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Live Model Simulation: Improving Nursing Students' Attitudes and Knowledge of Alzheimer's Disease

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LIVE MODEL SIMULATION: IMPROVING NURSING STUDENTS' ATTITUDES AND KNOWLEDGE OF ALZHEIMER'S DISEASE

by

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Dedication

This dissertation work is dedicated to my wonderful grandmother, Anne,
and friend, Dr. Shirley Hutchinson.

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Abstract

LIVE MODEL SIMULATION: IMPROVING NURSING STUDENTS' ATTITUDES AND KNOWLEDGE OF ALZHEIMER'S DISEASE

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Our country's older adult population (those 65 and older) continues to grow at unprecedented rates yet few nurses are prepared to safely and competently care for them with their challenging needs, especially those with Alzheimer's Disease and Related Dementias (ADRD). Research indicates that preconceived attitudes and values toward older adults and a lack of education in gerontology impacts students' career choices and delivery of care to older adults. Research focused on teaching strategies that influenced students' preconceived attitudes and improved knowledge toward older adults with or without Alzheimer's disease (AD) is limited. Simulation as a method of instruction is now becoming an effective teaching tool in nursing education. This study examined whether a live-model simulation used as a teaching modality could improve student

attitudes and knowledge of AD. Findings indicated that within the group of students who participated in the AD lecture and AD simulated experience, there was a significant change in knowledge from pretest to posttest. Finding also showed that there was no significant mean difference in AD attitude between the control and intervention groups from pretest to posttest, however within groups analysis showed the AD intervention group had a slightly more positive attitude than the control group.

Chapter One

Overview of the Research Study

Overall Purpose of the Study

As baby boomers continue to retire, nurses who are prepared to care for older adults with chronic diseases and mental health illnesses such as ADRD could potentially be the most needed specialty in the profession (Administration on Aging [AoA], 2009). By the year 2030, it is estimated that 1 in 5 Americans will be older than 65 years of age (AoA, 2009). By 2050, the number of people living with AD in the United States is estimated to be 13.5 million (Alzheimer's, 2014). This generation of older adults older adults use the majority of the inpatient healthcare resources, making it necessary for all nurses to be competent to care for them (Bednash et al., 2011; Institute of Medicine, 2008; Lovell 2008). The lack of new nurses entering this specialty is due to negative attitudes toward older adults and a lack of education in gerontology (Ferrario, Freeman, Nellett, & Scheel, 2008; Gutheil, et al., 2006; Lovell, 2006; Potter, Clark, Hackett, & Little, 2013; Scerri & Scerri, 2013). Because of the negative attitudes, recruiting future nurses to care for the older adult, especially those with dementia will continue to be a challenge for healthcare organizations.

Nursing students' knowledge and attitudes toward older people has been documented; however, there was a dearth of information on teaching strategies that can improve knowledge and attitudes (Brown, Nolan, Davies, Nolan, & Keady, 2008; Cozort, 2008; Scerri & Scerri, 2013). Simulation as a method of instruction is becoming a valuable teaching tool in nursing education. As a means of improving fidelity of

simulations, nurse educators are beginning to use live actors or standardized patients over human simulators (Panosky, 2009; Wolf et al., 2010). This learning strategy is proving to be an effective way of engaging nursing students to help them develop critical thinking and communication skills as well as promoting positive interactions with older patients. The purpose of this study was to determine whether a live-model simulation used as a teaching modality could improve student attitudes and knowledge of AD. Mezirow's Transformation Theory, an adult learning theory, was used to guide this randomized controlled study. Instruments used to measure Alzheimer's disease knowledge and attitudes were Alzheimer's disease Knowledge Scale (ADKS) and Dementia Attitude Scale (DAS).

Introduction to the Articles

This portfolio contains two manuscripts, *Changing Attitudes and Improving Gerontological Knowledge: Is Nursing Education making a Difference?* and *Live Model Simulation: Improving Nursing Students' Attitudes And Knowledge Of Alzheimer's Disease.* The first manuscript examines the state of science of gerontological nursing education and the role it plays in shaping students predispositions to work with older adults. A comprehensive review of how nursing education has evolved and endeavored to improve nursing students' attitudes and knowledge of older adults and those with dementia and AD through curriculum changes, clinical experiences, teaching methods and faculty educational opportunities.

The second manuscript is a report of a randomized controlled trial (RCT) that examined the impact of simulation on nursing students' knowledge and attitudes toward

AD. Quantitative findings from the ADKS indicated that within respective groups, students who took part in the intervention lecture, followed by an AD simulated experience had a significant change in knowledge from pretest to posttest. The findings from the DAS analysis revealed that within groups from pretest to posttest, a slightly more positive attitude was observed; however, the AD simulation group had a greater improvement in attitude.

Chapter 2

Abstract

As the aging population continues to grow at unprecedented rates so too will the demand for health care of older adults, leading to widespread implications for healthcare facilities and providers. There continues to be a lack of young nurses entering geriatrics due to perceived attitudes toward older people and a lack of education in gerontology. The Institute of Medicine (IOM) acknowledged that while most nursing programs include some geriatric content in the curriculum the extent of the content is unknown (IOM, 2008). The IOM report also indicated although there is increased education and training in geriatrics for all types of health care providers, very little is known about the best methods to improve their knowledge and skills (Gill, 2015). Current nursing education studies showed, few modalities successfully influenced students' negative attitudes toward older adults and transformed nursing education. This article examines how nursing curricula has evolved and improved student attitudes towards older adults and potential career choices.

Key words: gerontology; ageist attitudes; student nurses; nursing education, simulation

Changing Attitudes and Improving Gerontological Knowledge:

Is Nursing Education Making a Difference?

Due to advances in public health and medical achievements, more people are reaching their senior years than ever before (National Institute of Health, 2006). By the year 2020, it is estimated that 17% of the US population will be older than 65 years of age (Administration on Aging, 2009). Now that baby boomers are turning 65, the demand for nurses prepared and willing to care older adults with complex healthcare needs will be at an all-time high. Age-related changes lead to health problems and chronic disease. As a result, older adults seek health care services at a disproportionate level compared to the rest of the U.S. population (Hall, DeFrances, Williams, Golosinskiy, & Schwartzman, 2007; Lambrinou, Sourtzi, Kalokerinou, & Lemonidou, 2009). For many in this generation, quality of life will be dependent upon nurses to help them prevent or manage acute illnesses and chronic conditions (Burbank, Dowling-Castronovo, Crowther, & Capezuti, 2006; Holroyd, Dahlke, Fehr, Jung, & Hunter, 2009; Wilson, 2010).

