

Helping Children be Safe Outdoors with Sun Protection

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Disclosure

JAMA Dermatology Editor-in-Chief, 2004- current

Research supported in part by the Pediatric Sun Protection Foundation, Inc.

The presenters have no conflicts of interest.

Background

Establishing sun protective habits among 2-6 year old children may minimize sun damage and foster lifelong sun-protective behaviors that will reduce the likelihood of developing melanoma.

At-risk populations: non-Hispanic Whites and Latinos/ Hispanics (Latinos)

Method: randomized clinical trial

- Summer 2015, caregivers of 2-6 year old children recruited on-site by research assistants at two Chicago pediatric clinics with similar SES
 - Randomly assigned to receive
 - 1) 12 page read-along book, a swim shirt, + weekly text message reminders, or
 - 2) Usual information (controls)
- Subject compensation



Outcome Measures

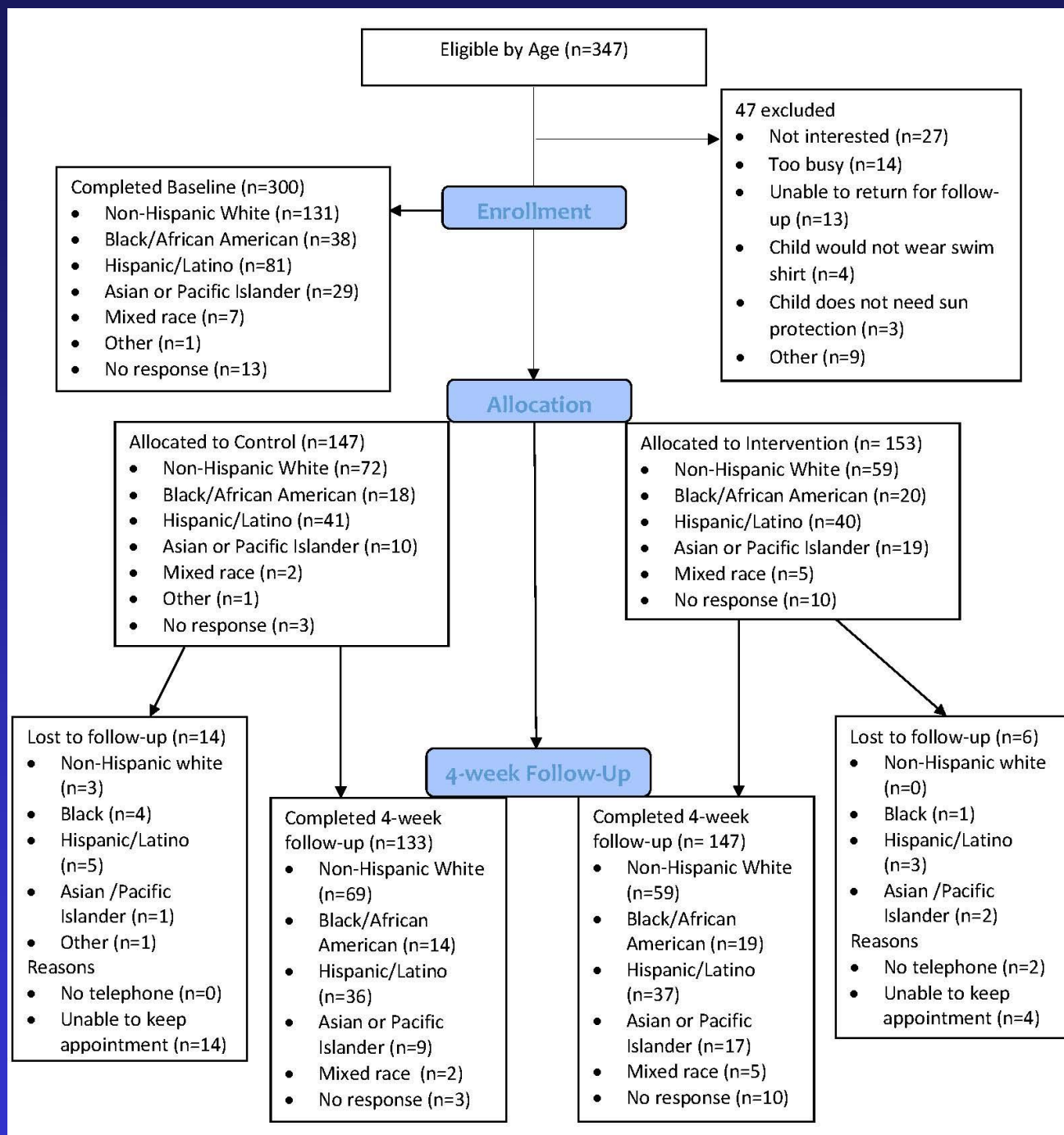
- Caregiver-reported use of sun protection by the child (seeking shade, wearing sun-protective clothing and sunscreen application), and duration of outdoor activities at baseline and 4 weeks.
- Biologic measure of skin pigmentation of sun-exposed right dorsal forearm and sun –protected right upper arm (when wearing the provided short sleeve shirt) obtained with spectrophotometer at baseline and 4 week follow-up.
- Mixed ANOVAs performed to test intervention effects on the outcome measures.

