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## The Impact of Health Literacy on Effective Breastfeeding Education

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The Impact of Health Literacy on Effective Breastfeeding Education

by

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Bachelor of Science in Nursing, University of Wisconsin-Madison, 2010

An Independent Study

Submitted to the Graduate Faculty of the

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in partial fulfillment of the requirements

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Master of Science

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## PERMISSION

Title           The Impact of Health Literacy on Effective Breastfeeding Education

Department    Nursing

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### Introduction

Many studies have shown that any amount of breastfeeding decreases a child's risk of otitis media, gastroenteritis, inflammatory bowel disease, obesity, and type 2 diabetes. Breastfeeding for one month or more decreases the risk of SIDS; two months or more decreases the risk of celiac disease; and breastfeeding for more than three months decreases the risk of type 1 diabetes, atopic dermatitis, and asthma. The benefits continue to grow if a child is breastfed more than six months (American Academy of Pediatrics, 2012).

Even though the benefits of breastfeeding are well documented, low-income women are still less likely to breastfeed (McDowell, Wang, & Kennedy-Stephenson, 2008). Only 57% of infants born to low-income families were ever breastfed, compared to 74% of infants born to higher income families (McDowell et al., 2008).

The increased rate of lower health literacy among low-income adults supports the correlation that low-income women who are accessing breastfeeding education materials may have lower health literacy. If low-income women are not able to understand the educational materials they are given this could affect the rates of breastfeeding. The National Assessment of Adult Literacy results show that among adults who receive Medicaid (health insurance for low-income adults), 30% had below basic health literacy, compared to only 7% of adults who received employer-provided insurance (Kutner, Greenberg, Jin, & Paulsen, 2006).

Taking into consideration the higher rate of low health literacy among low-income individuals, the current breastfeeding education materials at the Dean Clinic Obstetrics and Gynecology (OBGYN) department will be assessed. New materials will be

developed to meet the needs of all patients, including those with low health literacy.

### **Purpose**

For this independent study, a thorough literature review investigating low-income women, health literacy, and effective breastfeeding education will be conducted. This information provides the necessary guidance for health care providers and facilities to create and/or provide appropriate breastfeeding education materials.

The evidence gathered in this literature review will be analyzed and applied to the current breastfeeding educational materials provided at Dean Clinic OBGYN provider offices in Madison, Wisconsin. The impact of low health literacy and its effect on patient understanding of breastfeeding educational materials will result in the review, revision and implementation of multimedia breastfeeding educational materials at Dean Clinic to meet the needs of all patients, including those with low health literacy. The educational materials that will be created and implemented will be based on current evidence gathered in the literature.

### **Significance**

Healthy People, a federal government program managed by the U.S. Department of Health and Human Services, establishes and disseminates national goals and objectives to be met over 10 years, with the goal of improving the health of all Americans. Healthy People 2020 identifies specific objectives related to breastfeeding as well as health literacy. Healthy People 2020 Maternal Infant Child Health objective 21.1 is “Increase the proportion of infants who are ever breastfed” (HealthyPeople.gov, 2015). The Healthy People 2020 target is that 81.9% of infants will be breastfed. Additionally, Health Communication and Health Information Technology objective 1.1 is to “Increase

the proportion of persons who report their health care provider always gave them easy-to-understand instructions about what to do to take care of their illness or health condition” (HealthyPeople.gov, 2015). Both of these Healthy People 2020 objectives underscore the importance of breastfeeding and health literacy for Americans.

The literature review will provide valuable information for nurses and health care systems in the provision of care for low-income mothers and families. It will address the importance of proper breastfeeding educational materials for low-health literacy women and their families, which directly affects the health of children.

As Squiers, Peinado, Berkman, Boudewyns & McCormack (2012) addressed in their Health Literacy Skills framework, health literacy skills include not only understanding *why* a health behavior is beneficial, but also *how* to follow through and perform the health behavior. Breastfeeding educational materials, whether print, audio, or video materials, need to be created so all populations easily understand them. This includes the message content and the messenger, which will be discussed in more detail later in the paper. The results of this study will be utilized to develop breastfeeding educational materials that meet the needs of low health literacy populations at Dean Clinic OBGYN offices.

