2018

Improving Health Literacy Assessments in Pediatrics

Kristina Michelle Wright
Walden University

Walden University

College of Health Sciences

This is to certify that the doctoral study by

Kristina Wright

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Janice Long, Committee Chairperson, Nursing Faculty
Dr. Amelia Nichols, Committee Member, Nursing Faculty
Dr. Faisal Aboul-Enein, University Reviewer, Nursing Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2018

Abstract

Improving Health Literacy Assessments in Pediatrics

by

Kristina Michelle Wright

MSN-CM, Grantham University, 2013

BSN, Marymount University, 2005

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

November 2018

Abstract

Low health literacy (LHL)--when patients do not understand their treatment or medications--has been linked to poor healthcare outcomes. Nurses need to know how to assess health literacy (HL) and teach pediatric patients and their families to help ensure that patients and family members can understand and follow health education messages. Evidence-based HL tools were obtained from a literature search and used to create a nursing staff education program on pediatric patient HL assessment and education. The project answered the practice-focused question that asked whether a staff education program on HL assessment and management would improve nursing knowledge of HL for pediatric patients and families. Piaget's theory was used to guide the development of the education program on age-specific literacy needs; Kotter's theory of change was used to inform the plan for using HL assessment, which was presented to 34 participants in the local practice setting. Participants were randomly chosen from local professionals in nursing education and participation was voluntary. A panel of 3 experts, including a nurse expert on HL, reviewed and approved the education program, quiz questions, and participant survey. Pretest results ($N = 32$) showed a mean score of 6.53, and the posttest mean score was 7.66. Results of the paired t test showed significant improvement ($t = -4.378$, $p = .000$) in participant knowledge of HL after the education program. The project findings can promote positive social change through improvement in nurses' knowledge about HL and health outcomes for pediatric patients.

Improving Health Literacy Assessments in Pediatrics

by

Kristina Michelle Wright

MSN-CM, Grantham University, 2013

BSN, Marymount University, 2005

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

November 2018

Dedication

For my children, for every encouraging word, gesture and reason they gave me to pursue further expertise and knowledge within the pediatric nursing field and improve patient outcomes; especially theirs.

Acknowledgments

A very special thank you to my parents and my husband. My parents for raising me with the drive to always question and seek improvements in every task I undertake. My husband, my rock, for never letting me doubt myself or my intellect, no matter how often I tried. Throughout my education, they have been my support and motivation.

Table of Contents

Section 1: Nature of the Project

Introduction

No one definition of health literacy (HL) is provided in the literature as the definition varies across disciplines and agencies. Three of these definitions are listed within. The Institute of Medicine of the National Academies (2004, p. 32) defines it as the "degree to which individuals have the capacity to obtain, process, and understand the basic health information and services they need to make appropriate health decisions". HL is dependent on individual and systemic factors, such as the communication skills of lay persons and professionals, lay and professional knowledge of health topics and culture, and the demands of the healthcare and public health systems, and demands of the situation or context (Broder et al., 2017). HL affects a person's ability to navigate the healthcare system, including completing information needed on complex forms; locating providers and services; sharing personal information, such as health history, with providers; engaging in self-care and chronic-disease management; and understanding mathematical concepts such as probability and risk (United States Department of Health and Human Services, 2000). The Patient Protection and Affordable Care Act of 2010, Title V, defines health literacy in the same manner but adds "health literacy capacity and skills" (CDC, 2016). According to the CDC, capacity is the potential a person has to do or accomplish something. Health literacy skills are the skills people use to realize their potential in health situations. "People apply these skills either to make sense of health information and services or to provide health information and services to others." (CDC,

2016). Health literacy has also been described as "a critical empowerment strategy to increase people's control over their health, their ability to seek out information and their ability to take responsibility" (Kickbusch & Maag, 2008).

A variety of studies and systematic reviews have linked poor reading ability to low HL (Berkman et al., 2011; Ryan et al, 2014). While literacy, or the ability to read, may be a component of health literacy, patients with low HL may hide their low ability to read or their vocabulary difficulties, making accurate holistic assessment and treatment difficult for providers and nurses and potentially placing the patient at risk for poor outcomes (Berkman et al. 2011). Reading is a necessity for HL; it is a part of the definition of "literacy" and when patients cannot read, nurses need to teach patients in such a way that they understand their own health status and healthcare maintenance needs. The World Health Organization (WHO) defines health literacy as "the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health" (WHO, 2017).

When patients do not understand their treatment plan or medications, healthcare outcomes may suffer. Low HL has been linked to poor healthcare outcomes in a study by Berkman et al. (2011), who wrote that persons with low HL skills were more likely to skip important preventive measures, have chronic conditions, and be less able to manage the conditions effectively. Additionally, they may have an increase in preventable hospital visits and admissions (USDHHS, 2000). In addition, low HL may have negative

psychological effects, such as a sense of decreased psychological well-being (Tokuda, Doba, Butler, & Paasche-Orlow, 2009). For all these reasons, it is important to identify strategies to improve HL and thus improve health outcomes.

Other factors can contribute to HL, including the communication skills of providers, the complexity of health information, and the cultural appropriateness of health information (in relation to the patient's individual culture). People who are treated in the U.S. healthcare system—including the clinical setting for this project—come from many countries and cultures (Al Sayah, Williams, & Johnson, 2012). Culture affects how people communicate about and respond to information about health (CDC, 2016). Thus, cultural awareness contributes to health literacy levels, not only for parents but also for children. Health professionals who do not have the linguistic or cultural skills to communicate health messages to the system's diverse populations contribute to the problem of low HL for parents and children (CDC, 2016).

In Section 1, I address the problem statement, purpose, nature of the project, and significance.