Historically geriatric nursing is an unpopular practice area (McLafferty & Morrison, 2004). Young nurses fail to enter this specialty because of negative attitudes toward older people and a lack of education in gerontology (Cozart, 2008; Gutheil, Chernesky, & Sheratt, 2006; Hayes et al., 2006; McLafferty & Morrison, 2004). Older adults are the largest demographic group of consumers utilizing healthcare; therefore, few nurses (seasoned veterans or new graduates) will escape caring for this population (Burbank et al., 2006; Holroyd et al., 2009; Williams, Anderson, & Day, 2007).

Unfortunately, very few new nurses are entering the specialty while at the same time; many nurses who do work with older people fail to provide quality care (Cozart, 2008; Holroyd et al., 2009; Joosse, Palmer, & Lang, 2013). Persuading new nurses to specialize in geriatrics will be a challenge for nursing education and healthcare providers (Baumbusch, Dahlke, & Phinney, Brown, et al., 2006; 2012; Lovell, 2006). For quite some time, the nursing community has been aware of the increasing demand for nurses with specialized knowledge and skills to care for an aging population. Now that the silver tsunami has arrived, the question must be asked: what has nursing education been doing to promote positive student attitudes toward older adults and an interest in working in gerontology?

Scope of the Problem: Why Negative Attitudes towards Older Adults?

In our youth-oriented society and culture, older people are often poorly valued (Heise, Johnson, Hines, & Wing, 2012; Holroyd, Dahlke, Fehr, Jung, & Hunter, 2009; Lovell, 2006). Stereotypical beliefs about older people serve as a basis for ageism and the lack of interest in gerontological nursing. Such beliefs include the idea that older people are a burden on society because they are increasingly unproductive, physically debilitated, and dependent on others (Holroyd et al., 2009; Lovell, 2006).

The media contributes to these ageist attitudes by portraying negative images of older people and promoting an image of youth as vivacious and energetic. These depictions by the media are unfortunate since they reinforce the negative attitudes and are frequently untrue (Stevens, 2011). The media also glamourizes areas of nursing such as the emergency room and intensive care units, supporting the notion that care of older

adults is inferior to and less significant than high technology areas (Lovell, 2006; Stevens, 2011).

Literature Review

A review of the literature published from January 2001 to March 2015 was carried out by searching the electronic databases CINAHL and MEDLINE. Key words included gerontology; ageist attitudes; student nurses; nursing education, and simulation. The search returned 96 articles, of which 81 were related to ageist attitudes in nursing students. Most of the research focusing on gerontological education included American studies detailing negative student attitudes toward older adults and the effects of curriculum and learning activities on attitudes.

Nursing Education Curriculum

In 1996, the John Hartford Foundation, the American Academy of Nursing, and the American Association of Colleges of Nursing had the vision to create the Hartford Institute for Geriatric Nursing. The institute has been committed to improving the education and preparation of nurses in the care of the elderly, advancing research, and promoting faculty development (Mezey & Fulmer, 2001). As a result, nursing programs across the United States began to integrate aging content throughout the curriculum. Bednash, Fagin, and Mezey (2003) believed that the only way to ensure clinical expertise related to care of the older adult could be strengthened, was by having all nursing programs include a curriculum focused on care of older patients. Conversely they maintained, the method of integrating gerontology into the curriculum through lecture-

based instruction may not be the most effective method to improving student knowledge or positive attitudes toward older adults (Bednash, Fagan, and Mezey, 2003; NLN, 2011).

An alternative to integrating aging into curricula, some nursing programs have stand-alone required or elective gerontology courses. The mode of content delivery ranged from traditional lecture, clinical instruction, simulation, context-based modules, to on-line platforms (Baillie, Merritt, & Cox, 2012; Baumbusch, 2012; Dahlke, & Phinney, 2012; Burbank et al., 2012; Paquette, Bull, Wilson, & Dreyfus, 2010; Williams et al., 2007). Interactions between students and older adults occurred in many settings including acute, rehabilitation and long-term care facilities, assisted living, and community agencies (Baumbusch et al., 2012; Ferrario, Freeman, Nellett, & Scheel, 2008). Baumbusch et al., (2012) reported much of the research to date have been conducted in standalone aging courses, but the trend in accelerated programs is to integrate geriatric content into adult care courses. Results from a qualitative study (Baumbusch et al., 2012) suggested that a combined approach, a blend of theory and clinical, improved both knowledge and beliefs about older adults.

In 2011, the NLN Vision Series "Caring for the Older Adult" asked nurse educators nationally to better prepare students to advance the health of the nation's older population. The American Association of Colleges of Nursing (AACN) believed professional nursing students should have access to faculty with geriatric experience and developed the Geriatric Nursing Education Consortium (GNEC). This project provided faculty with tools to infuse evidenced based geriatric content into undergraduate programs (Wilson, 2010). In response to the 2011 call, the NLN'S Advancing Care

Excellence for Seniors (ACES) project was designed and implemented. The ACES framework provided a context for a learning environment that focused on three essential knowledge domains (individualized care, complexity of care, and vulnerability during life transitions) necessary for teaching care of the older adult (Taglianeri et al., 2011). ACES is a well-designed educational model available to nursing faculty through the NLN that can be used to guide didactic and clinical objectives necessary for geriatric competencies (Taglianeri et al., 2011). Baumbusch, Dahlke, & Phinney (2012) maintain that regardless of the framework used or how the content was delivered, nursing programs continue to "situate this body of knowledge as a low priority" (p. 252).

Ageist attitudes are not limited to student perceptions. Holroyd (2009) suggested faculty inadvertently displayed negativism in delivery of theoretical and applied learning experiences, unintentionally influencing students' attitudes, and perpetuating ageism. Graduate nursing students' attitudes were also affected by faculty who lack geriatric expertise (Goncalves, 2009; Hollinger-Smith, 2003; Latimer & Thornlow, 2006; Holroyd et al., 2009; McLafferty & Morrison, 2004). Therefore, faculty development at all levels that include evidence-based teaching strategies as related to the aging population is necessary to help change student attitudes (Hollinger-Smith, 2003; Holroyd et al., 2009; Latimer & Thornlow, 2006). Burbank et al., (2006) and Cozart, (2008) suggest that a single individual faculty take on a leadership role to direct faculty development and innovative teaching strategies that provides a challenging environment for student learning.

