2017

Influences of Provider-Patient Communication on Health Literacy and Public Policy Relevant Outcomes

Rachel Carla Cartwright-Vanzant
Walden University

Walden University

College of Social and Behavioral Sciences

This is to certify that the doctoral dissertation by

Rachel Cartwright-Vanzant

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. Michael Knight, Committee Chairperson,
Public Policy and Administration Faculty

Dr. Frances Goldman, Committee Member,
Public Policy and Administration Faculty

Dr. Bethe Hagens, University Reviewer,
Public Policy and Administration Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2017

Abstract

Influences of Provider-Patient Communication on Health Literacy and Public Policy Relevant Outcomes

by

Rachel C. Cartwright-Vanzant

MS, University of South Florida, 1992

BS, University of South Florida, 1988

Dissertation Submitted in Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Policy and Administration: Law and Public Policy

Walden University

May, 2017

Abstract

Several artifacts of federal policy address the connection between health literacy of patients and health outcomes. These laws include The Plain Writing Act, Health Information Technology for Economic and Clinical Health, and the Health Insurance Portability and Accountability Act. Even with this policy structure, little is known about how nurses' knowledge of health literacy may influence patient understanding of medical information and health outcomes. Using Knowles' principles of effective communication, the purpose of this mixed-methods study was to concurrently examine the relationship between nurse knowledge of health literacy and communication techniques used by nurses to identify any causal relationships in the provider-patient-interaction linking health literacy and health outcomes. Quantitative and qualitative data were gathered using an online survey. These data were analyzed using descriptive statistics and a content analysis procedure. Descriptive statistics revealed that there is a lack of health literacy knowledge among nurses and nurses rarely or never use Knowles' communication techniques to relay health information to patients. By contrast, content analysis of qualitative data revealed that nurses have a basic understanding of the complexities of health literacy. No correlation existed between a nurse's knowledge of health literacy and the use of appropriate and varied communication techniques when the data sets were merged. This finding suggests that there may be another root cause of low health literacy that requires additional research to fully explore. The positive social change implications stemming from this study include recommendations to policy makers to encourages changes to existing law and policy that supports patient communication training to nurses in order to improve health outcomes for patients.

Influences of Provider-Patient Communication on Health Literacy and Public Policy Relevant Outcomes

by

Rachel C. Cartwright-Vanzant

MS, University of South Florida, 1992

BS, University of South Florida, 1988

Dissertation Submitted in Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Policy and Administration: Law and Public Policy

Walden University

May, 2017

Dedication

This dissertation is dedicated to my deceased mother, Peggy Joy Vanzant, who was always there for me and encouraged me to never, ever give up! I wish she were present to share in my success of this accomplishment.

Acknowledgments

I'd like to acknowledge those who have significantly influenced the completion of this project: Julie Ketcher, who always believed in me when I couldn't believe in myself and helped me proof read over and over again; Michael Peters, who kept this process humorous by always joking with me about how much I read all the time; Stephanie Peters, who offered her words of encouragement during the final stages when I became discouraged; Mitchell Glidewell, who helped me move my office three times to get it just right without complaining too much; Victoria Glidewell, who applied her English degree to proof reading and learned it was okay to critique Mom's work; and finally, Roo, my beloved cat, who took his place on my desk at all hours of the day and night just to be by my side. He earned an honorary PhD before he passed away.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction to the Study

Promotion of health and disease prevention is a foundation for all health care providers, but if patients do not understand what health care providers are telling them, then it cannot be expected that they change behaviors to promote health and prevent diseases. Examples include (a) an older adult who recently learns that they are diabetic hears the word *insulin*; (b) the parents of a newborn baby who learn that their baby has a genetic disorder and hears the word *neurofibromatosis*; or (3) a limited English-speaking immigrant is injured or becomes ill while at work and hears the words *hypertension* or carbohydrates. These words will more likely not be understood by nearly nine in 10 adults who have difficulty understanding health information (Kutner, Greenberg, Jin, & Paulsen, 2006).

In this section, I discuss the background of health literacy to demonstrate the significance of the low health literacy issues currently facing health care providers. Research has shown poorer health outcomes are associated with a patient's lack of understanding of personal health issues (Berkman, Sheridan, Donahue, Halpern, & Crotty, 2011b; Easton, Entwistle, & Williams, 2013; Mantwill & Schulz, 2015).

The purpose of this exploratory, mixed-method study was to focus on the knowledge and actions of registered nurses who are currently practicing in the state of Florida. The causal pathways between limited health literacy and health outcomes conceptual framework was the foundation for exploring relationships between how a nurse's knowledge of health literacy and their communication techniques may affect how patients are taught about health issues.

If nurses intentionally use communication techniques that best fit a patient's health literacy needs, it is possible to improve patient understanding of health information, improve health outcomes, decrease medication errors, decrease hospital readmissions, and ultimately contribute to lowering health care costs.

Background of the Study

The U.S. Department of Health and Human Services (HHS) defines *health literacy* as an individual's capacity to obtain, interpret, and understand basic health information and services so individuals can improve their own health. The HHS is active through research, committee discussions, and the implementation of policies that lay a foundation to address health literacy. Initiatives are outlined in the National Action Plan to Improve Health Literacy (NAP) (HHS & Office of Disease Prevention and Health Promotion, 2010). The NAP has placed health literacy at the top as a priority among public policy topics and provides seven goals as benchmarks for health care institutions to use when measuring organizational change as evidenced-based strategies and activities are implemented (Berkman et al. (2011a). The PPACA (2010) contains provisions for addressing health literacy. The Plain Writing Act (Plain Writing Act of 2010, 2010) directs agencies to use plain language when communicating with the public. The Health Information Technology for Economic and Clinical Health and the Health Insurance Portability Accountability Act (HIPAA) are also included in the foundation to address health literacy.

The National Institutes of Health (NIH) has funded millions of dollars in research under the Health Literacy Program (U.S. Department of HHS Office of Disease

Prevention Health Promotion, 2010). The Centers for Disease Control and Prevention (CDC) contracts work to support activity involving health literacy and the Agency for Healthcare Research and Quality (AHRQ) establishes cooperative agreements to address the issues regarding health literacy (Institute of Medicine, 2013). Addressing health literacy continues to be recognized as a national priority (Green, Gonzaga, Cohen, & Spagnoletti, 2014).

More than 50 % of adults living in the United States are classified as low health literate and the cost associated with low health literate individuals was estimated at $73 billion (Nielsen-Bohlman, Panzer, & Kindig, 2004a). The earlier estimates of cost have grown according to another study that estimates the cost of low health literacy to the U.S. national economy currently to be between $106 and $236 billion dollars annually (Oluwatoyosi, Kimbrough, Obafemi, & Strack, 2014). If the actions proposed by the IOM to address future costs of low health literacy are not taken, the present-day costs could be compared to a continuing rise in costs that may reach as high $1.6 to 3.6 trillion U.S. dollars (Vernon, Trujillo, Rosenbaum, & DeBuono, 2007). Consistent with the projected high costs associated with health literacy, Mantwill and Schulz (2015) discussed the increased costs associated with inadequate health literacy among a population with type 2 diabetes mellitus and Haun et al. (2015) estimated an increase to be $143 million in the 3 years associated with veterans with inadequate health literacy.

Health literacy affects all individuals but is more frequently identified in older adults with limited command of the English language, individuals of lower socioeconomic status, and individuals of lower educational level (Ortega, Rodriguez, &

Bustamante, 2014; Parker & Ratzan, 2010; Speros, 2005). Health literacy was addressed as part of the National Adult Literacy Survey (NALS) in 1992. The results showed only 12 % of the 19,000 adults surveyed were proficient in health literacy during that period. In 2003, the National Assessment of Adult Literacy (NAAL) reported that literacy had not improved since the 1992 NALS. Neither of these surveys captured the scope of the health literacy problem, but they did increase the awareness of and the prevalence of the problem in this country. Other methods used to measure health literacy include the use of the Rapid Estimate of Adult Literacy in Medicine (REALM) and the Test of Functional Health Literacy in Adults (TOFHLA) tests. These tests were designed to measure health literacy of individuals in terms of health knowledge, medical terms, and jargon.

Health literacy is determined, in part, by an individual's basic literacy skills. Literacy is not the same as health literacy even though they both require reading, comprehension, and numerical skills. Health literacy is dependent on an individual's ability to process health information that is presented to them or discussed with them when they need to make health care decisions. Health literacy also requires an individual to be able to understand health information that is presented in various formats such as forms, questionnaires, videos, and brochures. Patients who do not understand health information presented to them or become confused about how to apply the information to their lifestyle are less likely to comply with instructions or follow-up on health care recommendations by a health care provider (Scheckel, Emery, & Nosek, 2010). Berkman, Davis, and McCormack (2010) reported that 90 million English-speaking adults living in the United States have difficulty integrating information from complex documents like

insurance benefits and performing calculations that required two or more sequential operations. This would equate to literacy below a high school level.

The U.S. decennial census taken in 2000 reported that among the 263.4 million people older than the 5 years, 47 million spoke a language other than English at home. The decennial census no longer asks the questions pertaining to language; the American Community Survey (ACS) began capturing language spoken in the United States annually in 2010. The ACS done in 2010 reported that of the 291.5 million people older than 5 years, 21% spoke a language other than English at home which amounts to approximately 60 million people (Ryan, 2013). The two languages most common after Spanish were reported to be Chinese and French (Institute of Medicine, 2003; Shin & Bruno, 2003). Health literacy levels are affected by linguistic differences which is strongly correlated to health disparities (Clark, 2011; Mancuso, 2009) as seen among the older adults, racial and ethnic minority groups, immigrants, persons with low-income, and persons for whom English is not their primary language. The effects of low health literacy are evidenced by more hospitalizations related to chronic illnesses, more frequent use of the emergency room (Marcus, 2006), less frequent mammogram screenings, poorer ability to take medications as directed (Squellati, 2010), poorer overall health status, and increased mortality rates among the older population (Berkman, et. al., 2011a).

A disparity exists in patient centered care in the presence of lower health literacy (Kelly & Haidet, 2007; Koh, Brach, Harris, & Parchman, 2013). Many times, health information or health instruction is delivered quickly and in limited periods of time by the

health care provider, yet the patient is expected to understand the information presented and be responsible to follow through with the instructions. Nurses and doctors are frequently unaware that a patient has inadequate health literacy and if they do identify a patient with inadequate or low health literacy, they do not have the knowledge, and frequently the tools, to provide appropriate health information that matches the patient's health literacy level (Cutilli, 2005; Dickens, Lambert, Cromwell, & Piano, 2013; Kelly & Haidet, 2007; Mason, 2001; Sand-Jecklin, Murray, Summers, & Watson, 2010). Objective measures specifically designed to validate the competency of nurses when managing patients with health literacy needs are not established (Dickens et al., 2013; Owens & Walden, 2007). Because no objective measures are established, health care organizations do not monitor or evaluate how well nurses assess patients for low health literacy or how well nurses deliver information to patients identified as low health literate. Data are not available at this time to assure nurses accurately assess and appropriately intervene for patients identified with inadequate health literacy, which presents a gap of knowledge in the literature regarding how a nurse manages patients with low health literacy.

Macabasco-O'Connell and Fry-Bowers (2011) revealed nursing professionals' knowledge of health literacy and the role health literacy plays on patient health outcomes is limited (p. 296) and the priority placed on health literacy was reported to be a low priority among providers and organizations (p. 298). The nurse plays an important role in direct patient care and in the delivery of health services. Educating nurses on health literacy and how to improve provider-patient communication may progressively lead to

improved patient understanding and improved health outcomes. Leeman and Sandelowski (2012) concurred that nurses and other health care providers underuse interventions demonstrated to be effective at improving health outcomes with low health literate individuals. Federman, Sano, Wolf, Siu, and Halm (2009) added the challenge of addressing health literacy in the presence of cognitive decline in the older adult population, which occurs in more than 5 million adults aged 70 years and older in the United States, in the absence of dementia. The correlation found between cognitive impairment and inadequate health literacy in 414 adults older than 60 years studied, represented another at risk population that must be assessed for health literacy needs by health care providers (Federman et al., 2009). Because of the strong association between cognition and health literacy found in this age group, Federman et al. (2009) recommended further research by clinicians and policymakers regarding the implementation of evidence-based strategies that mitigate the pervasive problem of limited health literacy.

Logan (2007) reported that perceptions and attitudes of health care professionals are different regarding the setting where patient education should take place to address the health literacy initiatives set forth in the *National Action Plan to Improve Health Literacy* (U.S. Department of HHS & Office of Disease Prevention and Health Promotion, 2010). Three venues perceived to be optimal for addressing health literacy issues were (a) primary care settings, such as physician offices; (b) classroom education settings, such as community sponsored programs; and (c) personal, less formal educational settings, such as a person's home. The perceptions of health care

professionals suggest a source of professional disagreement because of the way they view the best approach to address health literacy needs of patients. These findings suggest further research is also needed in the area of how a health care provider's perceptions may affect how the issues of health literacy are addressed in the clinical setting (Green et al., 2014).

Problem Statement

A critical goal of health care institutions is to provide quality and equitable care for all Americans (Koh, Piotrowski, Kumanyika, & Fielding, 2011; U.S. Department of HHS & Office of Disease Prevention and Health Promotion, 2010). Insufficient evidence demonstrates that health literacy needs are being identified and addressed by the professional nursing community through the use of proven assessment techniques and communication skills. The complexity of a health care institution must be taken into consideration when addressing health literacy issues because it affects how patients experience health treatment. Tools have been developed to measure the health literacy level of individuals, but an insufficient number or no tools are available that assess or measure if or how nurses assess patients for health literacy. Likewise, an insufficient number of tools or no tools are available to measure how nurses provide communication specific to health literacy needs of patients (Dickens et al., 2013; Logan, 2007; Mårtensson & Hensing, 2012; Owens & Walden, 2007).

Health literacy is identified as a public policy crisis, however; the responsibility to improve the health literacy level of individuals does not strictly reside with the individual, or the patient. The responsibility must also be absorbed by health care

institutions through the engagement of health care providers, such as nurses, respiratory therapists, occupational therapists, dieticians, and physical therapists as part of their commitment to improve the health literacy of patients (Koh et al., 2011; Parikh, Parker, Nurss, Baker, & Williams, 1996; Willis et al., 2014). Active participation of individuals in leadership roles to address low health literacy is warranted. This requires collaboration between and among agencies of the federal government, states, local governments, policymakers, business executives, educators, and community leaders (Koh et al., 2011; U.S. Department of HHS, 2000a; U.S. Department of HHS & Office of Disease Prevention and Health Promotion, 2010). From a nurse's perspective, if patients do not understand information presented to them well enough to help them make better health care decisions, then nurses did not reach them. This is synonymous with nurses not treating them because we did not meet their individual needs as a part of patient-centered care. It is necessary to more fully examine the gap in knowledge nurses have regarding health literacy and the interventions they choose as a potential root cause of low health literacy recognized of patients.

Purpose of the Study

The purpose of this mixed-methods study was to describe nurses' knowledge of health literacy and identify the interventions, or health actions that nurses elected to address health literacy needs of patients in clinical practice. Nurses are expected to have knowledge of health issues including health literacy, which is consistent with what is currently known or published in the literature; this represents an expectation of patient care (Cafiero, 2013; Heinrich, 2012; The Joint Commission, 2014) .

A nurse is required to assess patient needs and specific to health literacy needs, and choose effective patient specific interventions based on factual knowledge, observable data, and nonverbal information gained through the provider-patient communication. This means the nurse should know the pace to speak and the words to use that best help a patient understand (Speros, 2005). The use of written material is also important to use appropriately to further aid in patient understanding (Logan, 2007; Roett & Wessel, 2012).

The focal point for this study was the provider-patient communication identified in the conceptual framework Causal Pathways Linking Health Literacy to Health Outcomes of Paasche-Orlow and Wolf (2007) and is expanded on further in Chapter 2. The multifaceted interactions nurses have with patients occur at the same time, which is another reason why collecting both quantitative and qualitative data concurrently was imperative to capture the knowledge and decision making process nurses used to incorporate health literacy needs as part of managing the health care of patients. This study discovered that what nurses knew about addressing patients with low health literacy was deficient when compared with what they were expected to know according to current nursing practice.

This study was unique because it addressed the gap of knowledge in the literature regarding nurses' knowledge of health literacy, how nurses identify patient's health literacy needs, and what interventions nurses implement to meet health literacy needs of patients (Cutilli, 2005; Dickens et al., 2013; Persell, Osborn, Richard, Skripkauskas, & Wolf, 2007; Phillips, 2010; U.S. Department of HHS & Office of Disease Prevention and

Health Promotion, 2010; Volandes & Paasche-Orlow, 2007). Subsequent to the development of the REALM and the TOFHLA tests, the Single Item Literacy Screener (SILS) and the Newest Vital Sign were designed to measure the health literacy of individuals; however, evaluation tools designed specifically to measure how nurses assess and communicate with low health literate patients are not available (Coleman, Hudson, & Maine, 2013; Leeman & Sandelowski, 2012; Mancuso, 2009; Persell et al., 2007; Tilley, 2008), further establishing a gap in the literature.

Research Questions

RQ1: Do nurses have adequate knowledge to assess the health literacy needs of patients?

RQ2: Do nurses use communication techniques known to be effective with low health literate patients when discussing health information?

Research Hypothesis

The directional hypothesis on which the research questions were based was as follows: H_{O1}: Nurses who have greater knowledge of health literacy are more likely to discuss health issues using appropriate and varied communication techniques that are known to benefit patients with health literacy needs.

Theoretical Foundation

A pragmatic view of the health literacy problem is based on the actions nurses take, the situations in which they provide patient care, and the potential immediate consequences of the actions taken (Creswell, 2009; Creswell & Plano, 2011; Greene, 2007; Teddlie & Tashakkori, 2009). Pragmatism was embraced as the worldview for this

mixed-methods research valuing both objective and subjective knowledge gained through quantitative and qualitative assumptions. Greene (2007) stated that this philosophy "recognizes the existence and importance of the natural or physical world as well as the emergent social and psychological world that includes language, culture, human institutions, and subjective thoughts" (p. 83). A causal relationship model between the provider-patient interactions was explored; the physical world of health illness intersecting with the social and psychological world when teaching patients about health illness is affected by a patient's inadequate health literacy.

The current literature represents a cross-sectional analysis of individual's health literacy skills, which limits the data to confer cause-and-effect relationships of confounding variables that may affect or influence an individual's health literacy. Parnell (2015) acknowledged that health care institutions have shifted the focus of health literacy to understanding better how health literacy is about the relationship between the skills of the patient receiving care or treatment and the health care professional providing the care or treatment. Parnell (2015) also pointed out that health literacy skills are dynamic; they change in time according to an individual's skills and experiences and changes in health care institution's delivery of care. If this study were developed into a longitudinal study, causal relationships may be established between the provider and patient encounter when focusing on effective communication that promotes improved health literacy.

The principles of adult learning founded by Malcolm Knowles (Bryan, Kreuter, & Brownson, 2009; Imel, 1998; Knowles, 1973; Knowles, Holton, & Swanson, 1998) are basic communication techniques that should be considered and used as appropriate when

nurses provide health information to adult patients. I will expand on these principles in Chapter 2.

Conceptual Framework

The conceptual framework developed by Paasche-Orlow and Wolf (2007) describes a component-cause model as opposed to a causal relationship model because the model does not provide an exact cause and effect representation. It follows the crucial premise of epidemiology that health events and diseases do not randomly occur in the population but are more likely to occur when risk factors are present and risk factors may not be evenly distributed in the population (Morabia, 2005; Rothman & Greenland, 2005). The goal is to determine what risk factors put individuals at greater risk and do something about them if possible. Paasche-Orlow and Wolf (2007) suggested that relationships exist between health literacy and health outcomes in the framework. The suggested relationships could be measured as probability distribution in research, which may allow the results to infer causal relationships between specific factors. I focused on three provider factors listed under the provider-patient interaction, with the provider identified as the registered nurse: communication skills, teaching ability, and patient-centered care. The conceptual model is addressed in Chapter 2. Narrowing the focus to several factors may identify coordinating actions that contribute to the discovery of relationships among health literacy, health outcomes, and the provider-patient communication.

Nature of the Study

The initial effort toward improving a patient's understanding and use of health information is for health care providers, identified as nurses in this study, to provide health information in a meaningful and useful manner. Health care providers must have adequate knowledge regarding health literacy, how to assess for low health literacy, and how to effectively intervene and communicate to meet the individual needs of patients with low health literacy. Addressing health literacy is a dynamic process that includes presenting complex health information to patients who often have limited knowledge and understanding of health diseases and terminology. Health issues cannot solely be blamed on a patient's lack of knowledge, communication skills, or low health literacy. Addressing the health literacy crisis requires active involvement of institutions and professionals (Koh et al., 2012). If nurses do not (a) have adequate knowledge of health literacy, (b) know how to assess for low health literacy, and (c) provide health information in meaningful and useful ways to patients, a significant component of the health literacy problem stems from the role of health care providers who are not prepared to adequately address the current health literacy crises.

It is imperative to identify any gaps in knowledge nurses may have regarding health literacy and provide the education necessary to ensure that low health literate patients are identified as early as possible and effective health information is provided based on techniques already known to be effective with patients with low health literacy. Patient education is an intrinsic component of nursing care and patient education should

be a core competency for all nurses (Coleman et al., 2013; Mason, 2001; Protheroe & Rowlands, 2013) that include communication techniques regarding health literacy.

An exhaustive review of research studies focusing on the nurse health care provider in the relationship between health literacy and health outcomes are either so few or are nonexistent at this time. The available research has focused on the *patient's* understanding of health information provided to them and not how well health care providers, or nurses, provide health information to patients in a meaningful and useful manner.

The use of a convergent parallel mixed-methods design allowed the collection of qualitative and quantitative data in parallel; analysis of the data separately; and then merging of the findings (Creswell & Plano, 2011; Teddlie & Tashakkori, 2009). To collect quantitative data, I used a survey questionnaire that included closed-ended questions based on known facts about health literacy to determine a nurse's knowledge of health literacy. At the same time, as part of the survey, I used qualitative email interview protocol via open-ended questions to explore the interventions selected by nurses to address health literacy needs of patients. The reason for collecting both quantitative and qualitative data at the same time was to compare results of the two forms of data, which would not be obtained by either type of data collected separately. This method brought greater insight into how health literacy needs of patients were identified as part of the provider-patient relationship. This method also helped me identify interventions chosen by the nurse to address the patient's health literacy needs.

The rationale for using mixed-methods design was to be able to capture factually based knowledge regarding health literacy in a format that could be statistically compared with studies that used a quantitative design. Using a mixed-methods design captured a nurse's perception, actions, and interventions of health literacy through the online interview protocol using open-ended questions that required free text entries, thus affording comparison with studies that used this qualitative design.

The data collected from 47 respondents provided a description of the nurse's knowledge of health literacy and the communication techniques chosen to address low health literate patients. The findings led to valued interpretation of how nurses assessed patient's health literacy needs, how nurses identified patients with low health literacy, and what interventions were implemented in response to a patient's health literacy needs. The findings also identified deficiencies in the provider variable of the provider-patient communication. Deficiencies included nurse's knowledge of health literacy, communication skills, and assessment skills that identified health literacy needs. Identifying deficiencies in the provider-patient relationship may prove to be useful to health care institutions so specific education regarding health literacy may be offered to nursing staff. Health literacy education could be incorporated during new employee orientation to the institution and through continuing education programs.

Health literacy education would include identification and effective management of the patient with low health literacy. Actions taken by the institution could be targeted to demonstrate the inclusion of evidence-based health literacy practices and interventions as outlined in the National Action Plan to Improve Health Literacy (2010). The findings

may also be used to evaluate or enhance nursing education training curriculum regarding health literacy assessment, communication skills, and appropriate interventions that address low health literacy.

This study illuminated additional gaps in what could be considered root causations of the health literacy crisis that have not been specifically identified nor strategically addressed by health care institutions or professional nurse training programs. The survey results are useful to enhance health literacy screening by including questions that help nurses identify low health literacy patients when conducting the initial health assessment. Improving the initial assessment and screening tools may increase the consistency of nurses identifying patients with limited health literacy. Early recognition of patients with low health literacy should promote early implementation of effective interventions that meet the needs of the patient, which ultimately may improve, in time, the health literacy of patients leading to improved health outcomes and positive social change.

Definition of Terms

Communication skills: The ability of the nurse to communicate in plain language using plain terms (Paasche-Orlow & Wolf, 2007; Stableford & Mettger, 2007).

Communication: The exchange of information that flows between the sender and the receiver. In this study, the sender was the nurse and the receiver was the patient in the provider-patient interaction. Effective communication occurs only if the patient understands the information that the nurse sends (Benjamin, 2010; Mistry et al., 2008).

Document literacy: The knowledge and skills an individual must master to perform document tasks. Examples include completing a job application, interpret transportation schedules, maps, tables, and food or drug labels (Mohadjer et al., 2009).

Functional health literacy: The basic skills in reading and writing necessary to effectively function in everyday situations (Nutbeam, 2008).

Health literacy: "The capacity to obtain, interpret, and understand basic health information and services and the competence to use such information and services to improve health" (U.S. Department of HHS, 2000b, p. 11:20).

Literacy: The U.S. Congress National Literacy Act defined *literacy* as "an individual's ability to read, write, and speak in English, and compute and solve problems at levels of proficiency necessary to function on the job and in society, to achieve one's goals, and develop one's knowledge and potential" (U.S. Congress, 1991).

