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REDUCING THE USE OF EMERGENCY MEDICAL RESOURCES AMONG HEAD START FAMILIES: A PILOT STUDY

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ABSTRACT: The objective of this study was to determine whether self-care training with Head Start parents can improve their ability to manage the healthcare needs of their children measured by utilization of emergency department (ED) and physician services. Four hundred and six families in Head Start agencies were included in the study. Parents were given a low-literate self-help book entitled *What To Do When Your Child Gets Sick.* The study design included using multiple-choice, pre-and post-intervention survey data. In a six month follow-up, parents who received the book reported a 48% reduction in ED visits and a 37.5% reduction in clinic visits. More research is needed to determine if this self-care tool and additional training can have a significant impact on inappropriate use of medical resources.

KEY WORDS: literacy; self-care; survey; Head Start;emergency department.

INTRODUCTION

Use of hospital emergency departments (EDs) is on the rise. According to the National Hospital Ambulatory Medical Care Survey, the volume of ED visits in the United States increased by 14% from 1992 to 1999, from 89.8 million to 102.8 million per year.[1] Although patients visiting the ED are often treated for acute medical problems and severe injuries, the ED is also used as a safety net for those lacking access to primary healthcare. And these ED visits are expensive: the average cost of a non-urgent visit is roughly $200, approximately 2 to 3 times the cost of a regular doctor or clinic visit.[2] On average, it has been estimated that hospital EDs absorb a $46 loss per patient visit.

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The Promise of Self-Care

Many ED visits, especially those involving young children, are for nonurgent conditions such as cold symptoms or mild fever. Parents who are better informed about the appropriate use of the ED can help to decrease unnecessary visits, bringing costs down and lessening the burden on the overtaxed emergency medical system. In fact, evidence has been mounting about the benefits of self-care and health promotion for people across the life cycle.[3,4,5] By acquiring better self-care skills, patients can more actively participate in shaping the conditions that influence their health and that of their families and children.

Good self-care knowledge and training of parents can help to reduce unnecessary or inappropriate healthcare utilization. In a Swedish study,[6] mothers were given a self-care booklet and a self-care educational session about young children's minor illnesses. Of the 572 study participants, those mothers who read the child care section followed recommendations about when to seek (and not to seek) medical care significantly better than did those who had not read it ($p < .003$). Mothers who read the booklet were less likely to seek medical care when not recommended compared to those who did not read it ($p < .001$).

UCLA and Johnson & Johnson

Such interrelated issues of self-care, parental knowledge, and the appropriate use of medical resources coalesced in a U.S. study commissioned by Johnson & Johnson in 2000. Researchers at the University of California, Los Angeles (UCLA), were asked by Johnson & Johnson to survey alumni of the Head Start-Johnson & Johnson Management Fellows Program to gather data about the current health-related practices of Head Start agencies, identifying the most challenging operational issues for incorporation into future offerings of the fellows program curriculum. The program, conducted by the Anderson School of Management at UCLA and funded by Johnson & Johnson and the Head Start Bureau, is a training program established in 1991 to develop and strengthen the management skills of Head Start directors.[7]

In the 2000 survey, it was found that Head Start healthcare coordinators identified parenting skills as the most critical community risk factor affecting the health or mental status of low-income children, along with poverty and substance abuse.[8] In fact, parental knowledge was judged to be a substantial obstacle to the ability of children to obtain the appropriate health services. According to the survey, Head Start parents are unedu-

cated or misinformed about healthcare practices and lack the time to obtain the appropriate services for their children.

In response to these findings, UCLA and Johnson & Johnson launched this pilot study to educate Head Start parents so they can properly manage the health needs of their children. Recent research findings led the study team to select a self-care model that would be effective for a population of Head Start families, many of whom lack basic health literacy and do not have a firm grasp of medical terms and concepts. The self-care tool chosen for the study was the book *What to Do When Your Child Gets Sick*, by Gloria G. Mayer, RN, and Ann Kuklierus, RN, part of a series of easy-to-read self-help books published by the Institute for Healthcare Advancement (IHA).[9] Designed for readers with low health literacy (books in the series range from a third- to a fifth-grade reading level and are available in English as well as Spanish and Vietnamese translations), *What to Do When Your Child Gets Sick* offers easy-to-understand information on more than 50 common childhood medical problems, from fevers, infections, and pinkeye to heat rash, broken bones, bites, and poisoning.