Learning Experiences Including Simulation

Considerable research has focused on why so few nursing students choose gerontology as a preferred practice area. Multiple studies that investigated attitudes toward older people found that inadequate education in gerontology contributed to negative student preconceptions towards older people (Happell, 2002; Ryan & McCauley, 2005; Williams et al., 2007) and clinical experiences in areas that required students to provide heavy levels of care increased ageist attitudes (Holroyd et al., 2009; Lookinland & Anson, 1995; McLafferty & Morrison, 2004). Clinical placements in long-term care (LTC) facilities gave students the impression that older adult care is simple, low tech and does not require advanced knowledge (McLafferty & Morrison, 2004; Plonczynski et al., 2007; Ryan & McCauley, 2005). Four studies found that knowledge and attitude are interlinked and influence behavior (Hanson, 2014; Heise et al., 2012; Holroyd et al., 2005; Kim et al., 2007; Lookinland & Anson, 1995). When nurses possessed ageist attitudes and lacked appropriate knowledge, patient care was negatively influenced (Holroyd et al., 2009; McLafferty & Morrison, 2004; Wesley, 2005). Finally, care of the older adult requires collaboration amongst healthcare providers yet there is limited information and research about the kind of leadership role the nurse must take in order to facilitate quality care by non-licensed personnel and across professional disciplines (NLN, 2011). A pretest posttest quasi-experimental, mixed methods design reported findings of health science students who participated in a Longitudinal Elderly Person Shadowing project intended to improve student's attitudes toward older adults and other health care professionals (HCP's). Results indicated

attitudes of healthcare providers improved when students interacted with healthy older adults but there was no significant effect on attitudes toward other HCP's.

In recent years, nurse educators and researchers began developing innovative approaches that have positively affected student attitudes toward older adults (Baumbusch et al., 2012; Burbank et al., 2006; Cozart, 2008; Tremayne, Burdett, & Utecht, 2011; Williams, Anderson, & Day, 2007). Several successful educational strategies that increased gerontological nursing knowledge and attitudes toward older adults among nursing students were located. Some studies tested whether the placement of gerontological content within their clinical courses improved attitudes. Faculty at New York University (NYU) used structured learning guides and placed students at high quality nursing homes for multiple weeks while faculty at the University of Rhode Island (URI) and Tuskegee University developed stand-alone courses that included both didactic and clinical components (Burbank et al., 2006). Post clinical surveys from the NYU study showed improved student attitudes toward older people with 22% students reporting they would seek long term care employment, the URI study indicated student attitudes toward older people were markedly improved while the Tuskegee University study showed students had an increased ability to explain successful aging and felt more comfortable interacting with them (Burbank et al., 2006). Similarly, in a mixed methods study testing the effects of educational experiences on student attitudes toward AD, results indicated students who participated in an AD clinical experience had significant improvement in attitudes as compared to those who completed the AD module and usual course activities with no dementia-specific content (Kimzey, 2014). In a quasi-

experimental study, researchers compared a creative-bonding intervention to a friendly visit at a senior center to test the effect on student attitudes. Results indicated both groups had increased changes in attitude from pretest to posttest (Walsh, Chen, Hacker, Broschard, 2008). In a longitudinal study that compared students who received context-based learning to those who received traditional lecture-based learning, findings indicated there was no significance between the two curriculum methods (Williams et al., 2007).

Simulation as an instruction modality is an effective teaching tool in nursing education (Wolf et al., 2010). Simulations can vary in fidelity reflecting how well the method portrays reality. The goal of simulation as a learning tool is to prepare students to make accurate clinical judgments (Lowenstein & Bradshaw, 2004). When faculty create patient simulation scenarios related to formal didactic content and clinical instruction, clinical reasoning is facilitated through active engagement during the experience (Wolf et al., 2010). Simulation involves active engagement in thinking and applying knowledge followed by debriefing that facilitates reflective problem solving (Paquette, Bull, Wilson, & Dreyfus, 2010). Few studies used simulation to teach students about care of older adults. In one study, students wore a type of suit that mimicked how one would feel if they were experiencing musculoskeletal, visual, and auditory effects of aging (Tremayne, Burdett, & Utecht, 2011). Following the simulated activity, students reflected on the significance of nurse and patient relationships and feelings of empathy for clients because of the difficulties they encountered during the simulation. Johnson et al., (2011) conducted a large multisite clinical simulation using high-fidelity manikins and expert role modeling case studies that focused on the older adult with complex needs.

Students' exposure to expert role modeling with clinical simulation can have "an effect on clinical judgment development in the complex care of older adults" (Johnson et al., 2011, p. 180). Posttest satisfaction with simulated clinical activity survey scores indicated both the treatment and control groups agreed to strongly agreed that the "simulation experience was helpful in learning to notice and respond to patient symptoms, relate classroom concepts to a clinical setting, and improved confidence in ability to care for this type of patient" (Johnson et al., 2011p. 178).

In nursing education, simulation activities often involved high-fidelity manikins. Although manikins may provide valuable educational experiences for students, they can lack realism and are not a suitable substitute for human contact (Lasater, 2007; Wolf et al., 2010). Dr. Benner (2014) recently advocated that simulations, which use live improvisational actors, give clinical instructors additional opportunities to focus on relational coaching skills. Simulation and scripted scenarios with live "patients" provided an environment for students to experience working as part of multidisciplinary teams thus promoting delegation and critical thinking in a safe environment (Campbell & Daley, 2008). A potential method of positively impacting nursing students' attitudes and knowledge about older people and aging is to incorporate live-actor simulated scenarios into the curriculum. This teaching strategy can be used in conjunction with didactic lecture and clinical experiences. Live actors, who realistically portray an older patient, provide nursing students with complex, realistic learning opportunities and prepare them for clinical practice (Ayers et al., 2014; Paquette et al., 2010). By using live models versus manikins, students benefited from the human responses and non-verbal cues that

are important when assessing older adults (Benner, 2014; Paquette, Bull, Wilson, & Dryfus, 2010).