### **Theoretical Framework**

There have been many definitions of health literacy over the years, as well as multiple frameworks developed. Many of these frameworks focus on how health literacy affects health outcomes. Squiers et al. (2012) developed a Health Literacy Skills (HLS) framework to include the full pathway of health literacy. (Figure 1). In this study, the authors incorporated the findings of previous theoretical frameworks to develop a more

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### **Theoretical Framework**

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component addresses what factors impact the development of health literacy skills and the ability to use health literacy skills. The HLS framework acknowledges that many demographic factors affect an individual's ability to acquire health literacy skills including gender, age, income, and race/ethnicity. Previous knowledge that an individual may have from personal or family health issues, experiences with health care providers and/or systems, and understanding of words related to health also affect their health literacy. An individual's own resources including education, employment, culture and support systems will also affect their health literacy skills, as well as their individual capabilities including hearing, cognitive abilities, vision, and communication skills (Squiers et al., 2012). For example, an individual who has had a family member visit their health care provider frequently may have a better base knowledge of health care vocabulary due to that experience.

The second component focuses on health-related stimuli. Health related stimuli are things like a prescription label, a brochure written about a medical condition, or a conversation with a health care provider. They stimulate the need for health literacy because they prompt an individual to have to understand information related to their health and interpret what it means. For example, if they are given a prescription, they will need to read what the prescription label says and interpret what the instructions and dosing mean. An individual encodes what they are reading or being told and chooses the information that they believe is most important. Health literacy influences how a person receives, stores, and retrieves information, which impacts overall comprehension of the message (Squiers et al., 2012).

The channel of communication, the content of the message, and the source of the



message all play a part in how the stimuli are received. The communication channel is the way in which the information is received. This could be through interpersonal communication or through a mediated channel like printed materials, audio materials, video materials, websites etc. The content of the message also affects understanding of health information (Squiers et al., 2012). A health care provider using plain language may result in a different understanding than a provider who uses jargon. The reading level of printed materials also impacts the ability of an individual to understand the message. The communication skills that the messenger has, the relationship between the messenger and the individual, and the individual's trust in the messenger will also play a critical role in the individuals understanding of the health stimuli (Squiers et al., 2012). Comprehension involves not only understanding what the individual *should* do, but also *how* to do it. For example, if a health care provider explains to a patient that it is important for them to breastfeed, the individual also needs to understand how to breastfeed.

The third component outlines the health literacy skills that lead to comprehension and the ability to perform the task. Health literacy includes print literacy, numbers, communication, and information seeking abilities (Squiers et al., 2012). Individuals need to be able to read printed materials and understand the information they are reading. Often times printed material includes numbers, and individuals need to understand numerical information provided. Oral communication skills are important during health visits and telephone calls so that individuals can respond to health information provided and ask questions as needed to clarify. The HLS framework points out that all forms of health literacy contribute to total health literacy skills that an individual has (Squiers et al., 2012).

The fourth component addresses the mediators between health literacy and health outcomes. Mediators explain why a specific outcome occurs. Research shows that there is a direct relation between health literacy skills and an individual's health outcomes, but there are many other mediators that may affect this such as motivation, self-efficacy, and attitudes (Squiers et al., 2012). Ecological influences like culture, media, access to health insurance, and social support further play a part in health outcomes. A few or many of these factors could affect comprehension and its correlation to health behaviors. It is important that an individual comprehends the message they are given, but there are many other factors that will affect their decision to act on that message (Squiers et al., 2012).

This framework looks at the entire pathway of health literacy and recognizes that health literacy skills affect health-related behaviors and health status/outcomes.

### **Definitions**

There are a few terms used throughout the paper that need to be defined. The first is health literacy. Health literacy is "the degree to which individuals can obtain, process, understand, and communicate about health-related information needed to make informed health decisions" (McCormack et al., 2010, p. 53).