Numeracy: The degree to which individuals have the capacity to access, process, interpret, communicate, and act on numerical, quantitative, graphical, biostatistical, and probabilistic health information. Numeracy is separated into basic, computational, and analytical health numeracy. Basic health numeracy involves basic skills to identify numbers and make sense of quantitative data requiring no manipulation of numbers. Computational health numeracy involves the ability to count, quantify, compute, and otherwise use simple manipulation of numbers, quantities, or items, or visualize elements in a health context so as to function in everyday health situations. Analytical health numeracy involves the ability to make sense of information with higher level concepts

such as inference, estimation, proportions, percentages, frequencies, and equivalent situations (Golbeck, Ahlers-Schmidt, Paschal, & Dismuke, 2005, p. 376).

Patient-centered care: Confirming comprehension using methods such as, teach-back, teach to goal, and teach to mastery (Hasnain-Wynia & Wolf, 2010; Institute of Medicine, 2009; Laine & Davidoff, 1996).

Plain language: This term represents clear communication. It is not only using simple words or oversimplifying content. Communicating by using plain language engages the patient. Using plain language for text based material means to design the structure, writing, and content that creates reading ease. Plain language helps to reduce health disparities, increase safety and quality of care, and improve the prevention and treatment of chronic diseases with the ultimate goal of assisting patients to make healthier lifestyle choices (Plain Writing Act of 2010, 2010; Stableford & Mettger, 2007).

Prose literacy: The knowledge and skills an individual must master to perform prose tasks. Examples include reading and comprehending news stories, brochures, and instructional material (Mohadjer et al., 2009).

Provider-patient interaction: The communication or exchange of information between the registered nurse and the patient (Paasche-Orlow & Wolf, 2007).

Teaching ability: Employing interview techniques that are useful for provider-patient interactions (Paasche-Orlow & Wolf, 2007).

Universal precautions: The standard default position of a health care provider is to assume that all patients have limited health literacy as opposed to assuming all patients have a high level of health literacy. With this practice being the standard, all patients

should expect the health care provider to confirm understanding of the health information using appropriate communication methods such as teach-back, teach to goal, and teach to mastery (Volandes & Paasche-Orlow, 2007).

Assumptions

A major assumption that I made in this study was that nurses are key components within any health care institution and are expected to address health literacy as a part of patient-centered education required by their licensure. I assumed that nurses would be honorable and trustworthy when responding to questions regarding health literacy and their current clinical practice. I expected the nurses would be able to complete the online survey using the platform SurveyMonkey. I assumed that the results from the survey data would encourage health care institutions to develop innovative approaches to evaluate and enhance not only nurse continuing education training but training of all professional staff who interact with patients about health literacy skills and effective communication techniques. I anticipated that the results from the data would initiate constructive action between policymakers in higher education to evaluate curricula regarding health literacy content and communication skills that optimizes the preparation of nursing graduates to better address health literacy needs of patients.

Scope and Delimitations

Delimitations for this study included the use of online survey platform by SurveyMonkey instead of paper-and-pencil format. I sent an email invitation to an email list purchased from ExactData representing professional nurses practicing in the state of Florida. The only qualifying criterion to complete the survey was to be currently licensed

as a registered nurse in Florida. Nurses registered as inactive status were not qualified to participate in this study. It was important that the study participants were involved in patient care because the expectation of being knowledgeable of current practice was a study focus. A nurse not involved in patient care may not possess the same level of knowledge as those who are because registered nurses, regardless of their place of employment or their level of education, are required to assess all patients for learning needs, educate, and intervene specific to the needs of each patient, which is considered patient-centered care (Nurse Practice Act, 2016) . Each participant verified their professional license through self-entry as part of the demographic data collected prior to completing the survey. I considered the sample size of 47 respondents large enough to generalize to the nursing population, which I discuss further in Chapter 3. To assess knowledge regarding health literacy of nurse, I obtained permission to replicate questions used in the body of the online interview protocol survey (Green et al., 2014; McCleary-Jones, 2012; Schlichting et al., 2007).

Limitations

A limitation to the email transmission process included nondeliverables due to emails that may no longer exist, invalid addresses due to misspellings or false entries, recipient inbox being full, connection disruptions, natural database decay, or other security factors including SPAM settings that did not permit the delivery of the email (Kwak & Radler, 2002). An email invitation to participate in this study was sent to 142 possible subjects that were determined to have a current and active email after filtering the raw email listing of nurses provided by ExactData, which I discuss further in Chapter

4. In this study, I focused on better understanding of feelings, attitudes, and beliefs of nurses therefore; the research tool included open and closed ended questions. Participating in this study required the respondent to self-report, which may have introduced response bias. Data analysis illuminated potential bias, which I discuss further in Chapter 5.

Significance and Social Change Component

Nurses contribute to the improved health and wellness of individuals. Professional nurses are expected to have the knowledge, skills, and desire to address the health literacy needs of patients because of the untoward effects low health literacy is proven to have on health outcomes (American Association of Colleges of Nursing, The Hartford Institute for Geriatric Nursing at NYU, & The National Organization of Nurse Practitioner Faculties, 2012; Hernandez & Institute of Medicine, 2012; McCleary-Jones, 2012). An anticipated contribution this research may have on social change is that leaders of health care institutions and faculty of nursing training programs will place an added emphasis on evaluating the competency of staff and students. Competencies regarding knowledge and communication skills that are necessary to accurately assess patients for low health literacy and appropriate instruction of patients with low health literacy could be established. Process measures necessary to assure assessment of health literacy is valued as an integral part of the patient's health assessment could be initiated by institutions and nursing training programs.

A practical incorporation of social change based on the results of this study include establishing measureable criteria or competencies for health literacy knowledge

and communication skills of nurses working in health care institutions and including assessment strategies as part of the health assessment in nursing education training curriculum. The change would warrant health care institutions to embed health literacy cues into the patient assessment and screening forms. This change to the screening tools may assist the nurse to more accurately and consistently identify low health literate patients on the initial provider-patient interaction. Additional research is needed in this area to evaluate the patient-centered outcomes.

The results of this study may be used to refine the implementation of health literacy programs in various venues. Barriers to implementation of health literacy programs were exposed and could be addressed proactively by the institution. Health literacy cues, interventions, and communication skills may be more intentionally incorporated in nursing training program curricula to adequately prepare nurses to assess for and communicating with patients with low health literacy. The hopeful expectation is that in time, society would begin to experience a decline in the prevalence of low health literacy and overall improved health outcomes in part because of the improved knowledge and communication skills of nurses when managing patients with low health literacy.

Summary

Nurses play a significant role in addressing health literacy. I sought to explore nurse's knowledge of health literacy and the communication skills used to address health literacy needs of patients. Previous studies have shown that nurses and doctors are frequently unaware of a patient's health literacy needs and when they do identify a

patient with health literacy needs they do not have the knowledge, and frequently the tools, to provide adequate or effective health information that is best suited for their patient (Macabasco-O'Connell & Fry-Bowers, 2011; Sand-Jecklin et al., 2010). Furthermore, because health literacy is recognized as a public policy crisis, the responsibility to make the necessary improvements lies with and among health care institutions and health care providers (Mårtensson & Hensing, 2012; U.S. Department of HHS & Office of Disease Prevention and Health Promotion, 2010).

In Chapter 2, I will discuss what is already reported in the literature concerning health literacy and how national attention of the health literacy crisis has involved regulatory and compliance agencies to direct active remedies. Research literature is scarce regarding data to support the fact that nurses have the skills and knowledge necessary to address health literacy issues. I conducted a comprehensive literature review reporting what is known about the current state of health literacy and identifying the gap in the literature where health care providers, focusing on nurses, have not been evaluated for ability or competency in assessing or addressing the health literacy needs of patients. This established the foundation for survey questions regarding health literacy knowledge and associated adult education communication skills.

In Chapter 3, I introduce the mixed-method research design, the methodology that I chose for this study. The sample group represented a population of registered nurses licensed in the United States. Open- and close-ended questions captured qualitative and quantitative data respectively for analysis, with the primary focus being qualitative data

obtained using an online survey method. In Chapter 3, I will also outline the steps taken to ensure validity and reliability of the online survey instrument.

Chapter 2: Literature Review

Introduction

Insufficient evidence demonstrates that health literacy needs are being identified and addressed by the professional nursing community using proven assessment techniques and communication skills. The purpose of this study was to gain a more complete understanding of the knowledge nurses have regarding health literacy and identify interventions nurses used to address low health literacy needs of patients as related to medication management, self-management, and disease management.

Research Strategies

I selected relevant material for this literature review through an exhaustive search of peer reviewed journal articles, scholarly papers, publications from government agencies, attending live presentations of scholars in the field of health literacy, and published electronic dissertations. The primary search engines employed were EbscoHost, PROQuest, PubMed, SAGE, Nursing Journals, and NexisLexis. Key search terms included *health literacy*, *health outcomes*, *low health literacy*, *plain language*, *nursing curriculum, nursing perceptions*, *health communication*, *adult learners*, *andragogy*, *teaching skills*, *effective communication*, *health education*, *stigma*, *shame*, *causal relationship, disparities*, and *health disparities.* The key terms that produced the most useful literature for this research were *health literacy*, *health outcomes*, and *nursing perceptions.* The Roundtable on Health Literacy presents webcasts on topics related to health literacy. Attending live webcasts (Rosof et al., 2016a; Rosof et al., 2016b) assured that I applied the most current research to this study.

Theoretical Foundation

Inadequate health literacy has been associated with worse health outcomes (Baker et al., 2002; Berkman et al., 2011b; Gazmararian, Williams, Peel, & Baker, 2003; Maniaci, Heckman, & Dawson, 2008; Marcus, 2006; Oldfield & Dreher, 2010) and the causal relationship between health literacy and health outcomes is not completely understood (Cho, 2012; Falvo, 2011; Mancuso, 2011; Squellati, 2010). Limited health literacy is recognized to have strong associations with age, socio-economic status, educational level, race, and ethnic origin (Baker, Parker, Williams, & Clark, 1998; Bartlett, Blais, Tamblyn, Clermont, & MacGibbon, 2008; Hausmann, Jeong, Bost, & Ibrahim, 2008; Sorensen et al., 2012; Weld, Padden, Ramsey, & Garmon Bibb, 2008) and poorer health outcomes (Berkman et al., 2011a; Coleman et al., 2013; Oldfield & Dreher, 2010; Vernon et al., 2007; Wood, Price, Dake, Telljohann, & Khuder, 2010). It is difficult to determine any one single variable that independently affects the relationship between health literacy and health outcomes because the associations are complex and definitive causal relationships are not yet determined.

Causal Pathways Framework

The causal pathways framework by Paasche-Orlow and Wolf (2007) shown in Figure 1 identifies suggested causal pathways between patient factors, system factors, provider factors, and extrinsic factors. If a causal relationship can be strengthened, this may aid in diminishing the prevalent effects of low health literacy amid the American population because intentional efforts can be focused on the relationships demonstrated

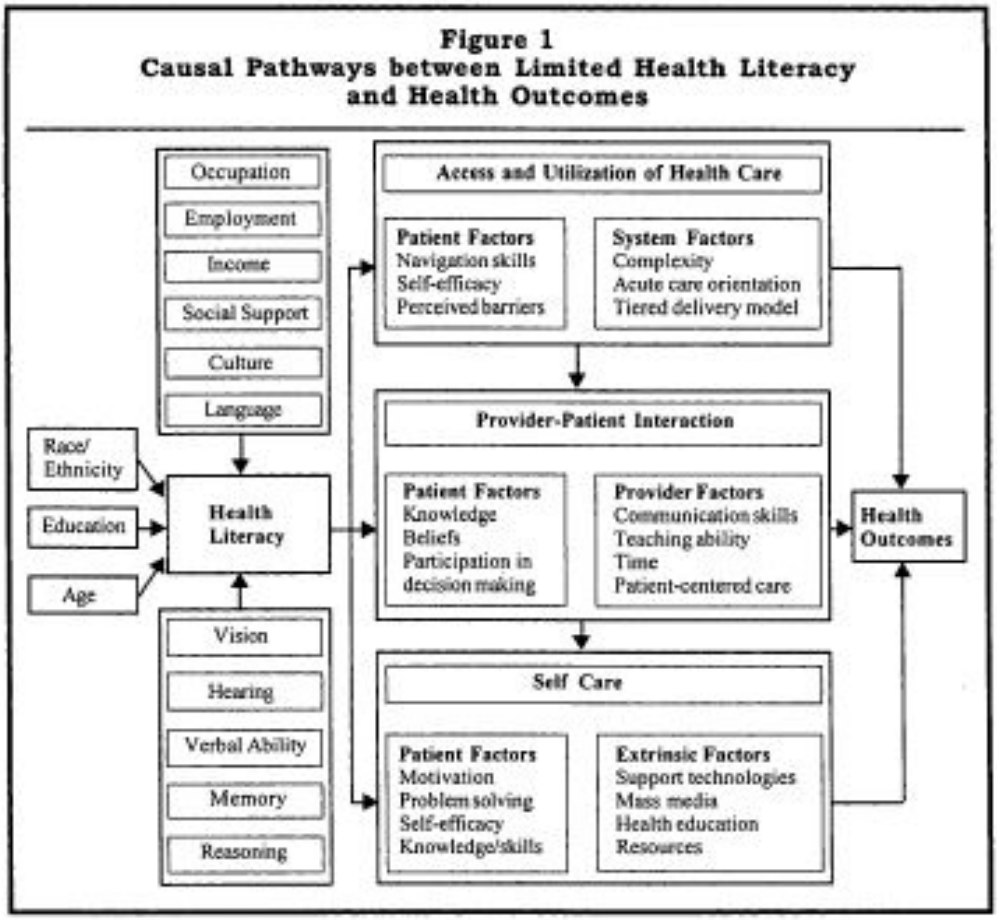

Figure 1. Causal pathways between limited health literacy and health outcomes. From "The Causal Pathways Linking Health Literacy to Health Outcomes," by M. K. Paasche-Orlow and M. S. Wolf, 2007, *American Journal of Health Behavior*, 31, p. S21. Copyright 2007 by *American Journal of Health Behavior*. Reprinted with permission.

to have the most favorable effect on improved health outcomes. An important use of epidemiology research (Olsen, 2003; Rothman & Greenland, 2005) for this study was to identify factor(s) associated with low health literacy, recognizing that low health literacy may result from a variety of causes or pathways.

Variables that may affect a person's health literacy are: occupation, employment, income, social support, culture, language, vision, hearing, verbal ability, memory, and reasoning (Sorensen et al., 2012, p. 7). The variables identified as language and verbal

ability in the causal pathways and health literacy framework is an example of how the health care profession can begin to address the initiatives set forth by the HHS through the Office for Civil Rights (OCR). The initiatives were written in an effort to eliminate racial and ethnic disparities in health care. In order to become compliant with the 14 national standards adopted by the HHS, linguistically and culturally appropriate health promotion programs are provided to address local or regional racial or ethnic health disparities (U.S. Department of HHS, OPHS & Office of Minority Health, 2001). Interpreter services are available to improve access to and navigation of health care services by individuals who are of non-English speaking or limited English speaking minorities. The Joint Commission folded these 14 standards into the regulatory compliance standards that hospitals are required to meet in order to continue to receive federal funding and published a standards crosswalk to aide health care institutions in compliance (The Joint Commission, 2014).

Americans reading at the lowest reading level increased from 16% among the age group 45-54 years old to 26% among the age group 55-64, to 44% among the age group 65 and older according to the NALS (Kirsch, Jungeblut, Jenkins, & Kolstad, 1993, p. 17-18). The NAAL (2003) survey concluded the literacy of Americans had not changed since the NALS conducted in 1992. The Survey of Adult Skills by the Organization for Economic Cooperation and Development shows adults in the United States rank below average in the categories of basic literacy and numeracy skills. Blacks and Hispanic adults were found to be 3 to 4 times more likely to have poor skills than Caucasian adults (Rogers, 2013). The known association in poorer reading ability and the older population

is important to recognize in light of health literacy because it is the older population that has the higher incidence of chronic disease and the greater need to understand health information as it relates to their disease (Baker, Gazmararian, Sudano, & Patterson, 2000; Speros, 2005). This places a greater emphasis on the ability of the health care provider to provide older adults with appropriate health information and instruction suitable to their health literacy needs. Inadequate health literacy was discovered when measured by reading ability and was determined to be a strong predictor of mortality and cardiovascular death among the older adult population between 70 and 79 years old (Baker et al. 2007). Paasche-Orlow and Wolf (2007) goes on to say that improvements in the way health care providers communicate with patients is necessary to reduce the association between health literacy and mortality or poor outcomes. Causal pathways that may link health literacy to poor health outcomes must be studied to improve the design of more comprehensive and effective interventions that health care providers can use with low health literate patients.

A key concept in the definition of health literacy is for the individual to have the capacity to obtain, interpret, and understand basic health information and services (U.S. Department of HHS, 2000b). In order to promote access to health care, patient factors and system factors must also be considered as depicted in Figure 1. Patient factors include the patient's ability to actually navigate through a health care facility structural building as well as through the inherent complexities of the health care system's infrastructure. An individual's self-efficacy and perceived barriers about going to and navigating a health care institution, clinic, or doctor's office may frighten or discourage

them; so many times they choose to not go at all. When they do not go at all, they do not receive health care for their health problems which contributes to poorer health outcomes.

Health care institutions are known for their management of acute illnesses, not chronic illnesses. Yet, it is the patient with a chronic illness who may receive the greatest benefit from improved health literacy (Arozullah et al., 2006; Baker et al., 2007; Baker et al., 2000). A tiered delivery model, as recognized in many health care institutions through varied health departments, like medicine, nursing, nutrition, social services, pharmacy, and dental, does not manage the flow and integration of information well. This makes the compilation of patient information and insurance benefits not only complicated for health care providers but confusing for the patient.

Patient factors that may enhance or weaken provider-patient interaction are knowledge, personal beliefs, and how much the patient actually desires to be a part of their health care decision making process. Patient factors associated with self-care are motivation, problem solving, self-efficacy, knowledge, and skills. Individuals with low health literacy are known to have more difficulty managing their own care because of less practical knowledge and instrumental knowledge which are critical to self-care. Self-care does not represent only one piece of knowledge or only one skill. For example, taking a medication requires an individual to know when to take the medication by using time of day or reading a clock; how to take the medication either by mouth and with or without food; and what to do, or problem solve, if they experience an unpleasant or adverse reaction to the medication. If individuals are not able to read a clock to tell time, read a label because of vision or literacy limitations, or interpret the difference between side-

effects and adverse reactions, medication errors frequently occur. Patients may also elect to not take their medication because they do not understand the how, when, and why which leads to poorer outcomes associated with not taking prescribed medication (Bartlett et al., 2008; Hernandez & Institute of Medicine, 2012; Sadowski, 2011).

The causal link between health literacy and health outcomes that this study explored in greater detail is the provider-patient interaction with an intentional focus on the provider factors of a nurse's communication skills, teaching ability, and patient-centered care. Provider-patient interactions are inherent in any health care delivery model. The contribution that a nurse's action or inaction may have on provider-patient communication and health literacy is largely unexplored. If nurses do act in ways that contribute to inadequate health communication and patient understanding, it is important to understand how and why this occurs so corrective measures may be initiated to improve patient-centered care.

The theory of andragogy developed by Malcolm Knowles (Knowles, 1973, 1980; Knowles et al., 1998) was applied to the conceptual framework. Andragogy means "the art and science of helping adults learn" which the primary focus of this study was to understand better how nurses help adult patients learn about their health (Daily & Landis, 2014, p. 2066). Blaschke (2012) discusses the different theories and approaches for preparing learners for the workplace. She argues that some opinions of educators believe that andragogy is not consistent with teaching methods that incorporate the digital media. However, the instruction of patients about personal health issues is best described by andragogy. Adult students pursuing a profession would be more in alignment with

modern theories of instruction. Andragogy methods are used to evaluate if nurses utilize effective adult education methods when teaching adult patients. If deficiencies are found in communication skills or teaching ability as depicted in the causal pathways conceptual framework, intentional efforts can be taken to minimize the effect that these provider factors may have on the provider-patient interaction. Patient-centered care requires time and was a provider factor included in provider-patient interaction. This research shows that time was a factor that played a part in the nurse's ability to meet the health literacy needs of patients.

Improving health literacy can be accomplished by either blocking a single factor that is known to contribute highly to low health literacy or, increasing pathways that more likely than not support and improve health literacy. For example, nurses consistently provide health information to patients in a manner that is known to promote health literacy. This study focused only on the provider-patient interaction of the conceptual model because this research focused on discovering how well the provider, or nurse, demonstrated adequate knowledge and skills as related to health literacy through communication, teaching ability, and patient-centered care. The concept of time was included only in the context as how time is perceived and conveyed by the study participant as part of their personal provider-patient interaction.

Compound Theory of Social Equity

Frederickson (1990) developed the Compound Theory of Social Equity which was known as the "third pillar" for public administration in addition to the values of economy and efficiency. The principles of social equity were later adopted as part of the

code of ethics for the American Society for Public Administration's. Social equity means to be responsive to the needs of the public as opposed to the needs of the public institution. When the concept of social equity was studied through research, the findings revealed variations in the "distribution of public services by income, race, and neighborhood and eventually by gender" (p. 229). The variations in the distribution of public services are consistent with the findings of factors associated with disparities and low health literacy and of factors associated with health outcomes (Hasnain-Wynia & Wolf, 2010; Institute of Medicine, 2009; Paasche-Orlow, Parker, Gazmararian, Nielsen-Bohlman, & Rudd, 2005; Siegel, Bretsch, Sears, Regenstein, & Wilson, 2007; Solar & Irwin, 2010; Volandes & Paasche-Orlow, 2007). A goal of public administrators and the provision of services to the public is to assure social and economic inequalities are managed in such a way so the least advantaged receive the most benefit (Frederickson, 1990). With respect to the health literacy crisis, administrators of public entities must take into consideration actions to take in an effort to meet the needs of the public. The concepts of the theory of social equity were applied to the foundation of this study in order to provide additional insight to the complexity of causal relationships between health literacy and health outcomes. Factors such as poverty and education influence can influence an individual's health status and may also limit their ability to access health care (Koh et al., 2011).

CSDH Conceptual Framework

The World Health Organization set-up the Commission on Social Determinants of Health (CSDH) to help define the complexities of "health" (Solar & Irwin, 2010). The

commission proposed the CSDH Conceptual Framework which defines structural determinants of health inequities (Solar & Irwin, 2010) that parallels suggested factors proposed by Paasche-Orlow and Wolf (2007) previously presented in Figure 1, naming occupation, education, income, ethnicity, and race. The CSDH Conceptual Framework (Solar & Irwin, 2010) further defined the role of a health system as an intermediary determinant of health because of the issues of access to care and because of the role it plays in "mediating the differential consequences of illness" (p. 6) in patients. Definitions of health literacy include the ability to access health services (Patient Protection and Affordable Care Act, 2010; Willis et al., 2014). A benefit of CSDH developing a framework was to assist policymakers in identifying at what point to intervene and how to intervene in an effort to reduce health inequities. "Equity and human rights frameworks can strengthen work focused on poverty, efforts to reduce poverty and its associated disadvantages play a central role in creating, exacerbating, and perpetuating ill-health" (Braveman & Gruskin, 2003, p. 541).

Andragogical Theory of Adult Learning

The Andragogical Theory of Adult Learning was applied to the analysis of the data collected. The characteristics of adult learning are distinctively different from the way children learn. As individuals mature, the need for self-direction and the capacity to be self-directing increases; as does the ability to utilize life's experiences as a part of learning. Adult prefer to organize what has been learned around the resolution of life's problems (Bryan et al., 2009; Imel, 1998; Knowles, 1973). The adult learner also prefers immediate application which is considered problem-centered learning and enjoys

achievement as a motivation to learning skills or accomplishing task as related to their personal health (Devraj, Butler, Gupchup, & Poirier, 2010; Oldfield & Dreher, 2010; Squellati, 2010).

Malcolm Knowles theory of andragogy is derived from the Greek word *aner*, meaning man. Hence, andragogy is known as the art and science of teaching man, or adults. Knowles (1973) describes andragogy as learner directed and learner centric so it aligns well with patient-centered care in the causal pathway conceptual model. An example of patient-centered care is when the nurse confirms comprehension of the health education material presented. Every interaction should be focused on the learner, or the patient, representing patient-centered care. It seems appropriate to apply the theory of andragogy to the causal pathways framework when evaluating the methods nurses use to provide health information to patients. Nurses should be able to demonstrate skills related to the theory of andragogy (Coleman et al., 2013). As recognized by Cafiero (2013), many nurses do not receive education on theories of adult education.

Andragogy makes the assumptions that adults need to know why they must learn something and adults find learning through experience is most effective as shown in Table 1. As an individual matures, there is a need and capacity to be self-directing, utilize past experiences in learning, identify one's own readiness to learn, and organize learning around life problems. This process increases steadily from infancy to pre-adolescence, and then increases rapidly during adolescence (Knowles, 1973, p. 43-44).

