

ASSESSING THE HEALTH LITERACY OF PARENTS IN A RURAL COUNTY IN EASTERN NORTH CAROLINA

by

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Abstract

Medication administration for children is an important role for parents and requires a basic understanding of medication use by parents. The purpose of this senior honors project was to examine the health literacy of a vulnerable population living in eastern North Carolina and to address the use of over-the-counter (OTC) medication use by this population. This study assessed the health literacy of a subset of parents attending the well child clinics offered by a local county health department. Health care providers in this area identified the overuse of certain OTC medicines as being specifically problematic. The senior honors student and public health nurse preceptor administered the Newest Vital Sign (NVS) assessment tool to 35 parents weekly on four separate clinic days to determine the extent of health literacy in this population. This program evaluation suggests parents in this setting have variable health literacy. This setting might benefit from nursing interventions that target health-teaching populations with limited health literacy.

Background

Duplin County is a rural county in eastern North Carolina with a large farming economy. The top three employers are Murphy-Brown Company, (pork and poultry production feed preparation), Carolina Turkey (turkey processing), and House of Raeford (poultry processing) (Discover Duplin County, 2014). During a community health assessment windshield survey, diversity in the population was apparent. Duplin County has a population of approximately 53,000, including 42.4% White, 26.0% Black, and 21.2% Latino origin (Ricci, 2013).

The priority problem of low health literacy is affected by many factors, including ethnicity, income, and education. Low income and low levels of education are major factors affecting health literacy, as well as the fact that a large number of the population is Non-English speaking. In Duplin County educational attainment is as follows: 30.3% of individuals 25 years and older do not hold a high school diploma or equivalency compared to 16.4% in NC and 14.9% in the US (Duplin County, 2012). In regard to education, 13.7% of the population holds less than a 9th grade education, and 16.6% hold 9-12th grade education with no diploma (Duplin County, 2012). In 2010, the median household income was \$32,816, and the per capita income was \$16,693 (Duplin County, 2012). In 2010, 23.7% of the population had income falling beneath the Federal poverty level (Duplin County, 2012). The poverty rate for children under the age of 18 was 32.8% (Duplin County, 2012). The infant mortality rate (IMR) for 2009-2013 in NC is 7.3%, while the IMR for Duplin County in that same timeframe is 8.0% (North Carolina Department of Health and Human Services). From 2009-2013, the IMR in Duplin County for the White population was 8.7%, while the IMR for the Black population was 14.9%, with a disparity ratio of 1.71 (North Carolina Department of Health and Human Services).

Considering the population demographics of the county, it is important that community health nursing interventions include cultural variations. The Quad Council for Public Health

Nursing Competencies provides national guidelines for community health nurses (Cravetz, Krothe, Reyes, & Swider, 2011). Domain four in the Quad Council Competencies refers to community health nurses needing a strong set of cultural competency skills, in order to provide quality and safe nursing care to all communities and populations (Cravetz et al., 2011).

According to the Quad council competencies, a BSN prepared RN should be able to, “work effectively with diverse individuals families, and groups, understand the impact of social determinants of health on individuals, families, and groups, adapt public health nursing care...based on cultural needs and differences, and contribute to promoting culturally responsive work environment” (Cravetz et al., 2011, p.14). Duplin County has experienced continual growth in the Latino population as a result of the growth of the poultry and pork industries (Ricci, 2013).

The mission of the Duplin County Health Department (DCHD) is to assure health of the community through protection and prevention. The DCHD offers a myriad of services, including maternal care, child health care, immunizations, and an adult clinic, providing care to vulnerable populations. Without the services of the DCHD, many individuals would not receive medical care. More than 75% of the mothers and children receiving services at the DCHD are of Latino origin (personal communication, Dr. Elizabeth Griffin, September 2, 2014). Many adult Latinos do not speak English; therefore interpreters are an integral part of the health care team. A nurse working in this setting must take cultural aspects of care into consideration for the best patient outcomes.

Health literacy is an overarching concern in health care in the United States (North Carolina Institute of Medicine, 2009). Furthermore essential public health services highlight the importance of health literacy. Addressing the health literacy of a population helps empower,

inform, and educate communities about important health issues (Centers for Disease Control and Prevention [CDC], 2014). Therefore, it is necessary to understand the extent of health literacy in vulnerable populations to ensure the best outcomes.

