Relationship of Embodied Nursing Knowledge and Client Outcomes in Home Health

by

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ABSTRACT

The purpose of this descriptive correlational research was to identify the relationship between nursing expertise, defined as embodied nursing knowledge, nurse's educational background and experience, and client outcomes. Hierarchical multiple regression and Pearson product moment correlation were used to determine the strength of the relationships between embodied nursing knowledge and home health outcome improvement measures in a convenience sample of 107 home health registered nurses. Embodied nursing knowledge was measured by Minick's *Manifestations of Early Recognition* instrument. Scores on the Outcome and Assessment Information Set, version C (OASIS-C), measured client outcome improvement. There were no significant differences between participants' knowledge of their clients, knowledge of the system and institution, knowledge of their own and colleagues' skills, level of nursing education and experience, or total years of home health nursing experience and mean total client-centered improvement. Age had a significant, negative relationship to the mean percent score on the OASIS for improved client-centered outcomes. The outcome improvement measures from the nine home health agencies were at or above the state and national averages, which created a restricted data range for the findings. The restricted data range of the outcome improvement measures may have lessened the validity of the findings in this study and advocates that future studies may need to employ the use of purposeful selection of the sample population in home health. The concepts of knowledge of clients and their families, knowledge of the home health system, and knowledge of registered nurses own skills may not be the same construct in home health as in acute care nursing practice. Further research should explore those concepts that may be used specifically in

home health. Understanding the characteristics of home health has the potential to assist home health agencies understand how to support their registered nurses to provide quality care thereby achieving improved clinical outcomes by developing rich structured information base practice.

DEDICATION

My passion for nursing has been a joy and a challenge during the past 33 years. Through this journey, I have met many great nurses, including my Aunt Mary Tindall. She, among many nurses, has seen the profession of nursing evolve into the most caring and compassionate profession. Yet, we still do not understand what drives us to be nurses. The drive that guides us is one of courage, empathy, ethics, and most of all understanding and love toward people. These concepts are not measureable, but exist in our profession.

I dedicate this dissertation to my Aunt Mary Tindall, who has guided me in my nursing life through her inspiration of compassion, listening, and love of those around her.

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All of you have helped me accomplish this goal and I thank you for your help.

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Chapter 1

Nursing expertise is essential to quality client-centered care in home health. To explain the value of nursing practice, an understanding of the complexities of nursing knowledge, art, theory, and science must be acquired and tested. Understanding expert home health nursing practice may help nurses and directors of home health agencies implement strategies for attaining the vision of the Institute of Medicine's ([IOM], 2011) report, *The future of nursing: Leading change advancing health* . The Institute of Medicine's (2011) vision is for nurses to achieve higher levels of education, become full partners in the health system, increase the proportion of nurses with bachelor's degrees, and engage nurses in lifelong learning. Home health registered nurses (HHRNs) must serve as leaders in improving client care, and they must be knowledgeable expert nurses. However, understanding of the effects of nursing expertise on client outcomes in home health is limited in the literature. Research related to home health has focused primarily on regulations and payments, with little attention to the roles and knowledge of home health nurses and the specific knowledge required for quality practice (National Research Council of the National Academies, 2011). Further, the gap between nursing practice knowledge and empirical evidence of the effects of nursing practice is growing, resulting in a need to research nursing knowledge and its relationship to client-centered outcomes, and to target resources to clients at risk for poor outcomes (Young, Saunders, & Olsen, 2010).

The purpose of this research was to identify the relationship between the embodied knowledge used by HHRNs, their educational background, their experience, and the home health client-centered outcome improvement measures of bathing, bed

transfer, ambulation, management of oral medications, dyspnea, pain interfering with activity, status of surgical wound, and urinary incontinence (Centers for Medicare and Medicaid Services [CMS], 2012b). The concepts of knowing the client and family, knowing the system of home health, and knowing one's own skills defines embodied knowledge (Minick, 1992). Using a convenience sample in Ohio, the client-centered outcome improvement measures were assessed using the discharge Outcome and Assessment Information Set, version C ([OASIS-C] CMS, 2012b), which home health agencies use and which is required by the CMS (2012b).

The first aim of this study was to identify the relationship between the concepts of knowing ("knowing the patient and family, knowing the system and institution, and knowing the skills of oneself and one's colleagues") and the percentage score of client-centered outcome improvement measures as assessed by the discharge OASIS-C (Foley, Kee, Minick, Harvey, & Jennings, 2002, p. 276). The second aim was to measure the correlation between home health nurses' years of experience and the client-centered outcome improvement measures total percentage scores as assessed by the discharge OASIS-C as part of the concepts of embodied knowledge. Following Benner, Tanner, and Chelsa (2009) and McHugh and Lake (2010), home health nursing years of experience were measured using the following scale: *novice* (no experience), *advanced beginner* (new graduate to one year), *competent* (one to three years), *proficient* (five years or more), and *expert* (seven years or more). The third aim was to measure the correlation between home health nurses' educational attainment (associate's degree/diploma, bachelor's degree, master's degree, or doctoral degree) and the client-

centered outcome improvement measures total percentage score as another concept of embodied nursing knowledge.

This chapter introduces the research. The background, statement of the problem, and the purpose of the study are presented. The chapter also introduces the research questions and hypotheses, which are founded upon the theoretical framework. The working definitions, followed by a discussion of the assumptions, limitations, and delimitations of the research are presented.

Background of the Problem

Home health is a fast-growing segment of the United States' health system (National Association of Home Care and Hospice [NAHC], 2010). In 2009, approximately $72 billion were spent on home health services for approximately 12 million individuals (NAHC, 2010). These individuals currently receive home health care services for acute illness, disabilities, or terminal illness. Designed to reduce costs, home health services provide quality care to individuals in their own homes (Hanner, 2010).

Assessing the value of home health has become a critical priority in the United States because of the increasing demand for home health care services (Riggs, Madigan, & Fortinsky, 2011), leading to the importance of the outcome-based Medicare and Medicaid reimbursement measures (Van Herck, Annemans, De Smedt, & Remmen, 2011). Measurement of client outcomes is a component of home health triennial accreditation from the CMS (2012c) and The Joint Commission (2012). This accreditation prepares home health agencies for the proposed pay-for-performance (P4P) initiatives from CMS (Van Herck et al., 2011). In the P4P reimbursement environment,

home health agencies will receive increased reimbursement for positive client outcomes (Hittle, Nuccio, & Richard, 2012).

Outcome measurement in home health presumes there is a relationship between nursing knowledge and client care, and measures outcomes by classifying changes in client status between admission and discharge. Assessing outcomes in home health is a way of measuring the effectiveness of home health registered nurses' application of knowledge in identifying outcome problems and outcome management or nursing interventions (CMS, n.d.a; United States Department of Health and Human Services, Administration for Children and Families, 2010). Client health outcomes or quality indicators result from interventions based on nurses' knowledge, skills, and experience (Doran, Mildon, & Clarke, 2010). This emphasizes the value of nursing knowledge.

Expert nurses play a critical role in improving client-centered outcomes (Bayliss et al., 2012; IOM, 2011; Robinson, Callister, Berry, & Dearing, 2008; Sidan, 2008). Client-centered outcomes are accepted as a nursing priority (Hinds, 2013; National Prevention Council, 2011; Polivka, 2010), but research related to client outcomes in home health is limited (Tullai-McGuinness, Riggs, & Farag, 2011). There exists a gap in the literature related to the relationship between embodied nursing knowledge in home health nurses and client-centered outcomes in the home health environment. Embodied nursing knowledge in home health nurses means that the nurse is able to transform to the situation or experience during the nurse-client interaction (Mason, 2014). The ability of a home health registered nurse to transform to the situation stems from the nurses' knowledge, skills, and experience to improve client outcomes.

Home health nurses face several obstacles to improving client outcomes, including increasing client acuities, increased workload, increased documentation requirements, and increased critical decisions at the point of service (Majette, 2011; Nankervis, Kenny, & Bish, 2008; Nic Philibin et al., 2009). Improvements in client-centered outcomes require home health nurses to be experts in their practices (Bliss, Westra, Slavik, & Hou, 2013). Mantzorou and Mastrogiannis (2011) and Minick and Harvey (2003) described embodied nursing knowledge as the foundation of expert nursing practice, recognized as the process of "knowing the patient and family, knowing the system and institution, and knowing one's own skills and one's colleagues" (Foley et al., 2002, p. 276). Developing embodied nursing knowledge in home health registered nurses creates a culture that breaks down the obstacles to improving client outcomes in a rapidly growing segment of the health care system.

In 1999, CMS mandated the implementation of an empirically tested standardized nursing assessment, the Outcome and Assessment Information Set (OASIS). On January 1, 2010, the CMS (2011a) transitioned to the current version of OASIS, called OASIS-C, to benchmark quality care in home health. The OASIS-C includes measurements of client-centered outcome improvement, which CMS reports on the Internet through *Home Health Compare* (CMS, 2012a). Based on nursing interventions, The National Quality Forum (2012) developed the quality indicators used in the OASIS-C. This is an indication of the importance of embodied nursing knowledge, because such knowledge can directly influence the quality of interventions, which in turn affect OASIS-C scores (Chan, Brykczynski, Malone, & Benner, 2010; Storey, Cheater, Ford, & Leese, 2009).

The ability to measure clients' outcomes from admission through discharge using the OASIS-C makes possible the evaluation of individual client outcomes (Rosati, 2009). For example, OASIS-C outcome data might include information about whether a client improves in the ability to bathe his or her entire body and what assistance he or she requires to bathe safely, including transferring in or out of the tub or shower (CMS, 2011b). The OASIS-C is specific to the home health field, as it includes empirically established factors that influence home health care client outcomes (Rosati, 2009).

The data derived from the OASIS-C measures clients' health status at admission and discharge (CMS, 2012c). The structure of the OASIS-C instrument enables nurses and agencies to collect data for outcome-based quality initiatives (OBQIs)(Allen, Burt, Roychoudbury, & Chen, 2004). Home health agencies use OBQIs as a "systematic measurement of patient home health care outcomes, with appropriate adjustment for patient risk factors affecting these outcomes" (CMS, 2012c, p. 1-1). CMS creates reports to home health agencies concerning their OASIS-C data. These reports enable agencies to include the OASIS-C data in their quality and improvement programs or OBQIs (CMS, 2012c).

Measuring and evaluating clinical practice and client outcomes are essential to every home health organization. Medicare, other payers, and consumers of health care demand to know what they are getting for the dollars they spend (Rutherford, 2012). Home health agencies must simultaneously manage both client quality and limited resources. Home health nurses must incorporate social, medical, and financial issues into the OASIS-C documentation to report clinical practice (Boling, Chandekar, Hungate, Purvis, Selby-Penczak & Abbey., 2013). The requirement for OASIS-C data collection

and public reporting of outcomes has increased because of the spread of accreditation programs such as Community Health Accreditation Program (CHAP), The Joint Commission (JC), and the Centers for Medicare and Medicaid Services (CMS).

Clients and families are demanding accountability from health care providers as they become educated about health outcomes by using the Internet. P4P is the newest plan from CMS for reimbursement to home health agencies based on client outcomes. The principle of P4P is to reimburse care based on the home health agencies' performance in achieving clinical, functional, and health utilization outcomes or quality indicators (Jung, Shea, & Warner, 2010). P4P implies a need for expert HHRNs who practice patient-centered care, which influences each of the performance dimensions using quality client-centered outcome improvement measures assessed by the OASIS-C instrument (Van Herck et al., 2011). Improvement in the outcome measures requires embodied knowledge, which, when applied to client care, provides an understanding of the client, the nursing profession, and the nurse as an individual (Jackson, Clements, Averill, & Zimbro, 2009).

Statement of the Problem

The problem addressed in this quantitative, descriptive, correlational study was the lack of understanding of the relationship between the embodied knowledge used by home health registered nurses and client-centered outcome improvement as measured by total percentage scores on the OASIS-C (Foley et al., 2002; Minick, 1992; Tullai-McGuinness, et al., 2011). Home health directors need to understand which concepts of embodied nursing knowledge result in better client outcome improvement scores required by CMS in preparation for future reimbursement based on the outcome improvement measures.

Understanding which concepts of embodied nursing knowledge help improve the outcome improvement measures may facilitate the design of educational practices that support improved client-centered outcomes during registered nurses' orientation to home health and the continual development of registered nurses' skills and abilities in home health. Understanding the concepts of nursing knowledge, nurses' years of experience, and level of nurses education that form the foundation of improvements in home health outcomes is fundamental to successfully achieving broad quality improvements in home health.

In 2001, the Institute of Medicine (IOM) released a report called *Crossing the quality chasm* on the value of health care services in the United States (Institute of Medicine, 2001). The IOM defined six objectives for improving the health care system: health services should be operative, proficient, equitable, timely, safe, and patient-centered (IOM, 2001, p. 3). Home health services which are operative and proficient use research to support client care by reducing harmful delays in care, avoiding waste of equipment and supplies, and by providing safe patient-centered care founded on the respect for the client's inclinations, beliefs, and needs. Progress toward improving quality care in home health is slow, as agencies do not understand the variables that help develop quality patient-centered outcomes (Madigan & Fortinsky, 2000).

Prior research on improving client outcomes has focused on acute care environments (Aiken, Clarke, Cheung, Sloane, & Silber., 2003; Aiken, Clarke, Sloane, Sochalski, & Silber, 2002; Benner et al., 2009; Cheung, Aiken, Clarke, & Sloane, 2010) or organizational variables such as nurses' understanding of their roles, nursing governance, and decision making in home health (Kroposki, 2001; Kroposki &

Alexander, 2004). Although the Patient Protection and Affordable Care Act (S. Res. Public Law111-148, 2010) requires implementation of client-centered outcome programs, literature is limited concerning client-centered outcomes in home health. Research on client-centered outcomes is important to many home health stakeholders, such as home health agencies, clients, third party payers, and the community. Client-centered outcomes act as a perspective from which nurses' interventions demonstrate the achievement of quality outcomes.

This study focused on describing the relationship between embodied nursing knowledge, i.e., "knowing the patient and family, knowing the system and institution, and knowing the skills of oneself and one's colleagues" (Foley et al., 2002, p. 276) and client-centered outcomes (Minick, 1992). In addition, this study described the relationships among total years of nursing experience in home health, nurse's level of education, and client-centered outcomes as concepts of embodied knowledge. These variables easily and clearly contribute to the home health nurse's embodied knowledge (CMS, 2012b).

Purpose of the Study

The purpose of this research was to identify the relationship between the embodied knowledge used by home health registered nurses, their educational background, years of experience, and the home health client-centered outcome improvement measures of bathing, bed transfer, ambulation, management of oral medications, dyspnea, pain interfering with activity, status of surgical wound, and urinary incontinence (CMS, 2012d). The client-centered outcome improvement measures are documented in the discharge OASIS-C used by home health agencies.

This quantitative, descriptive, correlational study aimed to measure the relationship between the embodied nursing knowledge of home health nurses working in Ohio and client-centered outcome improvement as measured by the total percentage score on the OASIS-C. The goal of the study was to determine whether expert home health registered nurses achieved improved client-centered outcomes as compared to nurses with lower levels of embodied knowledge.

Embodied nursing knowledge was the independent variable, and was defined as (a) knowing clients and families, (b) knowing the system and institution, (c) knowing one's own skills, (d) length of home health experience, and (e) level of education (Foley et al., 2002; Minick, 1992). The dependent variable was the total percent score on the discharge OASIS-C, which measures improvement in the clinical outcomes of bathing, bed transfer, ambulation, management of oral medications, dyspnea, pain interfering with activity, status of surgical wound, and urinary incontinence.

Nature of the Study

The purpose of quantitative research is to follow a scientific, linear approach to count or measure examples of data, including clinical trials and self-administered surveys (Creswell, 2014). This method is more rigorous than qualitative methods, since there is an established hierarchy of evidence for assessing the quality of the methods and findings (Bansel & Corley, 2012). The results of these studies provide information regarding the amount of data collected from the participants or situation and the statistical analysis performed on the data (Creswell, 2014). Thoroughness of the research design, theory testing, appropriate statistical tests, and accurate interpretation of the results determine the credibility of the research (Polit, 2010). When testing a theory through quantitative

research, the data, statistical analysis, and findings should provide a test of the theory's worthiness in the observed population (Creswell, 2014; Polit, 2010). Using deductive reasoning, quantitative designs either support or disprove theoretical propositions (Polit, 2010). These propositions are statements or truths; theories start with a small number of assumptions and build to more complex statements such as Benner's (1982) theory, which formed the foundation for this study. Benner's propositions are credible in home health, but they require quantitative data collection to evaluate how well the propositions conform to the reality of home health nursing practice. During this research, there was no attempt to manipulate, control, or interfere with the variables, because as the goal was to establish the presence and extent of a relationship between the variables. This research design supported the exploration of the problem and purpose of the research.

This was a quantitative, descriptive, correlational study. Quantitative, descriptive, correlational designs are appropriate for research questions necessitating the investigation of relationships among variables (Burns & Grove, 2005; Creswell, 2014; Polit & Beck, 2008). An empirical approach is required to ascertain objectively the correlation between embodied nursing knowledge and client-centered improvement measures in home health. Hence, quantitative research was appropriate for this study.

The participants were home health registered nurses in Ohio. The self-administered survey sample consisted of participants who may or may not have used electronic health records for their documentation, but were all users of the OASIS-C documentation forms. Data were collected using two instruments: The Manifestations of Early Patient Recognition ([MER], Minick & Harvey, 2003) and the OASIS-C. This researcher added demographic questions. The MER was mailed or hand-delivered to

home health nurses in Ohio. The MER measures conceptual themes forming the structure for awareness of early changes in client's conditions (Foley et al., 2002; Minick, 1992; Minick, 1995; Minick & Harvey, 2003; Keller-Unger, 2008). The MER measures three-predictor variables: "knowing the patient and family, knowing the system and institution, and knowing the skills of one self and one's colleagues" (Foley et al., 2002, p. 276).

The dependent variable of client-centered outcome improvement measure scores in the discharge OASIS-C is a measure of client health status changes between admission and discharge. The deidentified client-centered outcome improvement measure OASIS-C scores are publicly described on the CMS (2012a) *Home Health Compare* website. The client-centered outcome improvement measures are bathing, bed transfer, ambulation, management of oral medications, dyspnea, pain interfering with activity, status of surgical wound, and urinary incontinence (CMS, 2012d).

Significance of the Study

Home health registered nurses are the primary health providers of home health services, yet little practitioner research exists concerning client-centered outcomes. Several researchers have explored the effects of nursing interventions on clients in home health (Doran & Sidani, 2007; Kominowski, 2011), but none have explored the results of embodied nursing knowledge in home health as measured by the change in outcomes between two time points captured in the outcome improvement measurement scores of the OASIS-C. Measuring the impact of embodied nursing knowledge on client outcomes could guide home health agencies' outcome improvement targets. Home health services provide nursing care to influence client outcomes. To explore the operationalization of

the concept of nursing knowledge, research must test observable indicators of embodied nursing knowledge (Benner et al., 2009). "Knowing the patient and family, knowing the system and institution, and knowing the skills of oneself and one's colleagues" (Foley et al., 2002, p. 276) define the observable indicators of embodied nursing knowledge.

The findings of this study may be of interest to home health agencies, third party payers, and communities. Additionally, this descriptive correlational research has the potential for making important contributions to the collection of nursing knowledge, specifically to the ontology of nursing. The industry of home health nursing may benefit by receiving data pertaining to the importance of embodied knowledge in improving client-centered outcomes. These findings may help to improve their understanding of the effects of nursing expertise on client-centered outcomes. This study supported enhanced delivery of home health care because improving client outcomes is an increasing priority (Gingerich, 2010; IOM, 2012; Kleinpell, 2013). Improving client outcomes is a priority because the aging population increases the demand for home health services (Bowles, Pharm, O'Conner, & Horowitz, 2010; Pittman, Horton, Terry, & Bass, 2014), and improving client outcomes is the essence of home health services. Research-based practice can improve client outcomes (Bliss et al., 2013; Hill, 2010), so this study may contribute to improved nursing by adding to the body of available research. Furthermore, by identifying nursing characteristics that improve outcomes, the leadership in home health agencies can assist their staff in developing embodied nursing practices to foster behavioral and knowledge changes that lead to improvements (Sneltvedt & Sorlie, 2014).

The findings from this research could also help home health agencies prepare proactively for the changing industry regulation of pay-for-performance. Health care

providers are receiving pressure from compensation sources, legislators, and the public to consider effectiveness of client-centered outcomes using evidence-based interventions (United States Department of Health and Human Services, 2012b). The CMS (2009b) stated that future Medicare reimbursement would depend on quality care as documented in the OASIS-C. Equipping home health agencies and HHRNs with this knowledge may facilitate the design of educational practices that support improved client-centered outcomes. Additionally, it may enable home health managers to improve outcomes by strategically recruiting experienced, educated staff (Batalden, Bate, Webb, & McLoughlin, 2011; Benner, Sutphen, Leonard, Day, & Shulman, 2010).

Home health clinical practice requires excellence in quality assessment and the usage of evidence-based actions in achieving client outcomes (American Nurses Association, 2008; Ellenbecker, Samia, Cushman, & Alster, 2008; Miller, Ward, & Young, 2010; Walton & Barnsteiner, 2012). The articulation of these characteristics of expert practice to the client, family, home health directors, owners, and third-party payers would prove beneficial to each of these stakeholders by providing them with knowledge of the relationship between nurses and patient outcomes in preparation for the changing industry regulation of pay-for-performance. Understanding these characteristics of nursing knowledge embedded in expert practice may lead to further research on the application and advancement of thinking and practicing of home health registered nurses.

Research related to home health has focused on the validity and reliability of the OASIS-C (O'Conner & Davitt, 2012; Tullai-McGuinness, Madigan, & Fortinsky, 2009), hospitalization rates (O'Conner, 2012), and clients' functional status (Scharpf, 2005; Scharpf & Madigan, 2010). Research has explored the relationship between nurses' work

environment and high-quality scores in the discharge OASIS-C (Tullai-McGuinness et al., 2011). However, no studies yet exist on the relationship between embodied nursing and discharge OASIS-C scores. The current study addressed this gap in the literature, and the researcher hoped to demonstrate the need for home health agencies to develop or hire expert home health nurses to achieve positive outcome scores on the discharge OASIS-C, which indicates higher quality care and improved outcomes.

Theoretical Framework

Benner's (1982) novice to expert theory served as the theoretical structure for this study. This theory was chosen because it explicitly identifies facets of nursing knowledge concepts discussed in the literature. Benner has researched how nurses develop embodied knowledge in their practice (Benner, 1982), the progression of expertise in nursing practice (Benner et al., 2009), the use of intuition to detect changes in clients' conditions (Benner, Hooper-Kyriakidis, & Stannard, 2011; Benner & Wrubel, 1989; Lyneham, Parkinson, & Denholm, 2008), and how to educate nurses to care (Chan et al., 2010; Benner et al., 2010).