The term breastfeeding educational materials refers to any form of education that is provided for a patient regarding breastfeeding. This could be written, video/visual, audio, or verbal information.

In this paper, low-income refers to individuals who qualify for government provided insurance based on their income (i.e. Medical Assistance). This is based on the federal poverty level.

The population is defined as pregnant and breastfeeding women at Dean OBGYN

clinics in Madison, WI.

### Process

Searches were conducted in Cochrane, PubMed, and CINAHL. These were accessed through the University of North Dakota Harley French Library website. Additional articles were gathered from the reference section of previously obtained articles.

The initial search was conducted using the Cochrane database. An advanced search was completed using the headings and Boolean limits: low-income women AND effective breastfeeding education. The search was limited to Cochrane reviews and provided six results. Limits were not placed on the years of the articles in any of the searches to make sure that all relevant articles could be accessed. Only one article was chosen. Another advanced search was conducted using the headings and Boolean limits: low-income women AND health literacy. This provided two results, but neither article was chosen. Another advanced search was conducted using the terms: breastfeeding education AND health literacy. This produced one article, which was not chosen.

The second database used was PubMed. PubMed was used because it is the largest health database (Mateo & Kirchhoff, 2009). An advanced search was conducted in PubMed using the PubMed advanced search builder. The initial headings and Boolean limits were: low-income women AND breastfeeding education. This produced over 300 results, so the terms were changed to: low-income women AND effective breastfeeding education. This resulted in 32 articles. After reading the titles and abstracts, six articles were chosen as they were most relevant, and one article was previously identified in the Cochrane search.

A second advanced search was conducted in PubMed using the headings and Boolean limits: low-income women AND health literacy. This produced 229 results, so the search was changed to use the terms: low-income women AND pregnancy AND health literacy. This provided 46 results and two articles were chosen.

A third advanced search was conducted in PubMed using the headings and Boolean limits: health literacy AND breastfeeding education. This advanced search provided 70 results and three articles were selected. MeSH terms were not used, as the results of the searches were sufficient.

The third database used was CINAHL. All of the same searches were conducted in CINAHL. The search terms and Boolean limits: low-income women AND effective breastfeeding education produced five results, and two of the articles were chosen. Since this was a small number, the search terms were changed back to: low-income women AND breastfeeding education. This produced 48 results, and five articles were chosen. Another search using: Low-income women AND health literacy produced 26 results, and two of the articles were previously selected in a PubMed search. No other articles were chosen. A search for: low-income women AND pregnancy AND health literacy produced five results, of which two were previously selected in a PubMed search and no others were chosen. The final search for: health literacy AND breastfeeding education produced three results and none were chosen.

After reviewing the reference sections of the selected articles, two other relevant articles were selected. Most of the selected articles were available as full text PDF articles online, but a few were electronically received through Interlibrary Loan at Harley

French Library at the University of North Dakota. In total, the search provided 21 relevant articles.

### **Review of the Literature**

A critique of the literature was completed for all articles collected from the literature searches. Similarities, differences and gaps in knowledge were identified.

Two studies found higher rates of formula use among low-income groups (Kaufman, Skipper, Small, Terry, & McGrew, 2001; Yin et al., 2014). These studies found that women with low health literacy were 50-77% more likely to formula feed than breastfeed exclusively. The authors recommend that patients need simpler breastfeeding education materials with practical demonstrations, images, illustrations, and other non-written materials (Bryant, Coreil, D'angelo, Bailey, and Lazarov, 1992; Kaufman et al., 2001). Proper educational materials may influence low-income women who have not made a firm decision regarding their infant feeding method (Bryant et al., 1992).

At least three studies have concluded that health professionals should provide breastfeeding education early in the pregnancy (Gurka et al., 2014; Mitra, Khoury, Hinton, & Carothers, 2004; Shieh, Broome, & Stump, 2010). Gurka et al. (2014) found that 95% of women had already chosen an infant feeding method between 24-41 weeks gestation. They found that 27% of women surveyed intended to feed only formula, and these women were also less likely to report that they had received information about the benefits of breastfeeding or how to breastfeed (Gurka et al., 2014). This reiterates the importance of providing proper breastfeeding education early in the pregnancy when women make a decision about infant feeding.

