



# Feasibility of a Brief, Medical-Student Led Educational Intervention for Early Literacy in Homeless Children

Kaitlyn Petruccelli<sup>1</sup>, Amy Hersh<sup>2</sup>, Joshua Davis<sup>1</sup>, Tara Berman<sup>3</sup>

<sup>1</sup>Sidney Kimmel Medical College at Thomas Jefferson University, Philadelphia, PA

<sup>2</sup>Nemours Children's Health System, Wilmington, DE

<sup>3</sup>Department of Pediatrics, Thomas Jefferson University, Philadelphia, PA

## Abstract

**Introduction:** Promoting early literacy is one of the most important ways for caregivers to set their children up for success later in life. Homeless youth are at a marked increase risk for decreased literacy compared to their peers. The goal of this project is to assess the feasibility of a medical-student based educational intervention to increase early literacy awareness among homeless mothers of young children.

**Methods:** Two medical students were trained to give a brief, educational intervention to mothers in a homeless shelter at the same time as a student-run health clinic was conducted. Before and after the intervention, mothers were asked to complete a short survey on the importance of literacy to their child and their intention to read to their child. The children of these mothers were allowed to select a book to keep after the intervention.

**Results:** Sixty-six mothers completed the pre and post surveys. Most of the mothers were unemployed and had been homeless less than 6 months. Mothers identified not having enough time, a quiet place, or enough money as the most common barriers to reading to their children. Before the intervention, 65% indicated reading to their child less than 1 hour per week. After the intervention, 85% indicated an intention to read more than one hour per week to their child.

**Conclusion:** Our study demonstrated that a brief, medical-student based educational intervention is feasible and can improve intention to read among certain homeless mothers. Much more research is needed to confirm the efficacy of this intervention in this population.

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## Introduction

Reading to young children is one of the most important ways for parents and caregivers to set a child on the path for success. There is a 30 million word exposure difference by the age of four between children from middle class and underprivileged homes.<sup>1-3</sup> This word gap leads to a decrease in third grade literacy, which is the strongest predictor we have for life success, including high school dropout rates,

college graduation rates, and employment selection.<sup>3</sup> Furthermore, there is evidence of a positive link between parents' literacy practices and children's later language and literacy skills.<sup>4,5</sup>

There are approximately 2 million homeless children in the US and over 30,000 in the state of Pennsylvania.<sup>6,7</sup> Less than ¼ of the children eligible for School Lunch Program in Pennsylvania meet their fourth grade reading goals as assessed by the

National Assessment of Educational Progress.<sup>6</sup> Many young children in this unfortunate circumstance already begin their life with an unstable home life and with many barriers to access the support systems that are available to the general population. Healthcare providers could make significant strides against this disparity by an early literacy education intervention and outreach program at the local homeless shelters. There is a substantial body of literature to support early interventions promoting parents reading to children<sup>8-10</sup> and future literacy.<sup>11-13</sup>

The American Academy of Pediatrics has developed age-specific resources<sup>14</sup> for parental education regarding early literacy; however, whether these tools are effective outside of the primary care office setting has not yet been studied. Research has demonstrated that other community-based interventions for literacy are feasible and beneficial.<sup>15-17</sup> The goal of this study is to preliminarily study the feasibility and effectiveness of a brief medical-student based educational intervention with these resources in a homeless population and to determine if it improves parents' intention to read to children.

## Methods

The study took place between August 1, 2015 and June 1, 2016 during weekly sessions of a student-run health clinic in a women and children's acute homeless shelter in Philadelphia, PA. The clinic took place on the same day and at the same time (6-9PM) every week and occasionally did not occur due to holidays or inclement weather. A convenience sample of mothers present at the shelter during these weekly clinics participated in the intervention. Our goal was to seek out mothers with children less than five years old; however, providing reading resources to children remained the priority of the intervention. Therefore, no child or mother who requested information or a book was turned away.

Two medical students who attended clinic were trained on the intervention (KP, JD) by the primary investigator (AH) for two one-hour sessions.

The purpose of the intervention was to be a brief (approximately five minute) discussion with mothers about the importance of early literacy in children using AAP-developed resources. In addition, each child was given one of a selection of books to keep. If the child was present the following week, they were encouraged to trade in one of their books for another one. As part of the clinic services, childcare was provided while the clinic staff was present.

