were adjusted for non-independence using the Huber-White sandwich estimator (Huber, 1967; White, 1980). All data were analyzed with STATA 10.1 MP for Windows.

Results

For almost all waves, women in the educational book group had higher norm-referenced scores on the AAPI, demonstrating more developmentally appropriate and positive attitudes toward parenting (see Table 2). While women in the educational book group scored higher for most subscales of the AAPI, not all between-group comparisons were significant (Table 3). Pooled comparisons between the educational book group and non-educational book group found significant differences in four of the five subscales (all p -values < 0.05), with the educational book group being higher. The only non-significant difference was in the power independence subscale, which is conceptually less applicable to infants and toddlers. Comparisons between the educational book group and no-book group found the educational book group to be significantly higher on the corporal punishment subscale. Two non-educational book group and no-book comparisons were significant; the role reversal and power independence subscales were higher for the no-book group ($p < 0.05$).

Attitudes toward corporal punishment

In looking specifically at attitudes toward corporal punishment, mothers in the educational book group were less likely to have attitudes that support corporal punishment as an effective way to discipline a child. These women had significantly higher scores on the corporal punishment subscale than the other two groups for almost every wave and for each pooled comparison. These differences amounted to a 0.25 standard deviation effect size difference between the educational book and no-book groups, and a 0.67 standard deviation effect size between the educational book and non-educational book group (Table 4).

Previous research has found that African-American parents are more likely to support the use of corporal punishment with their children (Flynn, 1996, 1998), as are families with lower levels of formal education (Straus & Stewart, 1999).

Table 4
AAPI Corporal punishment subscale—study group means, regression adjusted treatment effect, differences by race and education level.

AAPI-corporal punishment subscale	Educational book <i>n</i> = 53 <i>n</i> pooled across 4 waves = 190 Mean (SD)	Non-educational book <i>n</i> = 56 <i>n</i> pooled across 4 waves = 194 Mean (SD)	No-book <i>n</i> = 58 <i>n</i> pooled across 4 waves = 219 Mean (SD)	Between group comparisons					
				Educational book vs. no-book		Educational book vs. non-educational book		Non-educational book vs. no-book	
				Coefficient (SE)	Cohen's <i>d</i>	Coefficient (SE)	Cohen's <i>d</i>	Coefficient (SE)	Cohen's <i>d</i>
Full sample									
Pooled across waves	4.45 (1.77)	3.31 (1.66)	3.98 (2.03)	0.81* (0.32)	.25	1.24*** (0.29)	.67	−0.31 (0.31)	−.36
2 months	4.14 (1.77)	3.16 (1.40)	3.86 (1.85)	0.84* (0.38)	.16	1.36*** (0.36)	.62	−0.35 (0.32)	−.42
6 months	4.27 (1.75)	3.33 (1.85)	3.96 (2.10)	0.49 (0.41)	.16	1.06** (0.41)	.52	−0.48 (0.40)	−.32
12 months	4.91 (1.68)	3.35 (1.59)	4.04 (2.20)	1.05* (0.41)	.45	1.53*** (0.36)	.97	−0.28 (0.37)	−.36
18 months	4.52 (1.82)	3.40 (1.80)	4.07 (2.01)	0.96* (0.39)	.26	1.12** (0.40)	.62	−0.17 (0.38)	−.35
Race differences									
Blacks	4.24 (1.77)	3.02 (1.48)	3.23 (1.79)	1.09** (0.39)	.57	1.43*** (0.34)	.75	−0.09 (0.40)	−.13
All other race/ethnic groups	5.00 (1.66)	3.83 (1.83)	4.93 (1.93)	−0.46 (0.58)	.04	1.09 (0.60)	.67	−0.84 (0.53)	−.58
Education differences									
Low education	4.59 (1.84)	3.28 (1.52)	3.68 (1.89)	1.65*** (0.30)	.49	1.50*** (0.27)	.78	−0.33 (0.38)	−.23
High education	4.33 (1.71)	3.34 (1.81)	4.29 (2.15)	0.22 (0.47)	.02	1.11* (0.49)	.56	−0.76 (0.43)	−.47

The bold values denote significant relationships.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

Additional analyses were conducted to assess whether the educational intervention was effective in changing attitudes for different races and educational levels.

African American mothers and corporal punishment

In order to compare how corporal punishment attitudes varied for African-American and non-African-American participants in each group, an OLS regression analysis was conducted in which African-American status was the reference group and assessments looked at data at each wave and pooled across all observations (at 2, 6, 12, and 18 months). This analysis found that African-Americans in the educational book group were significantly less likely to support the use of corporal punishment than African-American participants in the other 2 groups (pooled effect size = .75 (educational book vs. non-education book), $p < 0.001$ and pooled effect size = .57 (educational book and no-book group comparison), $p < 0.01$). No significant difference was found for comparisons for other races and ethnicities or between the non-education book and no-book groups. See [Table 4](#) for details.