White women, women with some college education, women with higher income, women with a smaller family size, and women with any previous breastfeeding experience are more likely to breastfeed (Mitra et al., 2004). Lee et al. (2005) had similar findings in regards to education level and family size, but their study found that there was a higher likelihood of breastfeeding among native-born, non-Hispanic African American women than among non-Hispanic whites, which stands in contrast to other studies (Mitra et al., 2004; Murimi, Dodge, Pope, & Erickson, 2010), which showed a decreased rate of breastfeeding among African Americans.

Shieh et al. (2010) studied health literacy, self-efficacy, fetal health locus of control and health information seeking. Health locus of control is whether a person feels they have control over their health or if it is affected by external factors. They found that self-efficacy and internal fetal health locus of control were significantly correlated with health information seeking, but health literacy was not. Low health literacy is correlated with others having a more powerful fetal health locus of control. This means that a pregnant woman with low health literacy may rely more heavily on others for information and guidance, including the information that a health professional provides them with (Shieh et al., 2010). This reliance is likely due to the lack of health literacy skills to be able to seek out information. If a pregnant woman feels that she has personal influence on the health of her baby, she may be more likely to engage in health promoting behaviors like breastfeeding to benefit the baby. If a woman does not feel that she has that effect, she may not choose to engage in these behaviors, unless she is provided with the information about why a health promoting behavior like breastfeeding is important. Identifying women early on in their pregnancy, especially those who are at

high risk to not breastfeed, is important so that education can be provided early to improve knowledge, overcome barriers, and increase the number of women who intend to breastfeed (Gurka et al., 2014; Mitra et al., 2004, Shieh et al., 2010).

Along with providing breastfeeding education early in pregnancy, health care providers need to be aware of a patient's health literacy level to make sure that low health literacy women are receiving all of the proper education (Gillis, Gray, & Murphy, 2013; Stolzer & Zeece, 2006). These studies found that health care providers were not providing proper information on the benefits of breastfeeding (Gillis et al., 2013; Stolzer & Zeece, 2006). Health care providers need to improve their interactions with patients when providing scientific evidence about breastfeeding and their recommendations need to be clear.

Peer counseling and support has been shown to increase breastfeeding initiation and duration in multiple studies (Dyson, McCormick, & Renfrew, 2005; Mickens, Modeste, Montgomery, & Taylor, 2009; Olson, Haider, Vangjel, Bolton, & Gold, 2008; Raisler, 2000). Health education along with peer support is shown to double the rate of women who intend to breastfeed (Mickens et al., 2009) and also increases the number of women who actually initiate breastfeeding (Dyson et al., 2005). Peer counseling support programs should be implemented since they are proven to be effective and are also a valuable option due to their low cost to administer (Olson et al., 2008).

Multiple studies identified the effectiveness of videos and images to provide breastfeeding education (Gross et al., 1998; Khoury, Mitra, Hinton, Carothers, & Sheil, 2002; Raisler, 2000). Breastfeeding videos that address the barriers to breastfeeding and the benefits of breastfeeding helped improve perceptions about embarrassment and time

constraints associated with breastfeeding, as well as improve views of social support from support persons (Gross et al., 1998; Khoury et al., 2002). Posters, pamphlets, images and videos that are used for breastfeeding education should be culturally appropriate (Gross et al., 1998; Raisler, 2000). Gross et al. (1998) also found that the video intervention was just as effective as peer counseling in increasing breastfeeding rates at eight and sixteen weeks postpartum.

Shieh, Mays, McDaniel, and Yu (2009) found that those with low health literacy were less likely to use the Internet as an information source. This needs to be considered when providing pregnant women with educational resources. If they are less likely to use the Internet on their own, providing them with access to the Internet or resources on the Internet in the office may be very beneficial to ensure that they are able to access the information.