Adults learn best through problem solving and when they perceive the topic has immediate value to them; by doing and thinking about what they are doing while doing it

Table 1

Assumptions to Consider When Educating Adults

Assume that adults:	Implications for educating adult patients
• Move from dependency to self-directedness. • They want to participate.	Teaching an adult patient requires the nurse to acknowledge the patient's desires to express their needs, and allow them to make choices about their care. The nurse can accomplish this by helping the patient determine what, how and when they want to learn with the final assessment being did the patient learn the necessary knowledge and skills for self-care (Baker et al., 2007; Baker et al., 2000).
• Draw upon their bank of experience for learning. • Have been exposed to numerous life experiences that may be perceived as either positive or negative experiences. • Positive life experiences become the person's self-identity and when recognized as relevant to the learning process the person feels a sense of support and is more eager to learn. • Negative life experiences may create a barrier to learning. For example, a bad experience in the school classroom as a child may result in the adult developing a sense that he is not smart and is not able to learn well.	Use the adult's past learning experiences when providing education by using techniques that draw on their experiences such as, practicing skills, simulations, role play, real-world situations for problem solving are effective to assist the adult patient in applying critical concepts about their health needs. When new concepts can be related to past or present experiences the information becomes more meaningful.
• Are ready to learn when they assume a new role. • Must be ready to learn before the teaching opportunities can be effective. • Respond to the health illness largely from their previous experiences with illness, disease, or loss of control and self-esteem. • Social roles and developmental tasks influence their learning. For example, their physical strength, retirement and income reduction, death of family or loved ones, maintaining satisfactory housing accommodations.	Teaching opportunities occur when these life events are recognized and incorporated in the process of learning about new tasks or roles to maintain physical health.
• Want to solve problems and apply new knowledge immediately. This is especially true during times of crisis because they see learning as a way to solve the crisis. • Are motivated to learn by internal rather than external factors. • Need to know why they need to learn something before undertaking to learn it.	Teaching the adult patient "how to do" will allow them the opportunity to solve the problem with independence. Focusing on content this is absolutely necessary as opposed to nice to know provides immediately application to what the patient needs to know for optimal self-care.

Note. Adapted from Knowles et al. (1998).

so they feel more assured they do the right thing; and through experience, which is why teaching methods that incorporate past experiences of patients, both good and bad, reinforces the present. Changes in behavior can be fostered when a patient can relate to

their personal experiences and make changes as warranted by their health condition. For example, dietary habits for newly diagnosed diabetic patients with limited financial resources or brainstorming about an exercise regimen that is compatible with physical abilities of a geriatric cardiac patient. Adults see more clearly their role in managing everyday problems if learning takes place around life situations. Effective activities to help adults manage everyday problems include discussions, problem-solving, simulations, and brainstorming (Knowles, 1973; Knowles et al., 1998).

The universal precautions approach to health literacy involves the nurse to actively engage the patient by drawing pictures, using videos, using the teach-back method for comprehension, and using everyday language to problem-solve or brainstorm (AHRQ, 2013). Interviews of patients and focus groups were conducted to learn what patients want from their health care provider. They want to know briefly what is wrong; what they need to do about it and why; and they want to understand the benefits of the treatment as it applies to them (Carolan, 2007; Easton et al., 2013; King & Wheeler, 2007; Rust & Davis, 2011; Sadowski, 2011) which is consistent with the theory of andragogy and assumptions of adult learning. The teach-back method, teach-to-goal, and using plain language are examples of communication skills that promote health literacy and independent decision making which are integral to patient-centered care (Protheroe & Rowlands, 2013). Finally, this study explored how a nurse's teaching strategies and communication techniques compare with the concepts of andragogy as a secondary but complimentary focus.

The Complexities of Health Literacy

The Institute of Medicine reported in *Health Literacy: A prescription to end confusion* (2004) that 90 million adults living in the United States have difficulty understanding health information and have difficulty acting on the health information they receive. Even patients with adequate literacy have difficulty with complex texts. Many of the health related forms, such as, admission forms, insurance forms, and informed consents are considered complex texts. Nielsen-Bohlman et al. (2004a) reported that approximately 90 million adults in the U.S. have a literacy level below high school and 44 million have difficulty reading complex texts like: medicine labels, newspaper articles, forms, and charts. The complex nature of our health care systems indicates that much of the health information and forms used to access and navigate health care systems are above the high school level; therefore, we can assume that it is possible that approximately 90 million adults may have difficulty accessing and navigating health care systems.

Health literacy focuses on a person's ability to meet the demands of personal health in the midst of complex health care systems. A person is considered to be health literate if they "can obtain, process, understand, and communicate about health-related information needed to make informed health decisions" (Berkman et al., 2010, p. 16). Individuals with an adequate level of health literacy generally have the ability to take personal responsibility for their health, their family's health, and community health (Sorensen et al., 2012). The Healthy People 2010 (U.S. Department of HHS, 2000b), describes health literacy as more than a function of basic literacy skills. Health literacy

depends on system factors, like the complexity of health care institutions, and individual factors, such as a patient being able to access and navigate through the environment of a complex health care institution. Health literacy depends on communication skills of lay individuals, the patient, and the communication skills of health care professionals, the nurse. Nurses must be knowledgeable of health topics, health literacy issues, cultural diversities, and the demands a health care system places on the patient. Literacy affects health literacy. The distinction between the two must be discussed.

Literacy Defined

Kaestle, Damon-Moore, Stedman, Tinsley, and Trollinger (1991) report the United States Census Bureau was the first to record the early signs of literacy problems. In the mid-1800s through 1930s, a survey was conducted by asking primarily males whether they could read or write in any language. The results revealed 20 % were deemed literate from this process of data collection. The Civilian Conservation Corp began using the term functional literacy to mean a person had three or more years of schooling at the turn of the twentieth century. By the 1940s, the level of literacy was measured by education grade completion; fourth grade was determined to provide adequate literacy necessary to fulfill the majority of job requirements. About 1950, the U.S. Census Bureau redefined literacy as adequate when the individual attended at least sixth grade education and by 1960s, the grade level for functional literacy was increased to the eighth grade level which became the national standard during this time (Berkman et al., 2010; Kirsch & Jungeblut, 1986). A high school diploma was thought to be the minimum level of education necessary to successfully participate in the job market in

1970s (Kaestle et al., 1991). When the publication Toward a Literate Society (National Academy of Education, 1975) was available, the data revealed the reading level in the United States was still inadequate even though the previous report showed illiteracy was on the downward trend.

Congress asked the Department of Education in 1988 to define literacy and evaluate how severe the issue actually was in the United States. This was the time when the term low literacy level began to take on new meaning; a national policy concern had emerged. Following the research of the literacy concern, The National Literacy Act of 1991 was enacted. Literacy was redefined as: “an individual’s ability to read, write and speak in English, and compute and solve problems at a level of proficiency necessary to function on the job and in society to achieve one goals, and develop ones knowledge and potential” (Congress, 1991§ 3). The NALS, which assessed the literacy of the entire adult population, uncovered that 90 million Americans lacked adequate literacy skills, once again, gaining the nation’s attention to this societal problem (Kirsch et al., 1993).

Around the year 2000, The Institute of Medicine reported health care safety concerns after analyzing the root cause of adverse events. Bartlett et al. (2008) defined an adverse event as “an injury caused by medical management (rather than the disease process) that resulted in either a prolonged hospital stay or disability at discharge” (p. 1556). Adverse events that were shown to be related to poor patient and health care provider communication were associated with medication errors. Bartlett et al. (2008) further reports that out of 805 medication adverse events reported, 51 % were classified as pharmacological management; poor communication between the patient and health

care provider. This was the beginning of discovering how patient and health care provider communications may influence patient outcomes.

Health Literacy **Defined**

Nielsen-Bohlman et al. (2004a) and Berkman et al. (2004) reported researchers began to study health literacy to determine relationships between low literacy, health status, and health outcomes. In response to the objectives outlined in Health People 2010, a subsequent NAAL survey was conducted (Brown, 1996). This survey included health items designed to measure health literacy of adults as a nation. Health tasks were classified as clinical, preventative, and navigation of the health system. Each classification was scored according to four categories: below basic, basic, intermediate, and proficient. Over 19,000 adults in 38 states and the District of Columbia were surveyed. A detailed narrative of the sampling process can be found in the publication of White (2008). The analysis showed 36 % of the U.S. population to be at the basic or below basic health literacy level (U.S. Department of HHS, 2008a). This equated to 87 million U.S. adults having low health literacy (Vernon et al., 2007).

Health literacy was a new component of the NAAL survey designed to measure the English literacy of adults in the United States. Adults were defined as over the age of 16 years. Literacy can be measured indirectly through self-report and by subjective evaluations of literacy and education; however, health literacy must be measured by tasks that represent a range of literacy activities most adults typically face during their daily (Knowles, 1973). Three literacy scales described in Table 2, have been established as:

Table 2

Literacy Scales

Prose literacy	The knowledge and skill required to perform prose tasks such as: searching for information, comprehending what is read, and locating information from news stories, brochures, and instructional materials.
Document literacy	The knowledge and skill required to perform tasks such as searching for information, comprehending what is read in various formats. Examples include job applications, bus transportation schedules, reading a map, understanding information presented in a table format, or on food products and drug labels.
Quantitative literacy	The knowledge and skill required to perform tasks that involve computations using numbers presented in printed material. Examples of these tasks are balancing a check book, calculating a tip, filling out an order form, and determining how much interest will be paid from an advertising promotion.

Note. Information can be found in Brown (1996); Kutner et al. (2006); and Mohadjer et al. (2009).

Table 3

Domains of Health Literacy Tasks

Domain	Description	Examples
Clinical domain	The encounters between the patient and the health care provider and the activities that surround the relationship.	Tasks associated with these activities may include completing a patient information form, understanding how to take their medications including calculating the dosage, and following the instruction for a diagnostic test.
Prevention domain	The activities associated with maintaining and improving health, preventing disease, taking early action when a health problem presents, and managing self-care with chronic illnesses.	Examples of tasks associated with these activities may include following guidelines for preventative health services that are age appropriate, identifying significant health problems that need to be reported to a health care provider, and establishing a diet and exercise routine can decrease risks for developing serious health issues.
Navigation of the health system	The activities patients encounter when seeking access to care. It also highlights the patient's individual rights and responsibilities in health care.	Examples of activities associated with this domain may include understanding what insurance plans will pay for and what they will not, determining the eligibility requirements for public assistance programs, providing informed consent for procedures or other health services.

Note. Information can be found in National Institute of Health (2006).

lives (Kutner et al., 2006). Learning that is centered on personal life experiences of daily living helps adults to see clearly the connections between their role and how to manage

their health problems. The theory of andragogy emphasizes experiential learning prose literacy, document literacy, and quantitative literacy (Mohadjer et al., 2009).

The NAAL organized health literacy tasks depicting three domains that are described in Table 3: clinical, preventative, and navigating the health care system. The assumption is that in order for individuals to perform health literacy tasks they must: be familiar with health-related terms that are used in everyday life; have some experience with written material that contains health-related content like a drug label and; have some understanding of how a health care system works so they can navigate to access the care they need (National Institute of Health, 2006).

Meaning and Use of *Health Literacy* Term

The meaning of low health literacy is viewed as the correlation between health literacy domains and literacy levels (Kutner et al., 2006; National Institute of Health, 2006). The data from the NAAL health literacy report indicates “those who are most in need of health literacy are the ones with the poorest reported health” (National Institute of Health, 2006, p. 10). The results of the NAAL concurred with other research findings that low health literacy is more frequently identified in older adults, individuals with limited proficiency of the English language, and those individuals of lower socioeconomic status or education level as shown in Table 4. Individuals with low health literacy are known to use the emergency room more frequently, participate less frequent in mammogram screening, demonstrate poorer ability to take medications as directed, and demonstrate poorer overall health status with an increased mortality rate among the older populations

Table 4

Health Literacy Classifications

Classification	Description	Examples
Below basic literacy	Having only the skills necessary to perform the most simple and concrete literacy skills.	A patient could be initially identified if the patient is non-literate in English. Additional behaviors and skills that could be observed by a health care provider to identify a patient with below basic literacy may include the ability to: • Locate information that is easily identifiable in prose texts on brochures or instructional materials; • Locate information that is easily identifiable and follow written instructions in documents, such as completing a new patient form or locating what a patient is allowed to eat or drink before a test; and • Locate numbers and perform quantitative calculations, primarily addition, when the information needed to perform the calculations is concrete and familiar, like adding the amounts on a bank deposit slip.
Basic literacy level	Having only the skills necessary to perform simple and everyday literacy activities.	Behaviors and skills of a patient with basic literacy level a health care providers would be able to observe are the patient's ability to: • Read and understand information in prose texts; brochures and written instructions; • Read and understand information in simple documents; and • Solve one step problems from locating quantifiable information available.
Intermediate literacy	Having the skills necessary to perform those tasks that are more challenging than the previous two	Health care providers would be able to observe behaviors and skills of a patient with intermediate literacy level by their ability to: • Read and understand material that is more dense, and is less common prose texts in addition to being able to summarize and make inferences that demonstrate understanding of cause and effect; • Locate information in more dense, complex documents and making appropriate inferences about the content; and • Locate quantitative information that is less obvious and use the information to problem solve.
Proficient literacy	Having the skills necessary to perform those tasks that are complex and challenging literacy activities.	Health care providers would be able to observe behaviors and skills of a patient with intermediate literacy level by their ability to: • Read lengthy, complex, and abstract prose material and synthesize the information to make appropriate inferences; • Take multiple pieces of information from complex documents and integrate the information by synthesizing and analyzing it to form meaning; and • Locate abstract quantitative information and still be able to use it to solve multi-step problems using appropriate arithmetic operations.

Note. Information can be found in Kutner et al. (2006) and National Institute of Health (2006).

(Berkman et al., 2011a; Hernandez & Institute of Medicine, 2012; Pawlak, 2005; Squellati, 2010). Phillips (2010) discovered that when patients are empowered through improved health literacy their associated risks for health care related errors is reduced, thereby improving patient safety and health status outcomes. Clark (2011) agreed with Phillips (2010) that substantial evidence suggests that a higher level of health literacy may increase access to appropriate health care even though a causal relationship is still difficult to prove at this time. The challenge health care industries face is measuring the competency of health care providers to accurately identify and effectively intervene for low health literate patients. Clark (2011) concurs with health literacy research asserting that just because a patient may have a high education level and profession of higher socioeconomic status does not suggest the patient has the capacity to adequately understand complex health information or the ability to make informed decisions about their personal health care needs. Confusion, the lack of understanding, or both, is known to be associated with poor communication provided by the health care provider which leads the patient to not follow instructions about managing their care or how to take their medications.

Health Literacy and Health Outcomes

In 2003, the America Medical Association requested the Agency for Healthcare Quality Research (AHQR) to fund research to analyze the relationship between health literacy outcomes and the effectiveness of interventions designed to reduce low health literacy (Dewalt, Berkman, Sheridan, Lohr, & Pignone, 2004). Nearly every day there are medical errors, hospital readmissions, compromised health status, or other costly

outcomes caused, at least in part, by miscommunication and misunderstanding of health information or health instructions. It is estimated that 50% of adverse events that occur in health care institutions are preventable (Institute of Medicine, 2000). Bartlett (2008) reported that the risk of an adverse event happening is 3 times higher among patients with communication problems than among patients without communication problems. He goes on to recommend that the development and evaluation of interventions designed to reduce these risks are warranted. Communication is effected by language barriers and persons with disabilities are known to experience a decrease in the quality of care they receive. The communication between nurse and patient, provider-patient interaction, is worthy of being explored with the focus on the nurse to determine if intentional efforts are needed to address deficits in communication skills from the health care provider side of the provider-patient interaction equation.

Low health literacy significantly correlates with poorer health outcomes and poorer use of health resources (Berkman et al., 2010; Easton et al., 2013). The National Patient Safety Foundation (NPSF) announced in 2013 that low health literacy is an enormous burden on the American health care system and that the annual health care costs for individuals with low literacy skills are 4 times higher than those with higher literacy skills. The additional costs of limited health literacy range from 7-17 % of the total health care cost per year. The cost associated with low health literacy affects all individuals and is estimated at $106 billion (Vernon et al., 2007).

Health Diseases

Baker et al. (1998) studied the association between patient literacy and health literacy and found that patients with inadequate functional health literacy had an increased risk of hospital admission. At the time of this study the functionally illiterate were more likely to be poor, unemployed, and working in seasonal type jobs that fluctuated with the economy. The functionally illiterate had difficulty reading prescription bottles, appointment slips, self-care instructions, and patient education brochures. Patients with low literacy skills have a 50 % increased risk of hospitalization compared with patients who had adequate literacy skills (DeWalt et al., 2006, p. 2; Mitty & Flores, 2008; Schillinger et al., 2002, p. 480). Low health literacy contributes to poorer self-management skills. Easton et al. (2013) goes on to say patients with low health literacy have poorer knowledge of health diseases and are not as able to adequately manage health conditions such as asthma, diabetes, and heart disease which is consistent with the findings of Baker et al. (1998).

The work of Gazmararian et al. (2003) reported that individuals with a chronic disease such as diabetes, asthma, or hypertension and were determined to have low health literacy had less knowledge of how to manage their disease and were less able to correctly demonstrate self-care skills than those individuals with adequate health literacy. Health literacy was determined to be an “independent predictor of patient’s knowledge of their chronic illness” (p. 273). Patient with low health literacy who appear to understand information about their disease have the worse health outcomes. Patients will conceal

their lack of understanding to avoid the shame and the negative stigma associated with low literacy and low health literacy (Berkman et al., 2011b).

Practical implications suggested to remedy this situation are: health care providers must adjust health education according the patient's level of health literacy; and health care institutions must have available written material appropriate to individuals with low health literacy. The relationship between low health literacy and health outcomes has been appreciated in a broad respect when studying diseases such as congestive heart failure, diabetes, hypertension, and preventative measures to improve health. Recommendations for further research include a framework or causal model that would help identify pathways between health literacy and health outcomes (Eckman et al., 2012; Keller, Wright, & Pace, 2008; Pignone, DeWalt, Sheridan, Berkman, & Lohr, 2005; Schillinger et al., 2002). The framework presented by Paasche-Orlow and Wolf (2007) is an example of causal model that may facilitate establishing relationships between variables associated with addressing health literacy and health outcomes.

Medication Errors

Lie, Carter-Pokras, Braun, and Coleman (2012), Kanj and Mitic (2009), and Vernon et al. (2007) agree that patients who are not able to comply with a treatment plan or experience a medication error may be related to poor understanding of health information. About 50% of all patients take medications as directed. The numerical and computation skills required to take medications can be overwhelming if the patient is not able to work with numbers in even simple mathematical calculations. This is why the

literacy category addressing numeracy, or numbers, is necessary to evaluate when assessing health literacy needs.

Research suggests people with low literacy make more medication or treatment errors; are less able to comply with treatments; lack the skills needed to successfully negotiate the health care system; and are at a higher risk for hospitalization than people with adequate literacy skills (Easton et al., 2013, pp.5-6, 9; Parikh et al., 1996, pp. 37-38). Individuals who have difficulty with numbers will, more likely than not, have difficulty understanding health information. It becomes clearer why approximately 50% of patients do not take medications as directed and as a result a medication error occurs in the home that may lead to a primary care provider visit or even hospitalization (Kanj & Mitic, 2009; Wolf et al., 2007). Wolf et al. (2007) reported patients with low literacy stated they had problems with taking medications; needed help with health related reading tasks; and had difficulty understanding and following instructions written on their appointment slip. For example, patients with the lowest literacy level, less than third grade level, may become confused about their medications because of the difficulties with reading or comprehending the information written on the medicine bottle. More than half of patients at or below the third grade level request help to read medicine bottles; 15 % of them reported missing doctor's appointments because they could not read the appointment slip well (Kanj & Mitic, 2009; Wolf et al., 2007). The health care provider should have the knowledge to be able to validate a patient's understanding of health instruction and make observations of tasks associated with low health literacy based on these known factors and intervene when warranted.

Health Literacy and Health Disparities

Health disparity is defined as the inequality or gap that exists between two or more groups in their access to quality of health care when compared to those in the general population. Barriers that influence the use of health care include insurance status, availability of health or wellness programs, workforce issues, health care costs, communication, and transportation (Cristancho, Garces, Peters, & Mueller, 2008; US Department of Health, Human Services, Office of Disease Prevention, & Health Promotion, 2012).

In 1999, congress asked the Institute of Medicine to study the quality of health care that various racial and ethnic minority groups received. The majority of the studies published at the time revealed minorities are less likely than whites to receive the care needed for promoting optimal health which included clinical procedures that were deemed necessary, yet were not done. African Americans were more likely than whites to receive amputations of all or part of a limb than whites. African Americans and Hispanics tend to receive a lower quality of health care and clinical services. Disparities were found to exist in the public and private sectors, and in teaching and non-teaching health care institutions (Institute of Medicine, 2002).

The mortality rates among minorities who do not receive the same services as white, such as surgical intervention for lung cancer were higher. Institute of Medicine (2009) reported that racial and ethnic minorities were more likely to be below basic or at the basic health literacy level and were less likely to be proficient in understanding health

information. Health literacy is a continued problem that affects all racial and ethnic groups (pp. 10-11).

When studying the effects of health literacy, it must also be a consideration that a health care provider may have a racial or ethnic bias. The provider's behavior may contribute to the inequities in care and outcomes (Van Ryn & Pu, 2003). For example, nurses may intentionally or unintentionally convey lower expectations for patients who they perceive to be in a more disadvantaged societal position than the more advantaged counterparts. The manner in which a nurse interacts with the patient can affect the way the patient sees the future with respect to receiving health care services. If the nurse conveys lower expectations of obtaining the necessary resources needed to achieve a better health outcome, the patient's expectations of themselves follows the same (Rao, 2000; Roter, 2000; Van Ryn, 2002). Little research has been conducted concerning how a nurse's behavior may contribute to racial or ethnic disparities in the receipt of health care. Time and attention is necessary to explore any unconscious bias nurses may have so efforts may be taken to overcome them. This topic warrants further and intentional investigation in order to identify evidence-based interventions that promote a reduction in the disparities that are already known.

Clark (2011) discussed the legal position of how individual rights are affected by health literacy. Individual rights include the universal principles of biomedical ethics: patient autonomy, justice, and beneficence. Patient autonomy corresponds to the legal principles of informed consent; justice corresponds to nondiscrimination; and beneficence corresponds with the patient's right to receive quality care. Courts have ruled

on cases where issues of verbal and written literacy were the main premise for the legal action during the consent process for treatment. Limited command of the English language, for both English and non-English speaking individuals, influences the ability of the individual to adequately understand health care issues and engage in the decision making processes regarding their personal health.

In *Quintanilla v. Dunkleman* (2005) the court ruled that because a patient was not able to read the consent form that was signed, the consent was not valid; therefore, the burden of proof was shifted to the physician to prove informed consent was obtain through other means (Cortes, Drainoni, Henault, & Paasche-Orlow, 2010; Lorenzen, Melby, & Earles, 2008). This example demonstrates the complexities of our health care systems and how literacy, limited English proficiency (LEP), and health literacy are entwined when health care providers pressure individuals to make personal health care decisions.

Providers have a duty to provide or disclose information in a manner that the average reasonable patient (TARP) can adequately understand in order for them to make decisions about their care (Clark, 2011). The latter represents a patient-centered care approach that would involve a provider-patient interaction as represented by Paasche-Orlow and Wolf (2007). The nurse interacts with the patient providing the necessary information that is meaningful and useful to the patient.

The opinions arising from *Truman v. Thomas* (1980) adds another legal component to the importance of providing enough information for TARP to make an informed decision. In this case, the patient refused to have a pap smear which was against

her physician recommendations. The patient developed cervical cancer and died. The physician did not inform the patient that the purpose of the test was to detect cervical cancer and the risks associated with not having regular pap smears done. The family sued the physician for failing to disclose the risks of not having a pap smear done. The courts agreed that the physician should have informed the patient of the risks of doing nothing in addition to the informed consent for the procedure. This case presents a legal aspect of health literacy when asking patient to make informed decisions. If a health care provider knows or should know of a patient's individual concerns or lack of understanding about medical procedures from the provider-patient interaction, then the scope of required disclosed information may be expected to be expanded.

Health care providers expect a patient with limited English proficiency to ask for medical forms in their primary language or request an interpreter. Health care providers expect patients to ask questions if they do not understand. These are high expectations the health care systems and health care providers place on patients with low literacy skills and limited English proficiency whom are also likely experiencing not only shame and embarrassment because they do not understand but, stress and fear because of the health issue at hand (Yip, 2012). When health care providers use this approach, they assume the patients are knowledgeable about what they know and need to know; the patients are assertive to ask for more information when they do not understand; and have the skills necessary to ask specific questions that follow-up on material presented to them by the health care provider, all of which is not true for many patients according to the health literacy research. In some respects the health care provider may actually contribute to the

health disparities because of the demands of the health care systems and communication techniques used with patients of low health literacy (Van Ryn & Pu, 2003). The health care provider has a duty to disclose information to the patient in a meaningful manner when the patient asks for it, or when it becomes known the patient requires additional information to make informed health care or treatment choices (Clark, 2011).

Access to Care

Low health literacy prevents equal access to care which means many individuals do not make full use of available health services. If individuals do not access health services when needed, they do not receive the latest treatments and current clinical information (Pirisi, 2000). The inability to speak English or the ability to speak with limited English proficiency adds an additional barrier to access health care because of the language barrier (Institute of Institute of Medicine, 2003). Cultural differences influence whether individuals will seek health care or not, as does the individual's experiences of health illness, and their willingness to seek help (Clark, 2011; Cristancho et al., 2008).

Health People 2020 is tracking data regarding rates of illness, death, chronic conditions, behaviors in relation to race and ethnicity, gender, sexual identity and orientation, disability status, and geographic location to identify any causal relationships (U.S. Department of HHS, 2008b). Overcoming health disparities is a moral imperative in addition to reducing the severity of illness which in turn reduces the cost of health care for the under insured or uninsured. Health care providers must understand that cultural complexities are vital to providing effective health information. The solution to resolving some of the health literacy issues must be recognized as bidirectional (patient-provider

and provider-patient). Health care providers require education when working with diverse populations. The education should include information about the culture of the community served, available resources and any specific communication techniques that could be used to enhance the provider-patient interaction (Mancuso, 2011).