Educational attainment and corporal punishment

To compare whether education influenced new mothers' attitudes toward corporal punishment, participants were divided into 2 groups: high and low education level. Those with high education levels had completed at least some college. Those participants categorized as low education had completed some high school or received a high school diploma or GED. Comparisons between groups found that participants in the educational book group who had low educational attainment were less likely to endorse the use of corporal punishment than other lower educated participants in the non-educational book (pooled effect size = 0.78, $p < 0.001$) and no-book groups (pooled effect size = 0.49, $p < 0.001$). Participants with higher educational attainment in the educational book group were less likely to support the use of corporal punishment than highly educated participants in the non-educational book group (pooled effect size = 0.56, $p < 0.05$). No significant differences were found between the non-education and no-book groups. See [Table 4](#) for details.

Discussion

Educational baby books appear to not only be an effective way to teach low-income, new mothers about typical child development and effective parenting (Reich et al., 2010), they are also a low-cost way to change attitudes toward parenting, especially regarding the use of corporal punishment. These educational books were especially beneficial for changing attitudes about corporal punishment for African-American mothers and women with low educational levels.

Curiously, more group differences on the subscales of the AAPI were found between the educational book and non-educational book groups than the no-book group (see [Table 3](#)). Specifically, the educational book group had more appropriate expectations of child development, greater empathy, and less of a tendency toward role reversal or support of corporal punishment than the non-educational book group, but only in the case of corporal punishment was the educational book vs. no-book contrast statistically significant. Before making too much of these differences, it is important to point out that in the case of the corporal punishment, empathy and inappropriate expectations subscales, the scores for the non-educational book group and no-book group were not significantly different from one another (last panel of [Table 3](#)). Why mothers given non-educational books would score significantly lower than the no-book mothers on the role reversal and power independence scale is difficult to interpret. Nonetheless, given that the goal of the intervention was to alter attitudes toward disciplining children by physical means, the books were effective for reducing new mothers' support of corporal punishment as an effective way to discipline young children.

Utility of baby books

While providing printed educational material (e.g., brochures, hand-outs) is a common method for educating parents, research has found typical educational material to be written at a reading level higher than the general population's ability (e.g., Davis et al., 1994; Freda, 2005). With the use of baby books, educational information can be provided at a very low reading level and in a visually interesting manner. Furthermore, baby books are more likely to be read repeatedly than handouts and brochures, which learning theorists have shown to support retention (Surber, 2001).

In addition to being a more accessible medium than other printed materials, educational baby books are relatively low-cost and easy to implement at a large scale. These books could be disseminated during pediatric visits, added to programs such as Reach Out and Read (Mendelsohn et al., 2001), offered through public assistance and community programs, and even mailed directly to families. When printed in bulk, these books are rather inexpensive (\$1–\$2 each). Moreover, giving educational baby books to families provides additional opportunities for parent-infant reading which is beneficial for mother-child interactions (Bus, 2001), children's language development (Karrass & Braungart-Rieker, 2005; Raikes et al., 2006), and future reading ability (National Reading Panel, 2000).

Limitations

While these findings are promising, there are some limitations to this study. Although random assignment was used, there was no baseline measurement of pregnant women's parenting attitudes. Thus, it is possible that random assignment failed to create groups with similar baseline distributions. Second, this sample was predominately African-American and low-income and thus, these findings may not generalize to other races and women with higher incomes. Along these lines, only new mothers were included in this study and little is known about how the educational books would influence the attitudes of fathers or mothers with more parenting experience. Additionally, information about income was missing from about 1/3 of participants. While the obstetric continuity clinics serve predominately low-income women, missing values make conclusions about the income of the sample difficult. Another limitation is that while the baby books were written at a first grade reading level, the AAPI is written at a slightly higher reading level. Although the AAPI is a widely used instrument with similar populations, reading difficulties on the dependent variable could influence these findings. Also, while most of the mean values for the subscales were higher for the educational book group, not all differences were significant. As with any study, larger sample sizes would have given us more power to detect smaller effects. Lastly, the study measured parenting attitudes about corporal punishment but did not assess actual discipline practices. While research has found that attitudes and behaviors are often congruent (Festinger, 1957; Reppucci, Britner, & Woolard, 1997) especially in regards to the use of corporal punishment (Gagné, Tourigny, Joly, & Pouliot-Lapointe, 2007; Pinderhughes, Dodge, Bates, Pettit, & Zelli, 2000), it is possible that these mothers endorsed attitudes that did not coincide with their parenting behaviors. Future research should explore actual parenting practices in addition to attitudes.

This project tested a new intervention and was therefore able to include comparison and control groups. However, ethical concerns would arise from withholding the intervention, if it had previously been shown to be effective. Future work focused on changing parental attitudes, especially around the use of corporal punishment, in high-risk populations should be cognizant of this ethical issue when selecting a research design.

Conclusion

Using a three-group randomized design, this study found that embedding educational information into baby books is an effective method for changing new mothers' parenting attitudes, especially the endorsement of corporal punishment. These findings are promising as the intervention is low-cost, easy to implement, and prone to increase the likelihood of mothers reading to their infants and toddlers.

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