

Health Literacy Education:

For Parents of Children Preschool Aged and Younger

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### Abstract

**Purpose:** The purpose of health literacy education is to increase an individual's understanding of health and use of the healthcare system. Low health literacy is associated with misuse of healthcare resources and misunderstanding of healthcare teaching. Education has demonstrated efficacy in improving health literacy. A personalized educational program was provided to parents of Head Start children, offered in Spanish and English, and at a 3rd to 5th education level.

**Design:** Using an established program for health literacy education, a Doctor of Nursing Practice project was implemented. The effect the program had on increasing the health literacy of participants over a period of 4 weeks was examined. The predominately, Latina participants received three hours of instruction based upon the health literacy book "*What to do When Your Child Gets Sick*".

**Setting and Subjects:** The educational program took place in a large, urban county in the Southwestern United States with 24 parents of preschool age children in Head Start.

**Intervention:** The educational program contained three hours of classroom instruction utilizing PowerPoint® presentation, demonstration, and teach-back techniques on how to care for a child's healthcare needs.

**Measures and Analysis:** Pre-, post- and telephone surveys were used to assess the impact of the health literacy educational program. Wilcoxon and Freidman tests were used to interpret the results.

**Results:** Despite no significant increases in health literacy post implementation, participants' remarked that they felt the class was helpful and wanted to share the information

with friends and family. They appreciated the program and wanted more educational opportunities.

**Conclusion:** Advanced practice nurses must acquire understanding, cultural sensitivity, and assess the needs of the community when implementing health literacy educational projects.

*Keywords:* health literacy, health knowledge, parents, and education

### Health Literacy Education: For Parents of Children Preschool Aged and Younger

Health literacy is defined as one's ability to "communicate, process, and understand basic health information and services to make appropriate health decisions" (Brega, et al., 2015, pp. 16-17). Low health literacy is associated with misuse of health resources and care (Morrison, et al., 2014 ; Rasu, Bawa, Suminski, Snella & Warady, 2015). Low health literacy is linked to mishandling medications and mismanagement of illness (Cheng, Dreyer, & Jenkins, 2009; Rasu, Bawa, et al., 2015). It also can lead to frequent use of the ED leading to reduction of primary care usage (Fieldston et al., 2013; Morrison et al., 2014). Increasing health literacy among parents and caregivers requires educational methods that are in the first language of the learner and without medical terms (Brega, et al., 2015; Herman & Jackson, 2010). An education program to increase health literacy requires informed instructors, who are educated in the subject and knowledgeable about their audience (Brega, et al., 2015). Improved health literacy improves health understanding and healthcare decisions and lowers health care costs (Fieldston, et al., 2013; Morrison, et al., 2014).

### **Purpose**

This DNP project focused on providing parents with health information on how to care for their children's health and improve their health literacy. During the first five years of a child's life, establishing healthy habits is helpful for family health and lifestyle (Council on Early Childhood and Council on School Health, 2016; Teutsch, Herman, Teutsch, 2016). According to the American Academy of Pediatrics, preparing a child for school during the first five years of life requires effort from both family and community (Council on Early Childhood and Council on School Health, 2016). The child is developing physically, linguistically, cognitively, socially

and creatively. A child, at this age, is exposed to many illnesses and accidents. Parents are expected to learn how to properly care for common health issues (Council on Early Childhood and Council on School Health, 2016, Morrison et al., 2014).

Ensuring that the parents comprehend the information taught in a health literacy program is a major part of the process. The educational material should be in the first language of the learner and without medical terms. It should contain relevant pictures to the subject and utilize the teach-back method for improved comprehension (Brega, et al., 2015). The teach-back method is a technique that asks for information to be repeated (in their own words) and for return demonstration of the information/concepts that were just taught (Brega, et al., 2015 pp.18-20). The purpose of this Doctor of Nursing Practice (DNP) project was to effectively provide parents with information on evidenced based health practice in order to improve behavioral practices and increase health literacy.

### **PICOT Question**

To inform the development and delivery of a health literacy educational program for parents of preschoolers in a community setting, the following PICOT question (Riva, Malik, Burnie, Endicott, & Busse, 2012) was used to search the scientific literature: In low health literate caregivers of children preschool and younger, how does appropriate health literacy materials and education on how to use health materials, compared with no material educational support influencing the caregiver's knowledge of health and use of the healthcare system within a month period of time?