Review of Literature

A review of the literature was conducted using the following key terms: literacy, nursing, interventions, and low health literacy. The literature search used the following databases: CINAHL, Proquest, and Medline. This literature review has been organized into four categories: Health Outcomes Related to Health Literacy, Best Practice to Improve Health Literacy, Newest Vital Sign Assessment Tool, and Specific Nursing Interventions that Address Health Literacy.

Health Outcomes Related to Health Literacy

Low health literacy is associated with poorer health outcomes (Mueller, 2012). To improve health outcomes, low literacy must be addressed with appropriate health education materials. Low health literacy is associated with, higher use of emergency services, poorer adherence to medication regimens, and higher rates of hospitalization (Mueller, 2012). In addition, among the low literacy group, all-cause mortality risk was significantly greater than the high literacy group (Mueller, 2012).

A recent systematic review of the literature concluded that individuals with low health literacy have poorer health outcomes and poorer use of health care services (Berkman, Sheridan, Donahue, Halpem, & Crotty, 2013). This review partially explains racial disparities in health outcomes” (Berkman et al., 2011). Low literacy can play a major role in the relationship between patient characteristics, use of health care services, and health outcomes (Berkman et al., 2011).

Best Practice to Improve Health Literacy

Health teaching materials should be designed at an education level of the population being served. Verbal health teaching along with written materials is most effective (Wilson, 2011). The use of pictographics in health information concerning acetaminophen administration has improved correct medication usage (Yin, Mendelsohn, Fierman, van Schaick, Bazan, & Dreyer, 2012). In this study individuals who received information in text as well as pictographically were less likely to have medication errors than individuals who received text alone (Yin et al., 2012). The authors reported that parents were more likely to make medication errors with text alone (Yin et al., 2012). Pictographic health information is a superior method of health teaching for all populations. Many individuals gain relevant information from visual aids through the use of pictographics.

Wilson (2011) concluded that written health education materials are very important in addition to verbal teaching, but they must follow several guidelines in order to be effective (Wilson, 2011). This study suggested that effective written materials must be developed at an appropriate literacy level, current and accurate, culturally appropriate, relevant, and appropriate in layout design” (Wilson, 2011). Developing health-teaching materials should follow evidence-based practice; including specific word font, boldface, and avoiding capital and italicized words. New health teaching materials should be tested by the population served (Wilson, 2011).

Newest Vital Sign Assessment (NVS) Tool

The NVS assessment tool was developed to identify clients at risk for low health literacy (Pfizer, 2005). This assessment tool takes approximately 3 minutes to administer and can be adapted for best communication based on the patient (Pfizer, 2005). The NVS assessment tool can assess health literacy in a variety of population groups, such as children, adults, and racial

minorities (Pfizer, 2005). This tool has been found to quickly assess the literacy level of under 65-year old population, and is less useful for an older population (Patel, Steinberg, Goveas, Pedireddy, Saad, Rachmale, & Shukla, 2011).

In a study with 1,014 participants, the NVS assessment tool found 51.9% of the participants had low health literacy (Shah, West, Bremmeyr, & Savoy-Moore, 2010). This was a similar finding in a US Department of Education Adult Literacy Study, which found 34-51% of Americans fell in the category of low health literacy (Shah et al., 2010). Furthermore, researchers found only 2.5% of those approached refused to participate, suggesting the tool is not a burden to participants (Shah et al., 2010). Information received from the NVS can aid in determination of effectiveness of patient education literature (Shah et al., 2010).

Specific Nursing Interventions that Address Health Literacy

Nurses play an important role as health educator in helping clients prevent disease and promote health (West & Holmes, 2014). A nurse who is involved in educating parents can improve literacy and improve outcomes for the parents and their children. William and Manias (2014) found that individuals who had regular follow-up by nurses had more effective disease management. It is essential for the nurse to provide culturally tailored health education with parents to improve medication administration with their children.