Strategies for Improving Health Literacy

Furthering the understanding of health literacy is a crucial step in improving patient literacy and health literacy for nurses caring for pediatric patients. Health literacy is key to involving patients in their care and to reducing inequalities (Clement et al., 2009). One approach for assessing health literacy used reading nutrition labels and answering basic questions about what was on the label (Al Sayah, Williams, & Johnson,

2012). This approach requires the ability to match items from a nutrition label with the questions asked, as well as to read information. Another way to improve health literacy would be to integrate such content into both didactic and clinical courses, and into continuing education to update faculty knowledge (McCleary-Jones, 2016). This would equip students with knowledge, skills, and attitudes to interact effectively with patients experiencing limited health literacy and to modify patient teaching strategies and materials for this population (McCleary-Jones, 2016). Clement et al. described simple interventions and complex interventions, including simplified written language, pictorial material, and audio/visual resources, and complex interventions, which comprised several separate elements that seemed essential to the proper functioning of the intervention (Clement et al., 2009).

Health Literacy and Pediatrics

For the purpose of this project, the term pediatrics refers to the nursing care of children from 2 to 12 years of age. Pediatrics in general can range from birth to 18 years of age, some practitioners will even treat until 21 years of age (Blue Cross Blue Shield Tennessee.com). One challenge with pediatrics in the clinic where this project took place is that not all patients nor their parents know how to read, and health providers may not recognize the lack of ability to read unless they assess for it. Therefore, understanding how to adequately assess health literacy, regardless of a patient's general literacy level, would be a great benefit to this population.

Positive Social Change and Cost

To address the problem of HL in the pediatric population, this project proposed a staff education plan to raise awareness of HL and strategies for improving HL in the pediatric population and their families. The results of this project could provide an effective strategy for improving overall health literacy levels in pediatric patient populations by (a) educating the staff who care for them and by (b) potentially lowering healthcare costs by increasing patient understanding and thus their subsequent adherence to healthcare education messages (Eichler, Wieser, & Brugger, 2009). If disseminated in the local setting, the education program may also have positive effects on other clinical settings such as outpatient pediatric clinics.

Problem Statement

There is insufficient nursing education to prepare nurses to accurately assess health literacy levels in the local population. In general, health care professionals need a better understanding of HL; they may have a skewed view of health literacy that is related to a patient's ability to read (Al Sayah, Williams, & Johnson, 2012). To improve the quality of care provided in the health system and perhaps reduce the disparities that occur when patients do not understand the health information provided to them, patients' literacy skills must be acknowledged and addressed within the health care setting (Schonlau et al., 2011). While considerable studies are available on HL in the adult population or in the population in general, there is a lack of evidence on the assessment of childhood health literacy (DeWalt & Hink, 2009). The lack of assessment tools at the

practice site for this project makes assessment of comprehension difficult if not impossible. If nurses understand that patients can be taught to care for themselves without being proficient at reading and if patients are given culturally and age-appropriate health information, providers can be effective in teaching pediatric patients and their parents about their condition(s), including how to perform self-care (Broder et al., 2017, Morrison et al., 2013, & Sheridan et al., 2011).

Purpose Statement

Assessment of HL in the pediatric population at the practice site was not included in nursing care education. The lack of a method to assess for and to respond appropriately to low HL represents a practice gap between health literacy and patient outcomes. The purpose of this project was to review the literature to identify a standardized method for assessing patients' risk for low health literacy and developing a HL education program for staff who work with children and families in one pediatric clinic in the southern United States. By providing an education plan and assessment tool to improve the approach nurses take with patient teaching and health literacy level assessment, staff understanding was improved regarding the importance of assessing HL, how to assess HL and the tools available to them. As a pediatric nurse, there is a clear need to address the difficulties of navigating our current healthcare system for many pediatric patients and their families. Even those with higher education have difficulty with the nuances within healthcare insurance, delivery, and availability of information and may have some degree of low HL (Kim & Xie, 2017). For this reason, there was a need to identify an

adequate assessment tool for use with individuals who seek health services and to teach nurses how to use the assessment tool.

Nature of Project

Databases used included EBSCO, CINAHL, MEDLINE, and Ovid Nursing Journals. The same span was used for each, 2012 to present. Sources of evidence were obtained from a review of the literature for multiple topics, which included, *health literacy*, *pediatrics*, *poor healthcare outcomes*, *health literacy and education*, and *nursing and healthcare outcomes*. To develop the education program, valid HL assessment tools were used that had been found reliable through previous studies.

This project provided a review of several HL assessment tools and an education program that focused on teaching staff nurses how to use the tools in the process of admitting or admitting new patients. After the review, education on the evidence-based HL assessment instrument and on strategies for reducing LHL among pediatric patients and their families took place. Current research shows a lack of evidence with assessing childhood health literacy (DeWalt & Hink, 2009).

Significance

Health literacy has a direct effect on health outcomes for all populations including the pediatric population. People with low health literacy have been shown to have a higher hospitalization and emergency room utilization (Morrison et al., 2013) and have lower immunization rates (Fadda, Depping, & Schulz, 2015). This fact translates to increasing cost in healthcare with low HL contributing to higher emergency room

utilization and greater risk for infectious diseases (Fadda, Depping, & Schulz, 2015, Morrison et al., 2013). HL should be considered in all levels and types of patient education was the focus of this project. The education plan created a way for nursing staff to overcome the limitations of low health literacy and potentially improve healthcare outcomes for pediatric patients and their families. Improving healthcare outcomes by educating nurses to assess a patient's risk for low health literacy and creating an education plan specifically geared towards a patient's health literacy level can promote positive social change by improving health outcomes and potentially reducing costs.

Summary

Health literacy is not a new topic; however, it is not fully understood by patients and healthcare providers alike. In the pediatric patient population, both parents and their children need to understand the health care messages that are part of the child's care and must comprehend the importance in order to improve health care outcomes. Review of research and available assessment tools show a need for more evidence and for areas of study to be done in order to find a better way to assess health literacy in pediatrics and to improve nurses' understanding of how to teach patients on an individual basis. Education of nurses and providers is a step in the right direction. To do this more effectively, the proposed education plan improved the understanding of health literacy and how to overcome the challenge of poor health literacy through education.

Section 2: Background and Context

Introduction

Low health literacy among patients may lead to poor health care outcomes (Berkman et al., 2011; Clement et al., 2009; Kim & Xie, 2017). An education program for nurses aimed at improving their assessment of health literacy and the approach needed to communicate effective health messages to low HL pediatric patients and their parents could promote positive health outcomes (Clement et al., 2009; McCleary-Jones, 2016). Health literacy assessments can be improved by teaching nurses about the available tools as well as how to best use them for specific patient populations. A key step to answering these questions was to develop an education plan to improve HL assessment in pediatric patients and the approach to patient education.