### **Evidence search process**

PubMed, EBSCOhost, and ProQuest databases were searched for relevant articles. The terms and keywords used in the database search included *health literacy*, *health knowledge*,

*parent or caregiver, health utilization, and education.* The limits set on the literature search were human studies published in the last 10 years. The inclusion criteria were studies of health knowledge improvement and healthcare literacy education that focused on acute pediatric illness. Exclusion criteria were studies that provided information on health literacy for chronic conditions, studies published greater than 10 years ago, and studies on the development of health literacy surveys. Additional literature searches took place using the Centers for Disease Control and Prevention and the Agency for Healthcare Research and Quality's website (Brega, et al., 2015) for current guidelines on health literacy teaching.

### **Synthesis and Critical Appraisal**

A total of 10 articles were chosen for further appraisal from the 1,892 articles obtained from the initial search. The articles were published in the United States and all were published between the years of 2010 to 2015. The 10 articles included in the evaluation and synthesis, were Level II (Fieldston, et al., 2013; Herman & Jackson, 2010; Kunieck, 2014; Stockwell, et al., 2014; Yin, et al., 2008) and Level III studies (Davis, Jones, Logsdon, Ryan, & Wilkerson-McMahon, 2013; Herman, Nelson, Teutsch, & Chung, 2013; Morrison & Channugaha et al., 2014; Morrison and Schapira et al., 2014; Rasu, 2015). One study was quasi-experimental (Fieldston, et al., 2013), one was a case study (Herman, Nelson et al., 2013), two were cohort studies (Kunieck, 2014; Herman & Jackson, 2010), two were randomized controlled partial blind trials (Stockwell, et al., 2014; Yin, et al., 2008), and four were cross sectional studies (Davis et al., 2013; Morrison and Schapira et al., 2014; Rasu, 2015; Morrison & Channugaha et al., 2014). After further appraisal, five of the ten studies (Fieldston, et al., 2013; Herman & Jackson, 2010; Herman, Nelson et al. 2013; Stockwell, et al 2014; Yin, et al., 2008) were found to focus on

health literacy interventions and were used to design and implement this educational program for parents.

A study by Fieldston et al. (2013) concluded that a health education program does increase the caregiver's knowledge directly after an educational intervention. When assessed six months later, an increased health understanding and use of health resources was still present. This study shows that healthcare education is effective in a sample of 32 caregivers of urban children seven months to five years. In a study by Herman and Jackson (2010) a program by Head Start provided education and continued support for three to six months. The education and the support led to a 40%-50% decrease in emergency department visits, a 29% decrease in missed school days, a 42% decrease in days of work missed by caregivers, and showed an increase in health literacy among parents. In another article by Herman and other associates (Herman, et al., 2013) the structured approach of improving health literacy in low-income families of a federal program (Head Start) was described and the limitations of the program discussed. The first step in the structured approach is training of trainers for 2 days. Meetings to develop the class for parents and reduce barriers of attendance, such as transportation, community advertisement, timing and translation of materials was recommended. Classes for parents to teach health literacy were completed based on the development meeting. Following the parental training the parents were visited in the home 3 times over a period of 3 to 4 months. The home visits reinforced the concepts learned in the class. At the end of the 4 months, the class participants met for a "graduation" and shared success stories or discussed needs for improvement to sustain the program. The limitations of the study are no control groups and the time-intensive demands of the program. The program is an appropriate health promotion method. The program was "valuable and potentially cost-effective way to promote prevention and reduce

health disparities in a vulnerable population” (Herman, et al., 2013 p.155). Another study (Stockwell, et al., 2014), focusing on education concerning upper respiratory symptoms and urinary tract infections, also showed an increase in health literacy after 3.5-hour sessions on urinary tract infections and medications management. A five-month follow-up allowed the 154 family participants to ask questions on their child’s health care and needs. The results of the study showed that participants were less likely to utilize an pediatric emergency room when their child was ill and less likely to mismanage over-the-counter medication for young children less than 4 years of age (Stockwell, et al., 2014).