In summary, examining low health literacy in relation to the misuse in OTC medicines, especially among children is critical for improved health outcomes. The NVS assessment tool, can estimate the health literacy of a population thereby informing the health care provider on the best practice for health information messages. Second, health education material must be provided in a way that individuals with low health literacy can understand, in their preferred language. Effective low health literacy brochures are not only easy to read, but there are certain

parameters to follow to ensure best practice. A nurse can play a vital role in empowering, informing, and educating vulnerable populations by incorporating culturally specific health education that is relevant to the population served.

Methods

This program evaluation used the following methods to examine the health literacy for the purpose of this study: windshield survey, key informant interviews, administration of the NVS assessment tool, and follow-up health teaching.

First, to understand the context of the setting and sample, a community health assessment windshield survey was conducted. Next, I interviewed five key informants using four general questions, discussing population and priority health needs. The five key informants included a pediatrician, the director of nursing, and three nurses working with child health. Then, the Director of Nursing and pediatrician assisted in identifying a priority health need: misuse of OTC medication administration, specifically cough and cold medicine.

On four separate clinic days I implemented the NVS assessment tool with a subset of 35 parents who brought their children into the well child clinic. The NVS assessment tool is considered the 6th vital sign, therefore I first completed assessment of BP, pulse, respirations, temperature, height, and weight. The NVS assessment tool consists of 6 questions related to a nutrition label. It was available in English and Spanish. This tool required someone to read the questions. Parents were asked questions specific to the nutrition label in which they had to identify how many calories were in the entire container, amount of saturated fat in one serving, amount of carbohydrates in a serving, as well as questions concerning identification of ingredients. During these encounters I explained to the parents the purpose of the NVS assessment tool, asked if they would participate and what language they preferred. Parents took

between 1 and 5 minutes to complete the NVS assessment tool. During administration of the NVS assessment tool, I was not allowed to tell parents whether they got questions correct or incorrect, but following administration parents were given the answers. Interpretation of this tool is as follows: a score of 0-1 indicates high likelihood of limited literacy, 2-3 indicates possibility of limited literacy, and 4-6 indicates adequate literacy (Pfizer, 2005).

Finally, in collaboration with the community health nurses we developed a low health literacy brochure regarding OTC medication administration that the health department can use to educate parents. This brochure was created at a 5th grade education level. The same key informants reviewed and approved this brochure to ensure accuracy of information as well as level of literacy. This step employed the knowledge of people highly educated concerning this population to ensure the appropriateness of the brochure.

Findings

Individuals in this setting were found to have variable levels of health literacy. This subset of parents was composed predominately of African American parents followed by smaller numbers of Whites and Latinos. This study found that 42% had the possibility of limited health literacy, 29% had high likelihood of limited health literacy, however 29% of the parents interviewed had adequate health literacy. The most commonly missed question (52.9% incorrect) was, “If you usually eat 2,500 calories in a day, what percentage of your daily value of calories will you be eating if you eat one serving” (Pfizer, 2005). Parents were given a list of allergies to determine whether or not ice cream was safe to eat. Just under half of the parents with the possibility of limited literacy answered this question correctly. Parents demonstrated an interest in learning how to correctly identify the nutrition label. Of the parents who were asked to complete the NVS assessment tool, only 3% refused. Interestingly, there were no other patterns in parent’s responses to other questions on the NVS assessment tool.

The key informant interviews were helpful in ascertaining areas of need within the population. Among the key informants, many had different views of the priority health need, making it difficult to pinpoint a single most important issue to address. The key informants all addressed a language barrier as a major barrier to care. The interviews were helpful in identifying vulnerable populations and how to address these needs.

A low literacy brochure was created on the misuse of OTC cough and cold medications for children younger than 2 years of age. The brochure educated parents on why cough and cold medication is dangerous for young children as well as alternative treatments to treat the symptoms. The brochure remains to be evaluated by the population served.

Limitations in this project were a small sample size, few Latino parents during project implementation (17.6%), and limited availability of interpreters for this project.

Discussion

Based on these findings, the NVS assessment tool was easy to use and relevant to this client population. We found a much higher number of parents (71%) had low health literacy, demonstrating a greater need for low literacy education for this population. Healthcare providers need to continually look for ways to best educate individuals with low literacy and language barriers. This healthcare facility serves a diverse population; therefore it is important the healthcare staff intentionally address culture, language, and educational levels in providing care.

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