Results

- 86.5 % participation with 300 pairs enrolled
- 93.3% retention of 280 pairs
- No attrition bias on demographic characteristics; but those lost to follow-up had lower baseline caregivers' perception of their risk of getting skin cancer ($t = 3.279$; $P = .001$) and reported their children were less likely to wear a hat on a sunny day ($t = -3.174$; $P = .004$) and less likely to use sunscreen on a cloudy day ($t = -2.219$; $P = .03$)

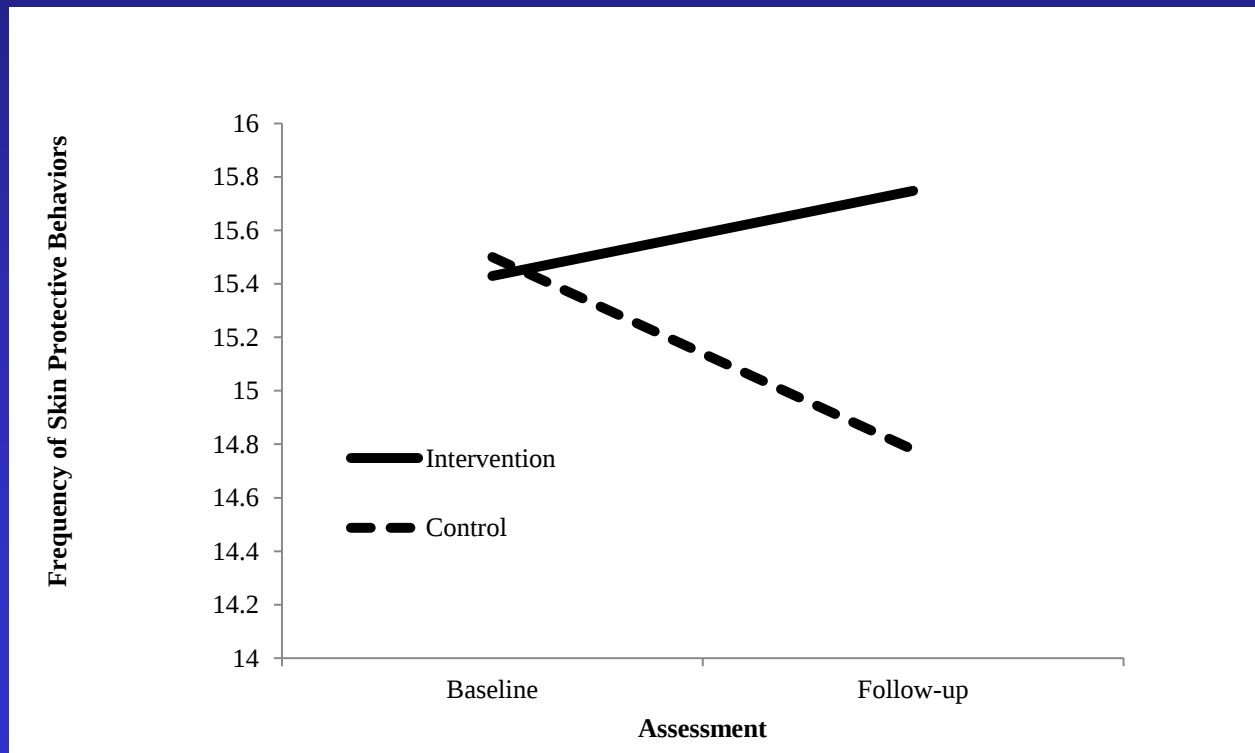
CONSORT

Figure



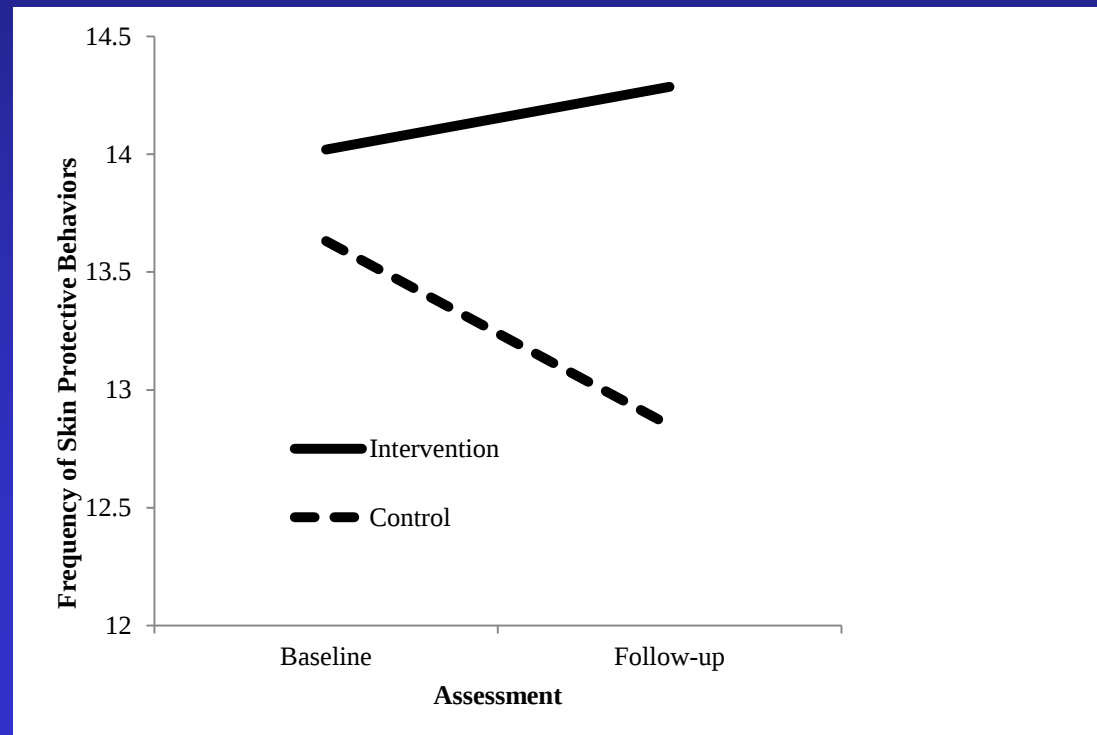
Results: Sunny Day Sun Protective Behaviors

Intervention group significantly increased their sun protective behaviors on sunny days (mean difference between follow-up and baseline = +0.319) and the control group decreased their behaviors (mean difference = -0.72)