Yin, et al. (2008) evaluated a health literacy intervention to reduce medication errors in a randomized controlled trial. The intervention took place in an urban emergency room, using “a plain language, pictogram based medication instruction sheet”. (Stockwell, et al., 2014. p. 814) Two hundred and twenty-seven caregiver participants were included in the results; 113 in the intervention group and 114 in the control group. Greater than 20% of the caregivers had increased dosing accuracy when telephoned 3-5 days later to assess their knowledge of the prescribed medication dosing for their child.

These five studies provided the evidence base for the author’s DNP project intervention. The findings from the studies include: teaching should be targeted to the community being reached (language, timing, transportation, child care); and that programs utilizing an established program, such as Head Start, are effective (Fieldston et al. 2013; Herman, et al., 2013; Herman & Jackson, 2010;). Additionally, the planned health literacy program should contain health literate materials to be most effective (Stockwell, et al., 2014; Yin, et al., 2008).

## **Method**



**Design.** The intervention was developed utilizing the Johns Hopkins Nursing Evidence-Based Practice Model (2016) and Social Cognitive Theory (Bandura, 1987). The intervention was done in corroboration with a federal program, Head Start. Head Start is a federal school readiness and developmental program for children 0 to 5 years of age whose families are below the federal poverty level (Head Start, 2016). The educational program on health literacy was delivered in Head Start classrooms, in a large urban county in the Southwestern, United States. An average of 5 adult participants attended each educational session that were held at various times of the day. The classroom was arranged for an adult audience for PowerPoint® slide projection and presentation/discussion. The parents of Head Start students were given a book entitled: *What to do when your Child gets Sick* by Gloria Mayer and Ann Kuklierus (2008). In a study at another Head Start faculty, the book showed positive effects on health practices of parents (Herman & Jackson, 2010). The book is easy to understand and contains pictures relevant to the topics discussed. The book focuses on 50 common childhood acute illnesses and management. The Arizona State University (ASU) Institutional Review Board (IRB) approved the project. The project was approved with materials translated into Spanish by individuals proficient in Spanish.

**Theory and Evidence-Based Practice Model.** Social Cognitive Theory focuses on populations acquiring and maintaining certain behavior patterns (Bandura, 1987). People learn skills, beliefs, rules and appropriate actions through influences from social environments and interactions (Bandura, 1987). As the parents learn health knowledge and skills to increase their health literacy level, Social Cognitive Theory was used in the classroom setting to guide a change in health practices. The educational program and communication provided in a classroom setting, and discussion with peers allowed parents to see the importance of the education about

their child's health. During the class, unhealthy habits and positive health habits were identified in a positive social environment in order to impact behavior patterns.

The Johns Hopkins Nursing Evidence-Based Practice Model (2016) incorporates four steps: identification of the problem, research, implementation and evaluation. This model is appropriate to guide a health literacy educational project because it involves evidenced-based problem solving and continual evaluation of the process. The identified problem, low health literacy, has been found in many individuals and communities. To provide an educational program on health literacy, the advanced practice nurse, must determine the best processes in order to implement the educational program into the community. Through the critical appraisal of the evidence on health literacy, it is clear that individualized education and close follow-up is the best practice (Brega, et al., 2015; Cheng, et al., 2009; Head Start, 2016). The evidence demonstrates that practice change or health education improvement is not always effective when implementing a health literacy educational program into each new environment. Therefore, this model includes evaluation as an important component. The Johns Hopkins Nursing Evidence-Based Practice Model is helpful when applying health literacy improvement into the community and assisting in its effectiveness (John Hopkins Medicine, 2016).

**Sample.** There were twenty-four participants who agreed to take part in the project. The participants were mostly of Hispanic origin, both Spanish and English speaking, and parents of at least one child, ages 0 to 5 years, in the Head Start program. Three participants only completed one survey (pre-survey) and were excluded from the data analysis. Nine participants (37%) completed all three surveys (i.e., pre- survey , post- survey and post telephone survey). Eleven participants (45.8%) completed two surveys (i.e., pre- survey and post- survey). One participant (4.2%) completed a post- survey and a telephone survey only. Twenty-one participants (87%),

of the twenty-four parents who agreed to take part in the project, were included in the project analysis based on their completion of two or more surveys.