Two studies used live actors / models to impart knowledge and skills related to care of an older person. After interacting with a live patient model, students reported improvement on dementia knowledge (Webster and DiBartolo, 2014) and knowledge in assessing delirium (Paquette et al., 2010). In addition, students reported increased confidence in dealing with complex patients and family interactions, which led to decreased student anxiety (Webster and DiBartolo, 2014) and comfort talking with confused elders (Paquette et al., 2010).

Theoretical Frameworks for Simulation in Nursing Education

Throughout the literature both educational and nursing theory were used as frameworks to support the various methods of simulated teaching. Simulation in nursing education is used to build upon what has been learned in the classroom. Waldner and Olsen (2007) believed clinical simulations can provide excellent experiences for beginners and advanced beginners allowing them to improve their assessment skills and see the consequence of their decisions. The simulated experiences may be helpful in transitioning the student to the next level of skill acquisition (advanced beginner or competent). As such, simulation experiences that progress from basic skills to more difficult integrated scenarios could be guided by Benner's (1984) model *From Novice to Expert*. Tanner's (2006) *Model of Clinical Judgment* was also found to be relevant in simulation because many scripted scenarios require clinical judgment and decision-making (Regan & Onello, 2013; Tanner, 2006). Reflection or debriefing of a simulated

experience is an essential element to learning. Significant components of the Tanner model include reflection *in* action and reflection *on* action. Reflection in action refers to one's ability to read the patient and reflection on action refers the knowledge that was gained following the experience and how it will advance clinical judgment in the future. This model gets its foundations from John Dewey's philosophy on reflective thought as the ability to look back on an experience and use what was learned from the experience at some point in the future (Dewey, 1933). He believed reflective thought could lead to the development of creative complex problem-solving skills. This line of reasoning is the conceptual intent of debriefing in simulation education.

The transformative learning theory (Mezirow, 1991) was used as a context for nursing simulation. Transformative learning requires three essential interactions for knowledge to develop: the role of experience, rational discourse, and critical reflection (Mezirow, 1991). These themes are congruent with simulated clinical experiences. Similar to Dewey's idea of reflective thought, transformational learning occurs through a rational process that begins with an experience of disorientating dilemmas and then through critical reflection and social discourse, the person's frame of reference is changed thereby altering the way they interpret and interact with others (Mezirow, 199; Mezirow, 2000, Regan & Onello, 2013). Knowledge acquisition occurs through the experiential process of the disorientating dilemma followed by debriefing and connection with others, who were part of the experience,

Despite the increased use of educational simulation, Regan and Onello (2013) recognized there was a lack of theoretically based models that supported its use. After

reviewing many theories Regan and Onello (2013) developed and presented their model Knowledge-Action-Reflection (KAR). Regan and Onello (2013) blended educational and nursing theories into one package intended to guide the design, implementation, and evaluation of high fidelity simulation. This model takes into account phases of simulation (preparedness, activation, and reflection) which the authors deem important for simulation to be effective. Preparedness refers to steps taken that help simulation run correctly, activation accounts for the actual simulation encounter and reflection allows participants to discuss their findings and review their performance (Humphreys, 2013; Regan & Onello, 2013). The KAR is an important early model for practice, offering a structured approach for use as a framework when developing educational simulation.

Conclusions

Since 1996 and the creation of the Hartford Institute of Geriatric Nursing, focus on the care of the older adult in nursing education has moved in a positive direction. This is promising because ageist attitudes have no place in healthcare (Koh, 2012). However, ageist attitudes among new nurses continue to exist. Faculty attitudes and lack of gerontological educational preparation continues to reinforce student's negative attitudes toward the older adult. Traditional teaching strategies have been somewhat successful in enticing students into working with older patients but not enough to meet the needs of our current and future older population.

A plethora of research has been devoted to understanding negative attitudes towards older adults, but only a few answers were offered regarding how to improve them. Though relatively new to nursing education, simulation is an exciting teaching

strategy. High fidelity and or live model patient simulation may be an effective alternative to teaching gerontology to both students and faculty. As more nursing simulations are developed, especially those that use a theoretical framework specific to promoting evidence-based clinical reasoning; the technique may eventually be a more effective way for students to attain competence than traditional educational methods. An older adult live model simulation may provide students with a positive experience and influence their attitudes and knowledge. With improved knowledge and attitudes towards older people gained through this emerging method, numbers of nurses who work in the field upon graduation might increase (Lookinland & Anson, 1995).

As the tide of older adults continues to swell, so too will the need for current and future nurses who can safely and competently care for an older population with challenging needs (Cozart, 2008). Older adults represent the core of health care consumers so like it or not nursing care of the future is geriatric care (Burbank et al., 2006). New healthcare laws with funding restrictions (pay-for-performance) will necessitate positive patient outcomes; healthcare providers cannot afford the alternative. The need for adequately prepared nurses to care for our nations' older adults is essential; now is the time for nursing education to respond to this population change and find a way to foster positive attitudes in student nurses toward older adults and increase their interest in working with this population (Cozart, 2008).

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Chapter 3

Abstract

Significance: Today, an estimated 5.2 million people have Alzheimer's disease (AD). Few new graduate nurses are entering gerontology because of ageism toward people with Alzheimer's disease and related disorders (ADRD) and a lack of gerontological education. At present, few studies support specific teaching methods used in nursing education to overcome this problem.

Purpose: The purpose of this study was to determine whether live-model simulation used as a teaching modality could improve students' knowledge of AD and their attitudes toward older adults with ADRD.

Research questions: 1. Will baccalaureate-nursing students who take part in a live-model AD patient simulation have improved AD attitudes compared to students who take part in non-AD patient simulation experiences? 2. Will baccalaureate-nursing students who participate in a live-model AD patient simulation have improved AD knowledge compared to students who take part in non-AD patient simulation experiences?

Methods: Mezirow's Transformation Theory served as the framework for the study. The randomized control group design was used. The sample consisted of 65 senior year nursing students at a university in Texas.

Analysis: Dependent variables, attitudes toward people with AD and Alzheimer's knowledge, were analyzed.