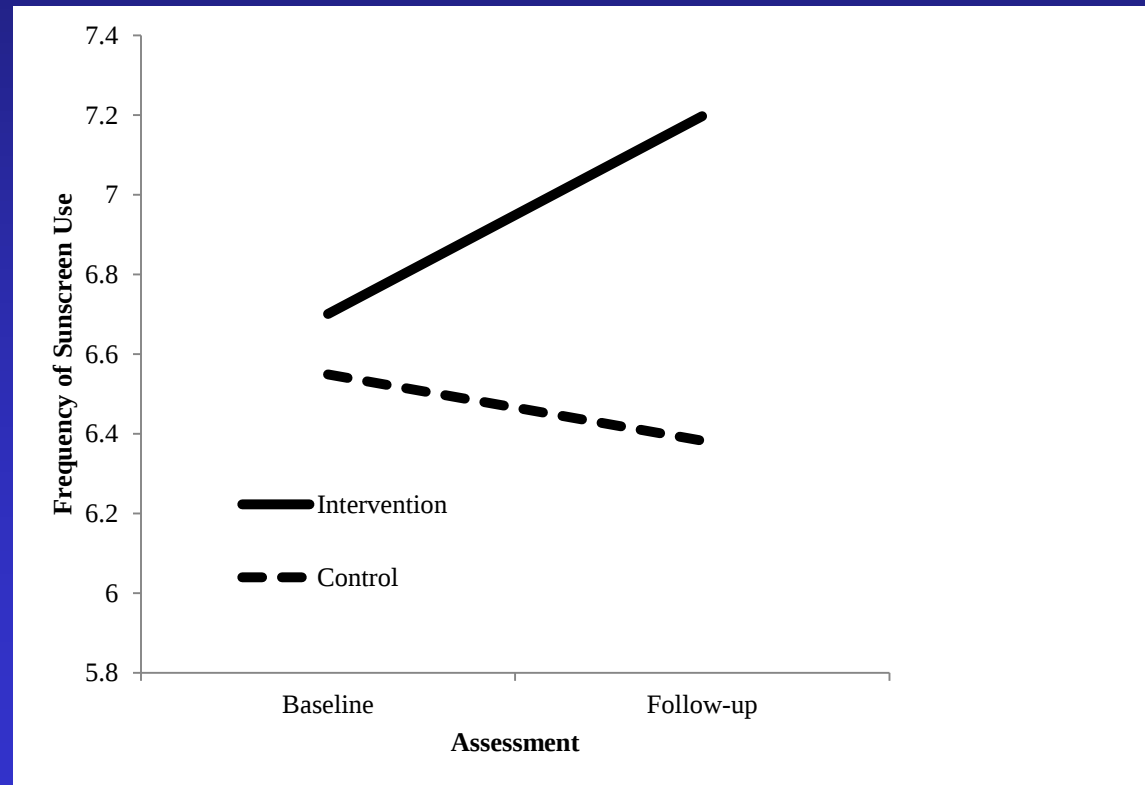
Results: Cloudy Day Sun Protective Behaviors

On cloudy days, the intervention group significantly increased the sun protection behaviors (mean difference = +0.266) and the control group significantly decreased their behaviors (mean difference = -0.782).



Results: Sunscreen Behavior

Intervention group significantly increased sunscreen use on sunny days (mean diff +0.091) and on cloudy days (mean difference + 0.099).



Results: Melanin Index

There was significant increases in pigmentation of the upper arm in the control from baseline to follow-up across all skin types that were not observed in the intervention groups. (ANOVAs)

Mean difference baseline to control for skin type:

1: 29.269 nm

2: 41.530 nm

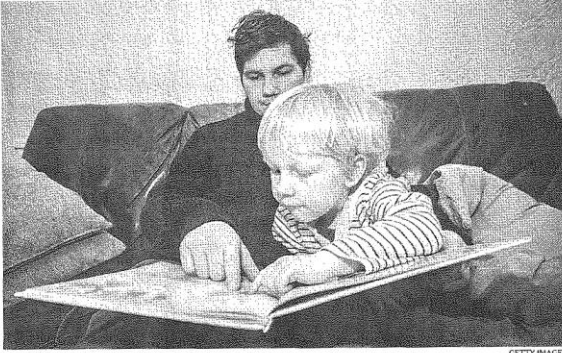
3: 55.66 nm

4,5,6: 124.66 nm

Conclusions

- In pediatric practices that distribute read-along books as part of a literacy program, it is feasible to distribute this read-along book.
- This multicomponent intervention demonstrated was effective. It is not possible to separate the effect of the various components.
- Pediatricians' seasonal age-specific sun protection counseling (if provided) will be more effective if supported by a program that can be reinforced at home.

Turn the Page, Spur the Brain



GETTY IMAGES

Reading to children leads to stunningly complex interactions, two studies say.

A LITTLE MORE THAN a year ago, the American Academy of Pediatrics issued a policy statement saying that all pediatric primary care should include literacy promotion, starting at birth.

That means pediatricians taking care of infants and toddlers should routinely be advising parents about how important it is to read to even very young children. The policy statement, which I wrote with Dr. Pamela C. High, included a review of the extensive research on the links between growing up with books and reading aloud, and later language development and school success.