The survey was developed by the study authors (Supplements 1 and 2). The survey was reviewed by the senior author (TB) for face validity. The 19 question pre-intervention and four question post-intervention survey was preliminarily tested with a pilot sample of 10 mothers from the shelter and modified based on the results. Nearly all of these changes at this stage were for grammar and formatting to make the survey more easily understandable by the mothers.

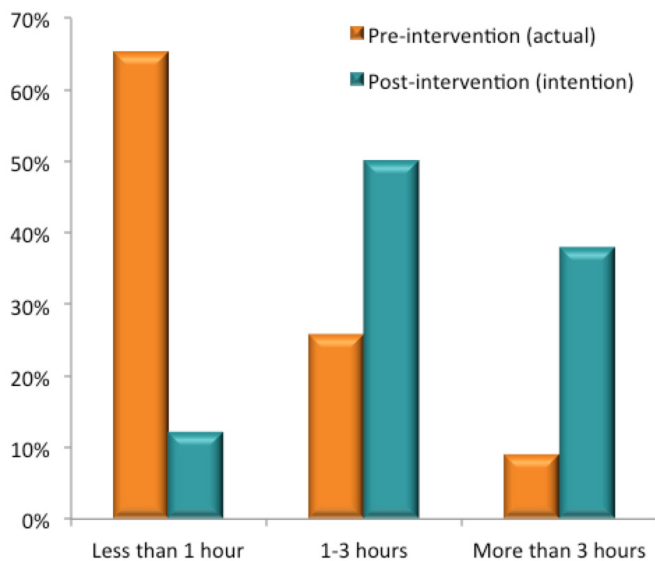
The pre-survey was administered to the mothers by one of the medical students prior to initiating the educational intervention. The mothers had the option of having the questions verbally administered or self-reporting on a paper version. After the intervention, the post-intervention survey was administered in the same manner as the pre-intervention survey. At the suggestion of the grant reviewers, we added in questions about access to healthcare. Mothers indicating they did not have a library card were given information on how to obtain one at the nearest local library. We provided information about insurance coverage and local pediatricians to those mothers indicating that their child did not have them. Opportunities for literacy and wellness promotion were provided.

Descriptive statistics were calculated with Microsoft Excel 2010 (Seattle, WA). This study was granted exemption from IRB review by Thomas Jefferson University, as no identifiable information was collected. Portions of this study were funded by a Community Access to Child Health (CATCH) grant from the AAP.

## Results

A total of 66 mothers completed the survey. This was a convenience sample, so the total number of mothers eligible is unknown. Most of the mothers (64%, 42/66) were between 22-30 years old. Eight parents indicated that they did not have a child under the age of five years old. Most mothers (47%, 31/66) were high school educated, with 24% (16/66) indicating less than high school education and 29% (18/66) having at least one year more than high school education. Most (77%, 51/66) were currently unemployed and most (85%, 56/66) had been homeless less than six months.

At baseline, 65% (43/66) of mothers read to their child 1 hour or less per week (Figure 1). Most mothers (70%, 46/66) had been to the library with their child at least once in the past year, but few (27%, 18/66) had been more than five times. The most common barriers (Figure 2) to reading with children were not enough time (74%, 49/66), not having a quiet place (73%, 48/66), and not having money for books (65%, 43/66). Maternal literacy was an issue in 29% (19/66) of the respondents. Most mothers (82%, 54/66) indicated that reading and sharing books was “very important” or “the most important thing in my child’s life”.



At the post-intervention survey, most mothers (88%, 56/66) indicated an intention to read to their child more than one hour per week (Figure 1). Of respondents, 74% (49/66) indicated an intention to go to the library with their child more than five times in the upcoming year. Slightly more mothers (91%, 60/66) rated reading and sharing books as “very important” or “the most important thing in my child’s life”. All but one mother (98%) planned to have a routine for sharing books with their children in the future.

## Discussion

Our medical student-based intervention shows promise as a way for student run health clinics to combat barriers to literacy in a homeless population. The AAP resources provide a foundation for a discussion with mothers in this setting on the importance of early literacy.