Key words: student attitudes, education, live-model simulation, Alzheimer's disease, dementia

Live Model Simulation: Improving Nursing Students' Attitudes and Knowledge of Alzheimer's disease

Background and Significance

Now that baby boomers are reaching retirement age, nurses prepared to care for this complex group of individuals could potentially be the most needed specialty in the profession (Administration on Aging [AoA], 2009). By 2030, it is estimated that 1 in 5 Americans will be older than 65 years of age (AoA, 2009). The growing aging population is a concern to the U.S. and other countries because as people live longer, age related changes begin. These changes lead to the development of chronic health problems including Alzheimer's Disease and Related Disorders (ADRD). By 2050, fueled in large part by the upsurge in the aging population, the number of people living with Alzheimer's disease (AD) in the United States is projected to be 13.5 million (Alzheimer's, 2014). The demand for health care of older adults will continue to increase, leading to widespread implications for healthcare facilities and providers. Increased use of health facilities by older adults makes it essential that all nurses are competent to care for older adults (Bednash et al., 2011; Institute of Medicine, 2008; Lovell 2006; Koh, 2012). Nursing education will play a vital role in improving the quality of care given to older adults, particularly those with dementia, and help students view the specialty as an inspiring career choice.

Review of the Literature

An electronic search of the databases CINAHL and MEDLINE was conducted for the period 2004-2015. Key words included: nursing, education, aging, simulation, live

model, student attitudes, knowledge, AD, dementia, and gerontology. The review revealed that improvements need to be made in nursing education so future nurses have a greater understanding of the unique needs of the older adult especially those with ADRD. Nursing education has a responsibility to provide students with enhanced geriatric learning experiences, to help overcome ageist attitudes, and improve knowledge so nurses can adequately and safely care for older people with ADRD (Holroyd et al., 2009; Koh, 2012; Potter, Clarke, Hackett, & Little, 2013). Simulation has been used extensively in nursing education in the last decade but only a limited number of studies were located using nursing simulation to teach undergraduate students how to care for the older patient with ADRD.

Geriatric Nursing Education

The aging of baby boomers comes at a time when few nurses have ample knowledge or background in geriatrics and dementia care (Scerri & Scerri, 2013). According to the Institute of Medicine (2008), less than one percent of the nation's three million nurses are certified in geriatrics. Few graduate nurses entered the specialty because of negative attitudes toward older people and a lack of education in gerontology and dementia related illnesses (Gutheil, et. al, 2006; McLafferty, 2005; Scerri & Scerri, 2013). Moreover, many nurses who work with older people fail to provide optimum care (Cozart, 2008; Joosse, Palmer, & Lang, 2013). Recruiting future nurses inspired to specialize in care of older adults will be a challenge for nursing faculty and healthcare organizations (Holroyd, Dahlke, Fehr, Jung, & Hunter, 2009; Koh, 2012).

Primary tenets of nursing include caring, compassion, and empathy. These values are essential to treating patients holistically in professional nursing practice. As nurses show empathy and caring toward patients, the nurse-patient relationship develops, eventually promoting positive patient outcomes (Blockley & Alterio, 2008; Panosky & Diaz, 2009). Unfortunately, while working in an acute care setting many novice nurses find themselves in expanded roles, requiring time-consuming technological tasks, which can potentially create barriers to providing basic comfort and compassion for their patients (Kang, Moyle, & Venturato, 2011).

When nurses lack proper knowledge of older adults, including those with dementia, and work in a hectic environment, they may fail to accurately assess and develop suitable plans of care (Cozort, 2008; Holroyd et al., 2009, Kang et al., 2011, Scerri & Scerri, 2013). Both healthy older adults and those with ADRD often require more of the nurse's time simply because of their functional decline, chronicity of disease, frailty, and cognitive issues, further impeding the inexperienced nurse's ability to treat them holistically (Deschodt, Dierckx de Casterle', & Milisen, 2009, Hanson, 2014, Kang et al., 2011). These findings are congruent with Benners' assumption of skill acquisition in her theory *From Novice to Expert* (Benner, 1984). Benner maintains that few novice nurses or advanced beginners have the skills necessary to develop a relationship with patients and family (Benner, 1984). Benner believes the way for students to achieve this relationship is through rigorous education and a host of meaningful clinical and simulated experiences (Benner, 1984; Benner, Tanner, & Chesla, 2009).

Gerontology in Nursing Education

In 1996 the Hartford Institute for Geriatric Nursing was formed with the goal of improving education and preparation of nurses in geriatric care, encourage nursing research about geriatric nursing, and promoting educational opportunities for faculty to teach in this area (Mezey & Fulmer, 2001). At that time, few nursing programs in the U.S. included geriatric content or had faculty prepared to teach geriatrics (Bednash, Fagin, & Mezey, 2003). Bednash, et.al, (2003) believed the only way nursing can improve care of the older adult, is by having geriatrics reflected in the curriculum. Subsequently, some nursing programs integrated gerontology content throughout prelicensure curricula (NLN, 2008). This move has been positive but, integrating gerontology into the curriculum through lecture-based instruction does not assure improved student knowledge or positive attitudes toward older adults (Bednash, et al., 2003). In recent years, some nursing programs have developed stand-alone required or elective gerontology courses in addition to integrating gerontological content into curriculums, (Bednash et al., 2011).

A 2010 supplement to the AACN*'s 2008 Baccalaureate Essentials* pointed out that while most undergraduate programs included geriatric content, fully integrated care of the older adult into didactic and clinical education of baccalaureate-prepared nurses was needed. The supplement included gerontological nursing competency statements regarding professional attitudes, values, and expectations about physical and mental aging (American Association of Colleges of Nursing [AACN], 2010). The competency statements further support the need to change negative attitudes among nurses and

nursing students towards care of older adults. Of particular importance is the need to instill in students sensitivity to older adults' quality of life and self-determination and provide opportunities to develop the skills required to meet older persons' complex physical and mental health needs (Koh, 2012).

Ageist Attitudes in Nursing

Negative attitudes can influence how nurses provide care to older adults (Cozort, 2008). Many factors influence perceptions and ageist attitudes such age, race, personal experience and upbringing but for the purposes of this study articles were limited to ageist attitudes in nurses and nursing education.