**Recruitment.** Family support specialists invited the parents of the preschoolers in the Head Start early education program to the health literacy educational program. A family support specialist is a social worker employed by Head Start to work with families and help them find community resources for assessed needs. The family support specialists were provided with a flyer, times, and locations of the classes. This method of recruitment was chosen because of the strong preexisting relationship established between the families and the family support specialists. At the beginning of each class, the parents were introduced to the project and asked to voluntarily participate. ASU IRB approved the consent process.

**Measures.** The surveys were developed with the input of four certified pediatric nurse practitioners. The surveys were developed based on content covered in the book and the class. A previous tool used in other health literacy classes at Head Start was used as a guide to develop the surveys. The parents completed a pre- survey to understand their level of health understanding before the educational program. The survey asked questions about ethnicity, the use and perceived comfort in use of a healthcare clinic, and the actions they would take if their child had a minor acute illness or an accident. Immediately after the educational program, the parents completed a post- survey to assess their understanding of the concepts discussed. The post-survey contained similar questions to the pre- survey with additional evaluation questions about the class. Four weeks after the classroom instruction, the parents were telephoned in order to obtain data on the telephone survey. The telephone survey contained similar questions asked on the pre- and post-surveys with additional questions about doctor visits or emergency room use. The post-survey contained multiple-choice questions and open-ended evaluation questions.

**Educational Program.** The health literacy content was delivered in a classroom based upon the book *What to do when your Child gets Sick* by Gloria Mayer and Ann Kuklierus (2008) by providing a PowerPoint® presentation and the teach-back method for discussing the content. The educational program was three hours in length and was instructed in English or Spanish by the Head Start nurse and family support specialist. The class instructors were trained in the program for 2 days by the Johnson & Johnson Head Start Management Fellows Program (Herman, et al., 2013). The educational program also included demonstration of a few basic health care topics such as medication administration and taking a child's temperature.

**Analysis.** The Wilcoxon test and the Friedman test were used to analyze the survey results and examine the parent's level of confidence and understanding when taking care of a sick child after receiving a health literacy educational program. The Wilcoxon test is a non-parametric test used for two related samples. The Friedman test is a non-parametric test used for three or more related samples. The multiple-choice responses on the surveys were placed on an ordinal scale rating each question from "1" to "6" with "1" signifying the parent's understanding of best practice. One survey question about caring for a child with a fever was scored differently with "0" representing the best answer and "1" representing the incorrect response.

## Results

**Quantitative.** The Wilcoxon test was used to analyze multiple-choice questions asked on the pre surveys and with those repeated on the telephone survey. To analyze the multiple-choice questions asked on all three survey points (i.e. the pre-, post- and telephone surveys), the Friedman test was utilized. Statistical significance was set at a p value of 0.05.

No significant differences were found in primary care provider utilization, comfort level of parents in using a primary care clinic, the best source of obtaining healthcare information nor

in the parent's level of confidence and understanding of healthcare when taking care of a sick child after the health literacy education program was delivered (See Tables 1 and 2).

**Qualitative.** The parents remarked frequently to the author during the class and during the telephone surveys that they enjoyed the class and felt that the length was appropriate. The parents stated that they wanted their friends and family to have an opportunity to attend the class. Many parents also noted that they wished they could attend more classes on health topics. The parents stated appreciation that the materials were easy to use, relevant to them, and offered in their primary language.

### **Discussion**

The results of the DNP health literacy educational program for parents of Head Start children indicated that this method of delivering health literacy information for this community needs further refinement. Further examination of the use of the printed health material (*What to do When your Child gets Sick* by Gloria Mayer and Ann Kuklierus, 2008), intensity of the class, number of sessions, length of class, method of content delivery and the need for follow-up is needed to evaluate whether this method of delivering a health literacy educational program can improve parent health literacy. Although the project findings show that the class was not statistically significant in influencing behavior change, the qualitative findings show that the class was meaningful to the parents. The comments from the parents about the class and the resources provided show that the class was a welcome resource for the parents. The parents enjoyed the 3 hour time frame of the class. Some of the parents commented that the class was "too short" or that they "wanted more classes". When asked how they felt about the class, the parents responded with "very good" or "good information". The comments show that the parents appreciated the information received. The quantitative data shows that the delivery method of

the class needs to be defined further while the qualitative data shows that the class content, materials and timing was appreciated by the participants. Research evidence demonstrates that every patient is an individual and that health literacy education should be provided in a way that is culturally relevant to the patient (Brega, et al., 2015; Herman & Jackson, 2010).