Past surveys have shown high satisfaction with the book. A telephone survey of 256 caregivers of low-income English- and Spanish-speaking patients who received the book showed that more than 90% kept the book, used it multiple times, understood its contents, and avoided medical intervention for a common problem.[10] Anecdotal reports by survey participants noted that 5.1% of those who used the book reported that it had saved them a trip to the doctor's office.[10] Independent surveys of IHA books by Molina Healthcare of California and Northwest New Jersey Maternal and Child Health Network validated these findings.[10]

The objective of the following pilot study was to educate Head Start parents to properly manage the health needs of their children. The original purpose of the study was twofold: (1) to evaluate the impact of healthcare training by measuring results before and 6 months after training and (2) to measure the effectiveness of two different training models (a train-the-trainer model and a model in which parents were trained directly). The survey data presented in this article speak only to the first purpose; a future article will discuss which of the two training models was found to be more effective.

METHODS

The study consisted of 4 phases beginning in June 2001 and completed in August 2002. During the first phase, surveys were developed and

the 4 Head Start sites were identified. These were located in Hannibal, Mo.; Contra Costa, Calif.; Long Beach, Calif.; and El Monte, Calif. Phase 2 consisted of baseline surveys and training programs. In phase 3, data were tracked and focus groups were conducted. In phase 4, the surveys were conducted and results were analyzed by the principal investigators and researchers in the Anderson School of Management.

Volunteer sites were solicited from Head Start-Johnson & Johnson Management Fellows alumni. Four sites were selected based on the quality of the directors and their ability to recruit participants. The original goal at each site was a sample size of 100 participants, though 2 sites had slightly less and 1 slightly more. It was hoped that each site would have an equal division of participants in the control group (those who received the book only) and the intervention group (those who received the book plus training). Table 1 shows a breakdown of the number of participants in the intervention and control groups at each of the 4 participating Head Start agencies, along with a breakdown by racial classification and the primary languages spoken at each site.

Participants were identified by the name of the child and some parents had multiple children in Head Start programs. Head Start agen-

TABLE 1

Study Groups

	Hannibal, MO	*Contra Costa, CA*	*Long Beach, CA*	*El Monte, CA*	*Total*
Intervention Group	51	31	104	50	236
Control Group	37	68	15	50	170
					406
Children Served	392	1749	1614	1316	
Demo-graphics					
African-American	18%	23%	40%	3%	
Asian	1%	23%		4%	
Caucasian	79%	12%		2%	
Hispanic	2%	33%	60%	88%	
Native American	0%	0%		0%	
Other	0%	9%		3%	
Primary Language	English	Spanish	English	Spanish	

cies individually marketed the study to their clientele. Each agency offered incentives of dinner and other gifts, including the self-help book, to encourage parents to give their time. All participants completed a survey prior to receiving the complimentary dinner, after which those in the intervention group proceeded to the training class and those in the control group went home. A total of 406 parents filled out the pre-intervention survey, which was administered in person at each of the sites; 224 filled out the post-intervention survey.

RESULTS

Pre-intervention Surveys

During the pre-assessment phase, Head Start healthcare coordinators were asked a series of questions to determine their beliefs about the parents' attitudes and behaviors. Twenty-seven coordinators responded. When asked how often they believed Head Start parents used a book to learn about their children's health, only 4 (13%) responded "very often"; 9 (34%) responded "sometimes." Roughly half (14/27) responded "never." Of the 406 parents who answered the pre-assessment survey (intervention and control), almost 75% (300/406) noted that they did not have any books on child health. Only 106 (26%) responded that they did have such a book, suggesting that the coordinators' estimates were fairly conservative.