There is an abundance of literature published describing the relationship between limited health literacy and poorer health outcomes. For example, the use of plain language and picture based technique when presenting written material resulted in reducing medication-dosage errors from 47.8 % to 5.4 % (Yin et al., 2008). Another example regarding improving nurse's communication skills involved colon cancer screening patients. One group of nurses learned of their patient's low health literacy status and received training on how to better communicate with them. The other group of nurses did not learn of their patient's health literacy status and received no additional training. Among the patients with inadequate health literacy, the screening rates of patients by the nurses who received health literacy training was 55.7 %, almost twice that of those patients by nurses who did not receive health literacy training at 30 % (Ferreira et al., 2005). A causal pathway depicting to what degree health literacy may be influenced by the nurse-patient interaction is not established.

Stigma, Shame, and Embarrassment

Health care providers expect patients to have skills to read medication labels, appointment slips, consent documents, and health education materials. When patients are not able to read, or are not able to read well, they are more likely to withhold their literacy limitations from the health care provider because of shame and embarrassment.

Patients with low functional health literacy are reported to feel shame, feelings of inadequacy, fear, and low self-esteem (Parikh et al., 1996). Wolf et al. (2007) reports nearly one half of patients who read at less than or equal to a third grade level experience shame and embarrassment about their reading abilities and more than one third expressed they would be ashamed if the health care provider knew of their reading difficulties. Patients with marginal or low literacy skills agreed to have a note put in their medical chart to indicate they had difficulty with medical words, but they also confirmed that having this entry in their medical chart would be shameful or embarrassing to them (Wolf et al., 2007).

A strategy to address the issue of shame is the implementation of the "universal precautions" approach (U.S. Department of HHS & Office of Disease Prevention and Health Promotion, 2010). When health care providers use this approach, *all* patients are addressed as if a limited health literacy issue exists. The universal precautions approach to addressing health literacy fosters effective communication for all patients that begins with the first provider-patient encounter (Volandes & Paasche-Orlow, 2007).

In *Hidding v. Williams* (1991), the manner of disclosure of health information to a patient was scrutinized by the courts. The patient had a laminectomy performed and as a result, lost bowel and bladder control. The physician told the patient that the surgical procedure, laminectomy, could result in the "loss of function of body organs" (p. 4, para. 5). The court found that the warning "loss of function of body organs" was neither clear nor specific enough for the average layperson to understand that a risk of permanent loss of bladder control was actually being presented to them. The court also noted the patient

only had a sixth grade education, less than adequate reading skills, and that his wife attended doctors appoints because the patient was afraid he might miss important information. The Court has made it clear that if the health care provider does not communicate information in a clear and meaningful manner; this can and does undermine a patient's ability to make informed decisions about personal health care (p. 1, para. 3).

Cognitive Factors

Cognitive factors can influence any individual's ability to absorb or process health information. When illness interferes with activities of daily living due to constant pain, fatigue, or disability, the emotional stress can further impede decision-making skills and information processing. For example, cognitive bias may lead people to overestimate or underestimate the risks and benefits of their medical choices. Emotional stress often accompanies illness (Chiovetti, 2006, p. 375; Federman et al., 2009, pp. 1475-1476). Federman et al. (2009) discussed the strength of the relationship between memory and verbal fluency has with health literacy and that it is independent of level of education and health status. Further research is needed to examine the effect modified education material designed to meet the older adults' cognitive limitations may have on health literacy and health outcomes.

In *Yahn v. Folse* (1993), an 82 year old man sought medical care from a physician because of frequent episodes of dizziness and fainting. The physician revealed plaque in the left carotid artery and if not surgically corrected, could pose a risk for stroke. An arteriogram was recommended to further diagnosis the seriousness of what was found, but this also could create some risk for stroke for the patient. The physician

recognized the patient was hard of hearing and was illiterate but the daughter was present when he discussed the procedure and associated risks to the patient. In response to the physician during the discussion about consenting for the procedure, the patient answered "okay". The physician understood his response to be a verbal consent for the procedure. The procedure was done; he did sustain a stroke and died one year later due to complications. It was learned through discovery the patient responded "okay" to nearly every question posed to him. This led the court to believe the patient did not understand the information communicated to him by the physician and informed consent was therefore, never obtained. The relevance this case has to health literacy is that it illuminates where the emphasis of a provider-patient interaction is in relation to patient's making informed decisions regarding health care. This case supports the use of health literacy tools during provider-patient interaction particularly when informed decisions are necessary.

Legal Status

In addition to the shame and embarrassment mentioned earlier, the legal status of a patient is a barrier for immigrants of uncertain or undocumented status and even those who are in the United States legally. Immigrants are identified as a vulnerable population. The classification of vulnerable population is shaped by political and social marginalization and a deficiency of socioeconomical and societal resources. Federal and state policies restrict the ability of many immigrants to access health care. Therefore, many immigrants avoid seeking help because they fear their interaction with health care system will lead to scrutiny of their proper documentation for themselves or their family

members, and may even increase their risk for possible deportation by immigration officials (Clark, 2011; Eggertson, 2011; Mancuso, 2011).

The Affordable Care Act blocks unauthorized immigrants from participating in public and private health insurance opportunities. Most immigrants rely on hospital emergency departments and federally qualified health centers for their health care (Derose, Escarce, & Lurie, 2007). Stimpson, Wilson, and Su (2013) report a high incidence of undiagnosed disease among immigrants. This has been shown to relate to a lack of awareness of disease, largely due to the lack of access to quality care and lower levels of education when compared to U.S. citizens.

Even though limited English proficiency is a nonfinancial barrier, it plays a major role in health outcomes among immigrants. A higher incidence of medication adverse events occurs due to the limitation of reading skills and understanding instructions (Derose et al., 2007). This is less an issue for immigrants where English predominates in their native country, for example, Caribbean and African nations. However, individuals from countries where English is not predominating, such as Vietnamese, Cantonese, Mandarin, and Korean, LEP contributes greatly to quality of health care received and ultimately poorer health outcomes.

In an effort to address the national problems associated with LEP of U.S. citizens and immigrants, the U.S. Department of HHS Office of Minority Health issues standards for culturally and linguistically appropriate services for health institutions to incorporate into their infrastructure (U.S. Department of HHS et al., 2001) and must demonstrate compliance with adherence when the institution is surveyed by the agency.

Cultural Norms

Patient cultural norms and experiences influence health literacy. Research in psychiatry, psychology, sociology, and anthropology document large differences in how people experience, understand, and discuss illness as well as their willingness to seek help (Chang & Kelly, 2007, p. 412; U.S. Department of HHS et al., 2001). For example: some patients belong to minority communities that have a well-known history of mistreatment and abuse at the hands of health care providers: African-Americans, poor women, and patients with certain disabilities have been used for medical research without their knowledge and subjected to medical treatments, such as sterilization or confinement, without their consent (Rust & Davis, 2011, p. 754; Waters & Harris, 2009, p. 256; Weekes, 2012, pp. 77-78). A history of cultural mistrust may keep some individuals from building a relationship with health care providers, a critical source of health care information.

Ciampa et al. (2013) reports on the acculturation and health literacy of Spanish-speaking caregivers. Acculturation is defined as “the complex process by which an ethnic group incorporates the cultural patterns of a host group through the process if immigration” (p. 492). Inadequate health literacy is prevalent in both the general population and Latino population. Inadequate literacy skills of caregivers in the Latino population have poorer child health outcomes than those with adequate literacy skills. Parents with low acculturation are more likely to have low literacy skills and have more difficulty working with numbers, or numeracy skills. This study support the effort needed to develop assessment tools that are culturally sensitive to improve the quality of health

communication and the use of culturally appropriate interventions for low literate and low health literate individuals.

Cultural competence in health care has been a focus of the U.S. Department of HHS and the Office of Minority Health (OMH) since the census of 2000 revealed a significant increase in the minority and foreign-born populations living in the United States (U.S. Department of HHS et al., 2001). The increased diversity of our country adds many challenges to our health care institutions in both rural clinics and large urban health care medical centers. The cultural differences brought to health care facilities are met with institutional barriers that directly affect how patients enter and navigate the health system in addition to how health care providers deliver care to them. Cultural competence of health care providers has yet to be defined by policymakers in a way that is measurable and enforceable therefore; there remains a wide spectrum of what actually constitutes quality of services with respect to minority populations.

Health Literacy Tools

Health literacy is a concept that focuses on literacy in the framework of health, and has many components that include numeracy, verbal literacy, written or print literacy, and cultural knowledge (Nielsen-Bohlman, Panzer, & Kindig, 2004b). In an effort to capture quantitative data, health literacy tools have been developed. The Single Item Literacy Screener (SILS) was developed to assist health care providers in early identification of patients with limited reading ability who may need help reading health related material (Morris, MacLean, Chew, & Littenberg, 2006). Chew et al. (2008) agreed the SILS was useful in identifying patients with reading difficulties, but goes on to

say that there may be three single item questions that are just as effective in identifying patients with inadequate health literacy and marginal health literacy.

The Newest Vital Sign

The Newest Vital Sign (NVS) is the first literacy screening tool available in both Spanish and English. It takes approximately 3 minutes to complete which makes it easy to administer in most health care settings. The sensitivity of this tool may identify more patients as low health literacy than actually are; however, this is felt to be acceptable as opposed to not being sensitive enough, or not identifying enough of those who are low health literate. The health care provider can elect to adjust the health education material or content accordingly and as necessary. The screening tool is based on reading and interpreting a nutrition label. This every-day activity contributes to functional literacy particularly with chronic illness (Devraj et al., 2010; Weiss et al., 2005).

REALM-R

Rapid Assessment of Adult Literacy in Medicine is designed to be administered in public health or primary care settings. The test requires approximately 3 minutes to complete and relies on word recognition and pronunciation. It does not measure comprehension and only measures reading ability below the ninth grade level (Dewalt et al., 2004). Bass, Wilson, and Griffith (2003) concluded the REALM-R is an effective tool to assess quickly health literacy in a busy clinical setting.

Test of Functional Health Literacy of Adults

The Test of Functional Health Literacy of Adults (TOFHLA) is available in both Spanish and English. It measures functional literacy, numeracy literacy, and

comprehension of health related materials. The original version of the TOFHLA required approximately 20 minutes to administer which is not conducive to any health care setting. The shortened version uses only two reading comprehension passages which reduced the amount of time to administer to approximately 10 minutes. This is more conducive to administering in a health care setting but still required a great deal of time when time is not frequently afforded in primary care settings, such as physician offices or acute care settings, such as hospitals (Dewalt et al., 2004). The S-TOFHLA was developed in response to the time sensitive issues present in the clinical settings. It is from the S-TOFHLA instrument the Single Item Literacy Screener (SILS) emerged as a useful and practical tool to be used by health care providers to detect health literacy issues as soon as possible (Morris et al., 2006).

Single Item Literacy Screener

This tool was designed to assist the health care provider in identifying those patients with reading difficulty. The SILS asks, “How often do you need to have someone help you when you read instructions, pamphlets, or other written material from your doctor or pharmacy?” (Morris et al., 2006, p. 2). The SILS is administered as part of the initial patient questionnaire. When comparing the S-TOFHLA with the SILS, the SILS was determined to perform well in identifying patients with reading difficulty in addition to being simple and practical in varied health care settings.

Three Health Literacy Screening Questions

Chew, Bradley, and Boyko (2004) used three questions as opposed to the one used by SILS to determine not only those patients with reading difficulty but also to

identify those patients with marginal health literacy. The three questions used were (a) "How often do you have someone (like a family member, friend, hospital/clinic worker or caregiver help you read hospital material?"; (b) "How often do you have problems learning about your medical condition because of difficulty understanding written information?"; and (c) "How confident are you filling out forms by yourself?" (p. 562). The results showed the question about filling out forms performed significantly better that the other two questions even though all three did identify patients with inadequate health literacy. When patients are identified as having inadequate health literacy, the health care provider then must choose the most appropriate interventions to meet the health literacy needs.

Interventions for Low Literacy Patients

Effective interventions can be initiated by the health care provider once low health literacy is identified. Research has identified methods proven to enhance communication with persons with low health literacy. Nurses should know to speak slowly (Schwartzberg, Cowett, VanGeest, & Wolf, 2007; Speros, 2005), use plain language (Cornett, 2009; Roett & Wessel, 2012; Speros, 2005; Stableford & Mettger, 2007), limit the amount of information given at one time or during one education session (Roett & Wessel, 2012; Speros, 2005), and verify the patient understood the education material presented by using the teach-back technique (Joint Commission, 2009; Volandes & Paasche-Orlow, 2007).

When providing or using written material, the nurse should know to use only short sentences and only one or two syllable words; each page should have no more than

two or three concepts and ample white space should be included around the boarder (Cornett, 2009; Roett & Wessel, 2012; Speros, 2005). To enhance comprehension, the nurse should know to incorporate pictures and drawings with the verbal or written material as much as possible. Relating personal stories relevant to the topic being discussed are also known to be useful (Roett & Wessel, 2012; Speros, 2005).

The universal precautions approach to health literacy models the universal precautions approach to infectious disease. This model was adopted and applied to health literacy in an effort to prioritize the use of clear communication as the basis for every provider-patient interaction (AHRQ, 2013; Joint Commission, 2009; Volandes & Paasche-Orlow, 2007). It is impossible to tell by looking at an individual who may be infected with disease that is transmitted through blood or bodily fluids, consequently, doctors, dentists, and nurses follow a universal precautions approach. This means the same precautions, such as using gloves and washing hands, are implemented and carried out for each and every patient. Similarly, it is impossible to tell by looking at an individual who may be affected by inadequate health literacy. Health literacy is an issue that affects everyone. Over 61% of individuals find health information too complex and difficult to understand (Kutner et al., 2006, pp. 16-18; Protheroe & Rowlands, 2013, p. 20; U.S. Department of HHS & Office of Disease Prevention and Health Promotion, 2010, p. 9). For this reason, many health professionals advocate using a universal precautions approach to health communication; that is, they assume that most patients will have difficulty understanding health information; therefore, the same approach will

be implemented that fosters clear communication for all (U.S. Department of HHS & Office of Disease Prevention and Health Promotion, 2010, p. 10) .

Tools have not been designed to measure how accurately health care providers determine the health literacy of patients or how appropriately they address the needs of low health literate patients (Leeman & Sandelowski, 2012; Mancuso, 2009; Persell et al., 2007). Coleman et al. (2013) acknowledges that health literacy competencies have not been established for health care providers. This represents another gap in the literature where further research is needed to explore and address issues regarding the role health care provider may have regarding health literacy.

Nurses' Knowledge and Perceptions of Health Literacy

Health literacy is often discussed as a "patient" characteristic (patient skills and patient knowledge), where in fact provider factors (nurses and physicians), and structural factors (complex organizations) can dramatically influence health literacy (Institute of Medicine, 2000; Ishikawa & Kiuchi, 2010). For example, a patient's understanding of care and treatment options frequently is shaped by the quality and content of the provider-patient communication. The quality and content of the provider's communication relies on the health care provider's knowledge and ability to communicate health concepts in a clear and meaningful manner. Further, the nurse's knowledge of behavioral and verbal cues that are suggestive of low health literacy may enhance their ability to assess whether patients truly understand the health information provided. An assumption can be made that if a health care provider is knowledgeable of low health literacy behavior and verbal cues, then patients with low health literacy would

be identified sooner and more consistently. Effective interventions could be initiated sooner and more consistently appropriate to the patient needs in hopes to improve a level of understanding that ultimately improves health outcomes.

Health care providers must acquire additional skills to effectively communicate with low health literate patients in an effort to provide health information in a format that can be easily understood and meaningful to them (Rogers, Wallace, & Weiss, 2006). These skills include being able to use interventions that are designed to simplify the way information is presented, circumvent poor reading skills by using a video instead of printed material, facilitate provider-patient communication, and improve self-efficacy or health related skills (Berkman et al., 2010).

Knowles (1973) emphasizes timing the learning experiences with the readiness to learn. For example, “a new nursing student needs to have direct experience with health care institutions, patients, and practicing doctors before they are ready to learn facts about pathology, anatomy, and other content” (p. 47). Another example, a newly diagnosed patient with diabetes comes to the health care institution for the first time and has limited experience with doctors or nurses, health information, or medications. The patient-centered approach used by nurses with this patient requires more time to teach the basics of the diabetes and what life-style changes would need to take place, because a new diagnosis means new content to a patient. The approach nurses take would be totally different with a patient who has been managing diabetes for a number of years and is more comfortable with accessing health care systems to manage their care and has made the life-style changes that manage the diabetes. Health care providers must be able to

identify and use interventions known to improve the use of health care services and health outcomes, thereby potentially alleviating some of the effects of low health literacy. Logan (2007) stresses health care provider's personal beliefs, experiences, and culture may influence whether provider-patient interaction encourages or discourages a patient's understanding. This suggests additional research is needed to explore the health care provider's perception of their role in addressing health literacy. Rogers (2006) goes on to suggest that, how health care providers perceive their patients may affects the process of prioritization of the patient's needs. Individuals may be viewed as "patients," "students," or "consumer" and to what degree a nurse perceives them to be may affect their ability to remain objective when assessing for health literacy needs. This is an area that has not been explored in the literature (Jukkala, Deupree, & Graham, 2009; Leasure, Delise, Clifton, & Pascucci, 2009; Sand-Jecklin et al., 2010; Squellati, 2010).

A health care provider's communication skills and cultural competence are relevant factors in determining how a patient's health literacy is affected by policies and structural characteristics of medical and nursing education, health care delivery systems, and financing systems. Communication skills and cultural competence must be valued and be included as part of the medical training (Rose, 2012, p. 216; Singleton, 2009, pp. 7-8) and nursing training. A substantial amount of time is required of health care providers in order to perform an adequate patient assessment. Additional time is necessary to provide appropriate health education about specific conditions and treatments if barriers, like low health literacy, are to be overcome. If the communication skills and cultural competence are not addressed with health care providers, the barriers

to health literacy can actually be exacerbated (Halbur, Halbur, & American Pharmacists Association., 2008; Lie et al., 2012; Rose, 2012). These barriers are often seen in many health care settings as conditions where there are time pressures, high cognitive demands, and stressors which make health care institutions prime for triggering stereotypes and other unsophisticated problem solving strategies (Berkman et al., 2011a).

Citations regarding health literacy are found in medical literature referencing primarily the physician as the primary provider of health information. Even though nurses are at the forefront of educating patients and are vocal advocates for vulnerable populations such as older adults, minorities, and poverty, little substantive research exists in nursing literature regarding health literacy, health literacy screening, or other health literacy education for the professional. The National Organization of Nurse Practitioner Faculties includes a section that incorporates health literacy in the education curricula and competency based evaluation (American Association of Colleges of Nursing et al., 2012, p. 14). Unfortunately, there are few curricular standards for undergraduate nursing education that currently address the need for additional instruction regarding health literacy. Nurses need to receive formal health literacy education regarding assessment of low health literacy needs, effective interventions that address low health literacy needs, and managing patients with low health literacy. Nurses should successfully demonstrate health literacy competencies as part of their role in patient-centered care. Competency-based programs are necessary and should incorporate health literacy concepts made available to all nursing specialties (Coleman et al., 2013; Englander et al., 2013; Rose, 2012).

Nearly one half of the United States population is affected by low health literacy, yet health care professionals may not recognize patients with low health literacy (Macabasco-O'Connell & Fry-Bowers, 2011; Nielsen-Bohlman et al., 2004a; Schlichting et al., 2007). Health communication requires the health care provider and the patient to engage in a reciprocal dialogue. This provider-patient interaction is critical when sharing information with patients who have low literacy skills. Health care providers are not aware of the prevalence of low health literacy; they make an assumption that the reason patient's do not understand is because of the lack of capacity to learn (Rogers et al., 2006). The health care provider's knowledge of patient behaviors or characteristic associated with inadequate health literacy may influence their ability to communicate effectively and their lack of knowledge can significantly alter the way health information is shared with patients (Kelly & Haidet, 2007).

Research has shown that health care providers overestimate a patient's literacy skills. It has been shown that over 40% of physicians misjudge the level of patient's literacy (Kelly & Haidet, 2007). Many health care providers believe that the level of health literacy can be equated to the level of education attainment, even though it is well published in the literature that there is no correlation between a patient's level of health literacy and their education level. Studies have also reported that 60% of patients from five independent physician family practice offices had a reading ability of at least three grade levels below that of their reported highest grade of school attained. Bass, Wilson, Griffith, and Barnett (2002) surveyed 36 allied health providers and found that one third of those who responded were unaware of health literacy issues regarding patients but also

were unaware of the affect inadequate health literacy has on health care resources. An allied health provider is more commonly known as a nurse practitioners or any non-physician involved in patient care. Another study showed physicians identified 90 % of the patients who they perceived to have adequate literacy. Of those they perceived to have adequate literacy, 36 % did not pass the REALM-R (Bass et al., 2002; Rogers et al., 2006).

Techniques for effective communication recommended by health literacy experts can improve communication with patients with low health literacy. Schwartzberg et al. (2007) explored health care providers' communication methods with low literate patients. The interventions studied thus far represent a passive approach to communicating health education, which means relying on the patient to read, understand and act on the information provided. Recommended interventions are: slowing down, using plain language, medical jargon, showing or drawing pictures, limiting the amount of information shared in one session, repeating information to reinforce comprehension, using the teach-back technique, and creating a shame free environment by encouraging frequent questions and open dialogue (Schlichting et al., 2007; Schwartzberg et al., 2007; Williams, Davis, Parker, & Weiss, 2002).

Health care providers are not prepared to assist low health literacy patients in overcoming the shame and embarrassment that accompanies literacy issues (Schwartzberg et al., 2007). Lack of knowledge about low health literacy is reported as a barrier in patient screening (Macabasco-O'Connell & Fry-Bowers, 2011). Others view

lack of time and money as a contributor to the reason why low health literacy programs are not implemented and are considered a low priority (Schlichting et al., 2007).

Table 5

Healthy People 2010 Goals and Objectives

Goals	**Objectives**
Increase quality and years and healthy life.	"Help individuals gain the knowledge, motivation, and opportunities they need to make informed decisions about their health" (p. 10).
Eliminate health disparities.	"The greatest opportunities for reducing health disparities are in empowering individuals to make informed health care decisions and in promoting community wide safety, education and access to health care" (p. 16).
Increase the quality, availability, and effectiveness of educational and community-based programs designed to prevent disease and improve health and quality of life.	"To ensure interventions are culturally appropriate, linguistically competent, and appropriate for the needs of racial, ethic, gender, sexual orientation, disability status, and age groups within the community, members of the population served must be involved in the community assessment and planning process" (p. 7-9).
Use communication strategically to improve health.	Develop appropriate health information targeting the population served, especially the underserved persons; training health professionals in communication science and the use of communication techniques; evaluate interventions; and promote critical comprehension and the practice of effective health communication.
(Developmental) Improve the health literacy of persons with inadequate or marginal literacy skills	Offer health literacy programs that target skill improvement for low-literacy and limited English proficient individuals. Measure improvement in health literacy for the least literate.

Note. U.S. Department of HHS (2000)

The teach-back method is known to promote more effective communication; however, there are few studies to validate the multitude of strategies that health care providers may choose to use in addition to the teach-back method. Cafiero (2013) discusses how the lack of knowledge regarding principles of adult learning styles may contribute to poor communication skills of health care providers, physician and nurses included. It is for this reason andragogy, an adult learning theory, is applied to interpret the research findings. Malcolm Knowles theory of educating adults is the basis for andragogy. Pignone et al. (2005) reported nurses should be able to determine how to convey important health

information in a meaningful way that does not require advanced reading skills because of the prevalence of inadequate literacy and health literacy skills. Nurses and other health care providers should have the knowledge of, and access to, tools that have demonstrated to be effective when addressing health literacy needs of patients (Macabasco-O'Connell & Fry-Bowers, 2011; Schwartzberg et al., 2007).

Healthy People 2010 was written to foster increased quality of healthy life and to eliminate health disparities (U.S. Department of HHS, 2000b) by establishing measureable goals and objectives as outlined in Table 5.

Causal Relationship between Nursing and Health Literacy

The single largest group of health care providers is nursing professionals (Sanders, Thompson, & Wilkinson, 2007). The general knowledge and application of health literacy concepts is essential and must be explored with greater intention. Nurse researchers have studied functional health literacy in an urban primary care center (Artinian, Lange, Templin, Stallwood, & Hermann, 2003), health care providers awareness, knowledge, and perceptions of the effect of limited health literacy (Jukkala et al., 2009; Macabasco-O'Connell & Fry-Bowers, 2011), nursing student's knowledge of health literacy (McCleary-Jones, 2012), low health literacy and the challenges with HIV patients (Devereux & Porche, 2004; Holzemer et al., 2006), geriatric population and chronic illness (Mitty & Flores, 2008), determining what effects the completion of advanced directives, applying self-determination of care, and the relationship with education level (Campbell, Edwards, Ward, & Weatherby, 2007), and parent's perceived self-efficacy to manage a child with asthma (Wood et al., 2010). However, studies

designed to explore a nurse's knowledge of health literacy, the effect health literacy has on patient outcomes, or the techniques recommended to facilitate optimal communication with individual with low health literacy have not been conducted at this time.