In Section 2, I will cover theories, relevance to nursing practice, local background and context, role of the DNP student, and summary.

Concepts, Models and Theories

Lewin's change theory, which was used to guide the project, has three major concepts: driving forces, restraining forces, and equilibrium (Petiprin, 2016). The stages for these concepts are unfreezing, change, and refreezing. John Kotter's theory was used to expand on Lewin's theory and included eight steps:

1. Create urgency,
2. Form a powerful coalition,
3. Create a vision for change,

4. Communicate the vision,

5. Remove obstacles,

6. Create short-term wins,

7. Build on the change and,

8. Anchor the changes in nursing culture (Kotter, 2012).

These two theories were used together to guide the development of the education program for the project.

Health literacy is a topic that can be analyzed from a multitude of aspects; from psychology to sociology, or from pediatrics to geriatrics (Broder et al., 2017; Clement et al., 2009, and Zamora & Clingerman, 2011). Nursing care should be provided in a holistic manner from all aspects of patient care. With these in mind and using Piaget and Rogers for the developmental and learning aspect of patient care, along with a combined approach to change provided by Lewin and Kotter's models, health literacy can be assessed across the continuum of patient care (Small et al., 2016). Health literacy as it related to chronic illness and preventative measures were the focus of the staff patient education program and focused on ways to help nurses educate both pediatric patients and their families. Nurses and educators were targeted for education on health literacy to assist in their provision of patient education; participants included discharge nurses, clinic nurses, education coordinators, and admission nurses.

Relevance to Nursing Practice

According to the American Nurses Association ([ANA], 2017), a large part of nursing's role is to protect, promote, and optimize health for patients, families, groups, communities, and populations (ANA, 2017). This role requires nurses to be skillful in acute care settings but also to provide effective education and communication of information that individuals can understand and apply as they are discharged from the hospital or other formal healthcare settings. Patients need healthcare and nurses are there to guide them through the process (Abrams, Kurtz-Rossi, Riffenburgh, & Savage, 2014). Nurses can only help if patients are able to connect with them and understand the health messages critical to their health status. For example, low health literacy has been linked to increased use of the ER and hospitalizations, lower probability of mammogram screening and influenza immunizations, as well as poorer skills in taking medications (Berkman et al., 2011). By identifying ways to improve health messages so patients can understand nurses and other healthcare providers, patients are able to sustain the health improvements gained while hospitalized. Communication must be improved in order to effectively address health literacy. Doing so will help patients and families improve their own skills and knowledge (Abrams, Kurtz-Rossi, Riffenburgh, & Savage, 2014). Measurement tools that are widely used for health literacy currently, such as the REALM, TOFHLA, or NVS, vary in context and settings. Many experts agree that these are inadequate and do not successfully "measure" health literacy but are more of a "screening" tool (Ormshaw, Paakkari, & Kannas, 2013). In order to focus on health

literacy, nurses need to know how to adequately assess health literacy and what to do with that assessment. The goal should be to improve patient education regardless of their assessed health literacy.

Local Background and Context

This project took place in a large metropolitan area where multiple cultures and patient populations often come to seek care. Health literacy in the setting was even more important to improving patient outcomes because of the diversity of the population and the need for services that effectively reach the population in the region.

The region is similar to the U.S. healthcare system which is complex and as a result, health literacy is becoming a more important skill for patients in modern societies (Eichler, Wieser, & Brugger, 2009). Dr. Christina Zarcadoolas is the leading author of *Advancing Health Literacy: A Framework for Understanding and Action*. Her focus is analyzing and closing the gaps in information between expert knowledge and public understanding of safety and health (Hunter College, 2017). During a presentation given at the Health Literacy Coalition Conference in October 2016, she discussed an ongoing project of which she was involved. This project is looking at pictographs to help improve health literacy in third-world countries and underserved populations. This approach directly correlated to the pediatric population. If nursing can have this type of assessment tool available for health literacy, the accuracy would increase, and patient education might be improved (Hunter College, 2017).

The local area's Health Literacy Initiative is a comprehensive program that aims to increase health literacy awareness and efficacy through strategically addressing primary gaps in health literacy today by:

1. Providing local and relevant information as to what health literacy means and how it applies to daily life activities and health awareness,
2. Modifying provider practices to ensure proper and effective patient-health provider communication histories, and
3. Instituting cultural change towards health literacy through empowering patients and health providers to participate in a more health literate society (The Health Collaborative, 2017).

Not all communities have the advantage of a group that promotes health literacy such as the one in the local region.

The region has approximately 1.86 million people as of 2016, with a projection of over 1.9 million by 2020. Most of the population is female, Hispanic, and 25-34 years of age. A large part of the population in the region (35.6%) is over 25 years of age and has less than a high school education (The Health Collaborative, 2017). With the diversity demonstrated by local statistics, and a considerable portion of the population of child-bearing age being Hispanic or Spanish-speaking, health literacy for this population included language consideration for Spanish speaking patients and families and the ability to adjust for different languages.

Pediatric Background and Context

The local pediatric population (birth to 14 years old) is roughly 21.8% of the overall population and those living below 100% poverty level is about 38.6% (age 18 and below). As the population continues to grow dramatically, the initiative to improve data-driven decision-making is even more vital (Bexar County Health Collaborative, 2016). As most of the pediatric population is between the ages of 5-11 years (39.9%), this project helped raise awareness of HL and its effects on healthcare outcomes.

Role of the DNP student

My role as the DNP student was vital to promote evidence-based practice and continue to improve patient care through improvement in understanding and application of HL principles. As a retired military nurse, health literacy was not always a topic of great importance with patient care. Parents of children seen in the health center, did not always follow through with the discharge education they received. Within the population, patient education was provided based on medical conditions; but no information was available to help understand how to present the information so that the patient and family understood was they needed to do. However, as a civilian pediatric nurse the emphasis on discharge education is critical.