When asked whether the *What to Do* book seemed easy to understand, 19 (70%) of the coordinators responded "very easy"; 24 (90%) predicted that the book would be a useful intervention tool. Roughly the same number of coordinators (88%) responded that Head Start parents were "very interested" in the healthcare of their children. (An additional 12% guessed that parents were "somewhat interested.") However, approximately two thirds of the coordinators (17/27) felt that Head Start parents were only "somewhat confident" when it came to their children's health. By contrast, 7 (25%) felt that these parents were "not confident" and only 3 (11%) felt that that they were "very confident." More than 90% of the coordinators responded that Head Start parents were either "very anxious" (14/27) or "anxious" (11/27) about their children's medical care, suggesting that they may believe that these parents are eager to learn appropriate methods for dealing with their children's healthcare in general.

Along similar lines, approximately 78% of parents (315/406) responded that they were "very worried" when their children got sick. Yet

despite the assessments of the healthcare coordinators (with only 11% responding that parents were "very confident" about their children's healthcare), a total of 385 Head Start parents (95%) claimed they were "very confident" they could take care of their children when they became sick. A total of 294 parents (72%) replied that they "usually knew what to do" when a child was ill.

However, the parents' responses to several non-emergency medical conditions yielded surprising results about their knowledge concerning appropriate avenues for treatment. When asked what they would do if their child had a runny nose or cough, 49% (199/406) said they would take the child to the clinic or make an appointment with the doctor. One third (33%) responded that they would keep the child home from school. Very small minorities would look in a book (1%), ask family or friends what to do (1%), or call 911 or take the child to a hospital ED (2%). Roughly 14% (57/406) reported that they would "do nothing and wait." Similarly, when asked what they would do if their child had a temperature of 99.5° F, most parents responded that they would either take the child to a clinic or make a doctor's appointment (44%) or keep the child home from school (26%). Eighteen percent (73/406) responded that they would "do nothing and wait." Overall, then, the Head Start parents seemed unsure about the appropriate response to these mild condition.

Follow-Up Surveys: Impact of the Book and Training

The post-intervention survey was conducted 6 months after the original survey and composed of the same 49 questions, but with the addition of 6 questions about the What to Do book itself. In the follow-up survey, 70% more parents now reported that they had a book on child's health, and 38% more reported that they relied frequently on the advice of a healthcare book when their children became sick.

Most parents claimed to have used the book and had a positive experience with it. A total of 145 (96%) rated the book as "very easy to understand," with none reporting that it was "hard to understand" and only 3% reporting that they had not used the book. One hundred twenty-two parents (81%) found the book to be "very useful" and 26 (17%) found it useful "sometimes." Only 2% reported that they had not used the book in response to a question about the book's usefulness ("If you used this book, how useful was it?"). In response to the question "If you used this book, what would make the book better?" roughly 42% of the parents (63/151) thought the book was "perfect the way it is," and 32% (48/151) felt it would be helpful to "add more information." With 13% of parents (20/

151) recommending that the authors "add more pictures," more than half (51%) seemed curious to learn more, either by indicating their general desire for "more information" and more pictures (a combined total of 45%) or by suggesting that the authors "make [the book] longer" (6%). Seventy-one percent of respondents (107/151) claimed to have used the book "frequently," with 67% (101/151) rating the book "very well liked." (One third of parents [33%] found the book to be "okay.")

According to the survey, exposure to the self-care book or to the book with additional training affected the way many parents accessed their health information. Before the intervention, about half of the parents (52%) claimed to derive health information "from the doctor or clinic." Following the intervention, however, only 18% claimed to access health information this way—a decrease of 34%. The effects of the training were evident in parents' responses to the question "When your child is sick, where do you first go for help?" In the control group (those who received the book without the additional training), 69% responded that they would "call [their] child's regular doctor or health phone line." In the intervention group, however, which received both the book and training in how to use it efficiently, 58% responded that they would "look in a book," with only 28% reporting that they would "call [their] child's regular doctor or health phone line." (Only 1% of those in the control group responded that they would "look in a book" first.) Eight percent of those in the control group had noted that they would "take [their] child to the emergency room," whereas only 3% of those in the intervention group claimed they would take that route when a child was sick. (Seventeen percent in the control group would "call family or friends," whereas only 7% in the intervention group chose that option.) Overall, then, 6 months following the intervention more parents claimed they would turn to a book and fewer claimed they would take a child to the clinic or ED in response to a perceived illness.