Health promotion and health education have always been fundamental components of nursing care (Mason, 2001). A nurse's role in direct patient care encompasses a responsibility to deliver competent care that addresses the individual needs of patients. The provision of nursing care has always included the component of health education. Health education provided to patients by nurses must address health literacy issues found to be present, but little research has been conducted specific to nursing professionals or conducted by nursing professionals to verify nurses have acquired adequate health literacy knowledge and communication skills necessary to fulfill this requirement. Little research addresses the nursing aspects of addressing health literacy issues in health care or academic settings.

Summary

This review of literature supports the need for research concerning nurses' knowledge of health literacy to improve health outcomes. This is a focus that warrants intentional and immediate exploration in light of what is already known about the effects low health literacy has on society. This study examined the knowledge nurses have regarding health literacy in general and specific to common interventions that nurses can implement that are known to improve low health literacy. The knowledge nurses should have regarding health literacy will be based on the vast amount of published literature

available on-line, in scholarly journals, public policy legislation, and books over the past decade.

The specific issue identified from the review of literature warranting research is the health literacy competency of nurses, which means to validate the knowledge of nurses in this area as if it were a competency for nursing practice. The validation of nurse's knowledge of health literacy to improve outcomes has not been reported by researchers as an integral component to the resolution of the low health literacy and poor health outcomes, consequently, the nurse's competency regarding knowledge of health literacy and communication skills has not been evaluated or measured in any way. To have a better understanding of what professional nurses know about health literacy may guide health care institutions in providing continuing education to nurses; facilitate the incorporation of communication techniques addressing health literacy into education; and identify barriers to implementing health literacy programs.

Chapter 3: Method

Introduction

The purpose of this study was to gain a more complete understanding of the knowledge nurses have regarding health literacy and identify interventions nurses used to address low health literacy needs of patients as related to medication management, self-management, and disease management. In this chapter, I describe how I designed and conducted the research study in accordance with IRB approval #07-15-16-0147944. I also describe the data analysis process.

Setting

Despite the widespread attention health literacy has received in the United States and around the globe (Ratzan, 2013) the primary focus of resolving issues associated with health literacy has been on primary care providers, meaning physicians, including residents in training, and ambulatory care or outpatient settings. The influence nurses may have on resolving health literacy issues in health care institutions, out-patient settings, long-term care facilities, and public health departments has not been reported in the literature. Nurses account for more than 63% of the workforce in outpatient settings and health care institutions (Health Resources and Services Administration & Bureau of Health Professions, 2013). The majority of health education provided to patients in these settings is provided by nurses. Because physicians and residents frequently are not able to identify patients with low health literacy, it seems logical that nurses may also have the same difficulty (Bass et al., 2002; Coleman et al., 2013; Green et al., 2014; Jukkala et al., 2009; Kelly & Haidet, 2007; Macabasco-O'Connell & Fry-Bowers, 2011).

The knowledge nurses have with respect to the concept and dynamics of health literacy has not been studied; therefore, data are not available to make generalizations to the nursing profession. This cross-sectional survey design will add to the body of knowledge by discussing the extent and depth of knowledge nurses have regarding health literacy, which is not found or is limited in the literature at present. If the analysis of the data shows nurses do not possess adequate knowledge and skills to identify low health literate patients, then a need for additional health literacy education and communication skills training for nurses would be warranted. Improving effective communication between the nurse and the patient may slowly, yet significantly, contribute to the resolution of the current health literacy issues reported in the literature and ultimately improve health outcomes in time. The data may also be used to make generalizations to nursing professionals because it is expected that all nurses address health literacy as a part of the provider-patient interaction regardless of the health care setting. I did not consider the geographical location and the setting where the nurse worked as significant variables. This study survey criterion included currently licensed professional nurses in the state of Florida regardless of the clinical setting or geographical location where they provided nursing care.

Research Design and Approach

The research questions were:

RQ1: Do nurses have adequate knowledge to assess the health literacy needs of patients?

RQ2 Do nurses use communication techniques known to be effective with low health literacy patients when discussing health information?

The directional hypothesis was: H_{O1}: Nurses who have greater knowledge of health literacy are more likely to discuss health information using appropriate and varied communication techniques that are known to benefit patients with health literacy needs.

The philosophy of pragmatism was used to develop this mixed methods research because it best fits the research questions listed above; looking for the truth and sense making (Teddlie & Tashakkori, 2009). The hypothesis was tested and an analysis of the data is provided from differing perspectives. The questions formatted for the web-based survey were tailored to what the research questions ask, in both qualitative and quantitative design. The desired outcome was to identify what works best when addressing health literacy needs to ultimately improve health outcomes (Creswell & Plano Clark, 2011). The premise of this research was problem focused and is based on the issues associated with low health literacy and poorer health outcomes (U.S. Department of HHS & Office of Disease Prevention and Health Promotion, 2010). The provider-patient interaction, focusing on the nurse as the provider, is an area of research that is either extremely limited or nonexistent at this time that describes what, how, and where health information is shared by the nurse when patients seek health care (Paasche-Orlow & Wolf, 2007; Volandes & Paasche-Orlow, 2007).

Strengths of the qualitative data collection method stressed by Patton (2002) are applicable to this study. The strengths are to understand and illuminate quality, personalize and humanize the evaluation, and capture and communicate life experiences

about a nurse's interventions regarding health literacy. Qualitative data was collected using open-ended survey questions that required a written, free text entry, response by the study participant. The analysis of the written responses was compared to the competencies agreed upon by consensus through the work of Coleman et al. (2013). Open-ended survey questions produced data for the qualitative design of the survey (Teddlie & Tashakkori, 2009).

Creswell (2009) offered strengths of the quantitative data collection method that are applicable to this study: large sample size to enhance generalization and identify trends concerning what interventions nurses used when addressing low health literacy needs of patients. In addition, collecting qualitative data concurrently with quantitative data decreased the time for the study overall. The health literacy knowledge survey questions posed by Green et al. (2014) were used to test the health literacy knowledge of nurses and were measured quantitatively. Responses to these questions measured the knowledge nurses had regarding health literacy. The closed- ended survey questions depicted in appendix A, produced data that was analyzed using descriptive statistics to identify trends and frequency (Teddlie & Tashakkori, 2009).

The data was merged to identify if the results converge and whether the qualitative findings significantly related to the quantitative findings. The results were analyzed to determine if the qualitative themes and the quantitative findings converge or diverge, suggesting injustice. A side-by-side comparison was used for the merged data analysis to convey the results. A category and theme display was used to convey the

results of the merged data to explain nurse's knowledge of health literacy and intervention used for low health literate patients (Creswell & Plano Clark, 2011).

Consideration of Alternative Research Methods

The research tradition for studying an *individual's* level of health literacy is through instruments such as the NVS, REALM-R, TOFHLA, and SILS which were designed to measure specific personal characteristics associated with health literacy (Baker, Williams, Parker, Gazmararian, & Nurss, 1999; Dewalt et al., 2004; Morris et al., 2006; Weiss et al., 2005). The traditional quantitative methods used to assess the literacy level of patients are restricted by the selected variables the tool captures. The data represented from these assessment tools is an effort to describe any statistical summary of patterns discovered regarding the health literacy level of patients. The method of inquiry focusing on the individual, has demonstrated that more than 60% of the American population is affected by inadequate health literacy. Using a quantitative tool to assess health literacy of patients is inappropriate to address the research questions of this study because the tools currently available measure the health literacy of individuals; they do not measure the *nurse's* knowledge or communication skills delivering the health information. In order to determine any causal relationship between health outcomes and the provider-patient communication (Paasche-Orlow & Wolf, 2007), the knowledge of nurses and the skills of nurses communicating health information was explored.

Role of the Researcher

The data collection tool was a 23 question survey that was disseminated using SurveyMonkey. The data from the completion of the survey was collected using same.

The analysis of the data generated from the participant surveys was completed by the researcher. No personal contact occurred with the survey participants and the researcher did not observe nor participate in the online research study. If a personal relationship with any of the study participants existed, it was not known to the researcher because of the anonymity of respondents completing the survey. Participants invited to participate in this study and who elected to complete the survey did so voluntarily. No incentives were offered in exchange for completing the survey.

Methodology

The purpose of this study was to explore a nurse's knowledge of health literacy and discover selected interventions nurses used to address the health literacy needs of patients. Research concerning how nurses assess the health literacy of patients and how nurses address health literacy needs of patients is limited. The qualitative research design for a portion of this mixed-methods study used open-ended questions to capture details of a nurse's application of communication techniques known to be effective with low health literate patients. Creswell (2007) and Patton (2002) describe multiple approaches when conducting qualitative research. A phenomenological method was used for the qualitative portion of this research study to obtain an understanding of how a nurse's knowledge of health literacy influences their assessment of and choice of interventions used for the patients they care for. The qualitative method allowed the nurse to express their lived experiences as a nurse managing the care of patients with health literacy needs and their actions when addressing health literacy needs. The qualitative portion of the survey included open-ended questions which required the respondent to provide free text entries

that had no limitation on the number of characters. They could write as much as they wanted. This free text form of response allowed the nurse to share their personal choice of interventions for low health literate patients (Maxwell, 2013) and their understating of what health literacy means to them. The analysis of the qualitative data was then compared to the quantitative data collected.

The quantitative research design for this study replicated closed ended questions used from the work conducted with medical residents in training by Green et al. (2014), which was essentially a quiz about facts associated with health literacy. These questions were posed to the nurse respondents to learn how much they knew about facts associated with health literacy. A listing of communication techniques used to address health literacy was adapted from the study conducted with health care providers in community health centers by Schlichting et al. (2007). These communication techniques were formatted in a survey question so the respondent could select any and all techniques they used with their patients during patient care. This question specifically allowed for the analysis of what communication techniques were used by the nurses, which was then compared with the communication techniques that are known to be most effective with low health literate individuals. The quantitative design of this study was important because it revealed the factual knowledge base regarding health literacy and the most frequent communication techniques a nurse used to address a low health literate patient.

This mixed-methods study employed the concurrent triangulation approach using the convergent parallel design (Creswell, 2009; Creswell & Plano, 2011) in which both qualitative and quantitative data were collected concurrently and were weighted equally.

The online survey was distributed two times. The qualitative database and the quantitative database were compared to determine if there is convergence, difference, or related combination. The online survey discovered a nurse's knowledge and actions taken regarding health literacy (Teddlie & Tashakkori, 2009). A cross-sectional web-based survey administered online was chosen because this allowed data to be collected over a wide geographic area which is preferred for generalization of the survey results. The nurses targeted to participate in this study were not identified to be from a particular health care institution, a specific field of nursing specialty, nor a specific geographic location other than South Florida which encompassed seventeen counties.

Participant Selection

According to the *Nursing Workforce* Report (Health Resources and Services Administration & Bureau of Health Professions, 2013) there are 2.8 million nurses in the workforce and 63% of the nurses work primarily within a hospital setting. The age of nurses in the workforce ranges from 25 to 71, with the average age being 44. Demographic data was collected which included age, gender, and ethnicity.

A raw, unfiltered list containing 10,201 emails of nurses, provided by ExactData, was used to identify potential participants for this survey. This list was obtained in June, 2016 and the online survey was distributed to 142 filtered email addresses three months following. Emails change frequently due to change in employment, security concerns, or personal choice. Emails may also be entered incorrectly when captured in a database which would be returned as an undeliverable address. Security firewalls also may have an effect on the delivery rate. If the nurse provided an institution email that was captured in

the database, it is possible that the restrictions for delivery are set so high that an "unknown sender" may never get through even after sitting in the hubspot attempting to make delivery for 72 hours before it is bounced back. Email inboxes that are full or set to auto-reply will return the email as undeliverable (Simon & Wells, 2016). For these reasons, the bulk list was filtered to identify current and active email addresses because email addresses from a database, as provided by ExactData, can become stale even over a short period of time and may not be as current as they were when delivered (Simon & Wells, 2016) . An initial email with a subject heading "Your Input is Needed" was sent to the bulk, unfiltered list using ClickBack, a lead generating software program using emails. The ClickBack program identifies delivered, clicks, opens, and bounce statistics, but because "a specific number of opens, clicks, conversions, or inbox delivery is never guaranteed" (ExactData, 2016, p. 1, para. 3) the bulk list had to be filtered for current and active emails. Of the 10,201 raw and unfiltered email addresses, 142 emails were identified as current and active by showing 142 opened and 15 clicks. The sample size for this study was determined to be 142 current and active emails of possible nurse subjects. A sample size of at least 121 nurses was anticipated for a confidence interval of 95% with an 8% margin of error of error.

Registered nurse participants were self-identified by responding to an e-mail invitation represented in Appendix A. The email invitation sent to the 142 current and active email addresses included measures taken to ensure privacy and protection of responses; limits of confidentiality; how the data will be used; how and when the data

will be destroyed; and whom to contact with questions (Fink, 2013). The informed consent stressed this study was voluntary and that they could stop at any time.

Each participant was verified as currently licensed as a registered nurse or advanced practice nurse using the demographic data self-reported entries as the minimum criteria for inclusion. Survey completion indicated participant's informed consent to participate in the study (Fink, 2013).

Data Collection Instrument

A nurse's knowledge of health literacy was assessed using a web-based online interview protocol survey developed and designed specifically for this study. Real-time data collected in a timely fashion prompted the use of an online tool SurveyMonkey as the platform for data collection (Creswell, 2009). The survey responses were collected over secured, encrypted secure sockets layer (SSL) and transport layer security (TLS) connections (SurveyMonkey). This ensured that the data was safe when being transmitted and was available only to the intended recipient. The researcher user account had a unique username and password that must be entered each time the researcher logs on. User application passwords have minimal complexity requirements. The data collected was exported in Excel format and was backed up and securely retained. HIPAA security features were not required for this study because no personal health information was collected (SurveyMonkey).

Measurement validity of the survey was established through the duplication or modification of survey items from previous studies that explored health literacy and from expert peer review (Green et al., 2014; McCleary-Jones, 2012; Schlichting et al., 2007).

Measurement reliability was established through the process of evaluating how well the findings of this study correlated with the findings of previous studies examining the same constructs (Creswell & Plano, 2011; Teddlie & Tashakkori, 2009). Since some of the survey items were modified from their original form, validity and reliability was reestablished during the data analysis.

Threats to Validity

Threats to internal validity include mortality, not completing the survey and maturation because of the wide age range of nurses still practicing. An aging population may have changes in dexterity affecting their ability to accurately enter their responses using a web based survey on a computer or laptop. History may affect internal validity because a recent graduate of a nursing program may have more knowledge of health literacy because it was included in their curriculum when compared to registered nurses who has been out of formal instruction for many years. Self-reporting of data may limit the measurement validity. Selection of participants may be considered a threat to internal validity because not all emails were able to be delivered for many reasons including beyond the recipient's control, e.g. security firewalls as mentioned previously.

Threats to external validity may include the Hawthorne effect because the participants will know they are completing a survey for research which may influence how they answer the free text entry fields and select the frequency of communication techniques. Multiple program interference may bias the results if participants were actively involved in a health literacy program at the institution where they work. Some researchers may opine that a sample size of 142 with a response rate of 47 may be too

small to generalize to the nursing population; however, the findings of this sample do concur with the research conducted regarding a nurse's knowledge of health literacy and the potential influence on patient outcomes (Cafiero, 2013; Dickens et al., 2013; Lindau et al., 2002; Speros, 2005). It also comports with the *Healthy People* initiatives for 2020 (Koh et al., 2011) requiring the continued "education for those who are primarily responsible for health" (p.552) which would include the nursing profession. Causal inferences can be made based on the results of this study which are discussed in Chapter 5.

Pilot Test of Instrument

A pilot test of the data collection instrument was conducted to evaluate the clarity of survey questions and the ease of online survey completion (Teddlie & Tashakkori, 2009). Six nursing faculty who were not be included in the actual study were asked to complete survey for the purpose of providing constructive feedback on the data collection instrument and format of data collection. Attention was paid to those questions not answered and for providing several answers to the same question. The survey did not require revision as a result of this review.

Data Analysis Plan

The quantitative data collected through online survey process was analyzed using descriptive statistics to identify trends. The Pearson correlation coefficient was used to determine the strength of any relationships between variables (Green & Salkind, 2011).

Coding of the qualitative data developed themes for analysis. The data was organized according to themes that described the process of assessing the health literacy

of patients, the process of selecting interventions to address the health literacy needs of the patient, and the process of communicating the health information in a meaningful way to the patient. The data was organized according to themes surrounding the constructs time, patient-centered care, communication skills, and teaching ability which may be supportive or barriers to the process of assessing health literacy of patients or selecting appropriate interventions to meet the health literacy needs of the patients.

In the final process of analysis, the two databases were compared to determine if there is any convergence, differences, or combination. A side by side comparison was used to display some of the findings since the qualitative and quantitative data had equal weight. A final discussion interpreting the merged data will conclude results of this study.

Ethical Procedures

Informed consent, depicted in Appendix A, was implied with the completion of the survey. All data collected is maintained and secured on a personal computer with only the researcher's ability to access by password protected login. The data is being stored for five years on the secured computer and at which time all paper documents associated with the study will be cross shredded by a certified document destruction company and the certificate of destruction will be retained. Participants were assigned their own user name and password to log in to take the survey. Surveys that did not provide self-reported verification as a registered nurse were discarded and not included in whole or in part to the study. Confidentiality of all participants was maintained according to the "Protection of Human Subjects" guidelines of Code of Federal Regulations.

Summary

This study is unique because it addresses the gap in the literature regarding nurses' knowledge of health literacy (Berkman et al., 2011a; CDC, 2011; Persell et al., 2007; Phillips, 2010; U.S. Department of HHS). Nurses may not have adequate training regarding health literacy that affords them the knowledge to identify patients with low health literacy and intervene; therefore, they do not provide health information in a manner that is meaningful and useful to the patient (McCleary-Jones, 2012) . The results of this study were compared to what is currently known about identifying patients with low health literacy during a provider-patient interaction. The interventions used as reported by nurses to educate patients with low health literacy were compared to what is currently known about effective communication techniques recommended for patients with low health literacy. Chapter 4 describes in details how the data was collected and analyzed.

Chapter 4: Data Collection and Analysis

Introduction

The purpose of this study was to describe nurses' knowledge of health literacy and identify the interventions, or health actions, that nurses elect to address health literacy needs of patients in clinical practice. The research questions were as follows:

RQ1: Do nurses have adequate knowledge to assess the health literacy needs of patients?

RQ2: Do nurses use communication techniques known to be effective with low health literate patients when discussing health information?

The research hypothesis a directional hypothesis on which the research questions were based was as follows: H_{O1}: Nurses who have greater knowledge of health literacy are more likely to discuss health issues using appropriate and varied communication techniques that are known to benefit patients with health literacy needs.

I addressed the research questions first using quantitative data and descriptive statistics. I organized the qualitative data next through the identification of themes. Finally, I converged both data sets to address the directional hypothesis.

Pilot Test

A pilot test of the survey instrument was conducted to evaluate the clarity of the survey questions and the ease of online completion. Six nursing faculty who agreed to participate in the pilot test and were not included in the actual study were asked to complete the online survey for the purpose of providing feedback on the data collection

instrument. No changes were made to the data collection instrument or survey questions based on the verbal feedback of the faculty.

Setting

This study was conducted using an online survey interview protocol using SurveyMonkey platform. I purchased a raw and unfiltered list of 10,201 emails representing potential nurse subjects in South Florida from ExactData, a direct marketing and lead generation firm that obtains permission compliant, opt-in email address databases from more than 100 sources across the country for consumer database. The criteria provided to ExactData to build the database for this study included email addresses of currently licensed registered nurses and advanced practice nurses who lived in South Florida. The raw list of emails had to first be filtered to determine how many of the emails were actually current and active. I filtered the email addresses as described in the previous chapter through response tracking supported through ClickBack which is a program used for mass email marketing (Wright, 2005). Filtering the raw listing revealed active opens, active clicks, undeliverable bounces; and inactive. The results of the filtered raw listing revealed 142 active emails. The 142 active emails represented the sample of potential nurse subjects used as the sample size for this study. The 142 active emails were extracted from the raw database which then represented the sample for distribution of the email invitation to participate in this study survey.

Data Collection

I sent the initial invite to participate in this study as an email invitation to the 142 active emails identified through the filtering process described previously. A hyperlink in

the email invitation directed the participant to the informed consent that was the first page of the survey in the body of the invitation email. I extended the time frame to complete the survey from 1 week to 4 weeks due to a slow rate of survey completion with only one or two completions noted on a daily basis. This response rate is consistent with the findings of Kwak and Radler (2002). They compared the response rates between mail and web surveys and found that the web surveys were responded to overall in 2.2 days as opposed to mail surveys which were overall 9.0 days (p.263). I sent the invitation to participate in the survey a second time to inform the potential respondent the survey was remaining open to collect responses. Kwak and Radler also found that the response rate of web surveys actually decreased significantly with a second follow-up (p. 263); therefore, the time frame of 1 month was considered adequate for this survey.

Of the 142 email invitations sent 47 responded by completing the online survey interview protocol. The SurveyMonkey program generated a participant ID for each respondent to maintain anonymity. When no survey completions were noted for 2 days, after being open for 4 weeks, the survey was considered closed and the data analysis process began at that time. I received no additional survey completions after the data analysis process began so I did not lose additional data by not being included in the study because of a delayed response.

Data collected from the completed surveys was stored by and through the SurveyMonkey platform. This mixed-methods study collected both qualitative and quantitative data concurrently and both data sets were weighted equally. I downloaded the quantitative data using the tools within the platform as an Excel document and

imported the data into SPSS for analysis. I imported the free-text entries or qualitative data, from the survey interview protocol into NVIVO for coding and analysis. I printed all raw data represented in SPSS and NVIVO for analysis and where it is stored in a secure location for the required period of 5 years.

Quantitative Data Analysis

The total number of opened email (142) was used as the population size for this study. The completions of the online survey (47) yielded a response rate of 33%, at confidence interval of 95% and a 12% margin of error. One survey did not have the licensure question completed so the currently licensed criteria could not be established and two surveys were not completed past question eight, which was considered an incomplete survey. The three respondents missing data were coded as “missing” in SPSS. These three surveys were not included in the statistical analysis. Questions that were not answered were labeled as “I do not know” and were included in the statistical analysis. All the surveys that had an unanswered question(s) responded to the final question of the survey with a contact email indicating their request to receive the survey results.

Respondent Characteristics

The respondents were either registered nurses (91.3%) or advance practice nurses (8.7%). Ninety-six percent of the respondents were female, 78% were white, 28% ranged in age between 40 and 49, thirty-nine percent were between the age 50 and 59, and 25% were sixty years of age or older. The highest education level was associate degree (20.5%), bachelor degree (43.2%), graduate degree (25.0%), and post graduate degree (11.4%).

Knowledge Assessment of Health Literacy

The first ten questions of the survey interview were designed to capture the knowledge base of nurses regarding health literacy which address RQ 1, and were individually scored by the researcher as the number correct out of ten. The total respondents score was a mean of 6.6 correct out of ten with a S.D. of 1.19. The respondents with a bachelor's degree had the least amount of variance with a mean score of 6.7 ±S.D. 0.985. See Table 6 for the distribution for all education levels and the percentage of final scores.

Table 6

Correct scores for health literacy knowledge base by education level (%)

Scores / Education Level	*n*	4/10	5/10	6/10	7/10	8/10	9/10
Associate	8	12.5	25.0	12.5	12.5	25.0	12.5
Bachelor	17	-	11.8	29.4	35.3	23.5	-
Graduate	11	-	27.3	18.2	45.5	9.1	-
Post Grad	5	-	40.0	20.0	20.0	20.0	-
Unreported[a]	3	-	-	-	33.3	66.7	-

Note. [a] Respondent skipped questions.

The specific health literacy knowledge base questions and the percentage of respondents who answered correctly are displayed in Table 7. The survey questions to discover the knowledge base of nurses were adapted from (Green et al. 2014) and McCleary-Jones (2012). The findings from this study were similar to McCleary-Jones (2012) in that the basic knowledge of health literacy was found to be inadequate. A pre- and post-test design was conducted by McCleary-Jones (2012) which demonstrated marked improvement in the foundation knowledge of health literacy. It is clear from the

data collected that the consensus regarding the preferred method to confirm a patient's understanding is to have the patient repeat back the information in their own words (93.2%). Sixty-five percent recognize that missed appointments is an indication that

Table 7

Health literacy knowledge base questions correct (%)

Question	*n*	%
Which of the following is the preferred method to confirm a patient understands information or instructions? (*n* = 44) Have the patient repeat back the information in their own words	41	93.2
Most of the adults in the Unites States with low health literacy are white, native-born Americans. (*n* = 43*; I do not know *n* = 1) False	35	81.4
Which of the following is a "red flag" that a patient may have low health literacy? (*n* = 43*; I do not know *n* = 1) Frequently missed appointments	28	65.1
Written health information should be targeted to which of the following grade level? (*n* = 44) 4th – 6th grade	24	54.5
What percent of American adults have low health literacy? (*n* = 43*; I do not know *n* = 1) 30-39%	16	37.2
Which of the following is an example of plain language? (*n* = 44) Avoid milk, cheese, and yogurt	14	31.8
Which of the following is the BEST method to address low health literacy in clinical practice? (*n* = 44) Adopt health literacy universal precautions	9	20.5
What are some of the potential health outcomes for individuals with low health literacy? (*n* = 44)		
Higher use of emergency services	42	89.4
Adverse drug events and poor medication adherence	41	87.2
Difficulty understanding written or verbal medical advice	40	85.1
Lower rates of hospitalization.	2	4.3
Good health outcomes	1	2.1
What tool is commonly used to assess health literacy? (*n* = 31*; I do not know *n* = 13)	16	51.6

Note. N = 44/47 (3 surveys not included). * indicating skipped questions out of *n* = 44

the patient may have inadequate health literacy. A little more than one third (37.2%) of the respondents correctly estimated the prevalence of health literacy in our society. Selecting an example of the use of plain language was reported at 31.1% and the best

method to address low health literacy by using universal precautions approach was reported at 20.5%. The outcomes of low health literacy were reported in the eightieth percentile. This demonstrates a gap in knowledge by nurses where an opportunity exists to improve the scope of knowledge, enhance understanding, and improve appropriate use of interventions to address the issues of low health literacy with patients.