Teaching self-care strategies to a patient preparing for discharge can be difficult and ineffective with patients that have LHL. They may not understand even the best prepared discharge instructions and if they cannot understand, they are more likely to not

adhere to the required treatment plan. Assessing HL is vital to providing the nurse with an adequate awareness of how to structure and individualize discharge instructions. The role of the DNP student within this project was to research the literature and identify an evidence-based HL assessment tool that would be effective with the pediatric population. This was followed by development of an education program to teach nurses to use an assessment tool. In addition, the review of the literature identified strategies for addressing LHL. The education program presented to the nurses and faculty included strategies they can use with patients with LHL.

Nurses must know how to assess a patient's health literacy in order to adequately and accurately educate them on their own healthcare. The ability to read is important for patient education but should not be a deterrent to nurses when providing discharge education or working through a plan of care with chronically ill patients (Koh et al., 2012; McCleary-Jones, 2016; Sheridan et al., 2011).

This project was important to raise awareness of HL, improve HL assessment, and to promote health education strategies that are structured in such a way that the child and the parent both understand.

Summary

Nursing and healthcare education go hand in hand. Navigation of the healthcare system should not be the sole responsibility of any one person or entity; it should include the entire healthcare team, family, caregivers, and patient. The theoretical framework developed by Lewin helped in the development of this project by providing guidelines for

utilizing necessary information on patient care needs that can contribute to effectively assessing HL. The local county area provides a diverse population with more than one primary language and a patient pool of various ages. Correlations between low health literacy and poor healthcare outcomes were seen in the review of the literature and were a major rationale for this project. This project improved awareness of HL assessment tools for pediatric patients and promoted effective strategies for overcoming barriers to learning created by LHL.

Section 3: Collection and Analysis of Evidence

Introduction

A popular definition of health literacy is based on the idea that patients need to be able to read and write (Ormshaw, Paakakari, & Kannas, 2013). It is critical to assess a patient's ability to read, write, and comprehend health messages so that nurses can provide the appropriate level of education needed for the pediatric patient and their family to understand self-care. Even more critical is the need for providers and staff to be aware of a patient's level of understanding of their own health and their strategies to improve their health literacy. The purpose of this project was to provide a viable HL education solution for staff nurses and to understand how to more adequately assess health literacy for pediatric patients and their families in the selected setting. Educating nurses through definitions, recent research, a discussion of the impact poor HL has on the patient population, and about how to properly assess for health literacy levels, can greatly improve discharge education, situational education (i.e. diabetes, heart failure, kidney disease), and other types of patient education, such as (a) post-operative care education, (b) trauma, and (c) annual preventive care instructions.

Nurses use caring and compassion with patient care to support teaching pediatric patients the health information they are ready and able to understand. This project was developed to help nurses teach children about self-care related to their healthcare using repetitive education and the concept of HL. Lewin and Kotter's approaches to change

were used to improve patient education by advancing nurses' understanding of, and assessment of, health literacy.

In this section, the practice-focused question is covered as are the sources of evidence, the research and published outcomes, and the analysis and synthesis.

Practice-Focused Question

The practice-focused question for this project was: Can a staff education program on health literacy assessment and management improve nursing knowledge of health literacy for pediatric patients and families?

The local practice area had a high rate of pediatric patients (26%) and families with low health literacy (32.7%), as well as a high poverty rate based on the last census. There were multiple ethnicities and a high refugee and illegal immigrant population which brought cultural diversity influences to the practice site. An understanding of how health literacy impacts healthcare outcomes is essential for nurses and healthcare professionals working with patients from all segments of the population—especially with patients for whom English is a second language. According to the *2013 Community Health Assessment Report*, poverty and educational attainment remained unchanged from the 2010 report, and income inequality and segregation were getting worse (Bexar County Community Health Collaborative, 2016).

Access to care is essential for prevention, screening, diagnosis, and treatment of illness, and accessing healthcare early is associated with better health outcomes, fewer disparities, and lower costs. Health literacy assessments are important for assuring that

patients understand the health messages providers and nurses seek to convey. While the ability to read is important, HL is more than just reading (Chokshi, Chang, & Wilson, 2016). Regardless of health literacy level, patient education and healthcare outcomes may be improved by assessment of HL and by educating nurses to provide patient education to promote patient understanding (Gould, Berridge, & Kelly, 2007; Sheridan et al., 2011; & Zhang, Terry, & McHorney, 2014). Hospital education in a local hospital is limited in how the patient with LHL is taught (Hospital Education, 2017). By improving the understanding of how important health literacy is to patient education and how to adequately assess HL, the effectiveness of patient education by nurses can be improved.

Patients need to be able to understand what they are taught when nurses and other health providers prepare them for discharge. Using this education program to improve the understanding of health literacy and the way that nurses educate their patients would help bridge that gap. Improving the way nurses educate patients with LHL will lead to improved overall outcomes for pediatric patients.

Sources of Evidence

The main source of evidence for this project was a literature review on health literacy in pediatrics. The focus was on identifying available tools for assessing HL in the pediatric population, then developing an educational program for nurses to use. Another vital source was the collection and analysis of data from the local county and local healthcare resources and facilities.

The evidence related to the purpose from Section 1 by showing key components of assessing health literacy and how improving nurse education can improve how they educate their patients and caregivers. The information also provided evidence showing the significance of the need to improve health literacy and patient education.

As there was limited data for assessing health literacy in pediatrics, it was essential to address educating nurses on assessing and understanding health literacy and how it impacted patient education. There were multiple definitions of health literacy and recommended ways to assess health literacy. As such, this project helped close the gap of missing information and look towards improvement of patient healthcare outcomes with the current HL strategies.

Published Outcomes and Research

The databases used for this project were CINAHL, Medline Plus, Google Scholar, and PubMed. Search terms included: health literacy assessment, pediatric health literacy, health literacy and healthcare outcomes, health literacy education. The chosen timeframe for articles was 2007 to the present. The search was exhaustive and comprehensive by ensuring each article found was related to pediatrics, patient education, and health literacy.