A systematic review that identified 20 articles with interventions aimed to improve health outcomes of people with low literacy found mixed results for the effectiveness of interventions, and also found limitations for some interventions (Pignone, DeWalt, Sheridan, Berkman, & Lohr, 2005). The review identified that very few of the studies looked at specific interventions like a brochure, video, oral presentation, or computer tool, so they were unable to identify one as more effective than the others. The authors felt that additional research is needed to examine whether low literacy and health outcomes association is directly related to the interventions or indirectly related to other health disparities. The authors concluded that health care providers should have effective tools like videotapes, computer programs, and group education curriculum available (Pignone et al., 2005).



Two studies identified that community health workers play a role in promoting breastfeeding (Gill, Reifsnider, & Lucke, 2007; Gilmore & McAuliffe, 2013). Gill et al. (2007) assessed the impact of a breastfeeding intervention aimed to increase breastfeeding among Mexican American women. The intervention group received prenatal education, postpartum telephone calls and home visits, and were found to have twice the odds of initiating breastfeeding and continuing to breastfeed for six months compared to the control group. This study confirms the positive impact that community health workers can have on increasing breastfeeding rates.

A study of women with children in the NICU at Boston Medical Center was conducted to assess the affect of providing breast pumps to all women (Chamberlain, McMahon, Philipp, & Merewood, 2006). Members of the Breastfeeding Center in Boston, charity organizations, and insurance companies worked together to provide breast pumps for all women with children in the NICU. They hypothesized that the breastfeeding rate in this population increased by 57 percentage points because all women received a breast pump. Many women may have issues accessing breast pumps, sometimes due to insurance issues, which may affect breastfeeding rates also.

### **Discussion**

This critique of the literature provides a variety of evidence regarding breastfeeding education, low-income women, and health literacy. The increased rate of lower health literacy among low-income adults supports the correlation that low-income women who are accessing breastfeeding education materials may have lower health literacy. If low-income women are not able to understand the educational materials they are given, this could affect the rates of breastfeeding. The literature review supported this correlation as

it identified that lower literacy groups are more likely to formula feed (Kaufman et al., 2001; Yin et al., 2014).

Health care providers are in a position to provide low health literacy groups with the proper breastfeeding education. This should be done early in pregnancy since most women make their feeding decision early in pregnancy (Gurka et al., 2014; Mitra et al., 2004; Shieh et al., 2010) and the education needs to be provided at an appropriate level for the patient so that it is easy to understand (Bryant et al., 1992; Kaufman et al., 2001).

The HLS framework identifies that demographic factors, previous knowledge, previous experiences with health care providers, and understanding of words related to health will affect an individual's health literacy (Squiers et al., 2012). An individual's own resources including education, employment, culture, and support systems will also affect their health literacy skills, as well as their hearing, cognitive abilities, vision and communication skills (Squiers et al., 2012). Since many health care providers may not be aware of each patient's education level, having educational materials that are appropriate for all health literacy levels, including low health literacy, means that all patients would have access to beneficial education materials.

The HLS framework also identifies that the channel of communication affects how information is received. This could be interpersonal communication, printed materials, or video materials. Multiple studies identified the effectiveness of videos and images to provide breastfeeding education, as long as the educational materials are culturally appropriate (Gross et al., 1998; Khoury et al., 2002; Raisler, 2000). The content of the message also affects the understanding of health information (Squiers et al., 2012). A health care provider using plain language may result in a different understanding than a

provider who uses jargon. Comprehending the message means that the patient not only understands what they *should* do, but also *how* they should do it.

### **Deliverable**

The current breastfeeding education materials at the Dean Clinic OBGYN department were assessed for this project. This project was discussed with the OBGYN clinic manager at Dean Clinic and it was agreed that the creation of better breastfeeding education materials would be beneficial for the clinic and all the patients. The current breastfeeding education materials that all pregnant women receive when they access care at Dean OBGYN clinics is a very short, one-page document that is printed in the pregnancy binder they receive at their first prenatal visit. Although written at a simple level, it has very limited information on the benefits of breastfeeding, and doesn't provide any education about how to breastfeed. These binders were just updated and printed this year, so new ones won't be created for a few years. Instead of removing what the clinics currently have, it was decided that adding improved materials would be more feasible.