Interactions with older adults impacted nursing students' attitudes toward older people and people with dementia. The relationship between students' attitudes toward aging was directly related to the amount of positive interactions and time they spent with aging patients (Burbank et al., 2006; Gutheil et al., 2006; Holroyd et al., 2009; Neville and Dickie, 2014; Scerri & Scerri, 2013). When students were provided information that improved their gerontological knowledge, their attitude towards older adults developed (Ba, Marlow, Bramble, Andrews, Eccleston, McInerney, & Robinson 2014; Burbank et. al 2006; Potter et al., 2013). Attitudes toward aging also improved when students worked with healthy seniors as compared to those who worked in long-term care facilities and patients needing heavy care (Ferrario, Freeman, Nellett, & Scheel, 2009; McLafferty; 2005; Holroyd). In contrast, a study by Plowfield et al., (2006) found that the quality of the practicum site was not as important to attitude as was the teaching and theoretical content students received prior to the practical experience. AD clinical experiences also

impacted students' attitudes: Kimzey (2014) reported that students' attitudes toward AD significantly improved after an AD clinical experience compared to those who completed an online AD module or usual course activities. Based on their international systematic review of health professionals' attitudes toward older people, Liu et al., (2012) suggested that over time medical students and doctors had improved attitudes toward older adults whereas nurses and nursing students' attitudes became less positive which was attributed to the different levels of education between doctors and nurses (Liu et al., 2012). Other studies found that the relationship between nursing students' attitudes toward aging was reported to be directly related to the amount of positive interactions and time they spent with aging patients (Burbank et al., 2006; Gutheil et al., 2006; Holroyd et al., 2009; Neville and Dickie, 2014; Scerri & Scerri, 2013). The most common instrument used to measure attitude was the Kogan's Attitude toward Old People Scale (KOP) (Kogan, 1961).

Simulation

Simulation as an instruction modality has been used successfully since the 1930s in aviation, maritime operations, and civilian industries. It is now becoming an effective teaching tool in nursing education. Today many patient simulation scenarios designed for student education involves the use of high-fidelity manikins. In recent years, manikins have improved in realism and provide valuable educational experiences for students; however, they still cannot replace human contact (Wolf et al., 2010).

The use of simulation involves active engagement in thinking and applying knowledge followed by debriefing that facilitates reflective problem solving (Paquette,

Bull, Wilson, & Dreyfus, 2010). A small number of research articles were found that reported using simulation to teach students about care of aging patients and those with ADRD. In a quasi-experimental, international, multisite study, of 275 students, expert role modeling combined with clinical simulation compared to control groups who received simulation only, lead to improved clinical judgment among nursing students in the care of older adults (Johnson et al., 2011). Of the U.S. students, both the treatment and control groups agreed to strongly agreed that the "simulation experience was helpful in learning to notice and respond to patient symptoms, relate classroom concepts to a clinical setting, and improved confidence in ability to care for this type of patient" (Johnson et al., 2011 p. 178).

As an alternative to high fidelity manikins, nurse educators are beginning to use live actors or standardized patients in simulations (Wolf et al., 2010). The live-model patient has been used in medicine and other fields since 1960 and is defined as a "normal person who has been carefully coached to accurately portray the characteristics of a specific patient" (May, Park, & Lee, 2009, p. 467). Webster and DiBartolo (2014) developed a dementia-specific standardized patient learning activity that took place in a university simulation center. Following the learning activity and one week later, students completed a 15 question self-evaluation of community communication techniques. Findings from a comparison of the self-evaluations indicated the learning activity was effective in achieving desired learning objectives. A recent qualitative study by Ayers et al., (2015) used space industry technology to simulate a realistic integrated 24- hour hospital environment, where scripted patient roles were played by nurse practitioner

students and undergraduate nursing students cared for multiple patients. Participants in all groups indicated the simulated hospital was an accurate environment requiring them to think "on their own" and use clinical judgment (Ayers et al., 2015). Simulation and scripted scenarios provided a setting for teaching students how to collaborate and oversee multidisciplinary teams, allowing them to delegate, and critically think in a safe environment (Campbell & Daley, 2008; Paquette et al., 2010; Sideras et al., 2013). Scripting, prepared by a faculty team, included a detailed timeline, interlinking symptoms, and expected responses to increase complexity (Ayers et al., 2015). Cue cards prompted patient models to report symptoms that could not be medically simulated, allowing the students to assess and analyze results and make decisions. After each simulated nursing shift, group debriefing was conducted by trained faculty allowing opportunity for personal reflection. This type of learning strategy can be effective in engaging students and helping them develop confidence, critical thinking, communication skills, and promote patient centered care of patients with ADRD's.

Paid actors and students portrayed patient roles; only studies in which students were engaged as the patient are included in this review. Three studies were located that provided students with the opportunity to experience what it is like to be a patient (Ayers et al., 2015; Tremayne, Burdett, & Utecht, 2011; Panosky & Diaz (2009). At the completion of each of the study activities, students were debriefed. The students reported having more empathy and a better understanding of the patient experience (Ayer et al., 2015: Panosky & Diaz, 2009; Tremayne, Burdett, & Utecht, 2011).

Over the last ten years, significant revisions to geriatric content in nursing education have been made, yet negative attitudes toward the older adults continue to exist (AACN, 2010). Burbank et al., 2006 suggests this has happened in part, because nurse educators have paid "limited attention to incorporating basic gerontological nursing principles into undergraduate programs" (p. 91). Although changes are being made to include innovative teaching methods in nursing curriculums, more work is needed. The use of simulation with live models is increasingly being used; perhaps this teaching method can challenge students to manage competing demands and apply the knowledge learned in the traditional classroom (Ayers, 2015; Paquette, Bull, Wilson, & Dreyfus, 2010). Identified gaps in the literature are quantitative studies that examine the effect of simulation experiences to teach students how to care for adults with ADRD.

Theoretical Model

Mezirow's Transformation Theory was used to guide this study. Transformation Theory, an adult learning theory, is based on the idea that contemporary adult learners must develop the ability to become autonomous thinkers (Mezirow, 1991; 2000). There are three central themes to the transformative learning theory: role of experience, rational discourse, and critical reflection (Mezirow, 1991; Parker & Myrick, 2010). Mezirow believes these three themes are critical in knowledge development for the adult learner. According to Mezirow (1991), the process of transformational learning occurs within a series of stages (Appendix A-Figure 1). It begins with an experience that is unfamiliar to the learner; one Mezirow describes as a disorientating dilemma, and then through rational discourse and critical reflection, the person's frame of reference is altered thereby

changing the way they interpret and interact with others (Mezirow, 1991; Pugh, 2011). As an individual engages in a situation that is inconsistent to their existing beliefs, a shift in perspective occurs through reflection or self-examination and discourse who were part of the experience leading to a transformation in learning (Mezirow, 1991; 2000).