Analysis and Synthesis

After the literature review was completed and the HL information collected, the materials were reviewed by a panel of nursing staff and providers. Microsoft Excel was used to enter the results of the panel's review. The education program was then

developed based on the literature review on HL and strategies for addressing HL in pediatric patients and provided to the nurses and faculty at the facility. The panel recognized that no HL instrument was effective for use with the pediatric patients and therefore the education materials were approved with the general principles of HL assessment in the pediatric population. The education program was then modified to exclude a specific HL tool for pediatrics and to include only general guidance as published in the literature on pediatric HL assessment.

Prior to the education, nurses were given a pretest on content related to the HL (see Appendix A) in pediatrics education content and afterwards a posttest was given. Data from these two assessments were entered into Excel and a paired *t* test performed to determine the degree of change in knowledge. These data serve as the formative evaluation of the project. The program was also evaluated by participants for effectiveness and implications for improvement to nursing practice. The evaluation of the program of education provided was anonymous and the data from the evaluation is reported in section four of this project paper.

Summary

The focus of this project was to improve health literacy and patient care outcomes within a pediatric nursing care area. Health literacy has a basic meaning of an "understanding of medical information and ability to navigate the healthcare system." The education program will hopefully improve nurses' understanding of health literacy, how to assess HL, and how to educate patients based on that assessment. The education

program was based on current evidence obtained from the literature review and informed by the need for HL assessment knowledge for nurses at the site. The long-term goal was to improve health outcomes for pediatric patients who receive care at the local setting and to improve the ability of patients to self-care as much as possible after discharge.

Section 4: Findings and Recommendations

Introduction

Within the local population, a standard for assessing health literacy was lacking, especially within pediatrics. The major gap in practice was the poor understanding of health literacy and why assessing HL was important to patient outcomes. As poverty and educational attainment remained unchanged from a 2010 community-wide report, improving patient healthcare outcomes had become even more important (Bexar County Community Health Collaborative, 2016). The purpose of this doctoral project was to increase awareness and understanding of HL. This included how to assess HL with available tools and how these steps could improve pediatric healthcare outcomes.

Participant consent was handled by the local site and therefore was anonymous to this project. Participants were provided with a unique identifier on the pretest and posttest so that a paired *t* test could be conducted.

After IRB approval (No. 03-22-18-0587908), the education program was developed, evaluated by a panel of experts, modified based on that evaluation, then presented to the participants. This included giving the same quiz before the presentation and after, as well as a survey on the effectiveness of the presenter (myself). The quiz results were compared via *t* test and are reported in Section 4.

Findings and Implications

The panel selected for review of this project included three experts from the local area: one of whom was an expert in health literacy, one was the director at a local

college, and another had nearly 2 decades of nursing education experience. The education program as well as the quiz questions and participant survey were provided to the panel for their feedback on grammar, content, and presentation. The panel reviewed all items and approved them with some grammatical corrections and terminology updates. The recommended changes were made, as submitted by the panel, and the education program was developed (see Appendix A).

Ten quiz questions, directly related to the content of the education program, were developed. Participants got one point for each correctly answered multiple-choice question. Topics included the definition of health literacy, a variety of assessment tools, and affected populations (see Appendix B). This program was delivered as a performance improvement (PI) project for the staff at the location. The presentation was made during a scheduled quarterly meeting. The participants included primarily registered nurses with a variety of educators, and a few general arts and sciences faculty.

While 34 participants attended the presentation, not all completed both the pre- and posttest. I carried out analyses only on the submissions that had both a pre- and posttest so that a paired *t* test could be used to determine if there was significance in the difference between the two sets of scores. The pretest resulted in a mean score of 6.53 and the posttest resulted in a mean score of 7.66 (N = 32). A paired *t* test was conducted and showed that ($t = -4.378$, 31, p = .000) the post test scores were significantly higher than the pretest scores. The survey questions asking about the student's performance on developing the program and presenting it were positive. The results of the pre and

posttest for those who completed both indicated that education on HL and what is available for assessment of HL improves the understanding of HL and its importance to healthcare outcomes.

Implications and Significance of Findings

While the results of this local site education are limited to one location, further improvements can be made to reach more nurses and educators in the community. Improving the understanding of HL will increase the likelihood of using HL assessment tools in everyday patient interactions (Abrams, Kurtz-Rossi, Riffenburgh, & Savage, 2014). As nurses use HL assessment for all patients including pediatric patients and their families, patient education will be more effective and healthcare outcomes may be improved as patients have improved understanding of what it takes to improve their health and prevent complications or readmissions (Gould, Berridge, & Kelly, 2007; Sheridan et al., 2011; & Zhang, Terry, & McHorney, 2014).

Social Change and Cost

Through education on HL, nurses will have a stronger foundation for educating and interacting with pediatric patients and their families. In the long run it is hoped that patient care will improve as pediatric patients and their families come to understand the instructions for care that are provided at discharge and self and home care is improved. This improvement may translate to improved cost to the patients (Eichler, Wieser, & Brugger, 2009) and their families and to the health system and community.

Recommendations

The most effective recommendation would be to add the proposed education plan to initial nursing curriculum, either in a fundamentals course or introduction to nursing course. Presenting this education plan during community education on HL and patient education improvements will increase the audience reached by this project. An additional recommendation would be to incorporate HL education into hospital and health system orientation programs and annual education updates.

Implementation recommendations would include having 2-3 personnel who would act as "super-users" or experts in HL. The education plan provides all of the links and necessary information, but these persons should be able to answer questions based on their local area statistics and what their community has available. By including this training during orientation and/or annual requirements, the number of staff and healthcare providers reached will increase significantly.

Raising awareness is the key to creating a sense of urgency to create a pediatric HL assessment tool. This is a slow process and increasing awareness is the first step. As this education plan can be tailored to any patient care area, it is important for those wanting to use this plan to fully understand the situation within their own population area. Statistics are important when implementing any new process or program.

Once the practice of assessing HL becomes more common, the focus can be placed on creating an effective assessment tool designed for pediatric patients. There are several tools available for adolescents, but nothing designed for children under 12-13

years of age (DeWalt & Hink, 2009). There are several assessment tools noted in the Health Literacy Tool Shed but none of them are geared towards younger pediatric patients (https://healthliteracy.bu.edu/all).