**Limitations.** It was noted during the educational program, that the parents often had difficulty getting to the class due to transportation issues and the timing of the classes. The classes were offered at different times during the day (e.g., 8:30 a.m., 11:00 a.m., 12:00 p.m., and 4:00 p.m.). The classes that started at 8:30 a.m., 12:00 p.m. and 4:00 p.m. had lower attendance than expected. The original plan was to hold 6 classes. However, due to rescheduling and class cancelations, only five classes were held. Parents also showed up to the class late or had to leave early due to personal needs or prior commitments. It was observed by the author, that parents had difficulty focusing on the teach-back and discussions when other children and siblings were present in the room.

The health literacy educational program was advertised through the Head Start family support specialists who had a long-standing relationship with the parents and families. There was also a flyer that was circulated through the Head Start classrooms informing parents of the class. Many of the classrooms had 10-15 parents that initially reported that they were interested in attending, but did not attend the class as scheduled. The majority of the classes contained 5 participants. The class that had the most participants (i.e., 15 participants) was offered in Spanish, at 4:00 pm, had a long-term and active family support specialist, and childcare was provided. The Head Start organization, in this large urban setting, had recently had financial cut backs adding to the work of the family support specialists which caused many to terminate their employment prior to the initiation of this project. Recently hired personnel had not yet received

training in the health literacy program. These limitations require further investigation and problem solving in order to increase participation and recruitment methods in the future.

**Implications for Future Practice.** Participating parents appreciated the health literacy educational program and found the book, *What to do When your Child gets Sick* by Gloria Mayer and Ann Kuklierus (2008) a welcome resource. The project, as designed and delivered was not sufficient to improve parent health literacy. In the future, health educational programs will continue to need to be tailored to the population, times, and locations that are relevant to the community. Childcare will need to be provided to encourage classroom participation. Strengthening and establishing relationships with families will help increase attendance. Further study should be considered to develop the class appropriately for the community it is serving.

### **Implications**

Parents appreciated the class and felt that it was personally effective and wanted more classes and the opportunity to share the educational session with friends. The quantitative results showed no significant change. Further refinement of the health literacy educational program, for this community setting, is needed.

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Table 1

Wilcoxon Analysis of Survey

<b>Wilcoxon</b>	<b>Pre-Survey</b>		<b>Tele-Survey</b>		<b>p</b>
	<b><u>M</u></b>	<b><u>SD</u></b>	<b><u>M</u></b>	<b><u>SD</u></b>	
<b>Primary Care Provider</b>	1.10	0.10	1.00	0.00	0.317
<b>Comfort In the Clinic</b>	1.36	0.20	1.18	0.12	0.414
<b>Source of Healthcare information</b>	1.73	0.33	1.82	0.12	0.666

*Note.* M= Mean; SD=Standard deviation; p = Probability (p value)

Table 2

Friedman Analysis of Survey

Friedman Test	<u>Pre-Survey</u>		<u>Post-Survey</u>		<u>Tele-Survey</u>		p
	M	SD	M	SD	M	SD	
<b>How do you feel when your child is sick?</b>	1.33	0.71	1.11	0.33	1.78	0.97	0.05
<b>Fever</b>	0.90	0.32	1.00	0.00	0.70	0.48	0.174
<b>Caring for a Earache</b>	3.50	1.35	2.60	1.07	3.20	1.03	0.179
<b>Caring for a Cough</b>	2.30	1.70	2.10	1.10	1.60	0.52	0.707
<b>Medication Administration</b>	1.00	0.00	1.10	0.32	1.00	0.00	0.368
<b>Ingestion</b>	2.50	0.85	2.00	1.33	2.10	1.29	0.381
<b>Caring for Diarrhea</b>	1.60	1.07	1.60	0.97	1.40	0.97	0.819

*Note.* M= Mean; SD=Standard deviation; p = Probability (p value)