Benner (2004) used the Dreyfus and Dreyfus' Model of Skill Acquisition and Skill Development to explore nursing knowledge embedded in expert practice. Benner's (1982) adaptation of the Dreyfus model described the background and advancement of thinking and practice as nurses' progress along a continuum. This journey to expert nursing practice occurs through years of experience and within a specific environment (Benner et al., 2011). Benner et al. (2009) described three skills that develop during this journey: client advocacy, client involvement, and early detection of client changes. Home health nurses who can recognize subtle changes in clients' conditions can act in

time to prevent further detrimental conditions or situations for the client (Benner et al., 2009). Benner described embodied nursing knowledge as experience in time, client encounters, and self-reflection that defined, refined, or contradicted situations in nursing practice (Benner et al., 2009; McHugh & Lake, 2010). Benner (1982) argued that to obtain embodied nursing knowledge to improve client outcomes, a nurse must progress through the "five levels of proficiency: novice, advanced beginner, competent, proficient, and expert" (p. 402). These levels are discussed in detail Chapter 2.

In order to link Benner's (1982) novice to expert theory with the empirical reality of embodied nursing practice, the conceptual-theoretical-empirical (C-T-E) framework developed by Fawcett (2013) guided this study. Table 1 outlines how Benner's theoretical concepts were applied to empirical indicators using theoretical linkages. Theoretical links provide an explain how nurses' developmental knowing in expert practice mediates the relation between, on the one hand, nursing's ontology of practice, scholarship, and research, and, on the other hand, improved client-centered outcomes in home health (Beckwith, Dickinson, & Kendall, 2009; Bonis, 2009; Jackson et al., 2009; Sidan, 2008).

Table 1

Conceptual-Theoretical-Empirical Structure for this Study

Benner's (1982) Novice to Expert Concepts	Theoretical Linkages (Patterns of knowing, 2009)	Empirical Indicators
Knows the client by understanding patterns of response and knowing the client as a person (Expert Practice)	Negotiates for changes with problem-solving, reflection, and decision-making	Transparent view of self: confidence in practice, uses community, and organizational resources, uses resources from other disciplines, and environments
Clinical nursing practice	Nursing knowledge development and adaptation to the environment (Scholarship)	Nursing research and leadership
Manifestations of Early Recognition (MER) (2003) scale and improved client -centered outcomes noted in the OASIS-C	Manifestations of Early Recognition (MER)(2003) scale and improved client -centered outcomes noted in the OASIS-C	Manifestations of Early Recognition (MER) (2003) scale, nursing experience in years, and nursing education level

Note. Adapted from "From novice to expert," by P. Benner (1982), *The American Journal of Nursing 82*(3), 402-408, Retrieved from http://jstor.org/stable/3462928; "The early recognition of patient problems among medical-surgical nurses," P. Minick and S. Harvey (2003), *Research for Practice, 12*(5), 291-297, Retrieved from http://www.highbeam.com; "Patterns of knowing: Proposing a theory for nursing practice," J.P. Jackson, P.T. Clements, J.B. Averiall, K. Zimbro (2009), *Nursing Economics, 27*(3), 149-159, Retrieved from http://www.nursingeconomics.net

Research Questions and Hypotheses

The following research questions guided the study. These research questions were developed based on the results of the literature review, presented in Chapter 2, and

the purpose of the research. Each research question with the hypotheses it generates is presented.

RQ1: What is the relationship between home health registered nurses' knowledge of their clients and clients' families, and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C?

Hypotheses

$H1_0$: There is no significant relationship between home health registered nurses' knowledge of their clients and clients' families, and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C.

$H1_A$: There is a significant relationship between home health registered nurses' knowledge of their clients and clients' families, and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C.

RQ2: What is the relationship between home health registered nurses' knowledge of the system and institution of home health nursing, and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C?

Hypotheses

$H2_0$: There is no significant relationship between home health registered nurses' knowledge of the system and institution of home health nursing and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C.

$H2_A$: There is a significant relationship between home health registered nurses' knowledge of the system and institution of home health nursing and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C.

RQ3: What is the relationship between home health registered nurses' knowledge of their own and their colleagues' skills, and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C?

Hypotheses

$H3_0$: There is no significant relationship between home health registered nurses' knowledge of their own and their colleagues' skills and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C.

$H3_A$: There is a significant relationship between home health registered nurses' knowledge of their own and their colleagues' skills and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C.

RQ4: What is the relationship between the total years of home health registered nursing experience in home health and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C?

Hypotheses

$H4_0$: There is no significant relationship between the total years of home health registered nursing experience in home health and the total client-

centered outcome improvement measures percentage score on the discharge OASIS-C.

$H4_A$: There is a significant relationship between the total years of home health registered nursing experience in home health and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C.

RQ5: What is the relationship between home health registered nurses' level of education and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C?

Hypotheses

$H5_0$: There is no significant relationship between home health registered nurses' level of education and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C.

$H5_A$: There is a significant relationship between home health registered nurses' level of education and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C.

Definitions of Terms and Concepts

Admission Nurse/Case Manager: A home health registered nurse who functions as an admission nurse is one who performs the OASIS-C determining from the assessment, the plan of care, and initiates any necessary referrals to meet the client's health care goals (Collister, Slauenwhite, Faser, Swanson, & Fong, 2014; Herleman, 2008). The admission nurse/case manager usually does not make routine home visits to the client, but this depends on the home health agency, which they are employed.

Activities of Daily Living (ADLs): Basic self-care directed activities performed daily. These activities include personal hygiene tasks such as bathing, grooming, eating or feeding, and obtaining and preparing food. Toileting and transferring activities are also ADL activities. These indicators demonstrate the client's functional status relative to the client's level of functional independence (Pollack-Scharpf, 2005; Stineman et al., 2011).

Certified Home Health Agency (HHA): A home health agency certified by Medicare to provide care to clients in their home is entitled a certified home health agency (CMS, 2005).

Certified OASIS-C Specialist-Clinical (COS-C): Home health cares are awarded the COS-C certification upon successful completion of a certificate examination which home health nurses take to demonstrate their expertise in performing the OASIS-C (OASIS Answers, 2013).

Client-Centered Care: Client-centered care is the application of "…meeting patients' needs and preferences and providing education and support" (CMS, 2012c, para. 8).

Client/Patient: A client/patient is an individual or consumer who receives services from a home health agency (Ellenbecker et al., 2008).

Early recognition of client problems: Early recognition of client problems occurs when registered nurses recognize potential harmful events and take preventive actions quickly (Azzarrarello, 2003; Minick & Harvey, 2003; Mitchell et al., 2010).

Embodied nursing knowledge: Knowledge or intuition that affects clinical judgment built upon Carper's (1978) ways of knowing and developed through Benner's

stages of theoretical development (Benner, 1982; Benner, Hooper-Kyriakidis, & Stannard, 2011;Paley, Cheyne, Dalgleish, Duncan, & Niven, 2007; Porter, 2010). To operationalize this concept, the home health nurse must base his or her decisions upon experience, intuition, adaptation to the home health environment (Neal, 2000). Additionally, the RN must have confidence to detect early recognition of client condition changes by "knowing the patient and family, knowing the system and institution, and knowing the skills of oneself and one's colleagues" (Foley et al., 2002, p. 276).

Field Nurse/Clinical Staff: A home health registered nurse who works autonomously in home health performing the OASIS-C documentation and who plans, directs, and manages client care while making home visits (Al-Mazrooa, 2010; Chaya et al., 2008).

Home Health (HH): Home health is an arrangement of care provided by health care professionals to clients in their home environment under the direction of a physician (CMS, 2005).

Home Health Compare Measures: Comparative data derived from the OASIS-C and required by CMS. CMS reports these quality measures on the CMS Home Health Compare website with their related "M" numbers, an explanation of which is given in Chapter 3.

Homebound: Homebound individuals cannot leave the home without a significant and strenuous effort, creating incapacity to leave the home (CMS, 2005).

Home Health Registered Nurse (HHRN): A home health registered nurse is a graduate of a school of nursing and licensed by the state in which he or she is practicing. An HHRN has worked at least one-year as a home health registered nurse. HHRNs

include RNs who perform home care visits or function as an admission or case manager who manages a caseload of clients (CMS, 2005).

Outcome: Change in client health status between admission and discharge, which can be negative, positive, or neutral (Kane & Radosevich, 2011).

Outcome Measures: Are a quantification of a change in health status between two or more time points computed by using the OASIS-C data from start of care (SOC), subsequent time points, or discharge (CMS, 2012d).

Patient: The term patient is interchangeable with client. See the above definition of *Client*.

Resumption of Care (ROC): Transpires when a client returns home after hospitalization, or he or she requires services after completion of the 60-day episode (CMS, 2005, 2013b).

Skilled Nursing Visit (SNV): Any visit made to a home in which the nurse takes vital signs and performs a nursing assessment while providing education and support (CMS, 2005). Skilled nursing services are provided under a care plan signed by the physician. To perform skilled nursing services, the registered nurse makes an initail visit and documents the findings in the OASIS-C, re-evaluates the clients nursing needs with each visits, re-evaluates the clients needs with each visit, and appropriately documents clinical and progress noted while informing the physician of any changes in the client's health status (CMS, 2005).

Start of Care (SOC): First billable visit made by the home health nurse (CMS, 2005, 2013b).

Assumptions

This research used the following assumptions. The listed assumptions are in no specific order.

- The home health registered nurses directly worked with home health clients in their individual home health care agencies.
- The home health registered nurses' answers to the self-administered survey and OASIS-C instruments were accurate and honest.
- The home health registered nurses who performed the client assessments and documented their objective and subjective data in the OASIS-C possessed the skills necessary to assess accurately and document clients' health status.
- The home health agencies had assisted the home health registered nurses in obtaining educating regarding how to perform the OASIS-C.

Limitations

The limitations and potential weakness form the context by which this study's evaluation occurs. This section outlines the limitations that might affect the generality and elucidation of the results from this study. The findings from this study may be generalizable to other home health agencies within Ohio.

This study used a convenience sample of home health registered nurses in Ohio because of the unavailability of a large or random sample. The convenience sample was nonrandomized. The randomization of the home health agencies was this researchers attempt to overcome the limitation of using a convenience sample by using the randomization table to choose the home health agencies. The convenience sample may result in the potential for inadequate data capture of the characteristics of the population

of home health nurses in Ohio, which limits the generalizability of this study. Thus, a generalization to the larger population was not made (Burns & Grove, 2005; Polit & Beck, 2008). There was also the potential for self-selection bias.

CMS regulations state that OASIS-C data for activities of daily living (ADLs) and other outcome improvement measures are not collected on clients who are transferred to other facilities, such as hospitals and extended care facilities, which decreases the availability of the population who have a complete discharge OASIS-C (CMS, 2005). The outcome improvement scores of the OASIS-C tool relate to the assessment and interventions used by the registered nurses who performed the client assessments. Individual registered nurses' assessment skills can vary based on educational preparation, OASIS-C certification, and work experience along with variable training for the use of the OASIS-C and home health regulations between home health agencies, which may result in different ratings of client outcomes (Brega, Jordan, & Schlenker, 2003; Keepnews, 2002; OASIS Certificate and Competency Board, 2010).

It was unknown how the interventions of other health care providers, such as therapists and aides, may have affected client outcomes. A 60-day home health episode of care starting at admission and ending upon discharge may include other home health services, knowledge of which was unavailable to the researcher. The interdisciplinary team in home health may consist of the home health registered nurse making the first visit and determining the client's needs including education and management of care for each client. Social workers address psychosocial needs. Therapists assist with exercise and adaptive devises to ensure self-care and aides assist clients with daily living

activities. Thus, client outcomes may not have resulted solely from participants' interventions.

The researcher has personal experience in home health, thus introducing the possibility of personal bias in the research procedure and the understanding of the results. However, the research validation process, designed to eliminate or mitigate researcher bias, included analyzing and reporting the data accurately. The research approach was a descriptive correlational study with a self-administered survey and was therefore subject to the limitations of self-report and correlative research.

A potential loss of participants existed from participants withdrawing from the study, inability of respondents to participate, or inability to obtain OASIS-C or self-administered survey data from the participants. Additionally, a potential inability to measure the variables existed because of the partiality intrinsic in data made under environments of scientific uncertainty. Thus, precision of the variables may be unattainable. The MER uses a Likert-type scale, which allows each participant to interpret intensity slightly differently. That is, the interpretation of "*strongly agree*" versus "*agree*" may differ from participant to participant, which could lead to imprecise responses. However, these responses are representative of the sample of the home health nursing population and are an acceptable practice for convenience samples (Polit, 2010; Polit & Beck, 2008).

Research related to the OASIS-C's appropriateness as a measure for client-centered outcomes, including ADLs, is limited (O'Conner & Davitt, 2012). However, CMS uses the OASIS-C to measure quality of home health services. Similarly, the MER has not been widely tested with respect to its appropriateness for measuring the variables

of nurses' "knowing the patient and family, knowing the system and institution, and knowing the skills of oneself and one's colleagues" (Foley et al., 2002, p. 276).

Delimitations

The delimitations describe the scope of the study. The sample for the study was taken from a population of registered nurses working in Medicare certified home health agencies in the state of Ohio. The types of home health agencies were for profit and not-for-profit, large, and small, and located in rural and urban areas. The target population was home health registered nurses currently working as field or staff nurses and admission nurses who had at least one year of practice in home health. Participants may or may not have used electronic health records for their documentation, but all were users of the OASIS-C documentation forms. Directors, owners, and managers of home health care agencies were not included in this study, since they generally do not perform home visits.

Summary

Understanding the relationship of nursing embodied knowledge with client outcomes may provide meaningful measurement data for improving clients' quality of care. Until a relationship can be established between home health registered nurses' embodied knowledge and improved outcome improvement score upon discharge, embodied knowledge may not be taken into consideration in home health agencies. The OASIS-C is an empirical, data based, and scientific approach to quantifying home health nurses' embodied knowledge as it relates to client-centered outcome improvements. This study is important because it increases the body of nursing ontology and home health knowledge.

Chapter 1 presented the background, statement of the problem, purpose of the study, significance of the study, nature of the study, research questions, theoretical framework, and definition of terms. Addressed were the assumptions, limitations, and delimitations. Chapter 2 contains the review of associated literature and research linked to the research topic. Chapter 3 describes the method of the proposed study. Chapters 4 and 5 present the data analysis and results, conclusions, and recommendations.

Chapter 2

Review of the Literature

The purpose of this study was to identify the relationship between the embodied knowledge used by home health registered nurses, their educational background, their experience, and the home health client-centered outcome improvement measures as documented by the discharge OASIS-C used by home health agencies. Chapter 2 contains a review of the literature relevant to the research topic, a historical overview of home health, and a discussion of gaps in the literature. The literature search was performed using University of Phoenix Library databases, EBSCOhost, CINHAL, ProQuest, ProQuest Dissertations, Medline, Gale-Power Search, PubMed, Buros's *Mental Measurements Yearbook,* print books, Cochrane review, and the Internet search engine Google. Standalone websites were also used as resources for historical, statistical, and current information about the home health industry. The use of websites was limited to reputable government sources, including the American Public Health Association, Centers for Medicare and Medicare Services, Government Publishing Office, the Department of Health and Human Services, the IOM, and the National Association of Home Health and Hospice. Table 2 presents a summary of the literature search results. The literature review for this study focuses on the embodied nursing knowledge of registered nurses in home health and its influence on home health clients' outcome improvement measures. This chapter contains a discussion of the definitions of home health, home health quality, embodied nursing knowledge, and outcome improvement measures, as well as the measurement of these concepts as found in general literature.

Additionally, reviewed is related research of years of nursing education and nursing experience in home health.

Table 2

Summary of Literature Search Results

	Peer Reviewed Articles	Books	Dissertations	Stand Alone Websites
Nursing Expertise	15	7	1	3
Historical Overview	6	4	1	11
Health Care Quality	17	6	3	9
OASIS-C	9			4
Client Centered Outcomes	19	1	1	4
Embodied Nursing Knowledge	23	4	1	2

Historical Overview

During the Crimean war in 1850, Florence Nightingale was concerned about health care quality. She wrote that nurses were in charge of client care, even when they were not physically present with the client (Pfettscher, 2006). Nightingale developed ways to improve the environment for client health, educational elements to establish nursing competency, and created plans for establishing a program for community and population health (Hegge, 2013). Established in 1951, The Joint Commission promotes quality health through voluntary participation of home health agencies to obtain standardized accreditation (The Joint Commission, 2012). In 1965, the Social Security Administration Act (Social Security Administration, n.d.) authorized Medicare to include

a home health benefit to provide the elderly with health services, such as skilled nursing care to be provided in the client's home.

The passage of the Social Security Administration Act in 1965, which established Medicare, started growth growing in the home health industry by reimbursing for home health care services (NAHC, 2010). Based on a medical model of care delivery, this law required a physician plan of treatment and nursing assessment in the client's home (CMS, 2009b). The nursing assessment is the foundation for the client's plan of care.

Home Health

Home health services consist of intermittent nursing care provided to clients in their individual homes (CMS, 2005). Other services provided to clients in their homes are physical, occupational, and speech therapies, social work, and aide services (CMS, 2005). Medicare eligible clients must need intermittent nursing care to treat their illnesses, and the clients must require a taxing effort or lack the ability to leave their homes. A physician must perform a face-to-face assessment in the 30 days prior to admission or in the 30 days after admission (Medicare Payment Advisory Committee [MedPac], 2012). Established on a 60-day episode of care, the home health care plans describe the services home health nurses provide to the clients (Enguidanos, Joang, Hillary, & Haynes, 2011). Home health nurses develop the care plan in cooperation with the client and the client's physician using data gathered in the OASIS-C. CMS uses the OASIS-C data to calculate a case-mix risk adjusted index. The case-mix risk adjusted index uses prediction models to describe relationships between the client's characteristics and the probability of a positive outcome (CMS, n.d.a; n.d.b.; Rosati, 2009). The case-mix index provides CMS with data to adjust the reimbursement for each client's episode

of care to home health agencies based on the individual client's severity of clinical and functional characteristics, documented in the OASIS-C (CMS, 2012c).

Home Health Reimbursement

Signed into law on August 5, 1997, the Balanced Budget Act provided a five-year plan to reduce the federal budget and decrease expenditures of Medicare (Lu, 2010). Value-based purchasing (VBP) was also a focus of the Balanced Budget Act of 1997 (*U.S. Department of Health and Human Services*, 2012). Enacted on March 23, 2010, Section 3006(b) (1) of the Patient Protection and Affordable Care Act (PPACA) (Pub.L. 111-148) mandated "the Secretary of Health and Human Services to develop a VBP program under the Medicare program Title XVIII of the Social Security Act for home health agencies" (U.S. Department of Health and Human Services [USDHHS], 2012b, p. 5).

MedPac's (2012) report to Congress stated, "In 2011, about 3.4 million Medicare beneficiaries received home health services from almost 11,900 home health agencies. Preliminary data for 2010 indicate Medicare spent about $19.4 billion on home health services" (p. 211). The total volume of Medicare payments will rise as the population develops chronic illness during the aging process. The USDHHS (2012a) resources department estimated the population of people aged 65 and older as 41.4 million in 2011. This population is expected to double by 2060 (USDHHS, 2012a). The NAHC (2010) reported that approximately 7.6 million people require home health services in the United States. Because of the large aging population, more home health services will be required; consequently, MedPac has recommended a new reimbursement structure for home health, entitled P4P or VBP, which will base payment on client outcomes.

Value-Based Purchasing

VBP has transformed to P4P, or pay-for-value (P4V). "Value-Based Purchasing, in which providers are rewarded on the basis of patient outcomes and efficiency, may have an important impact on improving quality and cost of care" (Coan & Goldberg, 2008, p. 1). MedPac recommended use of data already collected for OBQI as a foundation for VBP. The National Quality Forum (NQF) recommended both OBQI and Outcome Based Quality Management (OBQM) measures for value-based purchasing (NQF, 2012).

The use of VBP will hold home health agencies responsible for price and quality of care (Majette, 2011). VBP is an amalgamation of client outcomes and data on financial outlays for home health care services. The focus is on managing the use of home health to improve care, with rewards for the best quality care based on quality measures obtained during interval client assessments documented in the OASIS-C. VBP uses quality management to promote continual quality improvements and focuses on the education of health providers to ensure better client health outcomes (Morris, 2010; USDHHS, 2012b).

VBP programs in home health promote continuous quality improvement building on quality measures, data gathered from the OASIS-C, and embodied nursing knowledge. The findings from this research might assist home health agencies in preparation for pay-for-performance. In addition, the knowledge gained from this research will enable the development of educational practices that support the development of nurse-sensitive indicators in home health for use in the VBP program.

Outcome Improvement Measures

The impetus for developing client-centered outcomes and VBP initiatives depends on the CMS creating an environment for home care managers to understand the relationship of embodied nursing knowledge or expertise and client outcomes. As a response to the IOM reports *Crossing the quality chasm* (IOM, 2001) and *The future of nursing: Leading change, advancing health* (IOM, 2011), the CMS and other insurers are seeking solutions to address client safety and quality outcomes in provider payment systems. Many demonstration projects were performed including the development of process improvement measures (Centers for Medicare and Medicaid Services [CMS], 2014).

In 2007, the CMS contracted Abt Associates to perform a demonstration project for home health P4P to explore the influence of enticement reimbursement to home health agencies for improving excellence of care for home health clients. This demonstration project defined P4P as a purchasing contract aimed at improving health care quality and client outcomes by rewarding measures of quality, efficiency, and client outcomes. The project started in January 2008 and ran through December 2009 in Illinois, Connecticut, Massachusetts, Alabama, Georgia, Tennessee, and California (Abt Associates, 2007, para. 3). Five hundred sixty-nine home health agencies were randomly allocated to an intervention or control group for this demonstration project. On May 6, 2010, the CMS (2011a) announced a total of $15 million in savings from the P4P demonstration project during the first year. Findings from this demonstration project supported the continual development of an OBQI data set for home health (CMS, 2012c; Rosati, 2009).

The outcome improvement measures were developed from the OBQI data set (CMS, 2012d). Used to measure performance and published on the Home Health Compare website are the 41 outcome improvements measures (CMS, 2012a). These measures evaluate the home health agency for the quality of services delivered to Medicare clients. The eight-outcome improvement measures were selected because of their empirical value of validity, reliability, the extent to which the measure is dependent upon nursing intervention, observed ability for improvement, statistical functioning, and relationship to disease process are (Abt Associates, 2007). The eight measures are: (1) improvement in bathing, (2) improvement in transferring, (3) improvement in ambulation, (4) improvement in management of oral medications, (5) improvement in dyspnea, (6) improvement in pain interfering with activity, (7) improvement in status of surgical wounds, and (8) improvement in urinary incontinence (CMS, 2012d).