Strengths and Limitations of the Project

This doctoral project has several strengths but also some significant limitations. The presentation of the importance of HL provides an overview of the actual purpose and advantage of using HL in everyday patient care. It emphasizes global statistics as well as local area statistics regarding literacy, HL, and poverty levels; which in turn helps provide a sense of urgency to fix these gaps in understanding and patient care. From the comments after the presentation, many participants had significant improvements in their understanding of why HL is so important for patient care and education. Most of the participants did not know of the HL assessment tools that were available, or that no HL assessment tools were designed for pediatric patients under13-15 years old. The idea that this would be a fairly easy way to improve patient education and healthcare outcomes was well received by participants.

The explanation of the consent process and pre-quiz instructions could have been improved by increasing the specific purpose of each item and step-by-step describing how to fill out the forms. The most important limitation of this project is that the HL of the participants is unknown. Whether or not the participants took the quizzes seriously or just read over the survey is also a concern.

Getting buy-in from those that would be affected is important and more effort could have gone into this prior to presenting the education. Adapting the education plan to individual regions or population areas, including where to look for local statistics, would also improve outcomes. Comparing and contrasting the current adolescent and adult assessment tools to develop a pediatric-specific tool to assess HL would provide a more specific pathway to improving the actual assessment of HL and pediatric healthcare outcomes.

Summary

HL is dependent on individual and systemic factors, such as: communication skills of lay persons and professionals, lay and professional knowledge of health topics, culture, demands of the healthcare and public health systems, and demands of the situation/context (Broder et al., 2017). HL affects a person's ability to navigate the healthcare system and to understand what the individual needs to do as they transition from the healthcare setting to home. While resources are abundant for assessing the HL level of adults, little is known about HL for pediatric populations (DeWalt & Hink, 2009). For this reason, this project focus was needed to provide education to nurses and nursing faculty who could benefit from an education program on HL assessment and approaches for pediatric patients and their families. Through this education program, positive social change may result as nurses and nursing faculty become aware of HL and how to recognize and respond to patients who have low levels of health literacy. In so doing, patients who are transitioning from the hospital or clinic setting to home, may be

able to comprehend and follow directions for the care that is needed to improve their health and reduce the overall costs of the illness for which they entered the health system.

Section 5: Dissemination Plan

Introduction

My primary plan for dissemination is to faculty and staff within a local nursing school where there is currently no standardized HL education provided. After this initial presentation, the goal is to further the education at the college and orientation (new nurses at facilities) levels so a standardized portion of the nursing curriculum emphasizes HL assessments and patient education. Further dissemination would be best achieved if utilized during nursing education as well as during orientation programs and residencies for hospitals and healthcare agencies. Working with other experts and professionals within health literacy would be pertinent to develop a pediatric health assessment tool and study group to analyze and test the tool for efficacy and validity.

Analysis of Self

As a nurse, compassion and individualized care has always been at the forefront. I became a nurse to care for others and found that I was drawn to the most severe cases: pediatrics and oncology. The most effective way to get through the day, and leave after my shift with content and stable patients, was to take my time to ensure that they were comfortable, that they understood what I was doing and why, and knew how they could participate in their care . As a scholar, I found patient education to be the area of greatest concern to me. I would see coworkers and colleagues provide care that was adequate but that could be so much better with just a few adjustments to *their* education and their approach to *patient* education. Having worked with patients from birth to 107 years old,

there has always been one thing that was the same: the desire to be comforted. Simply taking the time to ensure that an infant is content prior to drawing blood or asking an elderly patient if they would like to assist with their ostomy care shows that you care about their comfort and about them as a person, not just as a patient. The contrast may seem drastic, but it is all in how you look at the situations individually. As a project manager, I found that showing my colleagues and staff the same compassion and caring attitude when developing improvement measures and working as a team can make every effort slightly easier and the processes smoother.

The basis for all healthcare education should be the individual's health literacy. Looking at my passion for case management and improving overall patient healthcare outcomes, health literacy was the obvious first step. Having children with special needs, I have seen first-hand the impact that adequate healthcare education can have on positive outcomes. For example, asthmatic children can inform their teachers, parents, or friends that they need their "rescue" inhaler when they feel it is difficult to breathe or when they continuously cough when outside. Epileptic children can help prepare their friends, teachers, and family by informing them that they feel "funny" or that they feel an "aura". Diabetic children can help others feel more comfortable with good dietary choices because they have had good education themselves. These are just some examples but there are many, many more; not just with pediatrics, but with any age.

This project evolved from a desire to empower case managers to improve their care of pediatric patients to an understanding that one can help others only if they truly

understand how to improve the education they provide. This is where improving the assessment of health literacy became the obvious first step in improving healthcare outcomes in the pediatric population. What better way to achieve this than start with nurse educators and student nurses. The goal of increasing awareness of the gap-in-practice was met and an amazing amount of vocal support was received to continue this journey and look to creating an actual health literacy assessment tool that is specifically geared toward pediatric patients. A valid and trusted tool being the long-term goal, this project is a solid first step toward that end.

Being a retired Army nurse, the desire to hurry and get to the big picture was the most arduous challenge. A scholar and professional may want to improve healthcare outcomes but the steps to making change sustainable cannot be sacrificed to reach the goal faster. Remembering that this is a profession and many voices are more effective than one is a vital insight I have gained during this journey. I have gone from working in large healthcare facilities, to small single provider clinics, to educating the next generation of nurses during this project; all of which have added to my understanding of how improving education can increase the positive healthcare outcomes in a pediatric population. Attaining approval for dissemination of the education plan was by far the easiest portion of this process. The more I discussed my ideas with colleagues and peers, the more interested and willing to participate they became. I anticipate providing this education plan to more groups in the future.

Summary

Health literacy is not a new concept but is lacking is basic nursing education. As a result, many nurses do not fully understand how to assess health literacy or how vital it can be to properly educate patients. The pediatric population is especially at risk as there is currently no tool specifically geared toward assessing pediatric health literacy. The education plan proposed in this project successfully improved the understanding of health literacy, what tools are available to assess health literacy, and the impact this could have on their patient education delivery. Further study should be conducted in order to create an effective and valid tool to assess health literacy in pediatric patients.