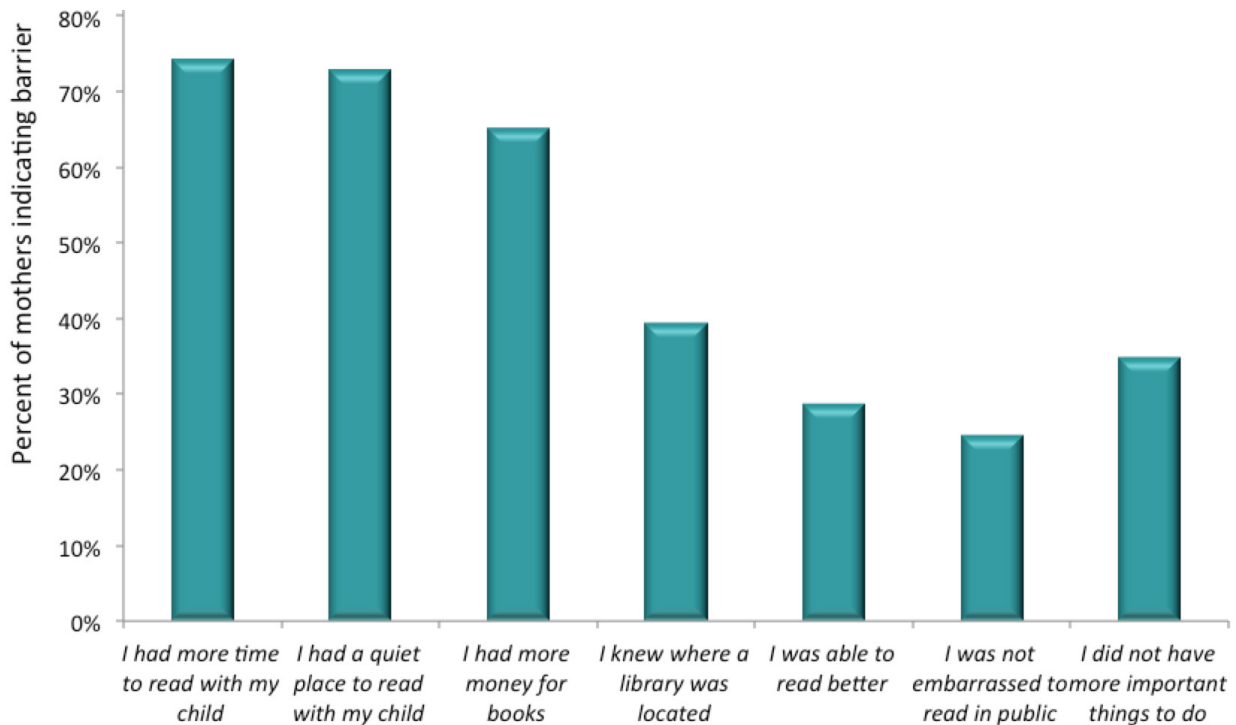
Most mothers indicated reading to their children as high importance, even before the intervention. However, the amount of time spent reading to their children and visits to the library indicate that there are barriers to making the intention to read into a reality. Our intervention improved the intention of time to read to their child and provided both books and an opportunity to read to their child. Through conversations during our intervention, we learned that mothers often struggled to engage their children in reading due to their children’s young age or disinterest. Our intervention provided mothers with specific, age-appropriate techniques to engage their children in reading. We modeled these techniques often by either reading with the children in their rooms after they selected their book or by conducting reading activities with the children in the shelter’s community rooms. Giving newly homeless mothers information about local libraries and how to get library cards will also hopefully make it easier for them to act on their intention to take their child to the library more often.

Because the clinic is located in an acute shelter (i.e., residents are often newly homeless and stay

less than 30 days before being transferred to more long term housing), the family's lengths of stay vary. However, we often encountered the same families for at least a few consecutive weeks. This allowed us to establish a lending library with the children of mothers who had previously participated in the intervention. By establishing this routine of exchanging books each week, we continued to support mothers' intention to read for weeks after our intervention and the enjoyment of a book exchange similar to a library.

Not having enough time, enough money, and not having a quiet place to read were common barriers identified by mothers to reading to children in this setting. Educating mothers on the importance of early literacy, providing children with access to age-appropriate books, and modeling book sharing and engagement with young children helps to combat these barriers. Also, having childcare at the time of a student-run clinic helps to allow mothers with multiple children time to read to their children and helps make the shelter a quieter environment, conducive to reading.