These eight measures enable home health care agencies to compare their data to past performance as well as to state and national benchmarks (CMS, 2012c, 2012e). It is important to have outcome improvement measures to capture stabilization for clients who are not likely to improve because of their health status. Home health agencies use the outcome improvement measures to drive the quality improvement initiatives in their agency. According to the NAHC (2012), home health agencies target the eight outcome improvement measures for quality improvement activities. If home health agencies use outcome enhancement measures for these outcome improvement measures, a change in client outcomes is expected, as the outcome improvement measures are sensitive to nursing intervention (CMS, 2012d; Riggs et al., 2011). The outcome improvement measures, which are part of the OASIS-C instrument, were used in this study.

OASIS-C

The CMS established a research program to analyze and review home health policies on the topics of quality improvement, financial management of services, and regulatory actions. Since 1999, this program has developed the OASIS, which is mandatory for all Medicare participating agencies (CMS, 2013b). The purpose of the measure, the current version of which is the OASIS-C, is to document client assessments for reimbursement of services and quality improvement measures (Cabin, 2009). The OASIS-C items address "sociodemographic, environmental, support system, health status, functional status, and health service utilization," which form the foundation for client outcome measurement (Brunsberg, 2012, para. 1). OASIS-C items enable nurses, agencies, self-administered surveyors, and payers to analyze the impact of standardized services, enabling comparison between agencies and between the state and national levels. Home health agencies receive outcome reports from the OASIS-C data, which are used in OBQI (Fortinsky & Madigan, 1997) and are described on the Home Health Compare public reporting website (CMS, 2012a; Shaughnessy et al., 2002). OASIS-C is the foundation for the current Medicare reimbursement system, prospective payment system (PPS), as well as the proposed P4P system and quality improvement initiatives (Schlenker, Powell, & Goodrich, 2005). Through standard use of the OASIS-C, the home health industry can compare performance measures.

To standardize the process of data collection in home health, CMS mandated that all Medicare-certified home health agencies include the OASIS-C as part of an inclusive assessment (Shew, Sanders, Arthur, & Bush, 2010). OASIS-C is performed during admission or SOC, discharge, or transfer to another agency on all clients over the age of

18 receiving skilled services, with the exception of maternity clients (CMS, 2005, 2012c). Documentation format for the OASIS-C varies from agency to agency, as some use point of care computer systems whereas others use paper formats or a combination of both.

Previous research has found the OASIS-C to be reliable and valid for the home health measures, especially those that focus on bathing, ambulation, and self-administration of oral medications or other on ADLs (Hittle et al., 2004; Madigan & Fortinsky, 2000; Tullai-McGuinness et al., 2009). Reliability tests of the OASIS-C are more numerous in the literature than are validity studies. A national study conducted by Stineman et al. (2011) found ADL status was associated with global chronic illness and disability, supporting the external validity of the OASIS-C. Through statistical evaluation, the OASIS-C is a valid and reliable instrument (Hittle et al., 2004; Kinatukara, Rosati, & Huang, 2005; Schneider, Barkauskas, & Keenan, 2008) for measuring client-centered outcomes improvement measures in home health.

OASIS-C has been used as in studies that explored the instrument's use in managing urinary incontinence (Egnatios, Dupree, & Williams, 2010) and heart failure visit patterns (Metzger, 2012; Riggs et al., 2011). The OASIS-C instrument has been instrumental in helping HHRNs to assess surgical wounds (Trexler, 2011). HHRNs who have wound assessment knowledge were able to demonstrate higher rates of wound healing (Trexler, 2011). Bliss et al. (2013) performed another study using the OASIS-C to explore HHRN and client outcomes in 447,309 unique clients in 785 home health agencies. HHRNs who were certified as wound a wound, ostomy, and continence (WOC) nurse were effective in attaining improved outcomes for "surgical wounds (n=101,191), lower extremity wound stabilization (n=10,944), lower extremity ulcer (n=

414), and pressure ulcer improvement (*n*= 645)" (Bliss et al., 2013, pp.139-140). The literature is limited regarding use of the OASIS-C instrument to examine the relationship between HHRN and client outcomes. This creates a gap of nursing knowledge that requires exploration.

Home Health Nursing

Despite similarities between hospital care and home health, home health's characteristics are unique and present special challenges to assessing the quality of home care services. The most significant characteristic is that home health provides services in the client's home (Lundgren, 2011). This unique characteristic prohibits home health nurses from controlling some client outcomes that might they might be able to control in a hospital. For example, when a hospital nurse walks into the client's room, the nurse knows what to expect of the environment. The bed and equipment are in the room or are easily accessible. Treatments and procedures take place in a clean and lighted atmosphere. The client receives 24-hour care. Hospital nursing practice promotes the technical part of the profession of nursing, whereas home health promotes practical wisdom in knowing how to develop excellence in nursing practice, because not all protocols fit all situations and environments in home health (Chan et al., 2010).

Home health nurses visit clients through an arranged visit pattern determined by the client, nurse, and physician and documented in the plan of care (CMS, 2005). The home environment is different from one client to another. A client's home may be in a city, town, or rural area, and clients' houses vary in size, quality, and composition. The client's home may be dirty or clean, neat or cluttered, leaving small pathways for ambulation with a cane or walker. Lack of client resources may complicate his or her

health and living conditions. If clients' homes lack suitable bathrooms, the clients may not be able to shower or bathe safely. The home situation may further complicate client outcomes, as family members and other hired caregivers may make coordination and case management challenging and blur accountability for the achievement of client outcomes (Neal, 2000). The home health nurse carries the medical supplies with him or her.

According to Neal (2000), some types of surgical dressings that are available in hospitals may not be available in home health, due to cost limits on reimbursement for these products. Home health nurses must be creative, think critically, and solve problems during every home visit. During dressing changes in the home, family members, other caregivers, and pet animals present a potential for contaminating the dressings. Needed in the home care environment is experience to enable the nurse to adapt him- or herself to each new environment or new home, to the changing regulatory environments, and to the changing needs and resources of home health clients. By adapting to change, the nurse allows him- or herself to be open to hearing and observing what the client is experiencing and what the client's needs are. Novice nurses often have trouble adapting to the environment and structure and may not be able to deliver the quality of nursing care that is needed (Neal, 2000).

Home Health Quality

The basic definition of quality in home health is that the right nurses provide the right interventions at the right time. The right nurses are expert nurses with embodied nursing knowledge and defined performance expectations of ongoing quality processes, which include "knowing the patient and family, knowing the system and institution, and knowing the skills of oneself and one's colleagues" (Foley et al., 2002, p. 276). Home

health nurses with embodied knowledge learn to build a relationship with the client (Benner & Wrubel, 1989; Minick, 1995). This provides the client with confidence that knowledgeable nurses will contribute to helping achieve positive outcomes. Home health agencies continually assess nurses' knowledge and skills, as these elements are the key to the provision of quality home health services (The Joint Commission, 2012).

The elderly, defined as the population aged 65 years and older, are a fast growing age group in the United States, and they are increasing at a faster rate (15.1%) than the entire population (9.7%) (Werner, 2011, p. 1). The fastest-growing subset of this age group is persons aged 85 years and older; it is projected that they will number 21 million and will consume more health care resources than those aged 65-85 (Jones, Harris-Kojetin, & Valverde, 2012;Werner, 2011). As this population grows, the management of prolonged illness such as chronic obstructive pulmonary disease (COPD) (Wong, Carson, & Smith, 2012), heart failure (Colandrea & Murphy-Gustavson, 2012; Koroukian, Scharpf, Bakaki, & Madigan, 2011), and diabetes (Hartman, Litchem, Reed, & Burr, 2009; Tani et al., 2010) will require expert nurses. Accounting for most of the health care resources in the aging population, these chronic diseases are the focus of current research in quality care (IOM, 2011). The functional status of clients with chronic diseases is generally poor (MacIntyre, 2012), and these clients require health care providers who are educated and motivated if the clients are to achieve optimal quality of life.

Poor care for chronic illnesses can lead to acute care hospitalization. A joint action campaign between CMS, Quality Insights of Pennsylvania, and the Home Health Quality Improvement Organization Support Center (HHAIOSC) ran a yearlong

promotion from March 2007 to February 2008 for the measure of acute care hospitalization (Esslinger, Kevech, Annderson, & Knowles, 2008). The aim was for each home health agency to achieve a 5% improvement in their rehospitalization rates from their starting rate of the preceding 12 months. To assist the home health agencies in achieving their goal, the website offered best practice models identified to reduce acute hospitalization rates, one each month. The topics were: "1) Hospitalization Risk assessment, 2) Patient Emergency Plan, 3) Medication Management, 4) Phone Monitoring and Front Loading of Visits, 5) Teletriage, 6) Telemonitoring, 7) Immunization, 8) Physician Relationships, 9) Fall Prevention, 10) Patient Self-Management, 11) Disease management, 12) Transitional Care Coordination" (Esslinger et al., 2008, p. 400).

Through the work of the participating agencies, their rehospitalization rate declined by an average of 0.09%, whereas non-participating agencies' acute care hospitalization rate increased by an average of 1.20% (Esslinger et al., 2008). A limitation of this program was the task orientation of the modules. The program provided charts and tasks to improve the acute hospitalization rate, but did not provide clinical practice or opportunities to build embodied knowledge. Shade, Esslinger, Anderson, Sun, and Knowles (2009) found that the use of the campaign materials decreased the acute care hospitalization rate even though the participants were independent in exploring how to integrate the tasks with their current knowledge of client care, and to respond to these new situations.

To reduce the incidence of acute care, chronic care management is the focus for redesigning health care. Suter, Hennessey, Florez, and Suter (2011) described the

chronic care model (CCM) as a solution for chronic care in all health care settings, including acute care and home health. Clients with chronic conditions are generally the most complex and require expert nurses to coordinate care and provide early interventions to prevent further illness and disability. Although nurses are at the center of client care, other health providers must assist to provide holistic care through education, goal setting, and evaluating progress with each health care visit. To make the necessary improvements to provide quality care, it is first necessary to understand the relationships between nurses and client outcomes (IOM, 2004). Home health is complex and often viewed as possessing four components: reimbursement, quality practices, home environment, and care planning. The home health nurse must have a working knowledge of all components to create positive client outcomes. This study focused on the nursing expertise that supports client-centered quality outcomes. Establishing the relationship between embodied nursing knowledge and expertise is an important step in understanding how to develop positive client-centered outcomes.

Nursing Expertise

Nursing cannot occur without the purposeful and knowing commitment of the nurse to the client (Benner, Sutphen, Leonard, Day, & Shulman, 2010). This practice is critical to advancing and performing knowledgeable quality nursing practice, which includes the ability to plan a task, notice patterns, develop reasonable explanations, and draw analogies to other problems intertwined with factual knowledge (Benner et al., 2011). Disconnected knowledge is not sufficient to create positive client-centered outcomes.

According to theories about expert nursing, home health nurses must be experts in interpreting the client's health situation by "knowing the client and family, knowing the system and institution, and knowing oneself and one's colleagues" (Foley et al., 2002, p. 276). Home health nurses must recognize early signs of health problems in order to achieve positive outcome improvement measures (Benner et al., 2011; Minick, 1992). Expert home health nurses draw on a richly structured information base, which enables the theoretical concept of early recognition of clinical situations, enabling the nurse to provide preventive interventions for improved clinical outcomes (McHugh & Lake, 2010).

To develop a competence in client outcomes, nurses must have opportunities to learn. A prominent difference between expert and novice nurses is the expert's grasp of perceptions shaping his or her understanding into new knowledge (Benner et al., 2010). In addition, these perceptions allow expert nurses to see new patterns, relationships, or differences that are not apparent to novice nurses (Benner et al., 2010). These perceptions enable the expert nurse to identify subtle changes in a client's condition and quickly take action (Kelly & Vincent, 2010). Expert nurses' conceptual understanding allows them to extract a level of meaning that is not obvious to novices, and this helps expert nurses remember relevant information (Benner et al., 2010). Experts are also able to access relevant information because their understanding of the subject matter allows them to identify quickly what is relevant, thus avoiding overtaxing their attention (McHugh & Lake, 2010). Key to expert nursing is the transformation of factual knowledge into usable knowledge (Foley et al., 2002).

Nursing Experience

Although experience is required to improve the outcome improvement measures, novice nurses often apply to home health agencies in order to obtain a more flexible work schedule or relieve job dissatisfaction. However, home care agencies are hesitant to hire nurses who do not have at least one year of medical-surgical experience because of the autonomy and other characteristics required in home health (Neal, 2000). In addition, research indicates that nursing experience relates to client outcomes (Hill, 2010). Based on the related concepts of experience and embodied nursing knowledge is Benner's (1982) definition of experience as time, nursing practice, and self-reflection. Years of experience may provide flexibility, critical thinking skills, excellent assessment skills, self-reflection, and ethical principles, which also enable embodied expert nurses to detect early clinical changes (Benner et al., 2011).

Stajduhar et al. (2010) explored expert nursing practice in home health to define the effect of decision-making skills on clients and the family structure at the client's end of life. Collected from 2006 to 2008, were qualitative data in the form of narrative descriptions and in-person interviews with 29 Canadian home care nurses experienced in home health. Home health expert nurses revealed the characteristics of decision-making, including knowing the client and family through assessments, building relationships with clients and families, knowing the resources of home health, nursing expertise, and approaches to care. The MER uses nursing skills developed through experience for these variables. During the decision-making process for client care, the home health nurse draws on his or her experiences to determine care needs (Herbig, Bussing, & Ewert, 2001; Stajduhar et al., 2010). Participants discussed using personal intuition, experience,

knowledge, and consulting with other health professionals to collect information, all of which influenced their decision-making process. They also emphasized the establishment of trust on the part of the client and described difficult client-nurse relationships in which they had to manage personal negative reactions. The findings may not be generalizable to the United States because of the differences in the home health system. However, these findings are similar to those of Benner et al. (2009) and Minick (1992), reflecting the foundation of knowledge required for expert nursing practice.

Neal (2000) reported on two qualitative studies of nurses' transitions to home health from other areas of nursing. The first study was a grounded theory research, wherein the researcher interviewed 30 home health nurses from Washington, DC, Maryland, and Virginia who worked in various home health positions and had different levels of nursing education (Neal, 2000). Neal identified three stages through which nurses progress as they adapt to the home health environment and become autonomous in home health. These stages are (1) dependence, (2) moderate dependence, and (3) autonomy (Neal, 2000). Findings also revealed that time working in home health enables the nurse to gain experience and confidence to move through these stages (Neal, 2000).

The second study (Neal, 2000) validated and refined the concept of home health nursing expertise using a focus group and self-administered surveys of home health nurses. This study found that particular factors could restrict a home health nurse from becoming experienced in home health. These factors can include "physician-nurse relationship, reimbursement factors, unfamiliar clinical situations, and the patient entity" (Neal, 2000, p. 14). These two studies validate Benner's (1982) novice to expert theory and Minick and Harvey's (2003) definition of embodied knowledge. Stage three of a

nurse's adaptation to home health in Neal's (2000) research is comparable to Benner's (1982) expert stage and Minick's (1992) characteristics of early recognition of client problems (see Table 3).

Table 3

Comparison of Expert Practice Characteristics

Benner's (1982) Expert	Minick (1992) Early Recognition	Neal (2000) Adaptation
Knows the client by understanding typical patterns of responses and knowing the client as a person (expert caring practices)	Knowing their clients and families	Effective communicator, takes charge, knows when to let go, good listener
Negotiates for changes	Knowing the system and institution	Uses organization to optimize care
Transparent view of self	Knowing the skills of oneself and ones colleagues	Understands own and other's roles, strong advocate for nursing role, uses intuition, keeps up with literature

Hartung (2005) reported on the complex experiences of acute care nurses transferring into home health. The aim of Hartung's research was to develop a theory of how nurses' knowledge developed in the switch from the hospital environment to home health. The participants were 14 nurses (12 field nurses and 2 administrators), who had transferred to home health 6 to 20 months before the study was conducted. Participants were chosen because peers identified them on an evaluation of skills, knowledge, and successful transition into home health. Conducted over two years, from 2000 to 2002, the study involved interviews with participants who represented diverse demographic backgrounds and levels of nursing experience. Supporting Benner's (1982) assumptions, the participants expressed that they were unprepared for the changes in their practice

when transitioning to home health. The participants thought they would be comfortable and be experts in home health, just as they were in acute care. This demonstrates that expertise in nursing is obtained through experience as well as applied and theoretical knowledge (Christensen, 2011): "Experience is…a requisite for expertise" (Benner, 2001, p. 3). Performed in a mostly rural area, this study used participants who had been working in home health for a short time, limiting the study's generalizability (Hartung, 2005) and contradicting Benner at al. (2009), who stated that nurses become experts only after five years or more of experience in a particular area. Another limitation was the gender and educational level of the participants. The predominant gender of the respondents was female (92%), and 50% were educated at the diploma level (Hartung, 2005).

Nurse Education Level

The American Association of Colleges of Nursing ([AACN], 2008) and the American Public Health Association (2012) recommended that a baccalaureate degree in nursing (BSN) should be the entry level into nursing practice. Aiken et al. (2003) and Blegan, Goode, Park, Vaughn, and Spetz (2013) found that BSN prepared nurses were related to lower client mortality rates compared to less-qualified nurses. Thus, nurse's education level was chosen as an independent variable to examine in this study. Educational levels of nursing have been the emphasis of research in the last decade, but most of the research was conducted in the hospital environment (Aiken et al., 2002; Aiken et al., 2003; Blegan et al., 2013; Bradley, et al., 2012; Brooks-Carthon, Kutng-Lee, Sloane, Cimiotti, & Aiken, 2011). The Education Committee of the Association of Community Health Nurse Educators (ACHNE) (2010) argued that a bachelor's degree in

nursing is important to community nursing. However, literature supplies little research in community health indicating that a bachelor's degree is important in developing improved client outcomes.

The Visiting Nurse Service of New York (VNSNY) started an educational program for associate degree nurses (ADN) (Chaya et al., 2008). The VNSNY had traditionally hired primarily nurses with BSN degrees, so the agency led a study to understand and compare the differences between ADN and BSN educational preparation. The findings from their self-administered survey reported that BSN education offered specific courses in community nursing with limited home health nursing. In contrast, most ADN programs integrated community nursing into traditional courses and only taught concepts of community nursing (Chaya et al., 2008). The 50-hour ADN program at VNSNY sought to address this gap by providing newly licensed ADNs with a review of client assessment, OASIS-C outcome measures, and other topics considered pertinent to new home health nurses. The education sessions contained five days of instructive learning, two days of clinical surveillance with field nurses, and a 12-month internship if hired after the certification. Thirty nurses completed the certification course and competed for eight full-time positions. The 30 participants of the program completed a pre- and post-test assessment of the knowledge of home health practice. The post scores were 20 points (79%) over the preassessment score of 59%. The researchers did not report on the outcome of the 12-month internship and the resulting client outcomes as measured by the OASIS-C.

Aiken et al. (2003) studied expert practice in a quantitative study of 168 out of 210 acute care hospitals in Pennsylvania in 1999. This cross-sectional study reviewed

outcomes for more than 23,000 general, orthopedic, and vascular surgery patients. This study explored the independent variables of organizational and self-administered survey information material on nurses' educational level, staffing, and other characteristics (Aiken et al., 2003). The dependent variables were client death and "failure to rescue (deaths in surgical patients with serious complications)" (Aiken et al., 2003, p. 1617). Findings suggested a 10% increase in negative outcomes among bachelor's level nursing staff, compared to a 5% decrease in negative outcomes among more qualified nurses (Aiken et al., 2003). In this study, years of nursing experience did not correlate with death or failure to rescue. Although this study focused only on nurses in Pennsylvania and did not examine home health nurses, it demonstrated that nursing education level might be related to health outcomes generally.

Blegan et al. (2013) explored the effects of nursing educational levels to determine if nurse-sensitive client outcomes had a higher percentage of improvement rates in hospital with more baccalaureate prepared nurses. Conducted was this cross-sectional study in 21 hospitals using risk adjusted patient quality indicators (Blegan et al.). The findings from this study indicated that hospitals with a greater proportion of baccalaureate degree (BSN) nurses had lesser percentages of "congestive heart failure mortality, decubitus ulcers, failure to rescue, and postoperative deep vein thrombosis or pulmonary embolism and shorter length of stay" (Blegan et al., p. 89). McHugh et al. (2013) found similar results in magnet hospitals, which have a higher proportion of registered nurses with a BSN degree. These hospitals had a "14% lower odds ratio of mortality (odds ratio 0.86; 95% confidence interval, 0.76-0.98, P=0.02) and 12% lower odds of failure-to-rescue (odds ratio 0.88; 95% confidence interval, 0.77-1.01, P=0.07)"

(p. 382) when compared to hospitals with a lower proportion of nurses with BSN degrees. These studies may not be generalizable to home health, but they represent the current understanding of the relationship between nurse educational level and client outcomes.

Client-Centered Outcomes

Client-centered outcome measures relevant to home health practice are the focus of recent efforts aimed at the public reporting of client outcomes documented in the OASIS-C (CMS, 2012c; Deitz, Dowell, Madigan, & Richard, 2010), as well as pay for performance programs (Centers for Medicare and Medicaid Office of Public Affairs, 2011; Majette, 2011; Niewenhous, 2007; Nuccio, Richard, & Hittle, 2012). In the past, home health research was inclined to focus on the detection and supervision of chronic illness and not on outcomes such as activities of daily living and quality of life. However, the goals of home health are to help individuals to maintain or restore health by maximizing freedom while diminishing the effects of illness, enabling the individuals to live with greater independence in their own homes while avoiding hospitalization or admission to other health care facilities (CMS, 2005).

To identify important client-centered outcomes, the nursing field uses the foundation of public health sciences and nursing theories developed from empirical research. The community health or home health nurse plans interventions to meet identified client needs in the home. Then he or she implements the plan and evaluates his or her interventions to determine the extent to which the interventions had an impact on the health status of the client. This nursing process is similar to the actions of acute care nurses (Aiken et al., 2002; Schreuders, Bremner, Geelhoed, & Finn, 2012; Suhonen,

Valimaki, & Leino-Kilpi, 2008); however, the emphasis on whole-population health sets the home health nurse apart from hospital nursing and skilled nursing in other settings.

The IOM (1988) stated that "effective public health actions must be based on accurate knowledge of health problem causation, distribution, and the effectiveness of interventions" (p. 126). Historically, client satisfaction and expectations of nursing care were the measures of quality nursing services. Currently, the home health industry focus is on nurse-sensitive client outcomes for improved quality of care (Dykes & Collins, 2013; Kominowski, 2011; Thorlby, Jorgensen, Siegel, & Ayanian, 2011), workplace outcomes (Kroposki, 2001), functional outcomes (Keepnews, 2002), and, more recently, nursing knowledge translation (Doran & Sidani, 2007). Limited literature exists concerning the effects of nurses' knowledge in home health on client outcomes measured by the OASIS-C. This creates a gap of knowledge, which needs to be researched (Benner & Wrubel, 1989)

Client outcomes research is inconclusive in home health, primarily because there are few studies that examine client outcomes using a consistent set of measures like the OASIS-C. In existing home health research, the OASIS-C instrument has been used primarily to identify medication management outcomes (Atkinson & Frey, 2005; Bao, Shao, Bishop, Schackman, & Bruce, 2011; DeBartolomeo Mager & Madigan, 2010). Additional home health research has concerned client-centered outcome improvement measures (Fortinsky & Madigan, 1997) including functional status outcomes of bathing, ambulation, and transfers (Scharpf & Madigan, 2010). Outcome improvement measures such as nurse-sensitive indicators, which are results that are responsive to nursing interventions and knowledge, have also been studied (Head, Maas, & Johnson, 2003).