In this study, transformational learning was applied to a group of nursing students and an AD simulation experience. In the first phase of the study (Experience), intervention group students were randomized to an AD specific and pediatric simulation scenario while the control group was assigned an adult medical and pediatric scenario. Both scenarios used live-models in a simulated hospital. The intervention scenario required students to recognize and act on AD symptoms, chronic health problems or subtle changes in patient status, communicate, and be present to the patient. The initial expectation was that the student would become engaged in the simulation, make a connection between the patient and the environment, and formulate a new frame of reference (Mathew-Maich et al., 2010).

The second phase (Rational Discourse) involved the communication between the student and the person with AD as well as input and feedback from the instructor following the simulation. Mezirow describes rational discourse as a form of social learning that takes place through dialogue, guiding participants to a mutual understanding on beliefs, values, and assumptions (Mezirow, 1991). To promote the potential for further change in the students' perspectives, students discussed the experience during debriefing, as well as their values, and beliefs about caring for people with AD.

Encouraging discourse helped students find a comfort zone for relating to the new experience of interacting with older patients with AD.

Corresponding with Mezirow's theory, the final phase of the study supports a primary tenet of simulation, which is Critical Reflection. In simulated learning activities, it is through the built-in debriefing-reflection component that students reexamine the simulated clinical encounter and receive reinforcement of clinical reasoning and judgment through reflective learning processes (Parker & Myrick, 2010). During this phase of the study, students participated in a guided debriefing with others (peers and faculty). Students were asked questions, prompting critical reflection on the content of the disorienting dilemma that may have challenged previous beliefs and values.

Conceptual and Operational Definitions of Outcomes

Alzheimer's Knowledge

Conceptual definition. Knowledge is the development of factual statements that cover the basic physical, mental, social facts and common misconceptions about Alzheimer's disease (Palmore, 1980).

Operational definition. Alzheimer's disease knowledge is the student's score on the Alzheimer's disease Knowledge Scale (ADKS).

Attitude toward the ADRD Person

Conceptual definition. Attitude is defined as "a response to a person, object, or event that combines three components: emotional, cognitive and behavioral.

Each of these carries a valence: pleasurable to unpleasurable affect, favorable to unfavorable cognition, and supportive to hostile behavior" (O'Conner & McFadden, 2010, p. 2).

Operational definition. Attitude toward the ADRD person is the student's score on the Dementia Attitudes Scale (DAS; O'Conner & McFadden, 2010).

Hypotheses

Using Mezirow's Transformation Theory as the study framework, the following research hypotheses were posed:

1. Baccalaureate nursing students who are randomized to an AD live-model simulation will have improved knowledge about AD compared to students who take part in non-AD simulation experiences.
2. Baccalaureate nursing students who take part in an AD live-model simulation will have improved attitudes toward AD compared to students who take part in non-AD simulation experiences.

Design and Methods

Design

This randomized controlled trial (RCT) examined the impact of simulation on nursing students' dementia knowledge and attitudes toward Alzheimer's disease. The randomized design, considered the "gold standard" of experimental design, was a good choice for the study since the researcher was examining the cause and effect relationship between treatment and outcome (Portney & Watkins, 2009) specifically, whether an intervention (the live-model AD focused simulation) was more effective in changing

student attitudes, and improving knowledge of AD than standard educational practice. Dependent variables, attitudes toward people with AD and Alzheimer's knowledge, were measured at before and after live-model simulation for both experimental and control groups.

Sample

Using a convenience sample, the target population for this study was baccalaureate senior nursing students recruited from a state university in Texas. Seventy-six students were enrolled in the mandatory Child Health, Mental Health, and Adult Competencies II courses offered during the senior 1 semester. Inclusion criterion required all students to be (a) enrolled in the University at their seventh semester and (b) enrolled in the Child Health, Mental Health Competency, and/or Adult Competencies II courses. All participating students completed the mandatory Aging Family Course in their sixth semester. There were no exclusion criterion and the simulation was required for all three courses.

The number of participants needed for the study was based on G*Power Data Analysis with set values of an effect size d of .50, a conventional alpha of .05 and power at .80 (Faul, Erdfelder, Lang, & Buchner, 2007). The sample size for the primary directional hypotheses of between group differences was estimated to be 102. The sample size needed for the within group differences with the same parameters is 27 per group or 54 total. A record of how many students were recruited, why some were not eligible, how many agreed to participate and how many actually participated has been kept (See appendix B).

Setting

The study was conducted at the university simulation-learning laboratory on the university campus. The laboratory was set up as a medical unit much like a real hospital i.e. hospital beds, cardiac monitors, automated medicine dispenser; intravenous infusion pumps etc.; the set up remained consistent throughout the simulation.

Ethical Considerations

The study was approved by Institutional Review Boards (IRBs) at UT Tyler (see Appendix C) where the principal investigator (PI) is a doctoral student and Texas Woman's University Houston (TWU see Appendix D), where the study was conducted. The author and PI; who is not an instructor in the Child Health, Mental Health, or Adult Competencies II courses; helped prepare the simulation learning experiences and train faculty regarding their role during simulation, how to debrief students after the simulation, as well as data collection procedures. Students recorded a unique identifier on survey questionnaires in order to match pre-and post-questionnaires. The PI was not present when surveys were completed and in this way, participant confidentiality and anonymity was achieved. To reduce participants' bias, post hoc consent was acquired. Once students completed the simulation experience, the PI explained the purpose of the study, the voluntary nature of participation, that non-participation would not affect their grade, the survey responses would be anonymous, and asked their permission to use their data for research purposes. Students who declined to participate and did not want their data used in the study were instructed to email their identifier to the course manager

within 72 hours. No students declined participation. The course manager maintained possession of the data until after students had an opportunity to refuse participation.

Instruments

The variables AD knowledge and dementia attitudes were measured pre- and post-intervention. The Alzheimer's disease Knowledge Scale (ADKS Carpenter et.al, 2009) was used to measure Alzheimer's knowledge. Permission for use of the scale was obtained from the authors (Appendix F). The scale contained 30 true false items and was summed for a possible total score between 0-30 (Appendix G). Carpenter et.al, (2009) reported satisfactory reliability coefficients of the ADKS to be .81. The tool took approximately 10 minutes to complete.