Table 2 shows the relative percent changes of parents' reported responses to mild conditions before and after the intervention, including what they would do if their child had a fever of 99.5° F, had an earache, was vomiting and had diarrhea, or had a runny nose and a cough. In each case, more parents would look in a book and fewer would call 911, go to the ED, or go to the doctor or a clinic.

Parents' confidence levels seemed to be positively affected by the book and training. When asked whether they felt confident caring for their child's healthcare needs after reading the book, 84% responded that they were "more confident after reading the book" and 16% felt "the same after reading the book." According to the parents who responded to the

TABLE 2

Parent Responses Pre and Post Intervention

HEALTHCARE IMPACT–Parent Responses				
	% Change Pre vs. Post			
Method of Treatment	*99.5° Fever*	*Earache*	*Vomit & Diarrhea*	*Runny Nose/Cough*
Other	–12%	–2%	–20%	12%
Do Nothing and Wait	15%	2%	4%	–18%
Keep them Home from School	–10%	15%	9%	–2%
Look in a Book	13%	13%	17%	19%
Call 911/Go to Emergency Room	–3%	–4%	–2%	–5%
Go to Doctor/Clinic	–6%	–27%	–8%	–12%

follow-up survey, post intervention they made 161 fewer visits to the doctor or clinic ($p < .01$); 67 fewer calls to the doctor ($p < .03$); and 32 fewer visits to the ED ($p < .01$) (Figures 1 and 2).

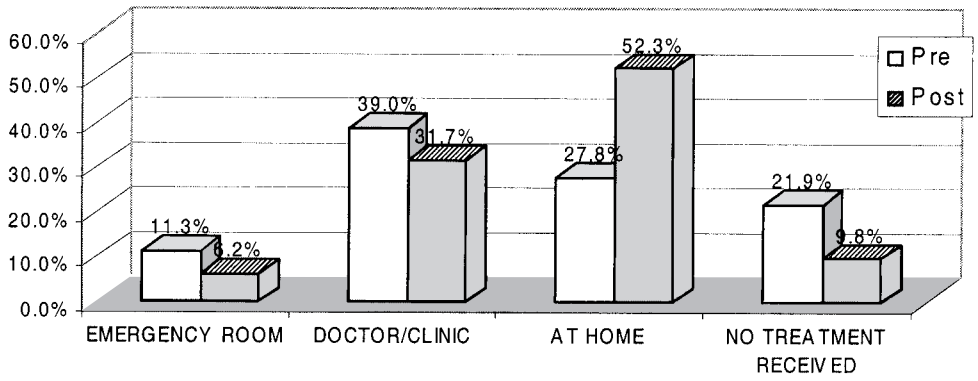
DISCUSSION

These results suggest that Head Start parents could benefit psychologically from training and access to a self-help book like *What to Do When Your Child Gets Sick*. And it seems clear that fewer unnecessary ED visits would have a positive fiscal impact on all stakeholders involved in emergency medical care, from patients to insurance companies.

The self-care tool and training program examined in this pilot study seemed to result in fewer visits to the ED as a primary treatment for a child's illness. Before the intervention, these Head Start families reported 66 visits to the ED; after the intervention, that number dropped by 32 visits to 34, a 48% reduction. Based on the $200 estimated cost for a single visit to the ED, this reduction translates into a cost savings of approximately $6,400 over 6 months and—extrapolating that figure—$12,800 over 1 year for those in the pilot group. This group was composed of 226 families; therefore, we estimate an average cost savings of $57 per

FIGURE 1

Coordinator responses to where child was seen.