Other home health outcome research has focused on urinary incontinence (Egnatios, et al., 2010; Westra et al., 2011), and surgical wounds and pressure ulcers (Bliss et al., 2013), which are publically reported outcomes.

Riggs et al. (2011) conducted one important study on the relationship between home health nurses and client outcomes. Riggs et al. (2011) studied home health nursing visit intensity, defined as the percentage of nursing visits to length of stay, and found that nursing visit intensity predicted improvement in clients' ADLs as documented on the OASIS-C. The researchers analyzed over 100 home health clients with heart failure and found that clients receiving more nursing visits were seven times more likely to improve or stabilize their dyspnea and ADLs as compared to lower visit intensity (Riggs et al., 2011). In contrast, D'Errico and Lewis (2010) studied continuity of care among home care nurses in a Southern California hospital-based home health agency and found no relationship between continuity of care and ADL improvement.

Scharpf and Madigan (2010), who studied 2005 OASIS-C data consisting of information from 13,572 home health clients who had the diagnosis of heart failure, found that 70% of home health clients with heart failure improved while receiving home health services. These findings are comparable to those of Keepnews, Capitman, and Rosati (2004), who found relationships among functional status decline, urinary incontinence, age, and cognitive impairment. Similarly, Maloney, Ng, and Schneider (2008) conducted a study of 275 clients who underwent joint replacement and were receiving home health care from an agency in Missouri. Results showed significant positive ADL outcomes, despite a limited population and convenience sampling.

However, none of these studies explored the relationship between embodied knowledge and client outcomes in home health.

Embodied Nursing Knowledge

Although the concepts of embodied nursing knowledge and expert nursing in home health nursing practice are often presented as separate concepts, the reality is that they coexist and interrelate in a more comprehensive way than has been acknowledged. Locsin and Purnell (2009) stated that positive client outcomes in home health care occur less frequently without the intention and knowing engagement of nurses. Similarly, Benner et al. (2011) called clinical wisdom *knowing engagement* or *embodied knowledge* among home health nurses, terms that reflect nurses' ability to improve clinical outcomes. *Clinical wisdom* is the underpinning of expert nursing practice and includes the nurse's ability to detect subtle changes in home health clients' health status (Benner et al., 2011).

Public health nursing in the United States, Europe (Omerzel & Sirca, 2008), and Italy (Dellai, Mortari, & Meretoja, 2009) uses expertise as a concept that supports and defines knowledge. Existing literature reveals inconsistencies and variations in embodied nursing knowledge. Nursing knowledge, defined as the act of applying knowledge to a problem and acting with wisdom, forms the basis of expert nursing practice (Zander, 2007). Expert practice occurs as nurses increase skills in home health, learn from their experiences, and cultivate relationships with clients (Morrison & Symes, 2011). Expert nursing schemata are the embodiments of intuition and accumulated knowledge as expressed in clinical judgment. Nursing expertise influences and allows the absorption of new knowledge and reinterprets contradictions to the schema as exceptions.

Carper (1978) posed that an embodied home health registered nurse must practice in the four dimensions of knowledge: empirical, ethical, esthetic, and self-knowing. Nurses obtain empirical knowledge by studying nursing and other sciences. Ethical nursing knowledge is the understanding that registered nurses value each client (Wright & Brajtman, 2011). Home health registered nurses who practice esthetic knowledge care to provide his or her clients with the best possible care. Self-knowing refers to understanding your capabilities as a home health registered nurse. Knowing oneself as a nurse enables the enhancement of the client's capabilities through nursing interventions of explaining, supporting, and validating the client's perceptions and feelings of the situation. The nurse's adaptation to their own self-knowing enables them to provide quality care to his or her clients and assist their colleagues in performing the same quality care.

Carper's (1978) ways of knowing developed, through Benner's stages of theoretical development, defines nursing knowledge as the amalgamated embodied knowledge or intuition that affects clinical judgment (Benner, 1982; Benner et al., 2011). Carper's ways of knowing emcompass the empirical, aesthetic, ethical, and personal patterns of knowing. Taken together, these areas of knowledge form the ontology of nursing (Mantzorou & Mastrogiannis, 2011). Nursing ontology is operationalized as the home health registered nurse's confidence in detecting early client condition changes by "knowing the patient and family, knowing the system and institution, and knowing the skills of oneself and one's colleagues" (Foley et al., 2002, p. 276). According to Benner (1984), only the expert nurse achieves and implements all of Carper's concepts of knowing. The result of nursing knowledge is thinking in action, which creates links

between thought patterns, clients' changing statuses, and the interventions used to create positive client outcomes (Benner & Wrubel, 1989). To know one's skills as a nurse, the nurse must first understand what it means to be a person, and according to the status of being a home health registered nurse, what it means to practice quality care.

Benner (1982) defined the practice of nursing as the use of knowledge of illness and disease in the principal nursing relationship for achieving improved client outcomes. The nurse-client relationship constantly evolves with every home health visit. In parallel to the client's advancing knowledge, the HHRN's knowledge also develops. The HHRN researches new evidence to provide new insights into interventions for the client (Gerrish, Lacy, & Cormack, 2010). Thus, nursing knowledge is temporal and chronological and will always be imperfect (Benner et al., 2011). Expert nurses understand the phenomenon of imperfect knowledge and continue their search for clinical reasoning, which takes into account the gaps in the understanding of the situation, to determine the actions or interventions appropriate for the development of positive individual client outcomes. The embodied knowledge of the expert nurse helps him or her with decision-making because the nurse knows what to do, when to do it, and how to do it, which leads to skillful embodied responses (Benner et al., 2011). Thus, expertise in clinical decision-making is one way of conceiving of and measuring embodied knowledge (Baxter & Boblin, 2008; Standing, 2007) and intuition (Billay, Myrick, Luhanga, & Yonge, 2007).

Standing (2007) studied clinical decision-making skills among 20 student nurses in the United Kingdom using a hermeneutic (or interpretive) phenomenological design. Participants were interviewed during the preprogram phase and after their first year as a registered nurse. The interviews took place from 2000 to 2004. Additional data collected

included a reflective journal of learning experiences, a care plan, and a critical incident analysis described by the participants. Findings from this study suggested that clinical decision-making skill is a core competency in the education of nurses.

Benner et al. (2010) supported the inclusion of clinical decision-making skills in the classroom so students can practice thinking in action to enable them to solve problems they may encounter when taking care of clients. Limitations of the Standing (2007) study included the small pre-licensure to graduation population of one United Kingdom two-year university and the use of retrospective interviews. The researchers did not explain how they obtained the volunteer sample of 20 nursing students, so the population may be atypical, limiting the transferability of the data to other nursing students (Polit & Beck, 2008). Retrospective interviews provided thick description of accounts, but one participant provided feedback describing anxiety and self-consciousness about the tape-recorder, which could imply that responses were incomplete or inaccurate. This study supports the exploration of different levels of nursing expertise, defined as embodied nursing knowledge, and the relationship to home health outcome improvement measures.

A quantitative correlational study by Ingram (2008) explored the relationships between education, experience, and critical thinking among 44 registered nurses in the Las Vegas, Nevada area. The sample consisted of 2 men and 42 women with a mean age of 49.9, reflecting the average age of nurses of 49.1 for the state of Nevada during 2008 (Ingram, 2008). Eight participants had a diploma, 14 had associate of science degrees (ASD) degrees, and 22 had BSN degrees. The study was delimited to nurses who had at least five years' professional experience and less than a master's degree (Ingram, 2008).

Ingram found a positive association between a nurse's education level and the ability of the nurse to evaluate and use inductive reasoning or critical thinking. The limits of this research included a small sample size that limits generalizability and risks a Type II error (Polit & Beck, 2008). The population of registered nurses in Nevada in 2008 was calculated to be 371 with a confidence level of 95% for this study; thus the sample size of 44 is a limitation. Additionally, the limited variables of critical thinking scores and nursing educational levels have the potential for overlooking small differences and could lead to a false conclusion of no differences between the samples. Nevertheless, the study strongly suggests that critical thinking is a nursing skill requiring embodied knowledge, which develops over time with education and experience.

The ability of the home health nurse to detect subtle health changes enables the nurse to provide early intervention and avoid complications or provide effective interventions to achieve a goal (Benner et al., 2009). In contrast, nurses who cannot detect subtle changes in clients' conditions have common characteristics, as described by Rubin (2009), including unwillingness to take responsibility for their interventions, lack of qualitative clinical distinctions, and an inability to remember specific knowledge about their clients. Each nurse's level of knowledge, skill, and ethical comportment determines his or her ability to improve client outcomes (English, 1993). Palese et al. (2011) found that when nurses connected with or learned to know the client, client outcomes improved. Providing effective early intervention requires the nurse to use moral reasoning, nursing experience, theoretical understanding, and intelligence to provide care (Burket, Greider, & Rohrer, 2010; Day & Benner, 2002; DeJong et al., 2010; McHugh & Lake, 2010). The ability to recognize subtle changes by knowing the home health client and having

embodied knowledge is a key process in health promotion and preventive care (Cody, 2009).

Benner's Novice to Expert Theory

Benner (1982, 2004) used Dreyfus and Dreyfus' Model of Skill Acquisition and Skill Development to explore nursing knowledge embedded in expert practice. Benner's (1982) adaptation of the Dreyfus model describes the background and advancement of thinking and practice as nurse's progress along a continuum. This journey to expert nursing practice occurs through years of experience and within a specific environment (Benner et al., 2011). Benner et al. (2009) described three skills that develop during this journey: client advocacy, client involvement, and early detection of client changes. These skills have five stages. The five stages of skill acquisition and development are "novice, advanced beginner, competent, proficient, and expert" (Bobay, Gentile, & Hagle, 2009, p. 48). These levels are discussed in detail in the following subsections.

Novice

The first stage in Benner's theory is the novice. Through instruction, the novice nurse learns the rules and regulations of the practice of home health and is task-oriented because he or she has no background in the specialty of home health. The behaviors of the novice home health nurse are inflexible, as the nurse has no experience with home health clients. The environment of home health presents a new dimension to nursing by virtue of the differences in clients' homes, the differences in the management of care, and the skill needed to plan, provide, and document care based on reimbursement plans. Home health agencies use nursing mentors during orientation to assist novice nurses in practicing safe nursing care and learning the structure of home health (Shur Coyle, 2011).

Novice nurses need time to process and reflect upon their experiences (Shur Coyle, 2011). Because of the additional time needed by novice home health nurses, home health administrators should decrease the number of clients novice nurses and their mentors visit each day (Shur Coyle, 2011) based upon the novice nurse's previous clinical experience and progress (Neal, 2000).

Benner (1982) considered a nurse who has experience but is transitioning for the first time to working in home health a novice nurse. In this situation, a novice nurse is learning the process of planning, providing, and documenting care based on reimbursement and CMS regulations for home health. Neal (2000) recommended that a novice nurse have a solid generalized medical-surgical background prior to working in home health. Historically, home health agencies have required nurses to have at least one year of hospital practice prior to practicing in home health. A medical-surgical background, along with a bachelor's degree, has enabled nurses to complete successfully an orientation program in home health within two months (Al-Mazrooa, 2010), compared to newly license nurses who completed the orientation program in one year (Shur Coyle, 2011).

Advanced Beginner

The second stage is the advanced beginner. Advanced beginners in home health have some experience providing care in the clients' homes and range from a new graduate who has completed the orientation program to a nurse with one year of experience (Benner et al., 2009; McHugh & Lake, 2010). These nurses no longer practice based solely on rules, and begin to use experiences of client care to prioritize care and the home situation. The advanced beginner nurse learns the clinical processes of

home health, the client and family's ability to learn, and the client's physical, mental, and emotional state, including the desire or motivation to change his or her behavior to promote health. Adaptation to home health requires the nurse to be flexible, creative, and innovative, which helps the nurse progress to the next stage. The second stage begins when the nurse "can demonstrate marginally acceptable performance [and has] coped with enough real situations to note the recurring meaningful situation components" (Benner, 2001, p. 22).

Guided by the CMS Operations Manual (CMS, 2005), nurses adhere to the rules and regulations, testing their abilities while relying on their more experienced mentors. Home health mentors support advanced beginners in remembering the rules, prioritizing care, and learning how to assess the home situation. Mentors use strategies to assist the advanced beginner to remain calm and use creditable resources to assist them in clinical decision-making.

Competent

Shur Coyle (2011) reported that a home health nurse takes "18 months to 3 years to reach the competent stage" (p. 204). In this stage, the nurse's knowledge and behavior enables him or her to interpret aspects of the situation using abstract analytic reasoning, differentiating relevant from irrelevant aspects (Benner, 1982, 2004). Home health nurses who have one to three years of experience are in this stage (Benner et al., 2009; McHugh & Lake, 2010). Competent nurses follow their instincts or intuition when caring for clients, and they begin to rely on their experience to guide them in the creation of nursing plans and interventions (Benner, 2001; Benner et al., 2011).

Proficient

According to Benner (2001), "The proficient performer perceives situations as wholes rather than in terms of aspects, and performance is guided by maxims" (p. 27). During this phase of the model, the nurse comprehends the phenomenon during a home visit because he or she understands the long-term plan for the client's care using higher critical thinking, which includes inductive and deductive reasoning. As nurses develop their ability to use intuition, they start to focus on the early recognition of a problem by distinguishing priorities from non-priorities, leading to practical wisdom (Benner, 1982; Benner et al., 2011; James, Andershed, Gustavsson, & Ternestedt, 2010). Intuitive practice enables nurses to know themselves. This self-knowledge enables nurses to make decisions rapidly based on their assessment skills. Nurses start to use their emotional responses to link prior experiences with new changes in clients' actions and health statuses, but are still able to understand how and why each situation is unique (Benner, 2004; DeJong et al., 2010; Pross, Boykin, Hilton, & Gabuat, 2010). According to Shur Coyle (2011), nurses reach the proficient stage after three to four years of experience and are able to mentor novice nurses (p. 209).

Expert

During the final stage of the model, the expert nurse retains the strengths developed through the previous stages, including clinical wisdom. In addition, an expert nurse's actions are not wasteful and hindered by rules, but open and flowing from experience, knowledge, and focus on the problem. Benner (2004) stated, "Intuitive links develop between seeing and responding to the situation" (p. 196). Intuitive practice provides the expert nurse with the ability for rapid decision-making and excellent

assessment skills with the ability to prioritize nursing interventions (DeJong et al., 2010). Prioritization of nursing actions enables the expert nurse to understand both circumstances and the impact of circumstances on the family, other providers, and the community who work in collaboration for the care of the client. Shur Coyle (2011) considered expert nurses to have seven or more years of home health experience. However, Benner (1982) found that most nurses will achieve the competent and proficient levels, but many nurses will not reach the expert level.

Minick's (1992) research findings indicated that some nurses could not develop expert practices because they did not accept the vulnerability required of nurses in expert nurse-client relationships. Expert nurses have embodied knowledge. Influenced by education and experience, embodied knowledge will manifest in client outcomes (Brykcynski, 2006). Embodied knowledge enables early recognition of client problems, which is especially important for home health nurses because they are often the only health provider, resulting in a strong sense of responsibility for client outcomes. Expert nurses demonstrate abduction, a form of thinking that involves induction and deduction, (Kyungil, Bae, & Nho, 2011), to observe facts and make a logical embodied interpretation of the situation (Galvin & Todres, 2011; Gobbi, 2012; Gore & Sadler-Smith, 2011). Expert home health nurses often exhibit unpredictable, atypical thinking and ignore trivial information.

Benner's (1982) and Minick's (1992) research indicated that expert nurses detect client problems in their early stages. These studies demonstrated that expert nurses with embodied knowledge have a contextual effect on client's outcomes, even after adjusting

for the nurses' education level and years of experience. Gardner (2012) and Gobet and Chassy (2008) criticized Benner's theory because it is not based on quantitative data.

Manifestation of Early Recognition

Early recognition of patient problems, an ability of expert home health nurses, has been quantified in studies using Minick's (2003) MER. Early recognition encompasses the concepts of knowing the patient, knowing home health, and knowing oneself. Expertise in home health nursing is demonstrated by being willing to take opportunities and having self-reliance in assessment and executive abilities (Wynn, Engelke, & Swanson, 2009). Wynn et al. (2009) explored nursing engagement by using the MER to examine the relationships between nurses' degrees and years of experience and calling a rapid response team. The sample was 75 hospital nurses. Nurses who called the response team were four times more likely to have at least three years of experience and five times more likely to have a bachelor of nursing degree (Wynn et al., 2009). Nurses with a bachelor's degree recognize subtle changes early and are able provide interventions earlier to improve client outcomes (Wynn et al., 2009). These nursing characteristics are similar to those found in Benner's (2001), Minick, and Harvey's (2003) research exploring the concepts of knowing the patient to detect subtle condition changes.

Hughes (2012) performed a qualitative study with 13 nurses to describe the gap between problem recognition and nursing actions, which supports early recognition of client problems. Fifteen critical care nurses participated in reflective interviews that generated three concepts of early recognition: knowing the patient's situation, knowing one's theoretical beliefs, and knowing the organizational concepts of the situation. Kelly

(2009) and Kelly and Vincent (2010) found the MER captured the mental processing of the nursing staff, which provides the foundation for practice revisions, education, and research. Research using the MER is limited, but more knowledge is developing about the links of embodied nursing knowledge through "knowing the patient and family, knowing the institution, and knowing the skills of oneself and one's colleagues" (Foley et al., 2002, p. 276).

Knowledge Gap

The IOM's (2011) report found that, notwithstanding the current advancement in nursing education and research, a gap exists between embodied nursing knowledge and the ability to provide high-quality home health services to achieve positive outcome improvement measures. The report indicated that nurses practicing to "…the full extent of their education" would improve health outcomes (IOM, 2011, p. 4). There remains a gap in the literature regarding the relationship of embodied nursing knowledge and positive home health client outcomes. No studies were found in the literature that explored the relationship between embodied nursing knowledge and the outcome improvement measures. Therefore, there is no basis of comparison for the research design of this study. HHRNs are provisional professionals in the health system. The term *provisional* means that nurses maintain a broad knowledge base and apply this knowledge to their practice. To attain positive health outcomes for home health clients, HHRNs must cooperate with other providers using embodied nursing knowledge, critical thinking, and assessment skills demonstrating confidence and compassion (AACN, 2008.

The gaps in the literature include quantitative evidence of embodied nursing knowledge in home health. The present study was intended to fill a gap in the literature

regarding a lack of available evidence on the relationship of embodied nursing knowledge and client-centered outcome improvement measures. The purpose of this study was to identify possible relationships between the embodied knowledge used by HHRNs, their educational background, their experience, and the home health client-centered outcome improvement measures of bathing, bed transfer, ambulation, management of oral medications, dyspnea, pain interfering with activity, status of surgical wound, and urinary incontinence (CMS, 2012a).

Summary

Concepts of embodied nursing knowledge in home health practice have been explored in the literature; these include the ability to plan, notice patterns, develop reasonable explanations, and draw analogies based on nursing experience (Benner et al., 2011). These activities also act as indicators by describing home health nurses who provide quality nursing care to improve client outcomes. Activities of embodied nursing knowledge describe the knowledge attainment of "knowing the client and family, knowing the system and institution, and knowing oneself and one's colleagues" (Foley et al., 2002, p. 276). The activities and knowledge reflected in embodied nursing knowledge are the links between quality nursing care and improved patient outcomes. The nurse sensitive indicators required by CMS and documented in the OASIS-C demonstrate the linkages (CMS, 2005, 2012c, 2012d, 2013a). Nurse sensitive indicators "…improve if there is a greater quantity or quality of nurse care" (American Nursing Association, 2014, para 1). These nurse sensitive indicators are bathing, bed transfer, ambulation, management of oral medications, dyspnea, pain interfering with activity, status of surgical wound, and urinary incontinence (CMS, 2012d). In the 1850's,

Florence Nightingale was concerned about patient health care quality as she used data to decrease infections through cleanliness thereby improving patient outcomes (Gill & Gill, 2005; Nightingale, 1860/1946), and in 2012, the National Quality Forum recommended using patient outcomes measures to reimburse home health agencies for their services, a practice known as VBP (NQF, 2012). Yet, there is no literature exploring embodied nursing knowledge and its relationship with patient outcomes in home health.

Chapter 2 contained the literature review, which provides the foundation for the study by providing background information, which leads to the understanding of the significance of the problem, existing related research, and the literature gap. Despite extensive literature related to nursing expertise and home health outcome improvement measures, there was little information discovered regarding the variables for this study. No research was found on embodied nursing knowledge and its correlation to client-centered outcome improvement measures in home health. Research related to the relationships between years of experience, nurse education level, and client outcomes is found in acute care literature, but it is not found in home health research. Additional literature review provided examples of current knowledge of home health, health care quality, the OASIS-C, and client-centered outcomes in home health. Chapter 3 contains a description of the research method used in this study.

Chapter 3

Method

The purpose of this research was to identify the relationship between the embodied knowledge used by HHRNs: as expressed in knowing the client, knowing the system, knowing oneself, their educational background, their experience, and home health client-centered outcome improvement measures (including bathing, bed transfer, ambulation, management of oral medications, dyspnea, pain interfering with activity, status of surgical wound, and urinary incontinence) (CMS, 2012a). Documented in the discharge OASIS-C are the client-centered outcome improvement measures, which are used by home health agencies and are part of every HHA patient record.

The problem addressed by this study was the lack of empirical research supporting the relationship between the embodied knowledge of expert nurses and client health outcomes in home health. The present research was a descriptive correlational study employing the OASIS-C and Minick's (1992) MER. The independent variables were "knowing the patient and family, knowing the system and institution, and knowing the skills of oneself and one's colleagues" (Foley et al., 2002, p. 276), length of the home health nurses' home health experience, and level of education of the home health nurses. The dependent variable was the total percent score on the OASIS-C for outcome improvement measures. The knowledge gathered from this study may assist in filling the gap in the literature related to the relationship of nursing embodied knowledge and client-centered outcomes.

Chapter 3 contains a description of the method for this research. Chapter is divided into sections on the following: (a) the rationale for selecting the research

approach, design, and method; (b) population; (c) sampling criteria; (d) ethical considerations; (e) data collection; (f) instrumentation; and (g) data analysis techniques.

Research Design

A quantitative, descriptive correlational design was used in this study. A quantitative method was appropriate because quantitative research uses numerical data to test theories and hypothesis in the form of variables (Polit & Beck, 2008), at the same time examining the relationship between the variables (Burns & Grove, 2005). The quantitative research design enabled the examination of the relationship between embodied nursing knowledge and client-centered outcome improvement measures in home health.