References

Abrams, M.A., Kurtz-Rossi S., Riffenburgh, A., & Savage, B.A. (2014). *Building Health Literate Organizations: A Guidebook to Achieving Organizational Change.* Retrieved from https://www.unitypoint.org/health-literacy-guidebook.aspx

Al Sayah, F., Williams, B., & Johnson, J. A. (2012). Measuring health literacy in individuals with diabetes: A systematic review and evaluation of available measures. *Health Education & Behavior, 40(1),* 42-55. doi: 10.1177/1090198111436341

Berkman, N. D., Sheridan, S. L., Donahue, K. E., Halpern, D. J., & Crotty, K. (2011). Low health literacy and health outcomes: An updated systematic review. *Annals of Internal Medicine, 155(2)*, 97-W41.

Bexar County Community Health Collaborative (2016). *2013 Community health assessment report for Bexar County*. Retrieved from http://healthcollaborative.net/wp-content/uploads/reports/chna-2016.pdf

Bexar County Community Health Collaborative. (2016). *Bexar County community health needs assessment.* Retrieved August 9, 2017 from http://healthcollaborative.net/wp-content/uploads/ reports/chna-2016.pdf

Blue Cross Blue Shield of Tennessee, (2018). Pediatric Age Range. Retrieved from https://www.bcbst.com/mpmanual/Pediatric_Age_Range.htm

Broder, J., Okan, O., Bauer, U., Bruland, D., Schlupp, S., Bollweg, T., ..., Pinheiro, P. (2017). Health literacy in childhood and youth: A systematic review of definitions

and models. *BMC Public Health, 17*(361), 1-25. doi: 10.1186/s12889-017-4267-y

Centers for Disease Control and Prevention (2016). *National action plan to improve health literacy*. Retrieved from https://www.cdc.gov/healthliteracy/planact/national.html

Chokshi, D. A., Chang, J. E., & Wilson, R. M. (2016). Health reform & the changing safety net in the United States. *The New England Journal of Medicine, 375(18),* 1790-1796.

Clement, S., Ibrahim, S., Crichton, N., Wolf, M., & Rowlands, G. (2009). Complex interventions to improve the health of people with limited literacy: A systematic review. *Patient Education and Counseling, 75*, 340-351. doi: 10.1016/j.pec.2009.01.008

DeWalt, D.A., & Hink, A. (2009). Health literacy and child health outcomes: a systematic review of the literature. *Pediatrics, 124*(Supplement 3), S265-74. doi: 10.1542/peds.2009-1162B

Eichler, K., Wieser, S., & Brugger, U. (2009). The costs of limited health literacy: A systematic review. *International Journal of Public Health, 54(5),* 313-324. doi: 10.1007/s00038-009-0058-2

Fadda, M., Depping, M. K., & Schultz, P.J. (2015). Addressing issues of vaccination literacy & psychological empowerment in the measles-mumps-rubella (MMR) vaccination decision-making: a qualitative study. *BMC Public Health, 15(836).* doi: 10.1186/s12889-015-2200-9

Gould, D. Berridge, EJ, & Kelly, D. (2007). The National health service knowledge & skills framework and its implications for continuing professional development in nursing. *Nurse Education Today, 27*, 26-34. doi: 10.1016/j.nedt.2006.02.006

Health Collaborative. (2017). *Grow Healthy Together: Bexar County*. Retrieved August 17, 2017 from http://healthcollaborative.net/

Hunter College (2017). Biography of Dr. Christina Zarcadoolas. Retrieved from http://healthliteracylab.com/christina-zarcadoolas-phd/

Institute of Medicine (2004). *Health literacy: A prescription to end confusion.* The National Academy of Sciences. Retrieved from http://www.nap.edu/catalog/10883.html

Kickbusch, I., & Maag, D. (2008). Health literacy. In K. Heggenhougen & S. Quah (Eds.), *International Encyclopedia of Public Health, 3* (204-211). San Diego: Academic Press.

Kim, H., & Xie, B. (2017). Health literacy in the eHealth era: A systematic review of literature. *Patient Education and Counseling, 100*, 1073-1082. doi: 10.1016/j.pec.2017.01.015

Koh, H. K., Berwick, D.M., Clancy, C.M., Bauer, C., Brach, C., Harris, L.M., & Zerhusen, E.G. (2011). New federal policy initiatives to boost health literacy can help the nation move beyond the cycle of costly 'crisis care'. *Health Affairs, 31(2),* 434-443. Retrieved from http://content.healthaffairs.org

Kotter, J. P. (2012). Kotter's 8-Step change model: Implementing change powerfully and

successfully. Retrieved from https://www.mindtools.com/pages/article/newPPM_82.htm

McCleary-Jones, V. (2016). A Systematic review of the literature on health literacy in Nursing Education. *Nurse Educator, 41(2),* pp. 93-97. doi:10.1097/NNE.0000000000000204

Morrisson, A.K., Myrvik, M.P., Brousseau, D.C., Hoffmann, R.G., & Stanley, R.M. (2013). The relationship between parent health literacy and pediatric emergency department utilization: A systematic review. *Academic Pediatrics, 13(5),* 421-429.

Nursing (n.d.) in American Nurses Association. Retrieved from http://www.nursingworld.org/EspeciallyForYou/What-is-Nursing

Ormshaw, M. J., Paakkari, L.T., & Kannas, L.K. (2013). Measuring child and adolescent health literacy: A systematic review of literature. *Health Education, 113(5),* 433-455. doi:10.1108/HE-07-2012-0039

Petiprin, A. (2016). *Lewin's change theory.* Retrieved from http://www.nursing-theory.org/theories-and-models/Lewin-Change-Theory.php

Ryan, L., Logsdon, M.C., McGill, S., Stikes, R., Senior, B., Helinger, B., ...Winders Davis, D. (2014). Evaluation of printed health education materials for use by low-education families. *Journal of Nursing Scholarship, 46(4),* 218-228.

Schonlau, M., Martin L.T., Hass A, Derose, K., & Rudd, R. (2011). Patients' literacy skills: More than just reading ability? *Journal of Health Communication, 16(10),*

1046-1054.