Communication Skills and Techniques Used by Nurses

RQ2 explores the communication techniques that nurses report using and are they consistent with techniques that are known to be effective with low health literate patients when discussing health information. Table 8 presents the rank order of communication techniques reported being used by the nurses responding to the survey. If the respondent reported often or always, it was considered to be part of their daily routine which is

Table 8

Techniques respondents reported using to assess health literacy (%)[a]

Technique	*n*	Never	Rarely	Sometimes	Often	Always
Ask a patient if they understand instruction or have any questions.	44	-	2.3	2.3	36.4	59.1
Use your "gut feeling" as a clinician to assess health literacy.	44	2.3	13.6	22.7	34.1	27.3
Have patient repeat instruction back to you.	44	-	-	20.5	36.4	43.2
Ask a patient for the last grade completed.	44	43.2	22.7	15.9	9.1	9.1
Use a health literacy screening tool to assess health literacy	44	70.5	13.6	2.3	2.3	11.4
Evaluate the culture appropriateness of health care materials	44	13.6	13.6	38.6	18.2	15.9
Use written patient education materials.	44	-	2.3	27.3	25.0	45.5
Use audiotapes for patient education.	44	61.4	15.9	9.1	9.1	4.5
Use videotapes for patient education.	44	45.5	13.6	20.5	11.4	9.1
Use computer software for patient education.	44	45.5	20.5	15.9	13.6	4.5

Note. [a] Percentages in table may not add up to 100% due to rounding.

consistent with how Schlichting et al. (2007) and Schwartzberg et al. (2007) classified and reported their findings. Among the most frequently cited were asking a patient if they understood instructions or have any questions (95.5%), having the patient repeat

instructions back to you (79.6%), use patient education material (70.5%), and use your gut as a clinician to assess health literacy (61.4%). The more frequently used techniques were the most basic techniques which did not require the nurses to assess a patient's level of understanding. The more advanced techniques were used significantly less by those surveyed. For example, using a health literacy screening tool (15.9%), audiotapes (22.7%), computer program (34%), ask the last grade completed (34.1%) and videotapes (40.9%).

The conceptual framework depicted by Paasche-Orlow and Wolf (2007) suggests the *provider-patient interaction* includes provider factors and patient factors. This study focused on provider factors, which are the nursing factors in this relationship. One factor, communication skills, was defined earlier as the ability of nurse to communicate in plain language using plain terms, yet 31.8% of the respondents who completed the survey were able to correctly identify an example of plain language. Green et al. (2014) also noted that internal medicine residents used plain language 33% of the time. With the use of health literacy curriculum instruction followed by a post-test, the use of plain language increased to 86%. This substantial increase may suggest that nurses who receive health literacy education and training may also increase the use of plain language during patient care.

A Pearson's correlation was run to determine if any relationship existed between the techniques reported by highest educational level respondents. There was a strong, positive correlation between associate degree respondents who reported asking a patient if they understood instruction or have any questions and evaluating the cultural

appropriateness of health care materials ($r = .861$, $n = 8$, $p < .01$). There was also a strong positive correlation between respondents who reported using a health literacy screening tool to assess health literacy and using audio and video tapes ($r = .873$, $n = 8$, $p < .01$) and computer software for patient education ($r = .878$, $n = 8$, $p < .01$).

The bachelor degree respondents showed a strong, positive correlation between evaluating the cultural appropriateness of health care materials and asking the patient if they understood instructions or have any questions ($r = .710$, $n = 18$, $p < .01$), asking a patient for the last grade completed ($r = .624$, $n = 18$, $p < .01$), and using a health literacy screening tool ($r = .680$, $n = 18$, $p < .01$). Another strong, positive correlation was evident between the use of a health literacy screening tool and using audio tapes ($r = .810$, $n = 18$, $p < .01$) and using computer software for patient education ($r = .600$, $n = 18$, $p < .01$).

The graduate degree respondents showed a strong, positive correlation between asking a patient if they understand instructions or have any questions and using written patient education material ($r = .836$, $n = 10$, $p < .01$) and using audio tapes and video tapes ($r = .779$, $n = 10$, $p < .01$). The post graduate degree respondents showed a positive correlation between using video tapes for patient education and evaluating cultural appropriateness of health care materials ($r = .932$, $n = 5$, $p < .05$).

Barriers to Health Literacy Program Implementation

The conceptual model by Paasche-Orlow and Wolf (2007) includes time as a provider factor that may represent a causal pathway between limited health literacy and

health outcomes. Table 9 represents the respondents who reported perceived barriers to implementing a formal health literacy program in health care institutions. The top two

Table 9

Perceived barriers to implementing formal health literacy programs[a]

Barrier	Percentage of respondents
Lack of time to screen patients	61.7
Lack of time	51.1
Lack of knowledge	38.3
Patients use many different languages	36.2
Health literacy is a low priority	34.0
Senior leadership is not supportive	34.0
Too difficult to implement	25.5
Lack of money	23.4
Good limited health literacy programs not available	21.3
Belief that health literacy is not a major problem	19.1
Belief that program would not improve outcomes	4.3

Note. [a] Response to survey item: "What barriers to implementing formal health literacy programs at your facility do you anticipate?"

barriers reported were lack of time to screen patients (61.7%) and lack of time (51.1%). Lack of knowledge (38.3%), patients use many different languages (36.2%), health literacy is a low priority (34.0%) and senior leadership is not supportive (34.0%) followed. Lack of time to screen patients, health literacy is a lower priority, and lack of knowledge were also among the top five barriers discovered by Schlichting et al. (2007) whereas patients use many different languages and senior leadership not supportive were ranked the lowest.

Qualitative Data Analysis

Definition of Health Literacy

Qualitative data was collected at the same time as quantitative data. Both data sets were weighted equally. Qualitative research was conducted to obtain an understanding of how a nurse's knowledge of health literacy influences their assessment of patient's health literacy and choice of interventions used during patient care. Open-ended questions were used to generate free text entries by the respondents. NVIVO was used to analyze the free text entries and to determine word frequencies. SPSS was used to organize the free text entries into groups according to the total number of survey responses correct out of ten. The respondent's text entries defining health literacy was compared to health literacy, as defined previously "the capacity to obtain, interpret, and understand basic health information and services and the competence to use such information and services to improve health" (U.S. Department of HHS, 2000b, p. 11:20). Tables 10 displays the respondent's text entries to the question *Define health literacy using your own words*, according to the number of knowledge based questions correctly answered, and highest nursing degree indicated. Three respondents skipped the question identifying the highest nursing degree which is indicated by "NP". The health literacy definitions were analyzed for any associations between responses, number of correct answers, and highest nursing degree.

Nearly all responses represented that a patient must have knowledge and understanding of health information. The respondents scoring 8/10 or higher consistently represented that health literacy is the patient's ability to understand health information.

Table 10

Define Health Literacy Using Your Own Words

#[a]	Response	Degree[b]
9/10	The ability for a pt to understand their health condition.	B
8/10	Ability to understand one's health issues diagnosed by an MD	A
	Being able to understand what the MD or RN are communicating and the reasons that support their statements.	A
	Comprehension of health language used to describe health related information.	NP
	I think it means one's understanding of their conditions, general health, and what health care providers might discuss with them.	B
	Individual's understanding on health care issues and being able to and make appropriate decisions for their health care.	PG
	The level at which patients and families assimilate information given to them by health care workers.	NP
7/10	A patient's ability to understand facts applying to their health, medical condition & medications.	NP
	Any person that does not have a medical education. These persons can be PhD or illiterate. Health literacy is how well the person understands their health care situation.	G
	Capability to understand health care information and instructions.	PG
	Having a competent understanding of information related to one's health.	B
	Having a context for how one's body works, ownership for its care and maintenance, ability to seek out effective assistance when needed, commitment to create and follow a path towards better health.	G
	Information that one has to assist them in understanding their health issues and how to get assistance with them.	B
	The ability to understand health related directives.	G
	The ability to understand health terminology and language.	B
	The reading level that a patient is able to understand what they need to do to maintain or improve their health.	B
	Understand health information both or either in written or verbal forms.	G
6/10	Able to understand and repeat back what is required to maintain health and being able to follow through.	G
	Basic knowledge of where to look for answers to their health question excluding WebMD or other online sources.	B
	Fluid understanding of health issues, including strategies for risk reduction, health promotion and ability to communicate effectively with regard to medical concerns, evaluation and treatment.	B
	Understanding health information to self.	G
	Knowledge about health care issues and caring for oneself in cooperation with the health care team.	B
	Ones' ability to have access to health care, insurance and health care related information/choices.	B
	Patient able to understand health concepts, process information and make informed decisions about their personal health care.	PG
	Patients knowing about their health issues and about how to stay healthy or about not worsening their current health conditions.	B
	Patients understanding of medical lingo used in conversation and written materials.	B
	The ability of a person to understand health issues and to be able to make appropriate decisions regarding their health.	G
	The ability of the patient (consumer, client, etc.) to understand his/her health needs/diagnosis/necessary care/ medications.	B
	To make the patient understand the teaching that you are teaching them at their education level.	A
	Having knowledge and being able to communicate this knowledge in regards to your's and other's health.	A
	Understanding health related terms, concepts, and treatments.	G
5/10	A patient's understanding of their health explained to them by a health care professional or understanding the status of ones health through education.	B
	Being aware of your health.	A
	Communicating vital health information to a patient where he or she can understand in order to positively impact health status.	PG
	Health literacy is the ability to decipher and understand medical interpretations of written words or numbers.	PG
	Individuals able to obtain and understand basic health information in order to make appropriate health decisions including access to care.	B
	Knowledge of medicine.	G
	The ability to comprehend and interpret health status.	G
	The ability of a person to obtain and understand basic health information to be able to make appropriate health decisions.	A
4/10	Health literacy is an individual's knowledge regarding their body, health issues and illness, and their ability to understand health teaching and concepts needed to take care of themselves.	B

Note. [a] Number correct out of ten. [b] Highest nursing degree: A=Associate, B=Bachelors, G=Graduate, PG=Post Graduate, NP=not provided

Only one indicated that health literacy included the action of the patient making appropriate decisions for themselves. The majority of the survey respondents scored 6/10 and 7/10 correct on the knowledge based questions. The responses for this grouping also were consistent with representing that the patient has the ability to understand health information, health information as related to one's health, and health terms or medical lingo. Four of the responses included the patient's ability to seek out assistance, resources, and make decisions about their health. The final grouping analyzed included those respondents who scored 4/10 and 5/10 on the knowledge based questions. Consistent with all definitions reported, a patient's ability to understand, comprehend, and knowledge of health information is represented. Two responses in this grouping, however; also included the ability of the patient to obtain access to care and additional information to make personal health decisions. There was no correlation between the highest nursing degree, the number of correct answers out of ten, and the free text responses.

Interventions Used to Address Health Literacy

The four interventions never or rarely used during patient care in the grouping of respondents who scored 8 or 9/10 are: use a health literacy screening tool to assess health literacy, use videotapes for patient education, use computer software for patient education, and ask a patient for the last grade completed. The four interventions never or rarely used during patient care in the grouping of respondents who scored 7 or 8/10 are: use a health literacy screening tool to assess health literacy, use videotapes for patient education, use computer software for patient education, and ask a patient for the last

grade completed. The four interventions never or rarely used during patient care in the grouping of respondents who scored 4 or 5/10 are: use a health literacy screening tool to assess health literacy, use videotapes for patient education, use computer software for patient education, and ask a patient for the last grade completed. Interventions known to identify and address health literacy needs of patients better were not used by the respondents to this survey regardless of their knowledge base of health literacy.

Evidence of Trustworthiness

Inference Quality

This survey instrument used for this research was designed to measure a nurse's knowledge of health literacy and to explore if the nurse utilized communication techniques known to be effective with low health literacy patients. The questions used in the survey instrument were replicated with permission to enhance the measurement validity and reliability of the data obtained through the survey instrument. The open-ended question used as part of the qualitative that required a narrative response was also replicated with permission to enhance the dependability of the interview protocol. The findings were consistent with previous research where the survey questions were first used (Green et al., 2014; McCleary-Jones, 2012; Schlichting et al., 2007).

Transferability of Inferences

The boundaries of transferability in this study are limited to registered nurses who provide patient care in health care institutions. The causal inferences made regarding the knowledge nurses have of health literacy and their use of communication techniques known to be effective with low health literacy patients may be transferred to university

and college education curriculum for nurses in training as well as continuing and ongoing education in health care institutions. The knowledge gained from this study is intended to have a high degree of temporal transferability because the known issues of low health literacy are present in all health care institutions and there is evidence that patients continue to return to institutions for health care because of the effects of low health literacy. The *Healthy People* initiatives for 2020 (Koh et al., 2011) are available to all health care institutions and providers in an effort to address the current health literacy issues. Every registered nurse has a duty to provide education that is meaningful and useful to patients when rendering care. An ongoing expectation of registered nurses in accordance with their license is to identify patients with low health literacy and initiate interventions known to be effective in meeting the patient's needs.

Summary

RQ1 examined whether a nurse had adequate knowledge to assess the health literacy needs of patients. The analysis of the data revealed that although nurses have consistent knowledge that patients need to understand and have knowledge of health terms, health information, health status; it was clear that a broader perspective of the complexities of health literacy was not reported indicating that nurses do not have adequate knowledge to assess the health literacy needs of patients. For example, a patient's ability to obtain services or additional information and the patient's competency to apply the information to improve their health status was poorly represented in the nurse's narrative definition of health literacy. Even those respondents who scored high on the knowledge based questions reflected only a basic understanding of health literacy.

RQ2 examined whether a nurse utilized communication techniques known to be effective with low health literacy patients when discussing health information. Regardless of the respondent's knowledge base of health literacy there were consistently four communication techniques that were never or rarely used when providing patient care. The four interventions were use a health literacy screening tool to assess health literacy, use videotapes for patient education, use computer software for patient education, and ask a patient for the last grade completed.

The directional hypothesis asserted that nurses who have greater knowledge of health literacy are more likely to discuss health issues using appropriate and varied communication techniques that are known to benefit patients with health literacy needs. The research does not support the directional hypothesis. There was no correlation between the nurse's knowledge of health literacy and the use of appropriate and varied communication techniques. Chapter 5 discusses the application of the research findings.

Chapter 5

Introduction

The purpose of this study was to describe nurses' knowledge of health literacy and to identify the interventions or health actions that nurses chose to address the health literacy needs of patients in clinical practice. I also want to determine if any causal relationships existed between the nurses' knowledge of health literacy and the use of the communication techniques found to be most effective with low health literate patients. The data revealed that the nurses' basic knowledge of health literacy was inadequate. Four interventions, communication techniques, which were reported as never or rarely used during patient care, were among the interventions found to be most effective with low health literate patients. There was no correlation between a nurse's basic knowledge of health literacy and the use of appropriate and varied communication techniques. The top three barriers to implementing health literacy were reported to be lack of time to screen patients, lack of time, and lack of knowledge.

Interpretation of the Findings

The provider factors referenced in the conceptual framework model by Paasche-Orlow and Wolf (2007) that may have an causal effect on health outcomes are communication skills, teaching ability, and time. This study emphasized the nurse as provider in the provider-patient relationship in the causal pathways conceptual framework. The provider is part of the complex process of identifying factors associated with health literacy and health outcomes and devising a plan of action to begin to address factors that can be modified, such as health literacy education, thus establishing the most

optimal setting by which a low health literate patient can attain the best outcomes possible simply by understanding how to provide self-care in a way that optimizes their personal health. The conceptual framework provided numerous interrelated phenomena identified as being critical and highly affected by health literacy in an effort to construct the most direct pathway to health outcomes. I focused on only one aspect of the interrelated phenomena: provider-patient relationship.

This study found that nurses knew that patients needed to understand and have knowledge of health terms, health information regarding their personal health status. It was also found that a broader perspective of the complexities of health literacy was not reported which indicated that nurses do not have adequate knowledge to accurately assess patients for low health literate needs.

I found that the communication techniques known to be the most effective with low health literate patients were never or rarely used during patient care. They were (a) the use of a health literacy screening tool to assess health literacy, (b) the use videotapes for patient education, (c) the use computer software for patient education, and (d) asking a patient for the last grade completed. Time was a factor that became apparent when the respondents were asked about barriers to implementing a health literacy program. Time and knowledge of health literacy were among the top three barriers to addressing low health literacy during patient care.

The findings presented in this research regarding communication techniques used by nurses were consistent with the findings of Schlichting et al. (2007) where physicians, physician assistants, and nurse practitioners were included (Coleman et al., 2013).

developed recommendations for health literacy competencies for health professionals based on similar findings of health professionals not adequately prepared to address low health literacy. Koh et al. (2013) has recommended that institutions adopt a health literate institution where a committed leadership would embrace the implementation of health literacy training of staff and the monitoring of patient outcomes. These actions would advocate universal precautions for health literacy. A study by McCleary-Jones (2012) among nursing students demonstrated how the lack of knowledge of health literacy can be improved with educational intervention. This highlights the need to include health literacy education in the formal training programs of nursing students as well as ongoing training in health care institutions.

Limitations of the Study

The sample size of this online survey was less than hoped for, yet of the opened emails a response rate of 33% was achieved. The sample size, even though smaller than expected, still revealed descriptive statistics that were consistent with other studies as previously mentioned with some research reported nearly 10 years ago which shows the issues surrounding low health literacy still exists. The consistencies between and among research of health literacy will support generalization of the findings to the nursing population from a quantitative position. Qualitatively, the insight obtained from the free text entries defining health literacy revealed valuable information about how nurses define health literacy and the need for expanding their knowledge regarding the breadth and depth of what health literacy encompasses. The questions addressing interventions were drafted so the respondent could select what they use as opposed to free text listing

what they do use. The prompting of interventions may not have accurately captured what a nurse really used in practice; the available interventions for selection may have prompted them to select what they should have been doing as opposed to what they were doing.

Recommendations

Based on the findings of this online survey mixed-method research study further research focused on nursing professionals would be beneficial. Conducting this survey within the boundaries of a health care institution as a one-group pre-test-post-test design study would allow the opportunity for specific health literacy instruction to take place with the professional nursing staff and evaluate their foundation knowledge and competency of intervening with low health literate patients. Another recommendation for further research would be in the formal academic training programs for nursing students utilizing the same one-group pre-test-post-test design approach at periodic intervals as a part of the nursing curriculum. This would promote focused education on specific criteria that is lacking in the training process. The qualitative data collection would have more value had the respondents provided their own interventions used as opposed to selecting from a list.

Implications for Positive Social Change

Health literacy has been identified as a contributing factor to optimal health status. It has been studied on a large scale to affirm that a significant number of patients who seek health care lack the skills and knowledge to participate in sustaining or improving their health status. This study focused on how registered nurses influence

health outcomes when addressing health literacy. There is limited substantial information in the literature that evaluates what nurses are trained, when nurses are trained, and how nurses are trained in health literacy. The results of this study warrants further exploration of these factors in an effort to improve the use of known communication techniques that benefit low health literacy patients by professional nurses. A few studies have demonstrated the benefits of intentional instruction to improve the breadth and depth of the issues associated with health literacy. Leaders of health care institutions and faculty of nursing training programs will have additional research to support placing an added emphasis on evaluating the competency of nursing staff and students. Competencies regarding knowledge and communication skills could be established. Health care institutions could embed health literacy cues into the patient assessment and screening forms. This research shows that a health literacy screening form is never or rarely used so a change to the screening tool may assist the nurse to more accurately and consistently identify low health literate patients on the initial provider-patient interaction. Barriers to implementation of health literacy programs were exposed which can be used as a guide for institutions to conduct a self-evaluation and proactively identify any issues. Health literacy interventions and communication skills can be intentionally incorporated in nursing training programs as part of the standard curricula to address the health literacy needs of patients.

The hopeful expectation is that over time, society would begin to experience a decline in the prevalence of low health literacy and overall improved health outcomes in part because of the improved knowledge and communication skills of nurses when

managing patients with low health literacy. A longitudinal study is warranted to evaluate the progress of improving health outcomes and the correlation with health care providers improved knowledge and skill managing the care of patients with low health literacy. It would at or around this time that a causal relationship between the provider-patient interaction and health outcomes may be established but further research is needed over a longer period of time.

Conclusion

Low health literacy has been acknowledged in the literature for over a decade; however, the research and discussions have been patient focused and the health care provider has essentially not been a part of the equation. It is proven in the literature that patients do need to understand better and do what they are instructed to do if they want to improve their health status. While a large portion of the responsibility does rely on the patient participating in their own health maintenance to achieve improved health outcomes, an alternative root of the low health literacy problem may stem from health care providers. In this study, the nurse was the health care provider studied because nurses are a primary source of health education for patients. Nurses must have the training, knowledge, and skills to first identify patients with low health literacy and then be able to address the health literacy needs of the patient. The responsibility must be shared between the provider and the patient to affect improving health outcomes. This study supports the need for additional research focusing on the adequacy of a nurse's knowledge of health literacy and the use of communication techniques known to effectively contribute to improving health outcomes with low health literate patients.

References

Agency for Healthcare Research and Quality. (2013). Experts propose new health literate care model: Announcements [Press release]. Retrieved from http://www.ahrq.gov/news/newsletters/research-activities/13mar/0313RA47.html

American Association of Colleges of Nursing, The Hartford Institute for Geriatric Nursing at NYU, & The National Organization of Nurse Practitioner Faculties. (2012). Adult-Gerontology Acute Care Nurse Practitioner Competencies. Washington, DC: American Association of Colleges of Nursing.

Arozullah, A. M., Lee, S.-Y. D., Khan, T., Kurup, S., Ryan, J., Bonner, M., . . . Yarnold, P. R. (2006). The roles of low literacy and social support in predicting the preventability of hospital admission. *Journal of General Internal Medicine, 21*(2), 140-145. doi:10.1111/j.1525-1497.2005.00300.x

Artinian, N. T., Lange, M. P., Templin, T., Stallwood, L. G., & Hermann, C. E. (2003). Functional health literacy in an urban primary care clinic. *Internet Journal of Advanced Nursing Practice, 5*(2), 11. doi:10.5580/deb

Baker, D., Gazmararian, J., Williams, M., Scott, T., Parker, R., Green, D., . . . Peel, J. (2002). Functional health literacy and the risk of hospital admission among medicare managed care enrollees. *American Journal of Public Health, 92*(8), 1278-1283. doi:10.2105/AJPH.92.8.1278

Baker, D., Parker, R., Williams, M., & Clark, W. (1998). Health literacy and the risk of hospital admission. *Journal of General Internal Medicine, 13*(12), 791-798. doi:10.1046/j.1525-1497.1998.00242.x

Baker, D., Williams, M., Parker, R., Gazmararian, J., & Nurss, J. (1999). Development of a brief test to measure functional health literacy. *Patient Education and Counseling, 38*(1), 33-42. doi:10.1016/S0738-3991(98)00116-5

Baker, D., Wolf, M., Feinglass, J., Thompson, J., Gazmararian, J., & Huang, J. (2007). Health literacy and mortality among elderly persons. *Archives Internal Medicine, 167*(14), 1503-1509. Retrieved from www.archinternmed.com

Baker, D. W., Gazmararian, J. A., Sudano, J., & Patterson, M. (2000). The association between age and health literacy among elderly persons. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 55*(6), S368-S374. doi:10.1093/geronb/55.6.S368

Bartlett, G. P., Blais, R. P., Tamblyn, R. P., Clermont, R. J. M. D., & MacGibbon, B. P. (2008). Impact of patient communication problems on the risk of preventable adverse events in acute care settings. *Canadian Medical Association. Journal, 178*(12), 1555-1562. doi:10.1503/cmaj.070690

Bass, P. F., Wilson, J., & Griffith, C. H. (2003). A shortened instrument for literacy screening. *Journal of General Internal Medicine, 18*(12), 1036-1038. doi:10.1111/j.1525-1497.2003.10651.x

Bass, P. F., Wilson, J. F., Griffith, C. H., & Barnett, D. R. (2002). Residents' ability to identify patients with poor literacy skills. *Academic Medicine, 77*(10), 1039-1041. Retrieved from http://journals.lww.com/academicmedicine

Benjamin, R. M. (2010). Improving health by improving health literacy. *Public Health Reports, 125*(6), 784-785. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2966655/

Berkman, N., Davis, T., & McCormack, L. (2010). Health literacy: What is it? *Journal of Health Communication: International Perspectives, 15*(S2), 9-19. doi:10.1080/10810730.2010.499985

Berkman, N., DeWalt, D., Pignone, M., Sheridan, S., Lohr, K., Lux, L., . . . Bonito, A. (2004). *Literacy and health outcomes. Evidence report/technology assessment. No. 87 (Prepared by RTI International-University of North Carolina Evidence-based Practice Center under Contract No. 290-02-0016). AHRQ Publication No. 04-E007-2. Rockville MD: Agency for Healthcare Research and Quality*.