In this quantitative, descriptive, correlational study, the independent variable, embodied nursing knowledge, had the following five dimensions: knowledge of clients and their families, knowledge of the system and institution, knowledge of the skills of oneself and one's colleagues, length of the home health nurses' home health experience, and level of education of the home health nurses. The following five research questions were used to guide the study:

RQ1: What is the relationship between home health registered nurses' knowledge of their clients and clients' families, and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C?

RQ2: What is the relationship between home health registered nurses' knowledge of the system and institution of home health nursing and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C?

RQ3: What is the relationship between home health registered nurses' knowledge of their own and their colleagues' skills, and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C?

RQ4: What is the relationship between the total years of home health registered nursing experience in home health and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C?

RQ5: What is the relationship between home health registered nurses' level of education and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C?

For RQ1, the independent variable was knowledge of clients and their families. The measurement for this variable was the mean response to items 4, 5, 6, 8, 9, 12, and 13 of the MER (Appendix A). For RQ2, the independent variable was knowledge of the system and institution. The measurement for this variable was the mean response to items 3, 10, 11, and 16 of the MER (Foley et al., 2002). For RQ3, the independent variable was knowledge of the skills of oneself and one's colleagues, which was measured by the mean response to items 1, 2, 7, 14, and 15 of the MER (Foley et al., 2002).

For RQ4, the independent variable was the total years' experience in home health. For RQ5, the independent variable was the level of education, which was coded as 1= *Associate or Diploma,* 2= *Bachelor's,* 3= *Master's,* and 4= *Doctorate*. The rationale for using the MER was the assumption that expert nurses can perform early recognition of client problems to provide timely interventions in the prevention of complications of illness. Benner's (1982) novice to expert theory supports this assumption. Foley et al.

(2002) described early recognition as "a skill developed through experience and possessed by expert nurses" (p. 276).

The dependent variable was the total percent score on the OASIS-C for improved outcomes (bathing, bed transfer, ambulation, management of oral medications, dyspnea, pain interfering with activity, status of surgical wound, urinary incontinence). See Table 4 for a detailed list of the OASIS-C items used in this study. The rationale for using the OASIS-C instrument was the empirical evidence in the literature that this instrument measures improvement in client outcomes (Hittle et al., 2004; Kinatukara et al., 2005; Scharpf & Madigan, 2010; Tullai-McGuinness et al., 2009).

Appropriateness of Design

An appropriate research design enables the researcher to obtain accurate and applicable data without any manipulation of the phenomenon (Creswell, 2014; Polit, 2010; Steinberg, 2011). Selected for this study was a descriptive correlational design as an appropriate method to explore a response to the research questions, reject or retain the hypotheses, develop correct findings, and make recommendations. Quantitative designs derive from a precise measurement and calculation from a controlled design, such as a descriptive correlation method (Polit & Beck, 2008). Used to describe and explore the relationship that exists between two or more variables by describing the variables' influence on each other through statistical analysis are descriptive correlational designs (Burns & Grove, 2005; Polit & Beck, 2008). Descriptive research enabled the understanding of the behaviors and situations that occur between a home health nurse and the client to achieve improved client outcomes as required by the Centers of Medicare and Medicaid Services (CMS) (2011b).

Table 4

OASIS-C Client-Centered Outcome Improvement Measures

M numbers	Improvement measures	Explanation of measures
M1860	Improvement in ambulation	Categorizes the client's ability and the type of assistance required to ambulate safely or propel self in a wheelchair over a variety of surfaces
M1850	Improvement in bed transfer	Detects the client's ability to transfer safely from bed to chair (and chair to bed), or position self in bed if bedfast
M1242	Improvement in pain interfering with activity	Identifies frequency with which pain interferes with client's activities with treatments if prescribed
M1830	Improvement in bathing	Classifies the client's ability to bathe entire body and the assistance that may be required to bathe safely, including transferring in/out of the tub/shower.
M2020	Improvement in management of oral medications	This item measures the client's ability to take all oral (p.o.) medications reliably and safely at all times.
M1400	Improvement in dyspnea	Measures the level of exertion/activity that results in a client's dyspnea or shortness of breath
M1342	Improvement in status of surgical wounds	Measures the degree of healing present in the most problematic, observable surgical wound
M1610	Urinary Incontinence	Distinguishes the presence of urinary incontinence or condition that requires urinary catheterization of any type, including intermittent or indwelling. The etiology (cause) of incontinence is not addressed in this item.

Note: Adapted from Centers for Medicare and Medicaid Services. (2013b). *OASIS-C Guidance Manual.* Retrieved from http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/HomeHealthQualityInits/Downloads/OASIS-C-Guidance-Manual-ERRATA-6-2013.PDF

A descriptive correlational design has made possible the detection of and assessment of the direction of a relationship between nurses' knowledge and patient outcomes. The resulting information may serve as a starting point for further hypothesis generation or theory development by testing Benner's (1982) theory using deductive logic based on statistical analysis.

A qualitative design was considered for this study, but this approach would not answer the research questions, which required statistical analysis of numerical data (Creswell, 2014). A qualitative design uses narrative materials to discover themes and categories (Burns & Grove, 2005; Polit & Beck, 2008). The purpose of qualitative research is to develop theory by constructing data inductively to test a theory (Finfgeld-Connett, 2014). In contrast, quantitative research objectively measures situations by reduction, control, and prediction.

A descriptive, correlational research design controls for the effects of confounding variables on the chosen research variables (Burns & Grove, 2005; Welford, Murphy, & Casey, 2012). To explore trends in the demographic data and the independent variables, a self-administered survey is appropriate (Welford et al., 2012). Self-administered survey research uses questionnaires to collect data through participant responses (Polit & Beck, 2008). To collect information about the relationships between variables within a population and the distribution and prevalence of those relationships, a self-administered survey is appropriate (Polit & Beck, 2008). The advantage of a self-administered questionnaire is its flexibility. A self-administered questionnaire was appropriate for this study in reaching home health nurses, as registered nurses are literate and capable of appropriately completing this type of self-administered survey (Cegarra-

Navarro, Wensley, & Sanchez-Polo, 2011; Singh, Mathiassen, Stachura, & Astapova, 2011). A descriptive quantitative design is the most cost-effective design to answer the research questions of this study.

Population

The population for investigation was home health registered nurses who had worked at least one year in home health and worked as registered nurses in Ohio. In 2010, there were 147,600 registered nurses employed in Ohio (United States Department of Labor, n.d.; United States Bureau of Labor Statistics: National Employment Matrix, 2010). In 2014, the numbers of Ohio registered nurses educated at the bachelor's, master's, and doctoral levels were projected to reach 44,910, 37,480, and 6,200, respectively, and the total count of nurses in Ohio was projected to be 277,870 (Ohio Job and Family Services [OJFS], 2008). It was unknown how many of these nurses work in the home health field. Because the total count of home health registered nurses working in home health in Ohio was unknown, it was not feasible to use a random sample. Therefore, a convenience sample was used. However, the randomization of the home health agencies was this researchers attempt to overcome the limitation of using a convenience sample by using the randomization table to choose the home health agencies.

In nursing research, convenience samples are the norm (Polit, 2010). Research regarding community health issues provides knowledge using non-randomized convenience samples (Gallagher et al., 2010). Even though research designs using non-randomized samples cannot guarantee that differences in the sample are the result of chance (Leedy & Ormrod, 2010), demographic information demonstrating the sample's

similar characteristics provides evidence that selectivity bias does not inhibit the study's findings, even though selectivity exists (Rubin, 2008). Creswell (2014) stated that a sample possesses one common characteristic creating a difference among other groups. The target population identified by the researcher in this study contained the common characteristics selected in the population (Whittemore & Melkus, 2008). The population in this study was home health registered nurses. The target population for this study was home health registered nurses with one year of home health experience who perform the OASIS-C while taking care of clients in Ohio. A convenience sample was necessary for this study because the researcher did not have access to the entire population. This researcher identified the portion of the target population that was accessible for this study as potential participants identifying themselves as fitting the inclusion criteria, as other methods of sampling were not possible with this target population.

Inclusions

The target population consisted of home health registered nurses working in Medicare certified agencies. Additionally, the home health agencies for this study must have had outcome improvement measures listed on the *Home Health Compare* (CMS, 2012a) website to be included in this study. Eligible home health agencies in Ohio were identified as home health agenices having skilled nursing services as defined by CMS (2012e). Skilled nursing services are provided under a plan of care designed with the client and signed by the physician. To perform skilled nursing services, the registered nurse makes an initial visit and documents the findings in the OASIS-C, re-evaluates the client's nursing needs with each visit, and appropriately documents clinical assessments

and progress noted while informing the physician of any changes in the client's health status (CMS, 2005).

The study population consisted of current home health nurses working in Medicare certified home health agencies in Ohio, who assessed their clients using the OASIS-C. Eligible participants were registered nurses employed by the participating home health agencies who had worked more than one year in home health. The sample was obtained from home health agencies listed on the *Ohio Council for Home Care and Hospice Resource Guide* (Ohio Council for Home Care and Hospice [OCHCH], 2013) and the *Home Health Compare* (CMS, 2012a) website.

Exclusions

Excluded from the study were registered home health nurses who had worked less than one year in home health. The rationale for excluding registered nurses who had worked less than one year in home health was that Benner's (1982) theory defines a novice as having less than one year of experience. Novice nurses are still learning the practice of home health and may have difficulty discerning between relevant and irrelevant aspects of client care in the home health setting. Novice nurses would not be able to perform early recognition of client problems (Foley et al., 2002). Also excluded were registered nurses working in non-certified Medicare agencies, as these registered nurses are not required to perform the OASIS-C documentation. Excluded from this study were home health agencies lacking outcome improvement measures on the Home Health Compare website, because such an absence indicates that the home health agency is not a Medicare certified agency or is a newly certified Medicare agency (CMS, 2012a). If the outcome improvement measures were not listed on the Home Health Compare

website (CMS, 2012a), these agencies were not placed on the contact list of agencies for this study.

Sampling Plan

This study was designed to examine the relationship between embodied nursing knowledge and client outcomes in home health. Therefore, the target population was home health registered nurses who had worked in home health for more than one year. Use of a convienence sample allowed the researcher to achieve diversity in years of experience as a nurse and years of experience working in home health while decreasing the risk for Type II errors. Inadequate sample size may lead to Type II errors, or falsely inferring that a relationship between the variables does not exist; therefore, a level of significance (*p* value) or alpha (α) was used to determine the sample size (Vogt, 2007). Tabachnick and Fidell (2007) indicated that the minimum is to include five times as many participants as there are predictors in the regression analysis, but they argued that the recommend ratio is 20:1. The data-sampling plan was determined based on these factors: participant availability, sampling convenience, costs of research, data security, and power analysis using G*power (Faul, Erdfelder, Buchner, & Lang, 2009).

Power Analysis

Power analysis estimates the sample size needed to reject the null hypothesis as a function of effect size, number of predictors, desired power, and the level of significance (Ellis, 2010). Cohen's f^2 characterizes the effect size where each level is associated with a specific effect size of small, medium, or large (Selya, Rose, Dierker, Hedeker, & Mermelstein, 2012). A small effect =.02, medium effect =.15, and a large effect =.35 (Ellis, 2010). An alpha indicates how confident a researcher is in rejecting the null

hypothesis, and Polit (2010) suggested that the alpha should be set at .05. Thus, the power analysis for this study was calculated using a medium effect size of 0.15, alpha of .05, power of .80, and six predictors. The result yielded a required sample size of 98 (Faul et al., 2009).

When researchers send self-administered surveys, a 100% return cannot be expected. According to Salkind (1997), the number of self-administered surveys to be sent out should be increased by a factor of 50% to allow for non-respondents. The power analysis calculated a required sample size of 98, which would provide sufficient statistical power for the discovery of relationships between the variables while preventing a sampling error (Warner, 2013). Therefore, when selecting home health agencies and the number of home health agencies, a minimum of 147 home health registered nurses would need to be available in the sample pool.

Home Health Agency Sample

Home health agencies listed in the *Ohio Council for Home Health and Hospice Resource Guide* (OCHCH, 2013) and listed on the *Home Health Compare* website (CMS, 2012a) within 300 miles of the researcher were used for sample recruitment. The combination of the *Home Health Compare* website (CMS, 2012a) and the *Ohio Council for Home Health and Hospice Resource Guide* (OCHCH, 2013) lists a total of 1,000 agencies located within the 300-mile radius, and the contact list of agencies for this study was created from these data. The list contains a mix of urban and rural and for-profit and not-for-profit agenices. As a preliminary step, the 1,000 agencies on this list were reviewed on the *Home Health Compare* website (CMS, 2012a) to determine if OASIS-C outcome improvement measures data existed. The outcome improvement measures from

each agency must have been posted on this website for the agency to be included in this study. Home health agencies were excluded if the outcome improvement meausres were not listed on the *Home Health Compare* website, because this indicates that the home health agency was not a Medicare Certified agency or was a newly certified Medicare agency (CMS, 2012a). The sampling plan was to choose a representative sample of Medicare home health agencies in Ohio by using a convenience sampling from the list created from the *Ohio Council for Home Health and Hospice Resource Guide* (OCHCH, 2013) and listed on the *Home Health Compare* website (CMS, 2012a) of home health agecnies with a 300-mile radius of the researcher. Home health agencies were choosen at random by assigning a number to each of the agencies on the list from a geographically defined area of western to central Ohio. These asigned numbers were placed in a random numbers table. With the researcher's eyes closed, a pencil was moved around the table, marking the numbers in order until a sufficient sample was obtained. The randomization of the home health agencies was this researcher's attempt to overcome the limitation of using a convenience sample by using the randomization table to choose the home health agencies.

Home Health Registered Nurse Sample

This convenience sample included home health registered nurses currently working at the participating home health agencies who had worked more than one year in home health and worked at the individual home health agencies during the months of January through March of 2013. All of these eligible registered nurses were requested to participate in the study. Participation was voluntary. The target population for this research included full-time and part-time HHRNs who represented a wide range of ages.

The sample included a mix of female and male nurses with different levels of nursing degrees and years of experience. The target sample size, based on G* power (Faul et al., 2009) was 98 with a fully completed survey and outcome improvement measures documented in the home health agencies database. This target sample size was the smallest number essential for analyzing data using the choosen methods for this study.

Recruitment of Home Health Agencies

The researcher called the eligible home health agencies using a script (Appendix C). Each home health director agreeing to speak with the researcher was asked if the researcher could e-mail a letter of introduction, *Premises, Recruitment and Name Use Permission* form, and *Data Access and Use Permission* form (Appendix C) to each director whose agency was chosen by using the random numbers table developed from the convenience sampling list. If the directors agreed to participate in the study, they were instructed to sign and return the forms located in Appendix C by e-mail or by mail to the researcher. Nine home health agency directors agreed to particpate, which provided a potential for 214 home health registered nurse participants.

Once approval from the University of Phoenix Institutional Review Board was obtained, contact was made with the home health agency directors. During this contact, the researcher asked to schedule a date and time for the researcher to attend a staff meeting or case conference to educate the eligible home health registered nurses on the study and distrubute the two-part self-administered survey, which consisted of demographic questions and the MER, to consenting participants.

Recruitment of Home Health Registered Nurses

To recruit the home health participants for this study, this researcher worked with each home health director to attend staff meetings for explanation of the research, distrubution of the informed consent and self-administered survey (see Appendix A), and to answer any questions. The researcher worked with each home health director to distrubute the survey to eligible home health registered nurses who were unable to attend these meetings. The researcher's contact information was made available to the HHRNs who were not able to attend the meetings. These potential participants e-mailed or called the researcher for the informed consent and the survey along with any questions they had. HHRNs were under no obligation to particpate in this research. Participants were able to withdraw from this study at any time, for any reason, without penalty or loss of benefits, and their responses were not used. After the self-administered surveys were collected from the HHRNs, the OASIS-C data were collected from the individual home health agencies database by querying the outcome improvement measures associated with the home health registered nurses name during the months of January through March of 2013.

Ethical Considerations

During the recruitment phase of the home health agencies, the home health directors were provided with a verbal introduction to the study, which included the purpose of the study, the research questions, the study's aims, and an explanation of the study procedures. Additionally, the potential home health directors were informed of an estimated date of data collection and duration of the study. The directors received a verbal explanation of the time commitment for the home health registered nurses:

Approximately 15 minutes to complete the informed consent and the self-administered survey. They were also informed that it would take the researcher approximately two to five days to obtain the outcome improvement measures from the agency's database, depending on the number of participants. The estimated time to obtain the outcome improvement measures was expected to vary depending on the number of participants. The home health directors were informed that there were no benefits or risks to the home health agency or to their HHRNs. The directors received verbal assurance that the data obtained from their agency would be kept confidential and only the researcher would have access to the identifiable and coded information. When the home health director agreed to participate and review written information describing the study, a letter of introduction; the Premises, Recruitment, and Name Use Permission form; and the Data access and Use Permission form was e-mailed or mailed to them (see Appendix C). The home health agencies provided written consent to recruit their home health registered nurses and to access their databases by signing and returning the Premises, Recruitment, and Name Use Permission form and the Data access and Use Permission form (see Appendix D). The approvals from individual Institutional Review Boards associated with two home health agencies were also obtained.

Considerations for HHRNs

During the recruitment phase of the home health registered nurses, many critical elements of the study were explained to the potential home health registered nurse participants. These included the purpose of the study, potential risks, and benefits to the participant, confidentiality procedures, and the requirement for the informed consent. Instructions for completing the two-part self-administered survey were provided,

enabling participants to understand and answer the self-administered survey questions. For participants who were unable to attend the staff meetings or case conferences, the home health directors were instructed regarding how to contact the researcher for distribution of the informed consent and self-administered survey. The potential participants were instructed concerning the informed consent and self-administered survey through e-mail or phone conversation with the researcher. The informed consent and the self-administered survey were sent to the potential participants through e-mail or mail after the participant had been instructed on the documents' use. The researcher's contact information was provided to the potential participants through e-mail or mail in case the participants had questions concerning the study or wishes to withdraw. Participants were assured that their participation in this study was voluntary and they could withdraw from the study by contacting the researcher at the phone number or address listed on the consent form. The researcher shredded the withdrawn participant's paper data and their electronic data were destroyed and excluded from the results of the study. By signing the informed consent, participating nurses indicated a clear understanding of what participation involved.

Each participant's survey was assigned a 4-digit code number to protect his or her identity and ensure confidentiality. The participant's identity and the assigned 4-digit code were placed on a separate code sheet. Only the researcher has access to the code sheet that links the 4-digit code to the individual participants. The code sheet is located on a different flash drive stored in a locked office in a locked drawer and only the research has a key. This code sheet was the only document that linked the code to the participant. Following this process allowed identification in case the participant chose to

withdraw from the study and allowed the researcher to match the participant's individual OASIS-C data to their survey. The 4-digit code was placed on the informed consent, the self-administered survey, the code sheet, and the OASIS-C.

The self-administered survey data were matched with the outcome improvement measures data in the data collection spreadsheet using the 4-digit code assigned to the participants. The data for analysis from the OASIS database is only identifiable through the nurses' names and not the nurses' clients. No client or patient names were collected. Using the name of the nurse participants was required to match their OASIS-C data with their self-administered survey data. Assigning the 4-digit code to the informed consent, self-administered survey, and the OASIS-C data maintained the confidentiality of the participants' identity and information.

The researcher stored all data and documents in a dual authenticated protected flash drive without Internet connections locked in an office. The researcher has sole access to this area. Only the researcher knows the identity of the participants. Only the researcher has access to the completed informed consents and self-administered surveys along with the OASIS-C outcome improvement measures. After the recommended time of three years after the study, all data will be destroyed by taking the paper documents and the flash drive to a certified document destruction service for shredding and destruction.

Data Collection

Data collection for this quantitative, descriptive, correlational study was collected at two levels: home health registered nurse self-administered survey and archival OASIS-C data obtained from the individual home health agencies database. Both the self-

administered survey and the retrospective OASIS-C data were needed to describe the relationship of embodied nursing knowledge and patient outcomes in home health.

Self-administered Survey

Data regarding concepts of early recognition skills of nurses were gathered via the self-administered survey including "knowing the client, knowing the system and institution, and knowing the skills of oneself and one's colleagues" (Foley et al., 2002, p. 276) along with the participants' demographics. The data collection of the early recognition skills were essential for the data analysis to determine competency levels of embodied nursing knowledge. The self-administered MER (Minick & Harvey, 2003), which was used to collect data regarding the embodied nursing knowledge, was handed to the participants during a staff meeting or case conference. For the purpose of statistical analysis, the data entries were numerically coded (see Table 5) (Creswell, 2014; Polit, 2010).

Once the self-administered surveys were completed and collected, they were reviewed to ensure that all the information was completed. Each self-administered survey contained a 4-digit code to link with the OASIS-C outcome improvement measures for that home health registered nurse's clients. These data were placed on a computerized spreadsheet to facilitate the data analysis process. Once the self-administered survey data were matched to the outcome improvement measure scores, the participants' names were removed from the spreadsheet built for analysis, and the unique 4-digit identification numbers located on the informed consent and survey were used for identification. The data for analysis is only identifiable through the nurses' names and not the nurses' clients. No client or patient names were collected. Using the name of the

participants is required to match their OASIS-C data with their self-administered survey data. Data were entered manually into the Statistical Package for the Social Sciences (SPSS) Version 21 software spreadsheet after a manual check for data accuracy and completeness.

OASIS-C Data

The OASIS-C data were obtained by performing a query to the individual home agency's database at each consenting home health agency for the months of January through March, 2013. The months of January through March are generally the time that home health agencies have a larger volume of clients, thereby enabling the collection of sufficient data to create a significant data analysis. The home health registered nurses' names were used to link the survey information to the outcome improvement measures documented in the OASIS-C located in the individual agencies database. To protect the identity of participants, all personal identifiers were removed from the survey after the data were linked to the outcome improvement measure scores in the OASIS-C obtained during data query. The data for analysis were coded with the 4-digit numerical identifier located on the informed consent and the survey. The researcher stored all data and documents in a dual authenticated protected hard drive without Internet connections in a locked office. This researcher has sole access to this area. Only this researcher knows the identity of the participants and his or her total outcome improvement scores.

The outcome improvement measures of bathing, bed transfer, ambulation, management of oral medications, dyspnea, pain interfering with activity, status of surgical wound, and urinary incontinence (CMS, 2012d) were measured using the OASIS-C data. Three months of retrospective data were designated for the OASIS-C

data collection. This enabled capture of significant data for analysis because a home health episode of client care, admission to discharge, is 60 days (CMS, 2009a; 2009b).

Instrumentation

Two instruments were used in this study. The MER (Minnick, 2003) was used to measure the concepts of nurses' knowing. Archival data from the OASIS-C (CMS, 2010; 2011b;) were used to measure the outcome improvement variables. The self-administered survey questions regarding gender, age, length of home health experience, years of nursing experience, and level of nursing education were added to the MER instrument.