But while we know that reading to a young child is associated with good outcomes, there is only limited understanding of what the mechanism might be. Two new studies examine the unexpectedly complex interactions that happen when you put a small child on your lap and open a picture book.

This month, the journal *Pediatrics* published a study that used functional magnetic resonance imaging to study brain activity in 3-to 5-year-old children as they listened to age-appropriate stories. The researchers found differences in brain activation according to how much the children had been read to at home.

Children whose parents reported more reading at home and more books in the home showed significantly greater activation of brain areas in a region of the left hemisphere called the parietal-temporal-occipital association cortex. This brain area is "a watershed region, all about multisensory integration, integrating sound and then visual stimulation," said the lead author, Dr. John S. Hutton, a clinical research fellow at Cincinnati Children's Hospital

Medical Center.

This region of the brain is known to be very active when older children read to themselves, but Dr. Hutton notes that it also lights up when younger children are hearing stories. What was especially novel was that children who were exposed to more books and home reading showed significantly more activity in the areas of the brain that process visual association, even though the child was in the scanner listening to a story and could not see any pictures.

"When kids are hearing stories, they're imagining in their mind's eye," said Dr. Hutton. "For example, 'The frog jumped over the log.' I've seen a frog before, I've seen a log before, what does that look like?"

The different levels of brain activation, he said, suggest that children who have more practice in developing those visual images, as they look at picture books and listen to stories, may develop skills that will help them make images and stories out of words later on.

"It helps them understand what things look like, and may help them transition to books without pictures," he said. "It will help them later be better readers because they've developed that part of the brain that helps them see what is going on in the story."

Dr. Hutton speculated that the book may also be stimulating creativity in a way that cartoons and other screen-related entertainments may not.

"When we show them a video of a story, do we short circuit that process a little?" he asked. "Are we taking that job away from them? They're not having to imagine the story; it's just being fed to them."

We know that it's important that young children hear language, and that they need to hear it from people, not from screens. Unfortunately, there are serious disparities in how much language children hear — most famously demonstrated in the Hart and Risley study that found poor children heard

millions fewer words by age 3.

But it turns out that reading to — and with — young children may amplify the language they hear more than just talking. In August, *Psychological Science* reported on researchers who studied the language content of picture books. They put together a selection from teacher recommendations, Amazon best sellers, and other books that parents are likely to be reading at bedtime.

In comparing the language in books to the language used by parents talking to their children, the researchers found that the picture books contained more "unique word types."

"Books contain a more diverse set of words than child-directed speech," said the lead author, Jessica Montag, an assistant research psychologist at the University of California, Riverside. "This would suggest that children who are being read to by caregivers are hearing vocabulary words that kids who are not being read to are probably not hearing."

So reading picture books with young children may mean that they hear more words, while at the same time, their brains practice creating the images associated with those words — and with the more complex sentences and rhymes that make up even simple stories.

I have spent a great deal of my career working with Reach Out and Read, which works through medical providers to encourage parents to enjoy books with their infants, toddlers and preschoolers. This year, our 5,600 program sites will give away 6.8 million books (including many to children in poverty), along with guidance to more than 4.5 million children and their parents. (The group also provided some support to Dr. Hutton's research.)

Studies of Reach Out and Read show that participating parents read more and children's preschool vocabularies improve significantly. But even as someone who is already one of the choir, I am fascinated by the ways that new research is teasing out the complexity and the underlying mechanisms of something which can seem easy, natural and, well, simple. When we bring books and reading into checkups, we help parents interact with their children and help children learn.

"I think that we've learned that early reading is more than just a nice thing to do with kids," Dr. Hutton said. "It really does have a very important role to play in building brain networks that will serve children long-term as they transition from verbal to reading."

And as every parent who has read a bedtime story knows, this is all happening in the context of face-time, of skin-to-skin contact, of the hard-to-quantify but essential mix of security and comfort and ritual. It's what makes toddlers demand the same story over and over again, and it's the reason parents tear up (especially those of us with adult children) when we occasionally happen across a long-ago bedtime book.

Conclusion

- Bed-time stories happen in the context of face-time, skin-to-skin contact, within the context of security, comfort and ritual.
- Toddlers demand the story over and over again, create stories in their imagination, and practice concepts.