Berkman, N., Sheridan, S., Donahue, K., Halpern, D., Viera, A., Crotty, K., . . . Viswanathan, M. (2011a). *Health literacy interventions and outcomes: An updated systematic review.* Retrieved from Research Triangle Park, NC: www.ahrq.gov

Berkman, N., Sheridan, S., Donahue, K., Halpern, D. J., & Crotty, K. (2011b). Low health literacy and health outcomes: An updated systematic review. *Annals of Internal Medicine, 155*(2), 97-107. doi:10.7326/0003-4819-155-2-201107190-00005

Blaschke, L. (2012). Heutagogy and lifelong learning: A review of heutagogical practice and self-determined learning. *The International Review of Research in Open and*

Distance Learning, 13(1), 56-71. Retrieved from http://www.irrodl.org/index.php/irrodl/article/viewFile/1076/2113

Braveman, P., & Gruskin, S. (2003). Poverty, equity, human rights and health. *Bulletin of the World Health Organization, 81*(7), 539-545. Retrieved from http://www.who.int/bulletin/volumes/81/7/Braveman0703.pdf

Brown, H., Prisuta, R., Jacobs, B., Campbell, A. (1996). *Literacy of older adults in america: Results from the national adult literary survey (NCES 97-576).* Washington, DC: U.S. Department of Education National Center for Education Statistics.

Bryan, R., Kreuter, M., & Brownson, R. (2009). Integrating adult learning principles into training for public health practice. *Health Promotion Practice, 10*(4), 557-563. doi:10.1177/1524839907308117

Cafiero, M. (2013). Nurse practitioners' knowledge, experience, and intention to use health literacy strategies in clinical practice. *Journal of Health Communication: International Perspectives, 18:sup1*, 70-81. doi:10.1080/10810730.2013.825665

Campbell, J., Edwards, M., Ward, K. S., & Weatherby, N. (2007). Developing a parsimonious model for predicting completion of advance directives. *Journal of Nursing Scholarship, 39*(2), 165-171. doi:10.1111/j.1547-5069.2007.00162.x

Carolan, M. (2007). Health literacy and the information needs and dilemmas of first-time mothers over 35 years. *Journal of Clinical Nursing, 16*(6), 1162-1172. doi:10.1111/j.1365-2702.2007.01600.x

Centers for Disease Control and Prevention. (2011). *Data 2010: The healthy people 2010 database: Objective 11-03*. Retrieved from http://www.wonder.cdc.gov/data2010/obj.htm

Chang, M., & Kelly, A. (2007). Patient education: addressing cultural diversity and health literacy issues. *Urology Nurse, 27*(5), 411-417. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/17990619

Chew, L., Bradley, K., & Boyko, E. (2004). Brief questions to identify patients with inadequate health literacy. *Family Medicine, 36*(8), 588-594. Retrieved from http://www.stfm.org/FamilyMedicine/Vol36Issue8/Chew588

Chew, L. D., Griffin, J. M., Partin, M. R., Noorbaloochi, S., Grill, J. P., Snyder, A., . . . VanRyn, M. (2008). Validation of screening questions for limited health literacy in a large VA outpatient population. *Journal of General Internal Medicine, 23*(5), 561-566. doi:10.1007/s11606-008-0520-5

Chiovetti, A. (2006). Bridging the gap between health literacy and patient education for people with multiple sclerosis. *Journal of Neuroscience Nursing, 38*(5), 374-378. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/17069267

Cho, H. (2012). *Health communication message design: Theory and practice*. Thousand Oaks, Calif.: SAGE Publications.

Ciampa, P. J., White, R. O., Perrin, E. M., Yin, H. S., Sanders, L. M., Gayle, E. A., & Rothman, R. L. (2013). The association of acculturation and health literacy, numeracy and health-related skills in Spanish-speaking caregivers of young

children. *Journal of Immigrant and Minority Health, 15*(3), 492-498. doi:10.1007/s10903-012-9613-7

Clark, B. (2011). Using law to fight a silent epidemic: The role of health literacy in health care access, quality, & cost. *Annuals of Health Law, 20*(253), 55. Retrieved from https://litigation-essentials.lexisnexis.com

Coleman, C., Hudson, S., & Maine, L. (2013). Health literacy practices and educational competencies for health professional: A consensus study. *Journal of Health Communication, 18*(sup1), 82-102. doi:10.1080/10810730.2013.829538

National Literacy Act of 1991, Pub. L. No. 102-73 (1991).

Cornett, S. (2009). Assessing and addressing health literacy. *Online Journal of Issues in Nursing, 14*(3), 1-1. Retrieved from http://www.medscape.com/viewarticle/717466

Cortes, D. E., Drainoni, M., Henault, L. E., & Paasche-Orlow, M. K. (2010). How to achieve informed consent for research from Spanish-Speaking individuals with low literacy: A qualitative report. *Journal of Health Communication, 15*, 172-182. doi:10.1080/10810730.2010.499990

Creswell, J. (2007). *Qualitative inquiry and research design: Choosing among five approaches*. Thousand Oaks, CA: SAGE.

Creswell, J. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (Third ed.). Los Angeles, CA: SAGE.

Creswell, J., & Plano Clark, V. (2011). Analyzing and interpreting data in mixed methods research. In *Designing and conducting mixed methods research* (2nd ed., pp. 203-250). Los Angeles, CA: SAGE.

Creswell, J., & Plano, V. (2011). *Designing and Conducting Mixed Methods Research* (2nd ed.). Thousand Oaks, CA: SAGE.

Cristancho, S., Garces, D., Peters, K., & Mueller, B. (2008). Listening to rural Hispanic immigrants in the Midwest: A community-based participatory assessment of major barriers to health care access and use. *Qualitative Health Research, 18*(5), 633-646. doi:10.1177/1049732308316669

Cutilli, C. (2005). Do your patients understand? Determining your patients' health literacy skills. *Orthopaedic Nursing, 24*(5), 372-377. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/16272918

Daily, J., & Landis, B. (2014). The journey to becoming an adult learner. *Journal of the American College of Cardiology, 64*(19), 2066-2068. doi:10.101 6/j.jacc.2014.09.023

Derose, K. P., Escarce, J. J., & Lurie, N. (2007). Immigrants and health care: Sources of vulnerability. *Health Affairs (Project Hope), 26*(5), 1258-1268. doi:10.1377/hlthaf.26.5.1258

Devereux, J., & Porche, D. J. (2004). Low health literacy: A unique challenge for HIV/AIDS nursing. *The Journal of the Association of Nurses in AIDS Care, 15*(6), 15-16. doi:10.1177/1055329004271811

Devraj, R., Butler, L. M., Gupchup, G. V., & Poirier, T. I. (2010). Active-learning strategies to develop health literacy knowledge and skills. *American Journal of Pharmaceutical Education, 74*(8), 1-9. Retrieved from http://www.academia.edu/download/46161662/Active-Learning_Strategies_to_Develop_He20160602-25617-ylojpe.pdf

Dewalt, D., Berkman, N., Sheridan, S., Lohr, K., & Pignone, M. (2004). Literacy and health outcomes: A systematic review of the literature. *Journal of General Internal Medicine, 19*(12), 1228-1239. doi:10.1111/j.1525-1497.2004.40153.x

DeWalt, D. A., Malone, R. M., Bryant, M. E., Kosnar, M. C., Corr, K. E., Rothman, R. L., . . . Pignone, M. P. (2006). A heart failure self-management program for patients of all literacy levels: a randomized, controlled trial [ISRCTN11535170]. *BMC Health Services Research, 6*(1), 30. doi:10.1186/1472-6963-6-30

Dickens, C., Lambert, B., Cromwell, T., & Piano, M. (2013). Nurse overestimation of patients' health literacy. *Journal of Health Communication: International Perspectives, 18:sup1,* 62-69. doi:10.1080/10810730.2013.825670

Easton, P., Entwistle, V. A., & Williams, B. (2013). How the stigma of low literacy can impair patient-professional spoken interactions and affect health: Insights from a qualitative investigation. *BMC Health Services Research, 13*(1), 1-12. doi:10.1186/1472-6963-13-319

Eckman, M. H., Wise, R., Leonard, A. C., Dixon, E., Burrows, C., Khan, F., & Warm, E. (2012). Impact of health literacy on outcomes and effectiveness of an educational

intervention in patients with chronic diseases. *Patient Education and Counseling, 87*(2), 143-151. doi:10.1016/j.pec.2011.07.020

Eggertson, L. (2011). Health literacy: more than just the three Rs. *Can Nurse, 107*(1), 18-23. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/21290949

Englander, R., Cameron, T., Ballard, A. J., Dodge, J., Bull, J., & Aschenbrener, C. A. (2013). Toward a common taxonomy of competency domains for the health professions and competencies for physicians. *Academic Medicine, 88*(8), 1088-1094 doi:10.1097/ACM.0b013e31829a3b2b

ExactData. (2016). *Terms and conditions*. Onterio, Canada.

Falvo, D. R. (2011). *Effective patient education: A guide to increased adherence* (4th ed.). Sudbury, Mass.: Jones and Bartlett.

Federman, A. D., Sano, M., Wolf, M. S., Siu, A. L., & Halm, E. A. (2009). Health literacy and cognitive performance in older adults. *Journal of the American Geriatrics Society, 57*(8), 1475-1480. doi:10.1111/j.1532-5415.2009.02347.x

Ferreira, R., Dolan, N., Fitzgibbon, M., Davis, T., Gorby, N., Ladewski, L., . . . Schmitt, B. (2005). Health care provider-directed intervention to increase colorectal cancer screening among veterans: results of a randomized controlled trial. *Journal of Clinical Oncology, 23*(7), 1548-1554. doi:10.1200/jco.2005.07.049

Fink, A. (2013). *How to conduct surveys: A step-by-step guide* (5th ed.). Los Angeles, CA: SAGE.

Frederickson, H. G. (1990). Public administration and social equity. *Public Administration Review, 50*(2), 228. Retrieved from https://www.researchgate.net/publication/271814521

Gazmararian, J., Williams, M., Peel, J., & Baker, D. (2003). Health literacy and knowledge of chronic disease. *Patient Education and Counseling, 51*(3), 267-275. doi:10.1016/S0738-3991(02)00239-2

Golbeck, A. L., Ahlers-Schmidt, C. R., Paschal, A. M., & Dismuke, S. E. (2005). A definition and operational framework for health numeracy. *American Journal of Preventive Medicine, 29*(4), 375-376. doi:10.1016/j.amepre.2005.06.012

Green, J., Gonzaga, A., Cohen, E., & Spagnoletti, C. (2014). Addressing health literacy through clear health communication: A training program for internal medicine residents. *Patient Education and Counseling, 95*(1), 76-82. doi:10.1016/j.pec.2014.01.004

Green, S., & Salkind, N. (2011). *Using SPSS for windows and macintosh: Analyzing and understanding data*. Boston: Prentice Hall.

Greene, J. (2007). *Mixed methods in social inquiry* (1st ed.). San Francisco CA: Jossey-Bass.

Halbur, K. V., Halbur, D., & American Pharmacists Association. (2008). *Essentials of cultural competence in pharmacy practice*. Washington, D.C.: American Pharmacists Association.

Hasnain-Wynia, R., & Wolf, M. S. (2010). Promoting health care equity: Is health literacy a missing link? *Health Services Research, 45*, 897-903. doi:10.1111/j.1475-6773.2010.01134.x

Haun, J. N., Patel, N. R., French, D. D., Campbell, R. R., Bradham, D. D., & Lapcevic, W. A. (2015). Association between health literacy and medical care costs in an integrated healthcare system: a regional population based study. *BMC Health Services Research, 15*(1), 249. doi:10.1186/s12913-015-0887-z

Hausmann, L., Jeong, K., Bost, J., & Ibrahim, S. (2008). *Perceived discrimination in health care and health status in a racially diverse sample*. Medical Care, (46, 9).

Health Resources and Services Administration, & Bureau of Health Professions. (2013). *The U.S. nursing workforce: Trends in supply and education*. Retrieved from http://bhpr.hrsa.gov/healthworkforce/reports/nursingworkforce/nursingworkforcebrief.pdf

Heinrich, C. (2012). Health literacy: The sixth vital sign. *Journal of the American Academy of Nurse Practitioners*, *24*(4), 218-223. doi:10.1111/j.1745-7599.2012.00698.x

Hernandez, L. M., & Institute of Medicine. (2012). *How can health care organizations become more health literate?: Workshop summary.* Paper presented at the Roundtable on Health Literacy, Washington, D.C.

Hidding v. Williams. (1991). *578 So. 28 1192 (La. Ct. App. 1991),* Retrieved from https://www.courtlistener.com/opinion/1139349/hidding-v-williams/

Holzemer, W. L., Bakken, S., Portillo, C. J., Grimes, R., Welch, J., Wantland, D., & Mullan, J. T. (2006). Testing a nurse-tailored HIV medication adherence intervention. *Nursing Research, 55*(3), 189-197. Retrieved from http://www.nursing-research-editor.com.

Imel, S. (1998). *Using adult learning principles in adult basic and literacy education*. Retrieved from http://ericacve.org/docs/pab00008.htm

Institute of Medicine. (2000). *To err is human: Building a safer health system.* (0309068371). Retrieved from Washington, D.C.: National Academies Press: http://www.nap.edu/catalog/9728.html

Institute of Medicine. (2002). *Unequal Treatment: What health care system administrators need to know about racial and ethnic disparities in healthcare.* Washington, DC: National Academy of Sciences Retrieved from http://www.nap.edu/catalog/10260.html.

Institute of Medicine. (2003). *Unequal treatment: Confronting racial and ethnic disparities in health care.* Washington, DC: National Academies Press.

Institute of Medicine. (2009). *Toward health equity and patient-centeredness: Integrating health literacy, disparities reduction, and quality improvement: Workshop summary*. Washington, D.C.: The National Academies Press.

Institute of Medicine. (2013). *Health literacy: Improving health, health systems, and health policy around the world: Workshop summary.* Washington, DC: The National Academies Press.

Ishikawa, H., & Kiuchi, T. (2010). Health literacy and health communication. *BioPsychoSocial Medicine, 4*, 18-22. doi:10.1186/1751-0759-4- 18

Joint Commission. (2009). *What did the doctor say? Improving health literacy to protect patient safety* Oakbrook Terrace, Il: Author.

Jukkala, A., Deupree, J. P., & Graham, S. (2009). Knowledge of limited health literacy at an academic health center. *J Contin Educ Nurs, 40*(7), 298-302; quiz 303-294, 336. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/19639850

Kaestle, C., Damon-Moore, H., Stedman, L., Tinsley, K., & Trollinger, W. (1991). *Literacy in the United States*. New Haven: Yale University Press.

Kanj, M., & Mitic, W. (2009). *Executive summary*. Paper presented at the Promoting Health and Development: Closing the implementation Gap, Nairobi, Kenya. http://www.who.int/mediacentre/events/meetings/7gchp/en/

Keller, D. L., Wright, J., & Pace, H. A. (2008). Impact of health literacy on health outcomes in ambulatory care patients: a systematic review. *The Annals of Pharmacotherapy*, *42*(9), 1272-1281. doi:10.1345/aph.1L093

Kelly, P. A., & Haidet, P. (2007). Physician overestimation of patient literacy: A potential source of health care disparities. *Patient Education and Counseling, 66*(1), 119-122. doi:10.1016/j.pec.2006.10.007

King, T. E., & Wheeler, M. B. (2007). *Medical management of vulnerable and underserved patients: Principles, practice, and populations*. New York: McGraw-Hill Medical Pub. Division.

Kirsch, I., & Jungeblut, A. (1986). *Literacy: Profiles of America's young adults* Princeton: NJ: NAEP.

Kirsch, I., Jungeblut, A., Jenkins, L., & Kolstad, A. (1993). *Adult literacy in America: A first look at the results of the national adult literacy survey* (O. o. E. R. a. Improvement Ed.). Washington, D.C.

Knowles, M. (1973). *The adult learner: A neglected species*. Houston, TX: Gulf Publishing Company.

Knowles, M. (1980). *The modern practice of adult education: From andragogy to pedagogy*. Englewood Cliffs, NJ: Cambridge Adult Education.

Knowles, M., Holton, E., & Swanson, R. (1998). *The adult learner* (6th ed.). Houston, TX: Gulf Publishing.

Koh, H., Berwick, D., Clancy, C., Baur, C., Brach, C., Harris, L., & Zerhusen, E. (2012). New federal policy initiatives to boost health literacy can help the nation move beyond the cycle of costly ‘crisis care’. *Health Affairs, 31*(2), 434-441. doi:10.1377/hlthaff.2011.1169

Koh, H., Brach, C., Harris, L., & Parchman, M. (2013). A proposed 'health literate care model' would constitute a systems approach to improving patients' engagement in care. *Health Affairs, 32*(2), 357-367. doi:10.1377/hlthaff.2012.1205

Koh, H., Piotrowski, J., Kumanyika, S., & Fielding, J. (2011). Healthy people: A 2020 vision for the social determinants approach. *Health Education & Behavior, 38*(6), 551-557. doi:10.1177/1090198111428646

Kutner, M., Greenberg, E., Jin, Y., & Paulsen, C. (2006). *The health literacy of America's adults: Results from the 2003 national assessment of adult literacy* (Vol. NCES 2006-483). Washington, DC: National Center for Education Statistics.

Kwak, N., & Radler, B. (2002). A comparison between mail and web surveys: Response pattern, respondent profile, and data quality. *Journal of Official Statistics, 18*(2), 257-273. Retrieved from http://www.barold.com/www/JOS%20article.pdf

Laine, C., & Davidoff, F. (1996). Patient-centered medicine: A professional evolution. *JAMA, 275*(2), 152-156. doi:10.1001/jama.1996.03530260066035

Leasure, A. R., Delise, D., Clifton, S. C., & Pascucci, M. A. (2009). Health information literacy: Hardwiring behavior through multilevels of instruction and application. *Dimensions of Critical Care Nursing, 28*(6), 276-282. doi:10.1097/DCC.0b013e3181b4003c

Leeman, J., & Sandelowski, M. (2012). Practice-based evidence and qualitative inquiry. *Journal of Nursing Scholarship, 44*(2), 171-179. doi:10.1111/j.1547-5069.2012.01449.x

Lie, D., Carter-Pokras, O., Braun, B., & Coleman, C. (2012). What do health literacy and cultural competence have in common? Calling for a collaborative health professional pedagogy. *Journal of Health Communication, 17*(sup3), 13-22. doi:10.1080/10810730.2012.712625

Lindau, S. T., Tomori, C., Lyons, T., Langseth, L., Bennett, C. L., & Garcia, P. (2002). The association of health literacy with cervical cancer prevention knowledge and

health behaviors in a multiethnic cohort of women. *American Journal of Obstetrics and Gynecology, 186*(5), 938-943. doi:10.1067/mob.2002.122091

Logan, R. A. (2007). Clinical, classroom, or personal education: Attitudes about health literacy. *Journal of the Medical Library Association, 95*(2), 127-137. doi:10.3163/1536-5050.95.2.127

Lorenzen, B., Melby, C. E., & Earles, B. (2008). Using principles of health literacy to enhance the informed consent process. *AORN J, 88*(1), 23-29. doi:10.1016/j.aorn.2008.03.001

Macabasco-O'Connell, A., & Fry-Bowers, E. K. (2011). Knowledge and perceptions of health literacy among nursing professionals. *Journal of Health Communication, 16*(sup3), 295-307. doi:10.1080/10810730.2011.604389

Mancuso, J. (2009). Assessment and measurement of health literacy: An integrative review of the literature. *Nursing & Health Sciences, 11*(1), 77-89. doi:10.1111/j.1442-2018.2008.00408.x

Mancuso, L. (2011). Overcoming health literacy barriers: A model for action. *Journal of Cultural Diversity, 18*(2), 60-67. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/21744676

Maniaci, M. J., Heckman, M. G., & Dawson, N. L. (2008). Functional health literacy and understanding of medications at discharge. *Mayo Clinic Proceedings, 83*(5), 554-558. doi:10.4065/83.5.554

Mantwill, S., & Schulz, P. (2015). Low health literacy associated with higher medication costs in patients with type 2 diabetes mellitus: Evidence from matched survey and

health insurance data. *Patient Education and Counseling*, doi:10.1016/j.pec.2015.07.006

Marcus, E. (2006). The silent epidemic: The health efficts of illiteracy. *The New England Journal of Medicine, 355*(4), 339-341. doi:10.1056/NEJMp058328

Mårtensson, L., & Hensing, G. (2012). Health literacy - a heterogeneous phenomenon: A literature review. *Scandinavian Journal of Caring Sciences, 26*(1), 151-160. doi:10.1111/j.1471-6712.2011.00900.x

Mason, D. J. (2001). Promoting health literacy: Patient teaching is a vital nursing function. *American Journal of Nursing, 101*(2), 7. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/11227234

Maxwell, J. A. (2013). *Qualitative research design: An interactive approach* (Vol. 41): Sage publications.

McCleary-Jones, V. (2012). Assessing nursing students' knowledge of health literacy. *Nurse Educator, 37*(5), 214-217. doi:10.1097/NNE.0b013e318262ead3

Mistry, K., Jaggers, J., Lodge, A., Alton, M., Mericle, J., Frush, K., & Meliones, J. (2008). Using six sigma methodology to improve handoff communication in high risk patients. *Advances in Patient Safety: New Directions and Alternative Approaches, 3*, Retrieved from https://www.ncbi.nlm.nih.gov/books/NBK43658/

Mitty, E., & Flores, S. (2008). Assisted living nursing practice: Health literacy and chronic illness management. *Geriatric Nursing, 29*(4), 230-235. doi:10.1016/j.gerinurse.2008.06.007

Mohadjer, L., Kalton, G., Krenzke, T., KLiu, B., Van de Kerckhove, W., Li, L., . . . White, S. (2009). *National assessment of adult literacy: Indirect county and state estimates of the percentage of adults at the lowest level of literacy for 1992 and 2003* (NCES Ed. Vol. 2009-482). Wasghington, DC: NCES.

Morabia, A. (2005). Epidemiological causality. *History and Philosophy of the Life Sciences, 27*(3/4), 365-379. doi:10.2307/23333898

Morris, N. S., MacLean, C. D., Chew, L. D., & Littenberg, B. (2006). The single item literacy screener: Evaluation of a brief instrument to identify limited reading ability. *BMC Family Practice, 7*, 21-21. doi:10.1186/1471-2296-7-21

National Academy of Education, C. o. R., Carroll, J., Chall, J. (1975). *Toward a literate society: The report of the committee on reading of the national academy of education.* (J. B. Carroll & J. Chall Eds.). New York: McGraw-Hill.

National Institute of Health. (2006, September 7). *The national assesment of adult literacy: Health literacy results.* Paper presented at the Surgeon General's Workshop on Improving Health Literacy, Bethesda, MD.

National Patient Safety Foundation. Retrieved from http://www.npsf.org/for-healthcare-professionals/programs/ask-me-3/ask-me-3-resources/

Nielsen-Bohlman, L., Panzer, A., & Kindig, D. (2004a). *Health literacy: A prescription to end confusion* (Committee on Health Literacy Ed.). Washington, DC.: National Academies Press.

Nielsen-Bohlman, L., Panzer, A. M., & Kindig, D. A. (2004b). *Health literacy: a prescription to end confusion*: National Academies Press.

Nurse Practice Act, The Florida legislature, 464.001 Stat. (2016).

Nutbeam, D. (2008). The evolving concept of health literacy. *Social Science & Medicine, 67*(12), 2072-2078. doi:10.1016/j.socscimed.2008.09.050

Oldfield, S. R., & Dreher, H. M. (2010). The concept of health literacy within the older adult population. *Holistic Nursing Practice, 24*(4), 204-212. doi:10.1097/HNP.0b013e3181e90253

Olsen, J. (2003). What characterises a useful concept of causation in epidemiology? *Journal of Epidemiology and Community Health, 57*(2), 86-88.

Oluwatoyosi, A., Kimbrough, J., Obafemi, B., & Strack, R. (2014). Health literacy from the perspective of african immigrant youth and elderly: A photovoice project. *Journal of Health Care for the Poor and Underserved, 25*(4), 1730-1747. doi:10.1353/hpu.2014.0183

Ortega, A., Rodriguez, H., & Bustamante, A. (2014). Policy dilemmas in Latino health care and implementaion of the Affordable Care Act. *Annual Review of Public Health, 36*(10), 1-10. doi:10.1146/annurev-publhealth-031914-122421

Owens, L., & Walden, D. (2007). Health literacy: The new essential in nursing education. *Nurse Educator, 32*(6), 238-239. doi:10.1097/01.NNE.0000299472.26691.f6

Paasche-Orlow, M., Parker, R., Gazmararian, J., Nielsen-Bohlman, L., & Rudd, R. (2005). The prevalence of limited health literacy. *Journal of General Internal Medicine, 20*(2), 175-184. doi:10.1111/j.1525-1497.2005.40245.x

Paasche-Orlow, M., & Wolf, M. (2007). The causal pathways linking health literacy to health outcomes. *American Journal of Health Behavior, 31,* S19-S26. Retrieved

from http://www.academia.edu/5446490/The_Causal_Pathways_Linking_Health_Literacy_to_Health_Outcomes

Parikh, N., Parker, R., Nurss, J., Baker, D., & Williams, M. (1996). Shame and health literacy: The unspoken connection. *Patient Education and Counseling, 27*(1), 33-39. doi:10.1016/0738-3991(95)00787-3

Parker, R., & Ratzan, S. C. (2010). Health literacy: A second decade of distinction for Americans. *Journal of Health Communication, 15,* 20-33. doi:10.1080/10810730.2010.501094

Parnell, T. A. (2015). *Health literacy in nursing: Providing person-centered care*. New York: Springer.