The MER self-administered survey was untimed but was expected to take roughly 15 minutes to complete. Participants signed the consent form prior to completing the self-administered survey. The self-administered survey was divided into two parts. Part one gathers information about the nurses' demographics. Part two contains the questions pertaining to the self-reporting of the stage of nursing development that describes the nurses' embodied knowledge.

Manifestations of Early Recognition

Participants completed the MER (Foley et al., 2002), which measures the skill of early recognition of client problems. Permission to use the MER was obtained from Minick (1992) (see Appendix B), who originally developed it. Participants were asked to rate their responses on a positively worded five-point scale. A series of closed-end demographic questions about gender, age, length of home health experience, years of nursing experience, and level of education was added to the MER.

The MER is congruent with Benner's (1982) framework, as previously shown in Table 1. Because of its congruence with the theoretical framework and its pronounced reliability (α=.87-.93) and content validity in quantifying early recognition skills of nurses, the MER was chosen for this study (Foley et al., 2002; Wynn et al., 2009). Four expert nurses and a psychometrician established the content validity of the MER by focusing on the "…accuracy, appropriateness, and relevance of the items" (Wynn et al., 2009, p. 43). The MER is a self-report instrument that includes concepts of early recognition, including "knowing the client, knowing the system and institution, and knowing the skills of oneself and one's colleagues" (Foley et al., 2002, p. 276). These dimensions are consistent with Benner's (1982) description of embodied nursing knowledge. Participants were told that it would take approximately 15 minutes to complete.

As reported by Foley et al. (2002), the composite 16-item instrument obtained a Cronbach's α of .87-.93 when administered to nurses from four nursing units at two military centers. Grove (2007) described Cronbach's α as a measurment of internal consistency of multi-item scales such as the Likert-type scale, with a score of .80 being the lowest appropriate reliablility value. The answer choices in the MER range from one (*strongly disagree*) to five (*strongly agree*) on a Likert-type scale (see Appendix A). To calculate the dimension of knowing in the MER, the three major concepts "*knowing the patient and family*, *knowing the system and institution*, and *knowing the skills of oneself and one's colleagues"* (Foley et al., 2002, p. 276) were separately calculated. The mean response of knowing the patient and family in the MER (items #4, 5, 6, 8, 9, 12, 13 on the instrument) are summed and divided by 7 (Foley et al., 2002). To calculate the mean

response of knowing the system and institution in the MER, items #3, 10, 11, 16 of the instrument are summed and divided by four (Foley et al., 2002. To calculate the mean response of knowing the skills of oneself and one's colleagues in the MER, items #1, 2, 7, 14, 15 of the instrument are summed and divided by 5 (Foley et al., 2002.

OASIS-C

The second instrument used for the data collection was the OASIS-C data instruments. OASIS-C data reports on client-centered outcome improvement measures. The OASIS-C is part of the comprehensive assessment that the HHRN performs during admission and discharge. This instrument was stored in the clients' charts. The outcome improvement measures can be obtained from querying the clients' charts or by querying the HHRN name in the agencies database. Because home health nurses use the OASIS-C for episodic evaluation, the nurses place a high degree of trust in the instrument. An example of an item from the OASIS-C is question number M1860 about ambulation. Responses range from 0 (*independent*) to 6 (*bedfast, unable to ambulate*) (CMS, 2012d; Rosati, 2009). Another example is the OASIS-C question on the status of the most problematic (observable) surgical wound (M1342). Answers for this question range from 0 (*newly epithelialized*) to 3 (*not healing*) (CMS, 2012d). The OASIS-C admission and discharge forms contain the most comprehensive data because OASIS-C forms for other time points use edited versions of the instrument (Scharpf & Madigan, 2010).

Validity is the degree to which an instrument measures what it is supposed to measure (Polit & Beck, 2008). Madigan and Fortinsky (2000) used construct validity to confirm the reliability of the OASIS-C items. Construct validity means that the instrument measures what the theory states it will measure (Creswell, 2014). Criterion

validity involves comparing the OASIS-C items with an external criterion (e.g., another measure) to determine how well the variables predict outcomes based on the external information (Creswell, 2014; Polit & Beck, 2008). Tullai-McGuinness et al. (2009) determined that the Cronbach's α for the ADLs (bathing, ambulation, and bed transfer) of the outcome improvement measures in the OASIS-C were 0.87.

The rationale for using the OASIS-C was the empirical evidence in the literature indicating this instrument measures improvement in client outcomes (Hittle et al., 2004; Scharpf & Madigan, 2010; Tullai-McGuinness et al., 2009). Shaughnessy et al. (2002) established the validity (*kappa* range=0.44-0.91, *M*=0.59-0.60) and reliability of the OASIS. Cohen's *kappa* indicates the agreement between the two rates during two time points and adjusts for chance agreement (Polit & Beck, 2008). A study of the OASIS instrument by Madigan and Fortinsky (2000) found that the Cohen's *kappa* for the admission ADLs ranged from 0.41 to 1.0 and the discharge items ranged from 0.67 to 1.0.

In addition, Schneider, Barkauskas, and Keenan (2008), using a regression model, found that the ADLs were statistically significant and theoretically sound when client cardiac risk factors are controlled. Hittle et al. (2004) reported that the ADLs in the OASIS instrument possess the following reliability values: bathing=0.77, bed transfer=0.70, ambulation=0.87, management of oral medications=0.72, dyspnea=0.82, pain interfering with activity=0.66, status of surgical wound=0.95 and urinary incontinence=0.88. See Table 4 for an explanation of these variables. In contrast, Kinatukara et al. (2005) reported in the limitations of the study incongruences in the

reliability and validity of the OASIS instrument related to the directions and education provided to the nurses completing the instrument.

Data Analysis

Multiple heirarchical regression analysis using the data from the OASIS-C and the MER were used to test for relationships between embodied knowledge and client-centered outcomes when controling for demographic variables (age, gender, length of home health experience, years of nursing experience, and educational level). Because of the varying numbers of the outcome improvement measures, the mean outcome of the participants' scores was calculated for the analysis. Multiple heirarchical regression was chosen to analyze the strength and influence of the predictor variables on the criterion variable (Montgomery, Peck, & Vining, 2012; Warner, 2013). Pearson correlation analysis was used to test for relationships between OASIS-C, educational level, and experience in home health. Data analysis to test the research questions and corresponding hypotheses are shown in Table 5.

Table 5

Data Analysis

Research Question	Hypotheses	Variables	Statistical Analysis
RQ1: What is the relationship between home health registered nurses' knowledge of their clients and clients' families, and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C?	$H1_o$: There is no significant relationship between home health registered nurses' knowledge of their clients and clients' families, and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C. $H1_A$: There is a significant relationship between home health registered nurses' knowledge of their clients and clients' families, and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C.	Dependent=total percent score on the OASIS-C for improved client-centered outcomes (bathing, bed transfer, ambulation, management of oral medications, dyspnea, pain interfering with activity, status of surgical wound, urinary incontinence) -Independent=knowing their clients and families– mean response to 7 items of the Manifestation of Early Recognition of Patient Problems self-administered survey. To calculate the mean response, sum items # 4, 5, 6, 8, 9, 12, 13 and divide by 7 Control variables=demographics – responses to demographic self-administered survey Gender – coded 0=female, 1=male - Age – age in years coded: 1=19-24, 2= 25-30, 3= 31-36, 4= 37-42, 5= 43-48, 6= 49-54, 7 =55-60, 8= 61-66, 9=67-92 - Length of home health experience – years of experience - Year of nursing experience – years of experience - Educational level – coded as 1=Associate or Diploma, 2= Bachelors, 3=Masters, 4=Doctorate	Hierarchical multiple regression – used to determine the impact on a model when new variables are added (Montgomery, Peck, & Vining, 2012). Step 1 – dependent variable (DV) was the percent of improved client-centered outcomes and independent variables (IV) were the demographics variables (age, gender, length of home health experience, years of nursing experience, educational level). Step 2 – new independent variable were added to the model - knowing their clients and families. The change in R^2 were tested to see if there is a significant change from when the model only contained the demographic variables.

Table continues

Table 5 *(continued)*

Research Question	Hypotheses	Variables	Statistical Analysis
RQ2: What is the relationship between home health registered nurses' knowledge of the system and institution of home health nursing and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C?	$H2_o$: There is no significant relationship between home health registered nurses' knowledge of the system and institution of home health nursing and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C. $H2_A$: There is a significant relationship between home health registered nurses' knowledge of the system and institution of home health nursing and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C.	Dependent=total percent score on the OASIS-C for improved client-centered outcomes (bathing, bed transfer, ambulation, management of oral medications, dyspnea, pain interfering with activity, status of surgical wound, urinary incontinence) Independent=knowing the system and institution – mean response to 4 items of the Manifestation of Early Recognition of Patient Problems self-administered survey. To calculate the mean response, sum items # 3, 10, 11, 16 and divide by 4 Control variables=demographics – responses to demographic self-administered survey - Gender – coded 0=female, 1=male - Age – age in years coded: 1=19-24, 2= 25-30, 3= 31-36, 4= 37-42, 5= 43-48, 6= 49-54, 7 =55-60, 8= 61-66, 9=67-92 - Length of home health experience – years of experience - Year of nursing experience – years of experience - Educational level – coded as 1=Associate or Diploma, 2= Bachelors, 3=Masters, 4=Doctorate Age – age in years	Hierarchical multiple regression – used to determine the impact on a model when new variables are added (Montgomery et al., 2012). Step 1 – dependent variable (DV) was the percent of improved client-centered outcomes and independent variables (IV) was the demographics variables (age, gender, length of home health experience, years of nursing experience, educational level). Step 2 – new independent variable was added to the model - knowing their clients and families. The change in R^2 was tested to see if there is a significant change from when the model only contained the demographic variables.

Table continues

Table 5 *(continued)*

Research Question	Hypotheses	Variables	Statistical Analysis
RQ3: What is the relationship between home health registered nurses' knowledge of their own and their colleagues' skills, and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C?	$H3_o$: There is no significant relationship between home health registered nurses' knowledge of their own and their colleagues' skills and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C. $H3_A$: There is a significant relationship between home health registered nurses' knowledge of their own and their colleagues' skills and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C.	Dependent=total percent score on the OASIS-C for improved client-centered outcomes (bathing, bed transfer, ambulation, management of oral medications, dyspnea, pain interfering with activity, status of surgical wound, urinary incontinence) Independent=knowing the skills of oneself – mean response to 5 items of the Manifestation of Early Recognition of Patient Problems self-administered survey. To calculate the mean response, sum items # 1, 2, 7, 14, 15 divide by 5 Control variables=demographics – responses to demographic self-administered survey - Gender – coded 0=female, 1=male - Age – age in years coded: 1=19-24, 2= 25-30, 3= 31-36, 4= 37-42, 5= 43-48, 6= 49-54, 7 =55-60, 8= 61-66, 9=67-92 - Length of home health experience – years of experience - Year of nursing experience – years of experience - Educational level – coded as 1=Associate or Diploma, 2= Bachelors, 3=Masters, 4=Doctorate	Hierarchical multiple regression – used to determine the impact on a model when new variables are added (Montgomery et al., 2012). Step 1 – dependent variable (DV) was the percent of improved client-centered outcomes and independent variables (IV) was the demographics variables (age, gender, length of home health experience, years of nursing experience, educational level). Step 2 – new independent variable was added to the model - knowing their clients and families. The change in R^2 was tested to see if there is a significant change from when the model only contained the demographic variables.

Table continues

Table 5 *(continued)*

Research Question	Hypotheses	Variables	Statistical Analysis
RQ4: What is the relationship between the total years of home health registered nursing experience in home health and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C?	$H4_o$: There is no significant relationship between the total years of home health registered nursing experience in home health and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C. $H4_A$: There is a significant relationship between the total years of home health registered nursing experience in home health and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C.	Dependent=total percent score on the OASIS-C for improved client-centered outcomes (bathing, bed transfer, ambulation, management of oral medications, dyspnea, pain interfering with activity, status of surgical wound, urinary incontinence) Independent=Length of home health experience – years of experience	Pearson product moment correlation – used to define the strength of the relationship between client-centered outcomes and the nurses' year of experience in home health
RQ5: What is the relationship between home health registered nurses' level of education and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C?	$H5_o$: There is no significant relationship between home health registered nurses' level of education and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C. $H5_A$: There is a significant relationship between home health registered nurses' level of education and the total client-centered outcome improvement measures percentage score on the discharge OASIS-C.	Dependent=total percent score on the OASIS-C for improved client-centered outcomes (bathing, bed transfer, ambulation, management of oral medications, dyspnea, pain interfering with activity, status of surgical wound, urinary incontinence) Independent=Educational level – coded as 1=Associate, 2=Bachelors, 3=masters, 4=Doctorate, 5= Certification	Pearson product moment correlation – used to determine the strength of the relationship between client-centered outcomes and the nurses' year of level of education

Summary

Chapter 3 contained the description of the research method of this quantitative correlation study. The appropriateness of the research design was described. Chapter 3 provided guidelines to identify the target population, explained the sampling procedure, and described the informed consent procedure to ensure protection of collected data and confidentiality of the home health agencies and home health registered nurses. A convenience sample was used to recruit home health agencies and home health registered nurse participants. Chapter 3 contained a detailed description of the MER and the OASIS-C, which are both valid and reliable, as well as an account of ethical considerations and procedures. The focus of this chapter was appropriateness of design, population, sampling plan, informed consent, confidentiality, and proposed data analysis. The instruments and data collection procedures ensured that this research could be reproducible when performed on comparable populations.

Chapter 4

Results

This chapter presents the analysis for exploring the relationship of embodied nursing knowledge and client outcomes in home health. The aim of this study was to measure the relationship between the embodied nursing knowledge of home health nurses working in Ohio and client-centered outcome improvement as measured by the total percentage score on the OASIS-C. This research was approved by the University of Phoenix Institutional Review Board (IRB) prior to conducting the data collection. In this chapter, the results are presented from this quantitative, descriptive, correlational study comparative to each of the research questions.

Data Collection

The directors of the home health agencies who had previously agreed to participate in the study were contacted to arrange a date when this researcher could attend a case conference or staff meeting. These meetings took place over a five-week period. Recruitment of the home health registered nurses occurred during these case conferences and staff meetings. The directors provided 30 minutes during each of the nine agencies' case conferences or staff meeting agendas to describe the study and ask the home health registered nurses if they would participate in the study. This process was challenging, because many home health registered nurses were already making visits for their clients or were absent from the agency on those days. Additionally, one or two nurses were late for individual case conferences or the case conferences or staff meetings dates would change due to staffing changes. Several participants did not have any outcome improvement measures during the required January through March, 2013 period, as they

were involved with orientation to the home health agency. In addition, obtaining the OASIS-C outcome improvement data from the agencies' databases proved time consuming, especially for the large agencies, because each query contained the individual home health registered nurses outcome improvement scores for his or her client's during January to March, 2013.

In summary, challenges concerning recruitment included access to home health registered nurses due to schedules, absenteeism, and some participants' lack of individual client's OASIS-C outcome improvement measures for the months of January through March 2013. Additionally, obtaining the OASIS-C outcome improvement data from the agencies' databases was time consuming, as each data query produced individual results, which had to be printed one by one and not batch printed. However, the data from each home health registered nurses client's outcome improvement scores was able to be collected during a five-week period.

Sample

The informed consent and self-administered surveys were given to the home health registered nurses in nine home health agencies who met the inclusion criteria (willing to participate, worked more than one year in home health, and employed by a Medicare-certified home health agency in Ohio that assessed their clients using the OASIS-C during January through March of 2013). Out of a potential of 214 participants, 138 home health registered nurses agreed to participate and completed the self-administered survey, for a response rate of 64%. However, 31 home health registered nurses had no OASIS-C outcome improvement measures during the months of January through March of 2013 and were excluded from the study, leaving a final sample of 107.

The 107 participants had 2,357 SOC/ROC OASIS-C documents containing the OASIS-C outcome improvement measures. The sample for this study signifies a response rate of 64% and an operational response rate of 50%. In the recommended methods, a sample size of 98 was required based on the power analysis needed to reject the $H1_0$ hypothesis as a function of effect size, number of predictors, desired power, and the level of significance. Therefore, the obtained sample size was sufficient.

Demographics of the Sample

The majority of the participants were female (96.3% *n*=103), white males comprised 3.7% (*n*= 4) of the sample. The participants were evenly distributed throughout the age range with 52% aged from 37-54. The largest proportion (*n*=23, 21.5%) of the participants were aged 49-54 years. The majority (61%) held Associate's degrees, followed by Bachelor's degree (36%). Only 3% held a graduate degree of a Master's or Doctorate. Home Health registered nurses who held an OASIS-C certification; Wound, Ostomy, and Continence Nurses (WOCN) certification; or other certification for home health were not included in the educational levels, because there were only three in this sample. The majority of the sample were field nurses (54%), home health registered nurses who work autonomously in home health performing the OASIS-C documentation, and who plan, direct, and manage client care while making home visits (Al-Mazrooa, 2010; Chaya et al., 2008). The other participants (42%) worked in home health as both a field and an admission nurse. An admission nurse performs the OASIS-C, determining from the assessment the plan of care, and initiates any necessary referrals to meet the client's health care goals (Collister, Slauenwhite,

Faser, Swanson, & Fong, 2014; Herleman, 2008). The admission nurse/case manager usually does not make routine home visits.

The participants' mean years of experience as a home health registered nurse was 7.6 (*SD*=6.8) years. The mean years of experience as a registered nurse was 15.6 (*SD*=11.4) years. See Table 6 for demographics of the sample.

Table 6

Demographics Descriptive

Variable	Frequency	Percent
Gender		
Male	4	3.7
Female	103	96.3
Age		
19-30 years	9	8.4
31-36 years	19	17.8
37-42 years	16	15.0
43-48 years	17	15.9
49-54 years	23	21.5
55-60 years	13	12.1
61-66 years	10	9.3
Education Level		
Associate	65	60.7
Bachelors	39	36.4
Graduate (Masters, Doctorate)	2	1.9
Position		
Admin nurse	4	3.7
Field nurse	58	54.2
Both	45	42.1
Experience	*M*	*SD*
Home health care nurse	7.6	6.8
Registered nurse	15.6	11.4

Analysis of Research Questions and Hypothesis

The first step of this analysis involved calculating the scores of the MER to measure embodied nurses' knowledge in home health. The MER score was the average response to the items in each type of knowledge. The response scale was 1 =*strongly disagree*, 2=*disagree*, 3=*somewhat agree*, 4=*agree*, 5=*strongly agree*. The highest possible score would be five and indicate strong embodied nursing knowledge. The knowledge of patients and patients' families was measured by the mean response to items # 4, 5, 6, 8, 9, 12, 13 of the MER. The scores ranged from a score of 2.9 to 5 with a mean of 4.3 (*SD*=0.5). The knowledge of system and institution of home health nursing was measured by the mean response to items # 3, 10, 11, 16 of the MER. The scores ranged from 3.0 to 5.0 with a mean of 4.2 (*SD*=0.5). Knowledge of their own skills and their colleagues' skills was measured by the mean response to items # 1, 2, 7, 14, 15 of the MER. The scores ranged from 1.8 to 5.0 with a mean of 3.0 (*SD*=0.8). These results are displayed in Table 7.

Table 7

Nurses' Knowledge Descriptive (N=107)

Knowledge	Min	Max	*M*	*SD*
Client and client's families	2.9	5.0	4.3	0.5
System and institution of HH nursing	3.0	5.0	4.2	0.5
Their own and their colleagues' skills	1.8	5.0	3.0	0.8

These scores indicated home health registered nurses had the highest knowledge in clients and clients' families, and knowledge of system and institution of home health nursing. The lowest mean knowledge was in knowledge of the skills of oneself and one's colleagues. The proposition of the MER is that early recognition of client issues enables

rapid intervention by the nurse to avoid health problems. Early recognition of client problems is an expertise involving both mental and observational skills, which develop through experience and time. A nurse who is capable of early recognition of client problems develops a relationship with the client and clients' families, enabling the nurse to educate and help the client improve their health condition. The MER scores reflect these concepts. Scores on knowing oneself and one's colleagues were lower as the MER measures self-reflection, which refines embodied nursing knowledge. However, the MER does not contain any questions that reflect on one's colleagues' skills.

Client-Centered Outcome Improvement Measures

The second step was to determine the client-centered outcome improvement measures documented in the OASIS-C obtained from the home health agencies database for the individual participants. The percentage improvement score for client-centered outcomes on the OASIS-C increased for this sample. The outcomes measured were bathing, bed transfer, ambulation, management of oral medications, dyspnea, pain interfering with activity, status of surgical wound, and urinary incontinence. The most improved outcome measures were the status of surgical wounds (77%) and bathing (70%). The next most improved outcome measures were pain interfering with activity (68%), dyspnea (66%), and ambulation (64%). The lowest improved outcome measures were bed transfer (58%), management of oral medication (56%), and urinary incontinence (51%). The mean total outcome was calculated as the mean of the individual outcome scores. The mean percentage improvement was 64%. See Table 8 for the client-centered outcome improvement measures descriptions.

Table 8
Client-centered Outcome Improvement Measures Descriptions

Outcome	*n*	*M*[a]	*SD*
Status of surgical wound	84	0.775	0.361
Bathing	106	0.700	0.226
Pain interfering with activity	103	0.681	0.223
Dyspnea	102	0.663	0.238
Ambulation	105	0.641	0.270
Bed transfer	103	0.581	0.297
Management of oral medications	100	0.556	0.286
Urinary incontinence	92	0.510	0.308
Mean	107	0.635	0.169

[a] Scores range from 0% to 100% and are in order from highest to lowest

The outcome improvement measures changes in a client's health status between the start of care (SOC) and discharge (CMS, 2012d). The higher the score for the outcome measure at discharge, the more the clients have improved while receiving home health services. These scores are risk-adjusted for client risk factors affecting the specific outcome measures. Adjusting for client risk factors are imperative for quality improvement as the outcome score depends on the client's risk factors and the home health nursing care that he or she receives (CMS, 2012d). For example, a client who has diabetes, coronary artery disease, and a stroke has more co-morbid disease that would affect his or her health outcomes than a person who broke their hip with no co-morbidity. To compare the health outcomes of these two people, their outcome rates would be risk adjusted to account statistically for the co-morbid differences in the two clients, making the outcome rates comparable despite the variances in risk factors (Shaughnessy et al., 2002). Using risk-adjusted data offsets for variances in the client population in different home health agencies (Centers for Medicare and Medicaid Services [CMS], 2014).

Research Questions

Hierarchical regression analysis was used for the primary analysis to measure the incremental variance accounted for by each predictor, to determine the correlation of each predictor set, and to assess the unique contribution and predictive ability of each predictor variable set to the variance criterion variable. A change in R^2 (ΔR^2) indicated whether the predictor variables added to the model in the second step contributed to the variance of the criterion variable. Given the independent variables (IVs), the demographic IVs were included in the model simultaneously. During the second step, the Manifestations of Early Recognition instrument measured the mean response to the items in each type of knowledge, which was dependent on the research question. This process treated all IVs as a unit, so that the dependent variable (DV) was expressed as a function of the IV. This systematic strategy is beneficial in research to help explain relationships between the IV (embodied nursing knowledge, in this case) and the DV (the mean percent score on the OASIS for improved client-centered outcomes).