Our study demonstrates that this type of program is feasible. Several significant limitations exist, however, when interpreting the results for efficacy. The results of intention to read may not necessarily correlate into actual time spent reading or improved literacy. This also could have been affected by reporting bias or the fact that the mother had just received an educational intervention on literacy. Our study is open to selection bias, as the shelter is an acute homeless shelter, the shelter only accepts women, and the clinic only occurs once per week. We may have missed many potential mothers due to the episodic nature of our clinics, or to the fact that they were not in the shelter during the hours of the clinic. Also, mothers who already did not value early literacy may have chosen to not participate in the program. The acute nature of the shelter means many mothers were newly homeless, which means that they may have intentions of continuing reading practices they had previously conducted, which may not be as easy to complete in a homeless setting with more limited resources. While we plan on continuing the program, we do not have any data on sustainability beyond the one year scope of this project.



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Future research on the interventions similar to this should use more concrete outcomes (actual hours reading or school performance, phone or in-person follow up), have a larger and more diverse sample size, collect more robust data to control for confounders, and consider using a randomized control design. Our study was not designed to do this, as it was an advocacy project with an evaluation component. We only sought to demonstrate preliminary feasibility. Other ideas include integrating technology into interventions (video or smart phone) to improve follow up and standardization and attempting this intervention at other community settings and institutions.

## Conclusions

A medical student-based educational intervention at a student-run health clinic in a homeless shelter improved intention to read to children among homeless mothers. This preliminary study demonstrates that such a program is feasible. Much more research is needed to demonstrate its efficacy and sustainability.

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## Appendix: Surveys

### *Initial Survey*

You are being asked to complete this survey about reading to your child. This survey is voluntary, which means that you do not have to complete it or answer any questions that you do not want to. The survey should take about 5 minutes to complete. Please ask the research team member if you have any questions about the survey.

- 1) How old are you?
  - 21 years old or younger
  - 22-30
  - 31-40
  - 41-50
  - 51 years or older
- 2) How many children under the age of 5 do you have?
  - 0
  - 1
  - 2
  - 3
  - 4
  - 5 or more
- 3) What is your highest level of education?
  - Less than 3rd grade
  - 3-6 grade
  - 7-11 grade
  - 12th grade or GED
  - 1 year after HS
  - 2 years after HS
  - 3+ years after HS
- 4) Do you currently have a job?
  - Yes
  - No
- 5) How long have you been homeless?
  - Less than 1 month
  - 1-5 months
  - 6-12 months
  - More than 1 year
- 6) Does your child currently have a pediatrician or primary care doctor?
  - Yes
  - No
- 7) Do you have health insurance for your child?
  - Yes
  - No
- 8) Has your child received all needed vaccines?
  - Yes
  - No
- 9) Have you ever received a book from your child's doctor?
  - Yes
  - No
- 10) How much time per week do you currently read with your child?
  - Less than 30 minutes
  - 30-60 minutes
  - 1-3 hours
  - More than 3 hours
- 11) In the past year, how many times have you visited a library with your child?
  - None
  - 1-5
  - 6-10
  - More than 10 times



**I would be able to read to my child more if...**

- |  | Yes                   | No                    |
|--|-----------------------|-----------------------|
| 12) I had more time to read with my child      | <input type="radio"/> | <input type="radio"/> |
| 13) I had a quiet place to read with my child  | <input type="radio"/> | <input type="radio"/> |
| 14) I had more money for books                 | <input type="radio"/> | <input type="radio"/> |
| 15) I knew where a library was located         | <input type="radio"/> | <input type="radio"/> |
| 16) I was able to read better                  | <input type="radio"/> | <input type="radio"/> |
| 17) I was not embarrassed to read in public    | <input type="radio"/> | <input type="radio"/> |
| 18) I did not have more important things to do | <input type="radio"/> | <input type="radio"/> |
- 19) Please rate the importance of reading and sharing books with your child BEFORE today.
- Not important
  - Somewhat important
  - Important
  - Very important
  - The most important thing in my child's life
  - Unsure



## *Concluding Survey*

For the following questions, please answer based on what you **PLAN** to do in the future.

- 1) How many hours per week, on average, do you plan to read with your child?
  - Less than 1 hour
  - 1-3 hours
  - 3-5 hours
  - More than 5 hours
  
- 2) In the next year, how many times do you plan to go to the library with your child?
  - Never
  - 1-5 times
  - 6-10 times
  - 11-20 times
  - More than 30 times
  
- 3) Do you plan to have a routine for reading or sharing books with your child?
  - Yes
  - No
  
- 4) Please rate the importance of reading and sharing books with your child **NOW**.
  - Not important
  - Somewhat important
  - Important
  - Very Important
  - Most important thing in my child's life
  - Unsure