Emmi programs are multimedia videos that show, tell, and explain information in a simple way. The focus of these materials is not only on grade level but intended to assist people with various literacy levels watch and learn. Plain language terms, simple graphics, and medical animations are used to help the viewer understand potentially difficult medical information (Emmi Programs, n.d.). Having access to an Emmi video also allows individuals to share the information and education with their family and friends. The literature identified that support persons are important in the decision to breastfeed (Khoury et al., 2002; Mitra et al., 2004). Having the video accessible at home

or in the clinic allows pregnant women to share the information with their support persons.

The third component of the HLS framework states that health literacy skills include comprehending how to perform the task (Squiers et al., 2012). Emmi videos help the viewer not only learn why they should breastfeed, but also teach them how to breastfeed.

Shortly after the discussion with the OBGYN clinic manager, Dean OBGYN Clinics made a system-wide decision to implement all of the obstetrics Emmi videos, and make them available for all pregnant women at Dean Clinics. This will include Emmi videos about childbirth, tobacco cessation, nutrition, and post-partum depression, as well as breastfeeding. This decision will provide access to Emmi videos for pregnant women of all literacy levels. The steps that need to be taken for patients to access the videos are still in process, but will include providing information electronically and/or via the mail. It was also discussed that having a location or room to watch the videos in the clinic is important, as some patients may not have access to the Internet in their homes and may need assistance accessing the Internet (Shieh et al., 2009).

The deliverable of this project is providing all pregnant women at Dean OBGYN clinics with access to the Emmi breastfeeding video. Since this project has been implemented, a small portion of pregnant women at Dean OBGYN clinics have been able to access the Emmi breastfeeding video, and this will soon be expanded to the entire OBGYN clinic population. As part of the deliverable, a meeting was held with the OBGYN clinic managers and the managers in labor and delivery at the hospital to present them with the findings of the literature review and the importance of proper breastfeeding

education materials for low-income women. This meeting provided them with the background information about why proper breastfeeding education materials are needed for all patients, because their health literacy level is not always known.

In addition, it was noted in the literature review that peer counseling and support groups are effective ways to increase breastfeeding (Dyson et al., 2005; Gross et al., 1998; Mickens et al., 2009; Olson et al., 2008; Raisler, 2000). Dean Clinics and their affiliated hospitals recently developed a breastfeeding support group. During the meeting, it was discussed that information on this support group should also be provided for all pregnant women. Health care providers in the clinic should also inform patients about the support group when they are providing education on breastfeeding.

### **Nursing Implications**

This project provides an educational tool for staff at Dean OBGYN clinics to use with their patients. Nurses and other health care providers have the opportunity to provide breastfeeding education when communicating with patients also, and should take health literacy into consideration when providing this education also.

More research is needed to evaluate specific interventions that impact duration as well as initiation (Dyson et al., 2005; Pignone et al., 2005). Very few studies focused on specific interventions, and they were unable to identify one method of education (i.e. brochure, video, oral presentation, computer tool, etc.) as more effective than another method (Pignone et al., 2005). Another gap identified in the literature review is that none of these studies provided specific examples or links to proper breastfeeding education materials. The Emmi video is a method that should be further studied for effectiveness specifically among pregnant women with low health literacy.

### **Conclusions**

Overall, this review identified the need for proper breastfeeding education materials for low health literacy populations. The benefits of breastfeeding are well documented, as are the lower rates of breastfeeding among low-income women. There is also an increased rate of low health literacy among low-income women, which supports the correlation that low-income women who are accessing breastfeeding education materials may have lower health literacy.

After reviewing the current breastfeeding education materials at Dean OBGYN clinics, a decision was made to implement the Emmi breastfeeding video, as it provides breastfeeding education at a level that low health literacy patients are able to comprehend. It provides information on the benefits of breastfeeding as well as information on how to breastfeed. This educational tool will now be provided for all pregnant patients at Dean OBGYN clinics.

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