Research Question One (RQ1)

Hierarchical regression analysis was used to answer RQ1 and control for demographic variables. The demographic variables were included in the first step of the statistical analysis. Added to the second step was the variable, participants' knowledge of their clients and client's families.

RQ1: What is the relationship between home health registered nurses' knowledge of their clients and clients' families, and the mean total client-centered outcome improvement measures percentage score on the discharge OASIS-C?

Hypotheses

$H1_o$: There is no significant relationship between home health registered nurses' knowledge of their clients and clients' families, and the mean total client-centered outcome improvement measures percentage score on the discharge OASIS-C.

$H1_A$: There is a significant relationship between home health registered nurses' knowledge of their clients and clients' families, and the mean total client-centered outcome improvement measures percentage score on the discharge OASIS-C.

The DV was the mean OASIS percent score for improved client-centered outcomes (bathing, bed transfer, ambulation, management of oral medications, dyspnea, pain interfering with activity, status of surgical wound, urinary incontinence). Demographic variables were gender (coded 0 =*female* and 1=*male*), age in years, length of home health experience, years of nursing experience, educational level (coded as 1=*Bachelors*, 2=*Masters*, 3=*Doctorate*. The independent variable (IV), knowing their clients and families, was obtained from the mean response to items # 4, 5, 6, 8, 9, 12, and 13 of the MER.

Results for RQ1. Step one of the hierarchical regression was significant [F (5, 101) =2.87, p=.018], meaning that the composite of the demographics variables was significantly related to the percent score on the OASIS for improved client-centered outcomes. The R^2 of .124 was significantly different from 0 at the .05 level. The regression model with only the demographics explains about 12.4% of the variability in knowing their clients and families.

Step two of the hierarchical regression was significant [$F(6, 100)=2.72$, $p=.017$], meaning that the addition of knowledge of clients and their families to the demographic variables forms a composite of variables that was significantly related to the mean percent score on the OASIS for improved client-centered outcomes. The increase in R^2 was not significant (.016, $p=.175$), indicating that the addition of the variable knowledge of clients and their families did not add significantly to the model. Thus, there was no relationship between mean percent score on the OASIS for improved client-centered outcomes and knowledge of their clients and their families. For the demographics, only age was significant. The *t*-test indicated that the coefficient for age was significantly different from 0 ($B=-.04$. $p=.004$). The coefficient indicates that the change in mean percent score on the OASIS for improved client-centered outcomes for each change in age decreased by .04%.

The answer to RQI was that there was no relationship between mean percent score on the OASIS-C for improved client-centered outcomes and nurses' knowledge of their clients and their families. The null hypothesis was not rejected. The only variable that had a significant relationship to the mean percent score on the OASIS for improved client-centered outcomes was age. There was a negative relationship between the mean percent score on the OASIS-C for the improved outcome measures and age ($\beta=-.408$). As the home health registered nurse age increased, the mean percent score on the OASIS-C for improved client-centered outcomes decreased. The results of the analysis including the change in values for R^2 (ΔR^2), with regression coefficients (B), standard errors, ($SE\ B$), and coefficients (β) along with the p-value (p) are displayed in Table 9.

Table 9

Hierarchical Regression Analysis for Outcome Scores Regressed on Demographics and Knowledge of Clients and Clients' Families

Variable	*B*	*SE B*	*β*	*p*
Step 1 $F(5, 101)=2.87$, $p=.018$				
Gender	-.117	.084	-.132	.167
Age	-.038	.013	-.408**	.005
Home Health Experience	.005	.003	.194	.156
Registered Nurse Experience	.002	.003	.103	.568
Educational level	-.039	.029	-.134	.184
Step 2 $F(6, 100)=2.72$, $p=.017$				
Gender	-.130	.084	-.147	.126
Age	-.040	.013	-.423**	.004
Home health experience	.005	.003	.218	.113
Registered nurse experience	.002	.003	.116	.519
Educational level	-.041	.029	-.143	.156
Knowledge of patients & patients families	-.041	.030	-.130	.175

Note: $R^2=.124$. $p=.018$ for Step 1; $\Delta R^2=.016$, $p=.175$
*$p < .05$ **$p < .01$

Research Question Two (RQ2)

Hierarchical regression analysis was used to answer RQ2 and to control for demographic variables. The demographic variables were included in the first step of the statistical analysis. Added to the second step was nurses' knowledge of the system and institution of home health nursing.

RQ2: What is the relationship between home health registered nurses' knowledge of the system and institution of home health nursing and the mean total client-

centered outcome improvement measures percentage score on the discharge OASIS-C?

Hypotheses

$H2_o$: There is no significant relationship between home health registered nurses' knowledge of the system and institution of home health nursing and the mean total client-centered outcome improvement measures percentage score on the discharge OASIS-C.

$H2_A$: There is a significant relationship between home health registered nurses' knowledge of the system and institution of home health nursing and the mean total client-centered outcome improvement measures percentage score on the discharge OASIS-C.

The DV was the mean percent score on the OASIS for improved client-centered outcomes (bathing, bed transfer, ambulation, management of oral medications, dyspnea, pain interfering with activity, status of surgical wound, urinary incontinence). Demographic variables were gender (coded 0=*female* and 1=*male*), age in years, length of home health experience, years of nursing experience, educational level (coded as 1=*Bachelors*, 2=*Masters*, 3=*Doctorate)*. The independent variables (IV) knowing system and institution of home health nursing and the mean response to items # 3, 10, 11, 16 of the MER were added in the second step.

Results for RQ2. The same demographics variables were used as in the Step 1 for RQ1. The model for mean percent score on the OASIS for improved client-centered outcomes using demographics (gender, age, years of home health care significance, years of registered nurse experience, educational level) was significant (p = .023).

Step two of the hierarchical regression was significant [$F(6, 100)=2.59$, $p = .023$]; the addition of knowledge of system and institution of home health nursing to demographics variables formed a composite of variables that was significantly related to the mean percent score on the OASIS for improved client-centered outcomes. The increase in R^2 was not significant (.010, $p=.282$), indicating that the addition of the variable, nurses' knowledge of system and institution of home health nursing did not add significantly to the model. Thus, there was no relationship between mean percent score on the OASIS for improved client-centered outcomes and knowledge of system and institution of home health nursing.

The answer to RQ2 was that there was no relationship between mean percent score on the OASIS for improved client-centered outcomes and knowledge of system and institution of home health nursing. The null hypothesis was not rejected. As with the regression for RQ1, the only variable that had a significant relationship to the mean percent score on the OASIS for improved client-centered outcomes was age. This relationship was negative.

The results of the analysis including the change in values for R^2 (ΔR^2), with regression coefficients (B), standard errors, (SE B), and coefficients (β) along with the p-value (p) are displayed in Table 10.

Table 10

Hierarchical Regression Analysis for Outcome Scores Regressed on Demographics and Knowledge of System and Institution of HH nursing

Variable	*B*	*SE B*	*β*	*p*
Step 1 $F(5, 101)=2.87$, $p=.018$				
Gender	-.117	.084	-.132	.167
Age	-.038	.013	-.408**	.005
Home Health Experience	.005	.003	.194	.156
Registered Nurse Experience	.002	.003	.103	.568
Educational level	-.039	.029	-.134	.184
Step 2 $F(6, 100)=2.59$, $p=.023$				
Gender	-.140	.087	-.158	.109
Age	-.037	.013	-.390**	.008
Home health experience	.004	.003	.175	.206
Registered nurse experience	.002	.003	.103	.565
Educational level	-.036	.029	-.125	.216
Knowledge of system and institution	-.023	.021	-.106	.282

Note. $R^2=.124$. $p=.018$ for Step 1; $\Delta R^2=.010$, $p=.282$
*$p < .05$ **$p < .01$

Research Question Three (RQ3)

Hierarchical regression analysis was used to answer RQ3 and control for demographic variables. The demographic variables were included in the first step of the statistical analysis. Knowledge of their own and their colleagues' skills was added in the second step.

RQ3: What is the relationship between home health registered nurses' knowledge of their own and their colleagues' skills, and the mean total client-centered outcome improvement measures percentage score on the discharge OASIS-C?

Hypotheses

$H1_o$: There is no significant relationship between home health registered nurses' knowledge of their knowledge of their own and their colleagues' skills and the mean total client-centered outcome improvement measures percentage score on the discharge OASIS-C.

$H1_A$: There is a significant relationship between home health registered nurses' knowledge of their knowledge of their own and their colleagues' skills and the mean total client-centered outcome improvement measures percentage score on the discharge OASIS-C.

The DV was the mean percent score on the OASIS for improved client-centered outcomes (bathing, bed transfer, ambulation, management of oral medications, dyspnea, pain interfering with activity, status of surgical wound, urinary incontinence). Demographic variables were gender (coded 0=*female* and 1=*male*), age in years, length of home health experience in years of experience, years of nursing experience in years of experience, educational level (coded as 1=*Bachelors*, 2=*Masters*, 3=*Doctorate*. The independent variable knowing their own and their colleagues' skills was the mean response to items # 1, 2, 7, 14, 15 of the MER.

Results for RQ3. The same demographic variables were used as in Step 1 for Research Question 1. The model for mean percent score on the OASIS-C for improved client-centered outcomes using demographics (gender, age, years of home health care significance, years of registered nurse experience, educational level) was significant.

Step two of the hierarchical regression was significant [$F(6, 100)=2.42$, $p=.032$], meaning that the addition of knowledge of their own and their colleagues' skills to

demographic variables formed a composite of variables that was significantly related to the mean percent score on the OASIS for improved client-centered outcomes. The increase in R^2 was not significant (.003, p=.585), indicating that the addition of the variable knowledge of their and their colleagues' skills did not add significantly to the model. Thus, there was no relationship between mean percent score on the OASIS for improved client-centered outcomes and knowledge their own or their colleagues' skills.

The answer to RQ3 is there was no relationship between mean percent score on the OASIS for improved client-centered outcomes and knowledge of their own and their colleagues' skills. The null hypothesis was not rejected. As with the regression for Research Question 1, the only variable that had a significant relationship to the mean percent score on the OASIS for improved client-centered outcomes was age. This relationship was negative.

The results of the analysis including the change in values for R^2 (ΔR^2), with regression coefficients (B), standard errors, (SE B), and coefficients (β) along with the p-value (p) are displayed in Table 11.

Table 11

Hierarchical Regression Analysis for Outcome Scores Regressed on Demographics and Knowledge of Their Own and Their Colleagues' Skills

Variable	*B*	*SE B*	*β*	*p*
Step 1 $F(5, 101)=2.87$, $p=.018$				
Gender	-.117	.084	-.132	.167
Age	-.038	.013	-.408**	.005
Home Health Experience	.005	.003	.194	.156
Registered Nurse Experience	.002	.003	.103	.568
Educational level	-.039	.029	-.134	.184
Step 2 $F(6, 100)=2.42$, $p=.032$				
Gender	-.121	.085	-.137	.155
Age	-.039	.014	-.414**	.005
Home health experience	.005	.003	.183	.189
Registered nurse experience	.002	.003	.125	.500
Educational level	-.038	.029	-.133	.189
Knowledge of own and colleagues' skills	-.018	.032	-.053	.585

Note. $R^2=.124$. $p=.018$ for Step 1; $\Delta R2=.003$, $p=.585$
*$p < .05$ **$p < .01$

Research Question 4 (RQ4)

Pearson correlation was used to determine the relationship between the years of home health registered nursing experience and the mean total client-centered outcome improvement measures percentage score on the discharge OASIS-C. The Pearson correlation test was used to determine the existence, strength, and the direction of this relationship. Additionally, the Pearson correlation test was chosen to test the null hypothesis for RQ4.

RQ4: What is the relationship between the total years of home health registered nursing experience in home health and the mean total client-centered outcome improvement measures percentage score on the discharge OASIS-C?

Hypotheses

$H4_o$: There is no significant relationship between the total years of home health registered nursing experience in home health and the mean total client-centered outcome improvement measures percentage score on the discharge OASIS-C.

$H4_A$: There is a significant relationship between the total years of home health registered nursing experience in home health and the mean total client-centered outcome improvement measures percentage score on the discharge OASIS-C

The DV was mean percent score on the OASIS for improved client-centered outcomes (bathing, bed transfer, ambulation, management of oral medications, dyspnea, pain interfering with activity, status of surgical wound, urinary incontinence). The IV was the total years of home health registered nursing experience. The correlation between home health care years of experience and mean percent score on the OASIS for improved client-centered outcomes was not significant [$r(107)=.063$, $p=.522$]. The answer to RQ4 was that there is no relationship between the total years of home health registered nursing experience in home health and the mean total client-centered outcome improvement measures percentage score on the discharge OASIS-C. The null hypothesis was not rejected.

Research Question Five (RQ5)

Pearson correlation was used to determine the existence, direction, and strength of a relationship between the home health registered nurses' level of education and the mean total client-centered outcome improvement measures percentage score on the discharge OASIS-C.

RQ5: What is the relationship between the home health registered nurses' level of education and the mean total client-centered outcome improvement measures percentage score on the discharge OASIS-C?

Hypotheses

$H4_o$: There is no significant relationship between the health registered nurses' level of education and the mean total client-centered outcome improvement measures percentage score on the discharge OASIS-C.

$H4_A$: There is a significant relationship between the health registered nurses' level of education and the mean total client-centered outcome improvement measures percentage score on the discharge OASIS-C

The DV was mean percent score on the OASIS for improved client-centered outcomes (bathing, bed transfer, ambulation, management of oral medications, dyspnea, pain interfering with activity, status of surgical wound, urinary incontinence). The IV was the level of home health registered nurses education obtained from the self-administered survey. The correlation between home health level of education and mean percent score on the OASIS for improved client-centered outcomes was not significant [$r(107)=-.050$, $p=.609$]. The answer to RQ5 is there was no relationship between the home health registered nurses' level of education and the mean total client-centered

outcome improvement measures percentage score on the discharge OASIS-C. The null hypothesis was not rejected.

Summary

Chapter 4 contained the results, data collection, sample, and analysis of the five research questions. Analysis from the data collected from the self-administered survey containing the MER and the OASIS-C provided answers to the five research questions. The concepts of knowing the client and client families, and knowing the system and institution of home health nursing received high scores on the MER, with means of 4.3 (*SD*=0.5) and 4.2 (*SD*=0.5), respectively. The lowest score on the MER was participants' knowledge of their own and their colleagues' skills, with a mean of 3.0 (*SD*=0.8). The client-centered outcome improvement measures showing the most improvement were status of surgical wounds (75%) and bathing (70%). The next most improved scores were pain interfering with activity (68%), dyspnea (66%), and ambulation (64%). The measures showing the lowest percent improvement were bed transfer (58%), management of oral medicine (56%), and urinary incontinence (51%). For the demographics, results of the *t* test showed that only age was significant (*B*=-.04. *p*=.004). The coefficient indicated that the change in mean percent score on the OASIS for improved client-centered outcomes for each change in age decreased by .04%. These scores were compared to the State and National Outcome Improvement Scores for January through March 2013, see Table 14. In Chapter 5, a discussion of these findings, the limitations, and recommendations for further research are presented.

Table 12

State and National Outcome Improvement Scores: January- March 2013

Outcome Measures for January- March 2013	Sample Outcome Improvement Measures (%)	Ohio Outcome Improvement Measures (%)	National Outcome Improvement Measures (%)
Bathing	70.00	66.32	68.48
Bed transfer	58.00	57.96	58.06
Ambulation	64.00	61.08	61.96
Management of Oral Medications	56.00	51.05	54.54
Dyspnea	66.00	64.01	67.32
Pain interfering with Activity	68.00	64.01	67.57
Status of Surgical Wound	75.00	87.68	89.38
Urinary Incontinence	51.00	45.70	48.41
Total	63.50	60.70	62.69

Note: Adapted from "Home Health Compare" by Centers for Medicare and Medicaid, (2012a), Retrieved from http://www.cms.gov/Medicare/Quality-Initiatives- Patient Assessment

Chapter 5

Discussion

Chapter 5 begins with a brief overview of the study, with the goal for developing a framework for understanding the relationship between the concept of embodied nursing knowledge and the client-centered outcome improvement measures on the discharge OASIS-C. The following section presents a discussion of the findings, based upon the research questions and the associated hypotheses that were tested as described in chapter 4, and the related recommendations for further study. Interwoven in the recommendations is a synthesis of the importance of the issues in this study for home health.

Overview of the Study

As the United States population ages, home health registered nurses, and stakeholders in the home health industry must understand the concepts, interventions, and adaptations required to improve the quality of care for clients. The purpose of this study was to identify possible relationships between the embodied knowledge used by home health registered nurses, their educational background, their experience, and the home health client-centered outcome improvement measures of bathing, bed transfer, ambulation, management of oral medications, dyspnea, pain interfering with activity, status of surgical wound, and urinary incontinence (CMS, 2012d). Embodied nursing knowledge was measured through the early detection of client health changes by knowing the client, knowing the system in which the nurses work, and knowing themselves (Benner, 1982; Benner et al., 2009; Benner et al., 2011; Minick, 1992).

The literature review showed the concepts of embodied nursing knowledge included the ability to plan, notice patterns; develop reasonable explanations, and draw analogies based on nursing experience (Benner et al., 2011). The activities discussed in the literature review identified three dimensions of embodied nursing knowledge: "knowing the client and family, knowing the system and institution, and knowing oneself and one's colleagues" (Foley et al., 2002, p. 276). In this study, it was hypothesized that knowledge of embodied nursing knowledge is needed to improve patient outcomes. This was measured by the nurse-sensitive outcomes of bathing, bed transfer, ambulation, management, of oral medications, dyspnea, pain interfering with activity, status of surgical wound, and urinary incontinence (CMS, 2012d). The gaps in the literature include a lack of quantitative evidence of embodied nursing knowledge in home health.

The MER was used to measure embodied nursing knowledge in this study. To measure the home health client's outcome improvement scores, the OASIS-C was used. Both the MER and the OASIS-C have demonstrated reliability and validity in previous research (CMS, 2013b; Cabin, 2009; Foley et al., 2002; Fortinsky & Madigan, 1997; Hittle et al., 2012; Madigan & Fortinsky, 2000; Shaughnessy et al., 2002; Tullai-McGuinness et al., 2009).

The results of this descriptive correlational study relate to the assessment of 107 home health registered nurses from nine home health agencies in Ohio against the three selected concepts of embodied nursing knowledge: "Knowing the patient and family, knowing the system and institution, and knowing the skills of oneself and one's colleagues" (Foley et al., 2002, p. 276). The 107 home health registered nurses participated in the study by voluntarily completing the self-administered survey and

permitting access to their outcome improvement measures as measured by their OASIS-C documents during the period January - March 2013. Thirty-one home health registered nurses had no OASIS-C outcome improvement measures during the months of January through March of 2013 and were excluded from the study. Discussed are the findings in relation to the research questions, followed by limitations, and recommendations for future research.

Findings of the Study

There was not a statistically significant relationship between the embodied nursing knowledge concepts of "knowing the client and family, knowing the system and institution, and knowing oneself and one's colleagues" (Foley et al., 2002, p. 276) and the outcome improvement measures documented in the OASIS-C. Unexpectedly, findings did not support a relationship between embodied nursing knowledge and client outcomes in the home health environment. This is surprising, as theoretical literature suggested these concepts to be foundational requirements for improving client health outcomes.

Embodied Nursing Knowledge

Embodied nursing knowledge using the Manifestation of Early Recognition (MER) instrument was validated on hospital nursing samples through the research of Foley et al., (2002), Minick and Harvey (2003), Kelly (2009) and Wynn et al., (2009). However, the embodied nursing knowledge concepts of "knowing the client and family, knowing the system and institution, and knowing oneself and one's colleagues" (Foley et al., 2002, p. 276) may not be the same construct in home health nursing. It is a possibility that home health nurses have distinct perspectives of embodied nursing knowledge stemming not from any vantage point, but rather from knowledge developed

through the daily distinct activities of home health nursing practice. This supports the assumption found in Neal's (2000) research that home health nursing is a specialty nursing practice, which requires adaption and the development of autonomy to manage the home health environment. Additionally, the MER measures perception of knowledge instead of observation of the knowledge concepts. Thus, the home health registered nurses in this sample perceived themselves to be experts in home health as evidence by the high scores on the MER.

Outcome Improvement Scores

The participants' client-centered outcome improvement scores were at or higher than the state and national average scores for the time investigated (see Table 14). Higher outcome improvement measures are desirable, as this indicates improvement in the client health status have occurred via health nurses provision of quality care. However, in this study having all home health agencies with at or higher than state and national average outcome improvement scores resulted in a statistically restricted range of outcome improvement scores. The restricted range of the outcome improvement scores resulted in spurious findings. Replication of this study with participating home health agencies having diverse outcome improvement scores may result in different findings.

Other results in this study included the finding of the outcome improvement scores being significantly negatively associated with the home health registered nurses age. Contrary to expectation, as the age of the home health registered nurse increased, the outcome improvement scores decreased. Paradoxically, as the home health registered nurse ages, he or she becomes an expert in home health through the refinement of theory

and experiencing actual practical situations (Benner, 1982) and he or she therefore should have higher client-centered outcome improvement scores (Foley et al., 2002; Scharpf & Madigan, 2010). A plausible explanation for this finding is that the directors of the home health agencies that participated in this study reported that during 2012-2013 they experience a large turnover of home health registered nurses. The home health registered nurses that participated in this study were mentoring new home health registered nurses during 2013, which may have additionally resulted in the negative relationship between the mean percentage score on the OASIS-C for improved client-centered outcomes and older age. Mentoring new home health registered nurses takes time from experienced aged home health registered nurses; thus, nurses spend less time during the home health visit with the client resulting in the possibility of the negative correlation between older home health registered nurses and the decreased client-centered outcome improvement measures. Physical therapist and aides also make home health visits guided by the home health registered nurse and it was unknown how the interventions of these health care providers may have affected client outcomes.

Additional findings focused on the relationship of the home health registered nurse and the outcome improvement measures, specifically the level of nursing education and the years of experience of the home health registered nurse. There was no relationship found between the level of nursing education, the years of experience, and the mean total client-centered outcome improvement measures percentage score on the discharge OASIS-C. These findings, particularly, the level of nursing education were not expected.

A possible explanation for the nonsignificant finding of the level of nursing education in relationship to the client-centered outcome improvement scores is that the majority of the sample held associate degrees in nursing. That is, technical competence, rule orientation, and task focusing are taught at the associate nursing degree level, whereas self-reflection and engagement of thinking in action is often taught at the baccalaureate degree level (Benner et al., 2011). As the majority of this sample held associate degrees, it is possible that the preponderance of associate degree nurses, whose training reflects technical competence over self-reflection, may have attenuated any possible association between the knowledge variable and the client-centered outcome improvement measures. Bachelor prepared registered nurses develop the theoretical and practical knowledge that offer critical components in the application and adoption of knowing or embodied nursing knowledge in the home health environment (Benner et al., 2010; Institute of Medicine, 2011). Bachelor prepared nurses are taught critical thinking skills, which enhance home health outcomes (McHugh & Lake, 2010; Schwartz & Leibold, 2014).