Sheridan, S. L., Halpern, D.J., Viera, A.J., Berkman, N.D., Donahue, K.E., Crotty, K. (2011). Interventions for individuals with low health literacy: A systematic review. *Journal of Health Communication, 16*, 30-54. doi: 10.1080/10810730.2011.604391

Small, A. et al. (2016). Using Kotter's change model for implementing bedside handoff: A quality improvement project. *Journal of Nursing Care Quality, 31(4)*, 304-309.

Tokuda, Y., Doba, N., Butler, J. P, & Paasche-Orlow, M. K (2009). Health literacy and physical and psychological wellbeing in Japanese adults. *Patient Education and Counseling, 75(3):* 411-417.

University Health System (2017). *Continuing Education & Development.* Retrieved from http://www.universityhealthsystem.com/healthcare-professionals/continuing-education-and-development

U.S. Department of Health and Human Services (2000). *Healthy People 2010: Tracking Healthy People 2010*. Washington, DC: U.S. Department of Health and Human Services.

World Health Organization (2017). Nursing. Retrieved from http://www.who.int/topics/nursing/en/

Zamora, H. & Clingerman, E. M. (2011). Health literacy among older adults: A Systematic literature review. *Journal of Gerontological Nursing, 37(10),* 41-51.

Zhang, N. J., Terry, A., & McHorney, C. A. (2014). Impact of health literacy on

medication adherence: A systematic review and meta-analysis. *Annals of Pharmacotherapy, 48(6),* 741-751. doi: 10.1177/1060028014526562

Appendix A: Health Literacy Education

Health Literacy in Pediatrics

WALDEN UNIVERSITY

Objectives

- Definitions of Health Literacy
- HL's Link to Literacy
- Why Is HL Important?
  - What helps HL and what hinders HL?
  - How to improve HL
- What tools exist?
  - 3 highlighted for this training
    - TOFHLA & S-TOFHLA
    - REALM
    - NVS (Newest Vital Sign)
- How do you use these tools?
- Relevance to patient teaching
  - How should this assessment be applied to patient education?
- What is the benefit/difference for pediatric patients?
- Conclusion & Questions

Definitions

- 'Degree to which individuals have the capacity to obtain, process, and understand the basic health information and services they need to make appropriate health decisions' (IOMNA, 2004)
- Dependent on individual & systemic factors
- Ability to navigate the healthcare system

Definitions cont.

- 'The cognitive & social skills which determine the motivation & ability of individuals to gain access to, understand & use information in ways which promote & maintain good health' (WHO, 2017)

Link to Literacy

- 'Literacy is the ability to identify, understand, interpret, create, compute, and communicate using visual, audible, and digital materials across disciplines and in any context.'
- Globally
  - 12% of the global population considered functionally illiterate
  - 126 million youth are illiterate
- Locally
  - 21.8% 14yrs old & younger
  - 32.7% have low health literacy

Importance

- Critical empowerment strategy
- Link to poor healthcare outcomes
- Negative psychological effects

What Helps & What Hinders HL

Helps	Hinders
Empowerment	Illiteracy
Education	Economics
Exposure	Poor access to care
Communication Skills	Language barriers
Awareness	Culture

Learning Styles

- Visual – pictures, images
- Aural – sound, music
- Verbal – speech, writing
- Physical – sense of touch
- Logical – reasoning, systems
- Social – in groups, with others
- Solitary – alone, self-study

How to improve HL

- Increasing understanding
- Integrating HL content into education
- Simplified written language, pictorial material & audio/visual resources
- Spreading knowledge

Intro to assessment

- Multiple different assessment tools genres:
  - Cancer, Nutrition, Medical Terms, Adolescent, Adult, Diabetes, HTN, HIV, etc.
- 3 Focus tools:
  - TOFHLA (Test of Functional Health Literacy in Adults)
  - HELMA (Health Literacy Measure for Adolescents)
  - NVS (Newest Vital Sign)

TOHFLA

- Comprehension, numeracy, information seeking
- Measure is not disease specific
- ages 18-64 yrs
- Paper & pencil, face-to-face

HELMA

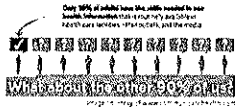
- Numeracy, general, comprehension, application/function
- General, not disease specific
- HELMA

NVS

- 6-question test orally administered to assess HL & numeracy
- Validated in English & Spanish
- Ideal for ED environment, takes 2-6 minutes to administer
- NVS Toolkit

Relevance to Patient Teaching

- Basing patient education on their health literacy level
- Improve healthcare outcomes
- Promote positive social change



Conclusion & Questions

Appendix B: Health Literacy in Pediatrics: Pre- and Post-Quiz

1 What is Health Literacy? (select all that apply)
   a. Ability to read healthcare information
   b. Capacity to obtain, process, & understand basic health information
   c. Ability to understand services needed to make appropriate health decisions
   d. Ability to navigate the healthcare system

2 Which of these are assessment tools for Health Literacy?
   a. TOFHLA
   b. REALM
   c. CHIPA
   d. SILS

3 Assessing Health Literacy is necessary for adequate patient education.
   a. True
   b. False

4 Reading is required for a patient to be compliant with their plan of care.
   a. True
   b. False

5 Which populations are able to effectively complete self-care? (select all that apply)
   a. Older adults
   b. Middle age adults
   c. Adolescents
   d. School age children

6 Nursing curriculum adequately educates student nurses on Health Literacy.
   a. False
   b. True

7 Which of these are learning styles that patients may exhibit?
   a. Audio, visual, hands-on, pictures
   b. Seeing, hearing, doing
   c. Demonstration, how-to videos, trial & error
   d. Visual, logical, verbal, physical, aural

8 Can pediatric patients (ages 5-11) be taught to effectively care for chronic illnesses (i.e. diabetes, asthma, epilepsy)?
   a. True
   b. False

9 When should you assess a patient's Health Literacy?
   a. Upon admission
   b. First contact

c. Prior to discharge
d. Continuously with the change in information presented

10 Health Literacy is necessary for improving patient understanding of healthcare teachings.
a. False
b. True