Patient Protection and Affordable Care Act, Pub. L. No. 111-148 (2010).

Patton, M. (2002). *Qualitative research & evaluation methods.* Thousand Oaks, CA: SAGE.

Pawlak, R. (2005). Economic considerations of health literacy. *Nursing Economic$, 23*(4), 173-180, 147. Retrieved from http://www.medscape.com/viewarticle/511636

Persell, S. D., Osborn, C. Y., Richard, R., Skripkauskas, S., & Wolf, M. S. (2007). Limited health literacy is a barrier to medication reconciliation in ambulatory care. *Journal of General Internal Medicine, 22*(11), 1523-1526. doi:10.1007/s11606-007-0334-x

Phillips, J. (2010). Improving health literacy reduces risk and improves patient safety. *Clinical Risk, 16*(6), 213-216. doi:10.1258/cr.2010.010068

Pignone, M., DeWalt, D. A., Sheridan, S., Berkman, N., & Lohr, K. N. (2005). Interventions to improve health outcomes for patients with low literacy: A systematic review. *Journal of General Internal Medicine, 20*(2), 185-192. doi:10.1111/j.1525-1497.2005.40208.x

Pirisi, A. (2000). Low health literacy prevents equal access to care. *The Lancet, 356*(9244), 1828. doi:10.1016/S0140-6736(05)73297-9

Plain Writing Act of 2010, Pub. L. No. 111-274, 124 Stat. 2861 (2010 Oct. 13, 2010).

Protheroe, J., & Rowlands, G. (2013). Matching clinical information with levels of patient health literacy. *Nursing Management - UK, 20*(3), 20-21. doi:10.7748/nm2013.06.20.3.20.e1095

Quintanilla v Dunkelman. (2005). *133 Cal. App. 4th 95, 113,* Retrieved from https://www.courtlistener.com/opinion/2285470/quintanilla-v-dunkelman/authorities/?q=&court_cal=on&order_by=score+desc

Rao, J. K., Weinberger, M., & Kroenke, K. . (2000). Visit-specific expectations and patient-centered outcomes: A literature review. *Archives of Family Medicine, 9*(10), 1148. doi:10.1001/archfami.9.10.1148

Ratzan, S. (2013). Policies and programs promoting health literacy globally *Health literacy: Improving health, health systems, and health policy around the world: Workshop summary* (pp. 14-20). Washington, DC: National Academies Press.

Roett, M. A., & Wessel, L. (2012). Help your patient "get" what you just said: A health literacy guide. *Journal of Family Practice, 61*(4), 190-196. Retrieved from http://www.mdedge.com/jfponline/article/64672/practice-management/help-your-patient-get-what-you-just-said-health-literacy

Rogers, E., Wallace, L., & Weiss, B. (2006). Misperceptions of medical understanding in low-literacy patients: Implications for cancer prevention. *Cancer Control, 13*(3), 225-229. Retrieved from https://www.moffitt.org/File%20Library/Main%20Nav/Research%20and%20Clinical%20Trials/Cancer%20Control%20Journal/v13n3/225.pdf

Rogers, M. (2013). U.S. adults rank below average in global survey of basic education skills, Retrieved from https://ww.insidehighered.com

Rose, P. R. (2012). *Cultural competency for the health professional*. Burlington, MA: Jones & Bartlett Learning.

Rosof, B., Monson, D., Sexton, C., Reed, B., Shrank, W., Chan, I., . . . Wolf, M. (2016a). *Communicating clearly about medicine: A workshop.* Paper presented at the Roundtable on Health Literacy, Washington, DC.

Rosof, B., Villarruel, A., Yee, S., Stahl, E., Palacios, R., Simon, M., . . . Bishop, K. (2016b). *People living with disabilities: Health equity, health disparities, and health literacy.* Paper presented at the Roundtable on the Promotion of Health Equity and the Elimination of Health Disparities, Washington: DC.

Roter, D. (2000). The medical visit context of treatment decision-making and the therapeutic relationship. *Health Expectations, 3*(1), 17-25. doi:10.1046/j.1369-6513.2000.00073.x

Rothman, K., & Greenland, S. (2005). Causation and causal inference in epidemiology. *American Journal of Public Health, 95 Suppl 1*, S144-S150. doi:10.2105/AJPH.2004.059204

Rust, C., & Davis, C. (2011). Health literacy and medication adherence in underserved African-American breast cancer survivors: A qualitative study. *Social Work in Health Care, 50*(9), 739. doi:10.1080/00981389.2011.585703

Ryan, C. (2013). *Language Use in the Unites States: 2011* (ACS-22). Retrieved from www.census.gov

Sadowski, C. A. (2011). Providing health information to older adults. *Reviews in Clinical Gerontology, 21*(1), 55-66. doi:10.1017/S0959259810000316

Sand-Jecklin, K., Murray, B., Summers, B., & Watson, J. (2010). Educating nursing students about health literacy: From the classroom to the patient bedside. *Online Journal of Issues in Nursing, 15*(3), 1-1. doi:10.3912/OJIN.Vol15No03PPT02

Sanders, L., Thompson, V., & Wilkinson, J. (2007). Caregiver health literacy and the use of child health services. *Pediatrics, 119*(1), e86-e92. doi:10.1542/peds.2005-1738

Scheckel, M., Emery, N., & Nosek, C. (2010). Addressing health literacy: The experiences of undergraduate nursing students. *Journal of Clinical Nursing, 19*(5-6), 794-802. doi:10.1111/j.1365-2702.2009.02991.x

Schillinger, D., Grumbach, K., Piette, J., Wang, F., Osmond, D., Daher, C., . . . Bindman, A. B. (2002). Association of health literacy with diabetes outcomes. *Journal of the American Medical Association, 288*(4), 475-482. doi:10.1001/jama.288.4.475

Schlichting, J., Quinn, M., Heuer, L., Schaefer, C., Drum, M., & Chin, M. (2007). Provider perceptions of limited health literacy in community health centers. *Patient Education and Counseling, 69*(1-3), 114-120. doi:10.1016/j.pec.2007.08.003

Schwartzberg, J. G., Cowett, A., VanGeest, J., & Wolf, M. S. (2007). Communication techniques for patients with low health literacy: A survey of physicians, nurses, and pharmacists. *American Journal of Health Behavior, 31*, S96-104. Retrieved from https://pdfs.semanticscholar.org/83b2/e3c0cf691be60c815c8cf9c5aef60cc91f24.pdf

Shin, H. B., & Bruno, R. R. (2003). *Language use and English-speaking ability: 2000*: US Department of Commerce, Economics and Statistics Administration, US Census Bureau.

Siegel, B., Bretsch, J., Sears, V., Regenstein, M., & Wilson, M. (2007). Assume equity: Early observations from the first hospital disparities collaborative. *Journal for Healthcare Quality, 29*(5), 11-15. doi:10.1111/j.1945-1474.2007.tb00208.x

Simon, J. Y., & Wells, C. (2016).

Singleton, K. (2009). Understanding cultural and linguistic barriers to health literacy. *The Online Journal of Issues in Nursing, 14*(3), 11. doi:10.3812/OJIN.Vol14No03Man04

Solar, O., & Irwin, A. (2010). *A conceptual framework for action on the social determinants of health: Social determinants of health discussion paper 2* Paper presented at the Commission on Social Determinants of Health, Cairo.

Sorensen, K., Van den Broucke, S., Fullam, J., Doyle, G., Pelikan, J., Slonska, Z., & Brand, H. (2012). Health literacy and public health: A systematic review and integration of definitions and models. *BMC Public Health, 12*(80), 13. Retrieved from http://www.biomedcentral.com/1471-2458/12/80

Speros, C. (2005). Health literacy: Concept analysis. *Journal of Advanced Nursing, 50*(6), 633-640. doi:10.1111/j.1365-2648.2005.03448.x

Squellati, R. (2010). Health literacy: Understanding basic health information. *Creative Nursing, 16*(3), 110-114. doi:10.1891/1078-4535.16.3.110

Stableford, S., & Mettger, W. (2007). Plain language: A strategic response to the health literacy challenge. *Journal of Public Health Policy, 28*(1), 71-93. doi:10.1057/palgrave.jphp.3200102

Stimpson, J. P., Wilson, F. A., & Su, D. (2013). Unauthorized immigrants spend less than other immigrants and US Natives on health care. *Health Affairs, 32*(7), 1313-1318. doi:10.1377/hlthaff.2013.0113

SurveyMonkey. Retrieved from https://www.surveymonkey,com/mp/policy/security

Teddlie, C., & Tashakkori, A. (2009). *Foundations of mixed methods research: Integrating quantitative and qualitative approaches in the social and behavioral sciences*. Thousand Oaks, CA: SAGE.

The Joint Commission. (2014). *A crosswalk of the national standards for culturally and linguistically appropriate services (CLAS) in health and health care to The Joint Commission hospital accreditation standards*. Retrieved from https://www.thinkculturalhealth.hhs.gov/.

Tilley, D. (2008). Competency in nursing: A concept analysis. *Journal of Continuing Education in Nursing, 39*(2), 58-66. doi:10.3928/00220124-20080201-12

Truman v. Thomas. (1980). *27 Cal 3d, 611 P2d 902*, Retrieved from https://www.courtlistener.com/opinion/1120026/truman-v-thomas/

U.S. Department of Health and Human Services. *Heatlhy people 2020: Health communication and health information technology objectives*. Retrieved from http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=18

U.S. Department of Health and Human Services. (2000a). *Health people 2010*. McLean, VA: International Medical Publishing, Inc.

U.S. Department of Health and Human Services. (2000b). *Healthy people 2010: Understanding and improving health*. Retrieved from Washington, D.C.: http://www.healthypeople.gov/2010/document/pdf/uih/2010uih.pdf

U.S. Department of Health and Human Services. (2008a). *America's health literacy: Why we need accessible health information*. Retrieved from http://www.health.gov/communication/literacy/issuebrief/.

U.S. Department of Health and Human Services. (2008b). *The Secretary's Advisory Committee on National Health Promotion and Disease Prevention Objectives 2020. Phase I report: Recommendations for the framework and format of Health People 2020. Section IV. Advisory Committee findings and recommendations.* Retrieved from http://www.healthypeople.gov/sites/default/files/PhaseI_0.pdf

U.S. Department of Health and Human Services, & Office of Disease Prevention and Health Promotion. (2010). *National action plan to improve health literacy*. Washington, DC: Author Retrieved from https://health.gov/communication/initiatives/health-literacy-action-plan.asp.

U.S. Department of Health and Human Services, OPHS, & Office of Minority Health. (2001). *National standards for culturally and linguistically appropriate services in health care: Final report*. Retrieved from Washington, D.C.: https://minorityhealth.hhs.gov/assets/pdf/checked/finalreport.pdf

U.S. Department of Health Human Services Office of Disease Prevention Health Promotion. (2010). *National action plan to improve health literacy*. Retrieved from Washington, DC:

US Department of Health, Human Services, Office of Disease Prevention, & Health Promotion. (2012). *Healthy people 2020*. Washington, DC: Author.

Van Ryn, M. (2002). Research on the provider contribution to race/ethnicity disparities in medical care. *Medical Care, 40*(1), 1-140. Retrieved from http://www.jstor.org/stable/3767871?seq=1#page_scan_tab_contents

Van Ryn, M., & Pu, S. S. (2003). Paved with good intentions: Do public health and human service providers contribute to racial/ethnic disparities in health? *American Journal of Public Health, 93*(2), 248-255. doi:10.2105/AJPH.93.2.248

Vernon, J. A., Trujillo, A., Rosenbaum, S., & DeBuono, B. (2007). *Low health literacy: Implications for national health policy*. Retrieved from http://hsrc.himmelfarb.gwu.edu/sphhs_policy_facpubs

Volandes, A. E., & Paasche-Orlow, M. K. (2007). Health literacy, health inequality and a just healthcare system. *American Journal of Bioethics, 7*(11), 5-10. doi:10.1080/15265160701638520

Waters, L., & Harris, S. (2009). Exploration of lived experiences of illiterate African American adults. *Western Journal of Black Studies, 33*(4), 250-258. Retrieved from http://search.proquest.com/openview/2905a8606dfd1126ba61d9035c24f541/1?pq-origsite=gscholar&cbl=18750&diss=y

Weekes, C. V. (2012). African Americans and health literacy: A systematic review. *ABNF Journal, 23*(4), 76-80. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/23311265

Weiss, B. D., Mays, M. Z., Martz, W., Castro, K., DeWalt, D. A., Pignone, M., . . . Hale, J. (2005). Quick assessment of literacy in promary care: The newest vital sign. *Annals of Family Medicine, 3*(6), 514-522. doi:10.1370/afm.405.

Weld, K. K., Padden, D., Ramsey, G., & Garmon Bibb, S. C. (2008). A framework for guiding health literacy research in populations with universal access to healthcare. *Advances in Nursing Science, 31*(4), 308-318. doi:10.1097/01.ANS.0000341411.25048.91

White, S. (2008). *Assessing the nation's health literacy: Key concepts and findings of the National Assessment of Adult Literacy (NAAL)*. Retrieved from www.amafoundation.org/go/healthliteracy

Williams, M. V., Davis, T., Parker, R. M., & Weiss, B. D. (2002). The role of health literacy in patient-physician communication. *Family Medicine, 34*(5), 383-389. Retrieved from http://www.stfm.org/FamilyMedicine/Vol34Issue5/Williams383

Willis, C., Saul, J., Bitz, J., Pompu, K., Best, A., & Jackson, B. (2014). Improving organizational capacity to address health literacy in public health: A rapid realist review. *Public Health, 128*(6), 515-524. doi:10.1016/j.puhe.2014.01.014

Wolf, M. S., Williams, M. V., Parker, R. M., Parikh, N. S., Nowlan, A. W., & Baker, D. W. (2007). Patient's shame and attitudes toward discussing the results of literacy screening. *Journal of Health Communication, 12*(8), 721-732. doi:10.1080/10810730701672173

Wood, M. R., Price, J. H., Dake, J. A., Telljohann, S. K., & Khuder, S. A. (2010). African American parents'/guardians' health literacy and self-efficacy and their

child's level of asthma control. *Journal of Pediatric Nursing, 25*(5), 418-427. doi:10.1016/j.pedn.2009.05.003

Wright, K. B. (2005). Researching internet-based populations: Advantages and disadvantages of online survey research, online questionnaire authoring software packages, and web survey services. *Journal of Computer-Mediated Communication, 10*(3), 00-00. doi:10.1111/j.1083-6101.2005.tb00259.x

Yahn v. Folse. (1993). *639 So2d 261, 265 (La. App. 1993),* Retrieved from http://www.leagle.com/decision/1993900639So2d261_1889/YAHN%20v.%20FOLSE

Yin, S., Dreyer, B., Van Schaick, L., Foltin, G., Dinglas, C., & Mendelsohn, A. (2008). Randomized controlled trial of a pictogram-based intervention to reduce liquid medication dosing errors and improve adherence among caregivers of young children. *Archives of Pediatrics & Adolescent Medicine, 162*(9), 814-822. doi:10.1001/archpedi.162.9.814

Yip, M.-P. (2012). A health literacy model for limited English speaking populations: Sources, context, process, and outcomes. *Contemporary Nurse: A Journal for the Australian Nursing Profession, 40*(2), 160-168. Retrieved from http://www.contemporarynurse.com/archives/vol/40/issue/2/article/4448/1-a-health-literacy-model-for-limited-english/

Appendix A: Survey Instrument

Nursing, Patient Care, and Health Literacy

Welcome to My Survey

Thank you for participating in my survey. Your feedback is important to the nursing profession. Please read the following information to continue:

Your individual responses to survey questions will be kept confidential by Rachel Cartwright-Vanzant, the survey author and distributor.

Confidential data, such as your tax ID, name, address and phone numbers are not asked of you nor required to participate in this survey. Should you provide your email address at the completion of the survey, it will not be released outside the survey project, except with your permission.

Rachel Cartwright-Vanzant will generate aggregate reports that contain information to help professional nurses and formal educational institutions address health literacy needs to further improve patient health outcomes. Data from open-ended questions will be coded, analyzed, and reported. Only deidentified record level data will be retained by the survey author and only deidentifed aggregate data analysis will be shared in publication and research presentations.

The survey author will store data on a secure server and will destroy all identified data within 5 years of survey administration. By participating you will be contributing valuable information to the profession of nursing and how to best address current health literacy issues.

Rachel Cartwright-Vanzant has taken numerous steps to protect participants in the survey project. Ethics Board requirements require that you are informed that if the information collected were to become public with individual identification it could prove personally uncomfortable. You will not be asked to provide any personal identification in order to participate in the survey as previously stated.

This survey has been reviewed by and approved by Walden University's IRB. By continuing you acknowledge that you have read and understand the above information and agree to participate in this survey.

If you have any questions about the survey or about your rights as a research participant, contact

Rachel Cartwright-Vanzant at 1-800-259-8058 or rachel.cartwright-vanzant@waldenu.edu.

Demographic Data

Thank you for participating in my survey. Your feedback is important.

1. In what country do you currently reside?
United States
Other (please specify)

2. Are you currently licensed to practice nursing?
Yes
No

3. What is your license?
Licensed Practical Nurse
Registered Professional Nurse
Advance Practice Nurse

4. What is the highest nursing degree you have received?
Associate degree
Bachelor degree
Graduate degree
Post Graduate degree

5. Are you White, Black or African-American, American Indian or Alaskan Native, Asian, Native Hawaiian or other Pacific islander, or some other race?
White
Black or African-American
American Indian or Alaskan Native
Asian
Native Hawaiian or other Pacific Islander
From multiple races please specifiy:_____

6. What is your age?
18-20
21-29
30-39
40-49
50-59
60 or older

7. Are you male or female?
Male
Female

8. In what state or U.S. territory do you live?
Alabama
Alaska
American Samoa
Arizona
Arkansas
California

Colorado
Connecticut
Delaware
District of Columbia (DC)
Florida
Georgia
Guam
Hawaii
Idaho
Illinois
Indiana
Iowa
Kansas
Kentucky
Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
Montana
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Northern Marianas Islands
Ohio
Oklahoma
Oregon
Pennsylvania
Puerto Rico
Rhode Island
South Carolina
South Dakota
Tennessee
Texas
Utah
Vermont
Virginia
Virgin Islands
Washington
West Virginia
Wisconsin
Wyoming

Health Literacy

9. Define health literacy using your own words.

10. What percent of American adults have low health literacy?
10-19%
20-29%
30-39%
40-50%

11. Most of the adults in the United States with low health literacy are white, native-born Americans:
True
False

12. Which of the following is a "red flag" that a patient may have low health literacy?
Arriving late for office visits
Asking a lot of questions
Distrust in the medical system
Frequently missed appointments

13. Which of the following is the BEST method to address low health literacy in clinical practice?
Routinely screen for low health literacy
Adopt health literacy universal precautions
Refer patients to literacy education programs
Utilize low-literacy patient educational materials

14. Written health information should be targeted to which of the following grade level?
Below or equal to 3rd grade
4th - 6th grade
7th - 9th grade
10th - 12th grade

15. Which of the following is an example of plain language?
Take on an empty stomach.
Your test result is negative.
Take one pill by mouth twice a day.
Avoid milk, cheese, and yogurt.

16. Which of the following is the preferred method to confirm a patient understands information or instructions?
Have the patient repeat back the information in their own words.
Pay attention to non-verbal cues such as a patient nodding in agreement.
Ask if the patient has any questions.
Confirm follow-through with recommendations at the next visit.

17. What are some of the potential health outcomes for individuals with low health literacy? (Select all that apply)
Lower rates of hospitalization
Higher use of emergency services

Difficulty understanding written or verbal medical advice
Adverse drug events and poor medication adherence
Good health outcomes

18. Which tool is commonly used to assess health literacy?
BGRT
DDST
DRETT
REALM-R

19. Which strategies are effective for teaching patients with low health literacy? (Select all that apply)
Use simple working, short sentences (4th - 6th grade level)
Avoid use of pictures
Focus only on key points
Emphasize patient concerns (what the patient may experience; what the patient should do)
Include information about disease statistics, anatomy, and physiology
Be sensitive to cultural preferences

Assessing Health Literacy

20. Please indicate how often you do each of the following to assess health literacy when you are personally caring for patients.

Questions	Never	Rarely	Sometimes	Often	Always
Ask a patient if they understand instructions or have any questions.					
Use your "gut feeling" as a clinician to assess health literacy.					
Have patient repeat instructions back to you.					
Ask a patient for the last grade completed.					
Use a health literacy screening tool to assess health literacy.					
Evaluate the cultural appropriateness of health care materials.					
Use written patient education materials.					
Use audiotapes for patient education.					
Use videotapes for patient education.					
Use computer software for patient education.					

Barriers to Health Literacy

21. What barriers to implementing formal health literacy programs at your facility do you<u>anticipate</u>? (Select all that apply)

Lack of time to screen patients.
Health literacy is lower priority
Lack of money
Lack time to implement a health literacy program
Lack of knowledge about limited health literacy
Good limited health literacy programs are not readily available
Belief that program would not improve outcomes or quality of patient care
Belief that health literacy is not a major problem at health facility
Too difficult to implement a culturally competent health literacy program
Patients use many different languages
Senior leadership not supportive
I do not anticipate any barriers at my facility

22. Do you experience any barriers to implementing health literacy strategies at your facility?
No
Yes
If yes, (please specify)

Thank you for completing this survey!

23. Would you like to receive the results of this survey?
Yes
No
If yes, please provide your email to receive the results of this survey.

Appendix B:Permissions to Use Questions

rachel@medicalegalconcepts.com

To: Green, Jamie
Subject: RE: Request for permission to use survey questions for PhD dissertation

StiPmID: 596d2559-3c3b-11e5-80ea-cf84016b9e88

Thank you very much!
I will let you know the results of my study.
Rachel

From: Green, Jamie [mailto:jgreen1@geisinger.edu]
Sent: Thursday, August 06, 2015 8:44 AM
To: rachel@medicalegalconcepts.com
Subject: Re: Request for permission to use survey questions for PhD dissertation
Importance: High

Yes please feel free!

From: "rachel@medicalegalconcepts.com" <rachel@medicalegalconcepts.com>
Date: Wednesday, August 5, 2015 at 11:50 AM
To: ghs <jgreen1@geisinger.edu>
Subject: RE: Request for permission to use survey questions for PhD dissertation

Dr. Green:

I read the article you co-authored in 2013 "Addressing health literacy through clear health communication: A training program for internal medicine residents." In Patient Education and Counseling.
I am completing my dissertation on the topic of health literacy focusing on the practice of nursing much like your article focused on the practice and training of physicians.

I would like to use many of the questions you used for your survey for my dissertation data collection instrument.
Do I have your permission to do so?

I will grant appropriate citation to your paper of coarse if I am permitted to use some of the questions.

Thank you for your time and consideration.

Rachel

Rachel Cartwright-Vanzant, PhD(c), MS, RN, LHRM
Medical Legal Concepts, LLC
O: 561 627 0111
C: 561 267 8476

Professional Speaker
Legal Seminars
NursingIMPACT

From: rachel@medicalegalconcepts.com
To: mchin@medicine.bsd.uchicago.edu
Sent: 08/22/2014 02:35 PM
Subject: RE: Request permission to use Health Literacy Survey
Attachments: image001.gif
image002.png
image003.png
image004.png
image005.jpg
image006.jpg
image007.jpg

Dr. Chin:

Thank you very much. I will let you know what I find.

Rachel

From: Chin, Marshall [BSD] - MED [mailto:mchin@medicine.bsd.uchicago.edu]
Sent: Friday, August 22, 2014 2:27 PM
To: rachel@medicalegalconcepts.com
Subject: RE: Request permission to use Health Literacy Survey

Dear Rachel,

Thanks for your interest in our survey. Yes, please feel free to utilize our survey. Please acknowledge by citing our paper in your eventual paper and dissemination efforts. Good luck with your project!

Sincerely,

Marshall Chin

Marshall Chin, MD, MPH

Richard Parrillo Family Professor of Healthcare Ethics in the Department of Medicine

From: rachel@medicalegalconcepts.com
To: Michael.Paasche-Orlow@bmc.org
Sent: 08/19/2014 03:36 PM
Subject: RE: Request permission to use model for dissertation

Thank you for such a rapid response. I will certainly let you know what I find.
I heard you speak at the IOM roundtable in July. I attended via teleconference. I am glad I was able to remotely participate.
Rachel

-----Original Message-----
From: Paasche-Orlow, Michael [mailto:Michael.Paasche-Orlow@bmc.org]
Sent: Tuesday, August 19, 2014 3:31 PM
To: rachel@medicalegalconcepts.com
Subject: Re: Request permission to use model for dissertation

Yes!
Let me know what you find -
Best,
M

Sent from my iPhone

On Aug 19, 2014, at 3:27 PM,
"rachel@medicalegalconcepts.com<mailto:rachel@medicalegalconcepts.com>"
<rachel@medicalegalconcepts.com<mailto:rachel@medicalegalconcepts.com>> wrote:

Dr. Paasche-Orlow,
I am writing my dissertation on health literacy. I would like to use the model you presented in this article to visualize the theoretical framework I am working with.

Paasche-Orlow, M. K., & Wolf, M. S. (2007). The Causal Pathways Linking Health Literacy to Health Outcomes. American Journal of Health Behavior, 31, S19-S26.

May I reproduce the visual model as part of my dissertation?

Thank you for time and attention in advance,

Rachel Cartwright-Vanzant, PhD(c)
Walden University

Office: 561-627-0111
email: rachel@contactmlc.com<mailto:rachel@contactmlc.com>