The number of bachelor prepared home health registered nurses were evenly distributed in all age groups in this population. Thus, the age of the home health registered nurse did not correlate with younger nurses having a bachelor degree. This is contradictory to the recommendation of the Institute of Medicine (2011) for increasing the population of registered nurses who hold a bachelor's degree in nursing. A possible explanation for this population having more associate degrees in nursing maybe related to the limited universities that offer a bachelor in nursing degree in this area. These

counterintuitive results serve along with the other findings as the bases for the limitations of this study.

Limitations and Recommendations

This study was limited in its methods and analysis because of its use of a convenience sample. Although a randomization table was used to select home health agencies in an attempt to minimize this limitation, self-selection bias may have influenced the results, as both the agency directors and individual nurses who participated were volunteers. Thus, it is possible that if a more random sample of agencies with diverse client-centered outcome improvement scores had been included, results would have been different. The lack of variability of range in the client-centered outcome improvement measures may lessen the reliability of the findings in this study. This suggests that future studies may need to employ the use of purposeful selection of the sample population in home health.

Restricted Range

The restricted range in the outcome improvement measures in this study indicates that the scores in the distribution were similar and displayed low variability. This study focused on the client-centered outcome improvement scores from the discharge OASIS-C from the home health agencies database. The databases from the home health agencies mirror the data capture design with those used by the Centers of Medicare and Medicaid Services (CMS). During the data collection of the client-centered outcome improvement scores from the agencies database, the data contained blank scores for individual outcome improvement measures. When a blank occurs in the data in these databases, it means that the client was not eligible to improve in the outcome measures- the client already scored

the highest functional level that the OASIS-C instrument measures. Blanks in the outcome improvement measures scores also restricted the range of the possible outcome improvement measures. A possibility exists if the client-centered outcome improvement measures were obtained over one year that blanks in the data would occur less frequently due to the law of probability (Polit, 2010). Future research should explore the relationship of embodied nursing knowledge to client outcomes in home health using at least one year of data to lessen the risk of a restricted range of scores resulting in a normal distribution of outcome improvement scores.

Manifestation of Early Recognition Instrument

The Manifestation of Early Recognition (MER) instrument measures the home health registered nurses perception of the concepts of knowing. Measuring perception instead of actual knowledge is a limitation of the instrument. For example, question number seven in the MER asks the home health registered nurse if he or she is able to identify understated changes in a clients' status (Minick, 1992; Kelly & Vincent, 2010). A recommendation is to measure the actual ability of a home health registered nurse to recognize early changes in a client's condition through direct observation of the home health registered nurse during a client visit in the home. The ability to observe the early recognition skill would measure the actual practice of the home health registered nurses ability to recognize early changes in a client's health status. The ability to measure the actual practice of the home health registered nurse would help the home health director determine if any educational needs exists for the home health registered nurse in developing the concepts of knowing.

An assumption of this study was that the concept of knowing in home health was similar to the concept of nurse's knowing in the acute care setting. Thus, this study used the Manifestations of Early Recognition (MER) to measure knowing in home health. During the literature review, only studies that used the MER in acute care settings were found. No studies were found in the literature where the MER was used in home health. Therefore, it could have been the first time the MER was used in the home health setting. It is possible that the concepts used in the MER are different from the concepts used in home health to manage the home health environment. Further research is recommended to explore the potentially different concepts used in home health.

If it is assumed that the concepts of embodied nurses knowledge in home health are different from those in the acute care settings, further research is also recommended to explore if the concepts of levels of education, years of experience, and age of bachelor prepared registered nurses are different in home health versus acute care nursing practice. Exploring the concept of embodied nurse's knowledge would help home health agencies understand the characteristics espoused by home health registered nurses. Understanding the characteristics of home health nurses will help home health agencies understand how to assist home health registered nurses to develop rich structured information based practice. This would further provide skills enabling the nurse to provide quality care to home health clients achieving improved clinical outcomes.

Summary

This quantitative, descriptive, correlational study examined possible relationships between home health nurses' embodied knowledge, demographic variables, and client-centered outcomes in a sample of 107 such nurses in Ohio. The results of the study were

non-significant, so that more research is required to gain an understanding of whether and how embodied nursing knowledge influences client outcomes in home health. Linked in the literature to improve client outcomes in the hospital environment are the concepts of "knowing the client and family, knowing the system and institution, and knowing oneself and one's colleagues" (Foley et al., 2002, p. 276).

A gap in the literature existed between embodied nursing knowledge and the ability to provide high-quality home health services to achieve positive client-centered outcome improvement measures. This study provided knowledge of the relationship between embodied nursing knowledge and particular client-centered outcome improvement measures (bathing, bed transfer, ambulation, management of oral medications, dyspnea, pain interfering with activity, status of surgical wound, and urinary incontinence) (CMS, 2012a) documented in the discharge OASIS-C. Additionally, this study provided knowledge of hypothesized relationships between years of home health registered nursing experience, nurse education level, and client outcomes.

This study found no significant relationship between "knowing the client and family, knowing the system and institution, and knowing oneself and one's colleagues" (Foley et al., 2002, p. 276). Additionally, this study found no significant relationship between home health registered nurses experience, nurse education level, and client outcomes. The outcome improvement scores resulted in a statistically restricted range, which resulted in spurious findings of a negative relationship between improved client-centered outcomes and home health registered nurses' age.

These findings add to the body of evidence for home health nursing care by answering research questions and testing hypotheses through reliable research.

Generalizations from this study are limited to those home health agencies in Ohio or ones with similar attributes of older home health registered nurses and home health agencies with outcome improvement scores that meet or are higher than the state and national levels. However, important questions were raised adding to the future of research in home health, including: What factors do influence the client-centered outcome improvement measures in home health? Why is there a relationship with nurse educational levels in hospital environments, but maybe not in home health? Based on the findings of this research no absolute statements can be made regarding the relationship of nursing embodied knowledge and outcome improvement measures in the OASIS-C. Limitations in the study included the possibility of self-selection bias resulting in a restricted range of client-centered outcome improvement scores. Additionally, the concepts used in the acute care setting as validity measured in the Manifestations of Early Recognition (MER) instrument may be different from the concepts used in home health to manage the home health environment. In spite of these limitations the findings of and questions raised by this study have further enlightened the profession of nursing in home health.

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Appendix A

Informed Consent and Self-Report Self-administered Survey

INFORMED CONSENT: PARTICIPANTS 18 YEARS OF AGE AND OLDER

_ _ _ _ ID

Dear Home Health Nurse,

My name is Laurie Bladen and I am a student at the University of Phoenix working on a Doctor of Philosophy in Nursing degree. I am doing a research study entitled Relationship of Embodied Nursing Knowledge and Client Outcomes in Home Health. The purpose of the research study is to understand the relationship between the embodied knowledge used by home health registered nurses in the early recognition of patient problems and client centered-outcomes in Ohio.

Your participation will involve taking a 22 question self-administered survey that will take approximately 15 minute to complete and providing permission for me to obtain your OASIS-C data from your home health agency's database from January-March of 2013. This will provide me with data of an embodied nurse's knowledge (knowing the client, knowing the system and institution, and knowing the skills of oneself and one's colleagues) compared to the outcomes improvement measures documented in the OASIS-C. The outcome improvement measures are bathing, bed transfer, ambulation, management of oral medications, dyspnea, pain interfering with activity, status of surgical wound, and urinary incontinence. By completing the self-administered survey, you will allow me to study the data you provide along with allowing me to match your self-administered survey data to your Outcome Assessment Instrument Set form C (OASIS-C) data. All answers will remain confidential. Only I will have access to the results of the self-administered survey and OASIS data. There will be no cost to you to complete the self-administered survey and you may withdraw from the study at any time. You can decide to be a part of this study or not. Once you start, you can withdraw from the study at any time without any penalty or loss of benefits and your results will not be used. If you want to withdraw, you can contact me by e-mail at lbladen@bright.net or 419-678-8555 and I will permanently destroy and delete your data. The results of the research study may be published but your identity will remain confidential. Your name and any identifier (such as the home health agency that you work for) will not be used for any purpose other than to match your survey to your OASIS-C data. Your self-administered survey will contain an identification number that is used to identify the information and these two (2) pieces of information will be locked and store separately.

In this research, there are no foreseeable risks to you. Although there may be no direct benefit to you, a possible benefit from your being part of this study is assisting in the exploration of this study's purpose and aims.

If you have any questions about the research study, please call me at 419-678-8555 and email me at lbladen@bright.net. For questions about your rights as a study participant, or any concerns or complaints, please contact the University of Phoenix Institutional Review Board via email at IRB@phoenix.edu.

As a participant in this study, you should understand the following:

1. You are consenting to complete the Manifestations of Early Recognition Scale a 16-question survey.
2. You are consenting to give permission to Laurie Bladen to obtain your OASIS-C outcome improvement measures data from your home health's database for the months of January through March of 2013.
3. You may decide not to be part of this study or you may want to withdraw from the study at any time. If you want to withdraw after providing consent, you can do so without any problems. Please contact me by e-mail at lbladen@bright.net or 419-678-8555 to withdraw from the study.
4. Your identity will be kept confidential throughout all phases of the study and will not be published or disseminated in any manner.
5. Laurie Bladen, the researcher, has fully explained the nature of the research study and has answered all of your questions and concerns.
6. The researcher will use the unique 4-digit identification number to code the data to assure that your name is protected and to remove your data if you request to withdraw from the study.
7. Data will be kept in a secure and locked area. The data will be kept for three years, and then destroyed.
8. The results of this study may be published. No identifying information will be used or disseminated.

"By signing this form, you agree that you understand the nature of the study, the possible risks to you as a participant, and how your identity will be kept confidential. When you sign this form, this means that you are 18 years old or older and that you give your permission to volunteer as a participant in the study that is described here."

(☐) I accept the above terms. (☐) I do not accept the above terms. (CHECK ONE)

Signature of the participant_____ Date _____

Signature of the researcher _____ Date _____

Relationship of Embodied Nursing Knowledge and Client Outcomes in Home Health

_ _ _ _ ID

Instructions and Demographic Information

Thank you for agreeing to participate in this research. This self-administered survey consists of two parts. The first part asks demographic questions. The second part asks questions concerning early recognition of patient problems in home health. Please answer the questions as it relates to the care you provide patients in home health. Please do not leave any blanks and answer all questions. What is important is how you think as a home health registered nurse. Select the answer by placing an X on the item that you choose in each question or fill in the blank that comes closest to the way you ordinary think in your role as a home health nurse.

Demographic Information:

1. What is your gender?

   _____ a. Female _____b. Male

2. Please indicate your age:

   __19-24 __25-30 __31-36 __37-42 __43-48 __49-54 __55-60 __61-66 __67-92

3. How many years have you been a registered nurse in home health? If less than one year, please enter "0".

   _____Years of home health experience

4. How many years have you been a registered nurse? If less than one year, please enter "0".

   ____Years of registered nursing experience

5. What is the highest degree you have attained in nursing?

___ Associate or Diploma

___Bachelor's degree

___Master's degree

___Doctorate degree

__ Certification

6. What position do you work in home health?

___Admission Nurse who only performs OASIS documentation

___Field Nurse who performs OASIS documentation and manages patients care

___Both

Step 2: Manifestations of Early Recognition Scale

_ _ _ _ ID

Manifestations of Early Recognition of Patient Problems

Instructions: Please circle one number in each line that corresponds how you would typically respond while providing direct patient care. Please complete each line and do not leave any line blank.

		Strongly Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
1.	**I am able to act on my own judgments without input from another nurse or physician most of the time.**	**1**	**2**	**3**	**4**	**5**
2.	I am comfortable trusting assessments when technology suggests the contrary.	1	2	3	4	5
3.	**I do something other than what standard practice is if I feel a patient needs it.**	**1**	**2**	**3**	**4**	**5**
4.	I feel that knowing the personal aspects of a patient is important.	1	2	3	4	5
5.	**I try to understand how the patient views his/her illness.**	**1**	**2**	**3**	**4**	**5**
6.	I consider it important to know "who" the patients are as people.	1	2	3	4	5
7.	**I am able to recognize very subtle changes in a patients' status.**	**1**	**2**	**3**	**4**	**5**
8.	I try to understand how the patient and family interacted prior to the hospitalization.	1	2	3	4	5
9.	**I consider it important to know about patients' lives and their concerns prior to admission**	**1**	**2**	**3**	**4**	**5**
10.	I will bend the rules and procedures based on the patients/ needs.	1	2	3	4	5
11.	**I will continue to seek clarification/question the physician when an order does not quite make sense.**	**1**	**2**	**3**	**4**	**5**

12.	I become involved with patient/families to provide better care.	1	2	3	4	5
13.	**I try to determine the wishes of patient/families.**	**1**	**2**	**3**	**4**	**5**
14.	I know from experience what is important to observe or notice in the patient.	1	2	3	4	5
15.	**I know what to expect, because I frequently care for the same kinds of patient/family problems.**	**1**	**2**	**3**	**4**	**5**
16.	I frequently push the boundaries of nursing to obtain whatever the patient and family needs	1	2	3	4	5

Note: Used with permission of P. Minick 2013.

Thank you for completing this self-administered survey.

Appendix B

Permission to use the MER Instrument

From: M Ptlene Minick
Sent: Tuesday, May 22, 2012 1:44 PM
To: Laurie Bladen
Subject: RE: research instrument
Attachments: Manifestations of Early Recognition Indiv.doc
Follow Up Flag: Follow up
Flag Status: Flagged
Categories: Blue Category

Laurie,

The instrument that I designed has never, to my knowledge, been used in home health. Like you, I was a nurse with similar observations although my observations were with mortality in critical care. Prior to my dissertation work, I could not identify the "missing link". Originally, Benner called it caring, but the term was not specific enough for research purposes. It is too broad and meant too many different things in different disciplines. She now uses the terms ethical comportment--meaning that once you identify an issue, you absolutely must do something to correct it. The issue for me is that in the original study (my dissertation), I found that some nurses could not put themselves out there enough to notice. Somehow, it made them more vulnerable and they simply could not risk that. So my idea is that there is something before identification --> "recognition that something is not quite right" is sorta the notion. This
recognition of something that is different or a feeling that is not right seems to always be associated with how the nurse wants to get to "know" the patient or family as human beings. At any rate, these are my conclusions after years of work. I will be interested to see what you find. My thinking is that this "recognition" would be especially strong with home health nurses, because they have even more sense of responsibility. Many times home health nurses are the only providers that the patient and family see for months at a time. As a result, they know that they have the primary responsibility for patient
outcomes. As nurses, they will want to be particularly astute in order to notice the slightest change in order to prevent complications.

Attached you will find the instrument. I hope you find it helpful. You may find it helpful to find out whether the nurses are certified nationally with any organization. We found in a later study published in nursing in N*ursing Administration* that high scores on the MER were associated with national certification suggesting that the instrument has some correlation with expertise (measure of validity).

Good luck with your work. Let me know whether you decide to use the instrument and how it all goes. If I can help, let me know.

Ptlene

Ptlene Minick, PhD, RN
Doctoral Program Coordinator
Coordinator of CNS/NP Program
Associate Professor
Byrdine F. Lewis School of Nursing and Health Professions
Georgia State University

University of Phoenix®

PERMISSION TO USE AN EXISTING SURVEY

Date: October 30, 2013

From: Author Name: Dr. Ptlene Minick
140 Decatur Street, P. O. Box 4019
Byrdine F. Lewis School of Nursing
Georgia State University
Atlanta, GA 30329

To: Researcher Name: Mrs. Laurie Bladen

Thank you for your request for permission to use the Manifestations of Early Recognition in your research study. We are willing to allow you to access, use and reproduce the above named instrument at no charge with the following understanding and in accordance with the following terms and conditions:

- You will use this survey only for your research study and will not sell or use it with any compensated management or curriculum development activities.
- You will include the copyright statement on all copies of the instrument.
- You will send your research study and one copy of reports, articles, and related publications that make use of this survey data promptly to our attention.

If these are acceptable terms and conditions, please indicate so by signing one copy of this letter and returning it to us.

Sincerely,

Ptlene Minick
Author Name (please print)

Ptlene Minick
Author Signature

Date 10-30-2013

I understand these conditions and agree to abide by these terms and conditions.

Date: October 30, 2013

Researcher Name (Please print)

Laurie Bladen
Researcher Signature

Expected date of completion

Current version 032012

University of Phoenix®

DATA ACCESS AND USE PERMISSION

DR. M. PTLENE MINICK

Byrdine F. Lewis School of Nursing
Georgia State University

Please check mark any of the following statements that you approve regarding the study and data described below:

☑ I hereby authorize Laurie Bladen, a student of University of Phoenix who is conducting a research study titled Relationship of Embodied Nursing Knowledge and Client Outcomes in Home Health access to, and use of, the Manifestations of Early Recognition Instrument for use in the aforementioned research study. In granting this permission, I understand the following (please check mark each of the following as applicable):

☑ The data will be maintained in a secure and confidential manner.

☑ The data may be used in the publication of results from this study.

☑ This research study must have IRB approval at the University of Phoenix before access to the data identified here is provided to Laurie Bladen

☑ Access to, and use of, this data will not be transferred to any other person without my/our express written consent.

☑ The source of the data may be identified in the publication of the results of this study.

☑ Relevant information associated with this data will be available to the dissertation chair, dissertation committee, school as may be needed for educational purposes.

Ptlene Minick

10 · 30 · 2013
Date

Ptlene Minick, PhD, RN
Associate Professor
140 Decatur Street
Byrdine F. Lewis School of Nursing
Georgia State University
Atlanta, Georgia 30302-4019

Current version 032012

Appendix C

Packet for Home Health Agencies

Phone Script

Dear,

Thank you for speaking with me today. I am a doctoral student at the University of Phoenix and I am seeking home health agencies to participate in my study.

I would like to send you a letter that briefly describes my study, and the forms that need signed by you to participate in the study. Your agency's involvement in the study would consist of allowing me to distribute a 22-question survey to your RN's who have worked in home health for more than one year during the time of January through March of 2013 and who perform the OASIS-C documentation. In addition, I would need access to their outcome improvement measures in the OASIS-C for the months of January through March of 2013. There are no identifiable benefits to the participants or your agency except for the possible benefit for reflection and exposure to a new experience. Once I receive approval from the Institutional Review Board at the University of Phoenix. I will contact you to arrange a date/ time when I can come to your agency to distribute the survey and collect the outcome improvement data.

I am requesting that the agreements signed and back to me by January 10, 2014; thus, I can include them in my documents to the Institutional Review board (IRB) of the University of Phoenix.

Please feel free to contact me at xxx-xxx-xxx to discuss any questions that you might have.
Again, thank you so much for assisting me and I look forward to speaking with you again.

Regards,

Laurie Bladen RNC, MSN, MBA

To:

Re: Doctoral Dissertation

Dear,

I am a doctoral student currently at the University of Phoenix working on a Doctor of Philosophy in Nursing degree. I am seeking official approval from (Home Health Agency Name here) to support my doctoral dissertation titled "Relationship of Embodied Nursing Knowledge and Client Outcomes in Home Health".

I am asking permission to obtain the "outcome improvement measures" from the OASIS-C documentation in Ohio. Home health registered nurses will be recruited by me from your agency with your assistance to participate in this study. The participants will sign the informed consent, which includes permission for me to obtain their documentation in the OASIS-C and complete a short self-administered survey. I have attached the informed consent and self-administered survey for your review.

The purpose of my doctoral dissertation is to conduct a quantitative descriptive correlational study method to identify the relationship between the embodied knowledge used by home health registered nurses and the home health client-centered "outcome improvement measures" of bathing, bed transfer, ambulation, management of oral medications, dyspnea, pain interfering with activity, status of surgical wound, and urinary incontinence. The aims of this study are as follows:

a) to identify the relationship of the concepts of knowing (knowing the client and family, knowing the system and institution, and knowing the skills of oneself, and one's colleagues) to the client-centered outcome improvement measures total percentage score documented in the discharge OASIS-C;

b) to measure the correlation of home health nursing years of experience to the client-centered outcome improvement measures total percentage score, which are documented in the discharge OASIS-C required by the Centers for Medicare and Medicaid Services in Ohio;

c) to measure the correlation between home health nurse's level of education and the client-centered outcome improvement measures total percentage score, which are documented in the discharge OASIS-C in Ohio.

I can assure you that I will manage all sensitive information related to this study in a confidential manner. Only the aggregate data will be used for publication purposes.

I highly appreciate your support and approval.

Sincerely,

Laurie Bladen RNC-OB, MSN, MBA/HCM

University of Phoenix®

PREMISES, RECRUITMENT AND NAME (PRN) USE PERMISSION

Name of Facility, Organization, University, Institution, or Association

Please complete the following by check marking any permissions listed here that you approve, and please provide your signature, title, date, and organizational information below. If you have any questions or concerns about this research study, please contact the University of Phoenix Institutional Review Board via email at IRB@phoenix.edu.

☐ I hereby authorize Laurie Bladen RNC-OB, MSN. MBA a student of University of Phoenix, to use the premises (facility identified below) to conduct a study entitled Relationship of Embodied Nursing Knowledge and Client Outcomes in Home Health

☐ I hereby authorize Laurie Bladen RNC-OB, MSN. MBA , a student of University of Phoenix, to recruit subjects for participation in a conduct a study entitled Relationship of Embodied Nursing Knowledge and Client Outcomes in Home Health

☐ I hereby authorize Laurie Bladen RNC-OB, MSN. MBA, a student of University of Phoenix, to use the name of the facility, organization, university, institution, or association identified above when publishing results from the study entitled Relationship of Embodied Nursing Knowledge and Client Outcomes in Home Health

Signature

Date

Name

Title

Address of Facility

DATA ACCESS AND USE PERMISSION

_____

Name of Facility, Organization, University, Institution, or Association

Please check mark any of the following statements that you approve regarding the study and data described below:

☐ I hereby authorize Laurie Bladen RNC-OB, MSN, MBA, a student of University of Phoenix who is conducting a research study titled Relationship of Embodied Nursing Knowledge and Client Outcomes in Home Health access to, and use of, the OASIS-C data described as follows: "outcome improvement measures" for use in the aforementioned research study. In granting this permission, I understand the following (please check mark each of the following as applicable):

☐ The data will be maintained in a secure and confidential manner.

☐ The data may be used in the publication of results from this study.

☐ This research study must have IRB approval at the University of Phoenix before access to the data identified here is provided to Laurie Bladen RNC-OB, MSN, MBA

☐ Access to, and use of, this data will not be transferred to any other person without my/our express written consent.

☐ The source of the data may be identified in the publication of the results of this study.

☐ Relevant information associated with this data will be available to the dissertation chair, dissertation committee, school as may be needed for educational purposes.

_____ _____

Print Name Date

_____

Signature Researcher

Signature/Acknowledgement

Title

Address _____

Date