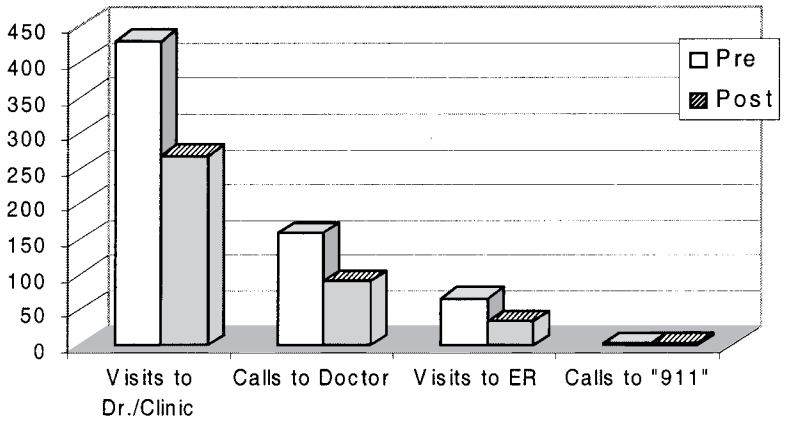


family annually. If a family achieved this savings on all the children in the family, the savings would be significantly higher. In addition, increasing the number of families trained should increase the savings accordingly.

The number of clinic visits also decreased during the study period. Before the intervention, Head Start families made 429 clinic visits. Following the intervention, 268 were reported. This is a 37.5% decrease in clinic visits. Because the average cost of a clinic visit is approximately $30, a

FIGURE 2

Parent responses on where child treated.



decrease of 161 visits translates into a total cost savings of $4,830 over 6 months and $9,660 over 1 year. Combining the savings in ED visits with the savings in clinic visits results in a $22,360 annual savings, approximately $99 per family trained by the Head Start coordinators.

In qualitative terms, use of this self-help book and the corresponding training program could have other advantages apart from those mentioned above. More knowledgeable parents keep better track of children's immunizations, decreasing unnecessary vaccinations and ensuring that their children are protected from debilitating illnesses. Better-informed parents provide improved well-child care for young toddlers and take better care of their future children, from conception through adolescence. Such parents might save time and money with their newfound ability to provide minor healthcare to family members, critically thinking through various healthcare options when a child is sick or taking advantage of preventive measures and less costly treatments when the time comes. In general, more knowledgeable parents raise children who miss fewer days of school, perform better academically, and lead happier and healthier lives—all important factors for at-risk children and children in general.

Study Limitations

Behavior change is a complex process that is often difficult to achieve and sustain. Health professionals realize that, in their work to encourage healthy behaviors, they are competing against powerful forces involving social, psychological, and environmental conditioning. Dean and Kickbush[11] view self-care as a continuum of caring for the self (or dependents) to enhance health, prevent disease, evaluate symptoms, and restore health. They see this continuum as organized by the perceptions, decisions, and options available to each individual. Lacking a more complex psychological profile of this specific population, our data on the beliefs and attitudes of Head Start families are necessarily tentative and limited.

The survey data used in this study present interesting indications of the impact of improved self-care skills on the healthcare behavior of parents. The data have three general limitations: 1) there is possible response bias due to the reduced number of post surveys collected (224) in comparison to the pre-surveys (406), which also limits the relevance of p values; 2) there was self-selection in the Head Start programs that participated as well as the parents at each location; and 3) the responses of the health coordinators are second-hand regarding the behavior of the parents.

CONCLUSION

Use of an easy-to-read, easy-to-understand self-care book on children's healthcare had a positive impact on parents' confidence and knowledge of basic medical interventions. Most Head Start parents and healthcare coordinators had a positive view of the book and believed it could be useful as an intervention tool. Over the 6-month period between the initial survey and the follow-up survey, parents in the 4 Head Start agencies made 34 fewer visits to the ED and 161 fewer visits to a clinic, relying more on information found in the book when their children became sick. Better utilization of medical resources, especially the ED, can help all parties involved: the sickest patients can receive more timely and appropriate medical care, healthier patients can receive better follow-up and helpful education in the clinic setting, hospitals can equip themselves to provide fiscally responsible and optimized medical care to their patients, and payors can reduce unnecessary costs related to inappropriate resource utilization.

In view of the diverse nature of self-care behavior, however, it seems unlikely that a single set of factors will be able to explain all forms of self-provided healthcare. More research is therefore necessary to determine whether a direct cause-effect relationship exists between the reduction in ED visits reported here and the availability of health information geared toward those with low health literacy, though these preliminary results are encouraging.

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