The Dementia Attitude Scale (DAS, O' Conner & McFadden, 2010) was employed to ascertain the subject's attitude toward AD (Appendix H). Permission for use of the scale was obtained from the authors (Appendix I). The DAS has 20, seven point Likert-type scale items that reflect the affective, behavioral, and cognitive components of attitudes toward people with ADRD. Six items were reversed score. Possible scores ranged from 20 - 140. Total scale Cronbach's alphas ranged from 0.83-0.85. The tool took approximately 10 minutes to complete (DAS, O' Conner & McFadden, 2010). General demographic information was collected and included questions regarding experience caring for people with AD (Appendix G).

Data Collection and Procedures

Intervention

The intervention was an adaptation of the Ayers et al., (2015) simulated 24-hour hospital model. At the senior level, students are expected to be able to prioritize, delegate, and manage time; this can best be assessed by having each student care for two patients. Multiple patients challenge the students' patient centered, empathetic approach as their time becomes more limited due competing patient demands which, in turn allows values to be exposed. Two patient scenarios included in the live patient scripts were developed by the PI. Script 1 (control group, see Appendix J) incorporated care of an adult patient (patient 1) with a diagnosis of congestive heart failure (CHF) and chronic obstructive pulmonary disease (COPD). Script 2 (intervention group, see Appendix K) guided care of an adult patient (patient 1) with congestive heart failure (CHF) and AD; the control and intervention groups had the same pediatric patient scenario for patient 2 (see in Table 1). The scripts were chosen to meet objectives of all three courses (Child Health, Mental Health, or Adult Competencies II).

Table 1. Simulation Scripts

Script	Patient Scenario 1	Patient Scenario 2
Script 1-Control	Care of an adult patient with a diagnosis of CHF and COPD	Care of a pediatric patient with a diagnosis of cystic fibrosis complications
Script 2-Intervention	Care of an adult patient with a diagnosis of CHF and dementia	Care of a pediatric patient with a diagnosis of cystic fibrosis complications

One week before the intervention, the senior one students and course faculty were provided separate orientations by the PI and a course manager who has live-model

simulation experience. Faculty orientation included how to prompt, guide and debrief students. Students were instructed that they would take turns being patients and nurses during the simulation experience. In addition, students were provided general information about the patient role including the script's purpose, how to act out an assigned role, the importance of staying on script, and avoiding discussing scripts with other students outside of the debriefing.

All live-model patients were moulaged; i.e. make-up, ace wraps, wigs, pressure sores, IV's etc. applied (Appendix L). Standard protocols were used for both the intervention and control groups. As part of the usual curriculum of the Mental Health Competencies course, students attended a lecture on Alzheimer's disease, delirium, and dementia presented by course faculty after the pretest and before simulation. Students were randomized to intervention (AD simulation and role-play) or control (non-AD simulation and role-play). Randomization was accomplished by using a table of random numbers. Based on the randomization students were assigned to non-AD (CHF) patient care or AD (Geri) patient care in their simulation lab experience. Just prior to the simulation experience, students were given a piece of paper with a code (AD? or CHF) designating control or intervention group; they wrote their de-identifying password on the back of it, then placed the paper in an envelope which was later matched with pre and post-test data. Control groups and intervention groups were debriefed separately by course faculty at the end of the day; a faculty-debriefing guide was provided by the PI (see Appendix M).

Simulation of any design is resource intensive in terms of faculty, time, supplies and availability of live-models or manikins (Ayers et al., 2015; Paquette et al., 2010). An additional bonus to using students as live models is the ease of replication because the pool of patients is inherently available. Student actors were able to fill in observation gaps for faculty i.e. if asked, the student reported whether or not an assessment, patient teaching, or if a procedure was done (Ayers et al., 2015). This study used students randomized to the intervention group to play both the patient with AD and the nurse.

Data Collection Procedures

Data Collection

Prior to the intervention and dementia-specific lecture, baseline data (demographics, ADKS and DAS) were collected using paper and pencil questionnaires. Students were prompted to use a self-selected de-identifier; a trained faculty was available to help participants with any questions. One week after the last group of students completed the simulation activity, students completed the ADKS and DAS (again using their self-selected de-identifying number) during a regularly scheduled class. Pre- and post-tests were printed on different colored paper.

Data Analysis

Data collected from each participant was entered directly into a computer. SPSS version 20 was utilized to analyze the data. To determine the effect of the treatment, the independent *t*-test and paired samples *t*-test were used to evaluate the difference between and within the means of the two groups. The groups were compared at pre-test and at

post-test and change scores compared. Descriptive statistics were used to analyze the demographic responses.

Results

Sample

Descriptive analysis indicated the overall sample consisted of many more females (N = 56) than males (N = 9), 58% were single, most were between 22-30 years of age, and 43% reported having earned a previous degree. This was a diverse group of participants represented by white-non Hispanic 32%, Asian 28%, Hispanic 20%, African American 13.8%, and other 4.6%. Most participants reported that they did not have prior experience caring for people with AD. Seventy-six students in the Mental Health Competencies course completed the pretests ADKS and DAS. Both questionnaires were repeated at the end of the course. Of the total group, 65 students completed both pre and posttests. Only paired surveys with complete responses were included in the data analysis (N = 65). Nine participants did not complete posttests and two participants' unique identifiers could not be matched Appendix D provides a visual flow of participants through the study. Chi square was used to compare groups and demographic variables (See Appendix P4A).

ADKS and DAS

A test retest reliability coefficient found the ADKS to have a moderate reliability relationship between pre and posttest scores, (r (64) = .522, p < .001), while the DAS had a high reliability Chronbach's α = .83. For students who completed the pre- and post-test data, chi square showed there were no differences between groups. As compared to the

students who completed the pre and posttests, students who completed only the pretest showed there were differences between gender (5% more females) and race (20% fewer Asian Pacific students).

AD knowledge.

After confirming that the ADKS pre- and post-test data met the assumptions for parametric testing, an independent samples *t*-test was employed to compare the means between the AD simulation group and the control groups: there was no significant difference (t (63) = .28, p = .77). A paired samples *t*-test was calculated to compare the mean ADKS pre-test score to the mean within each group. The pre- and post-test ADKS means for the control group were M = 22.68 and M = 23.59 respectively. No significant difference was found (t (31) = -1.57, p = .124) for the control group. The pre- and post-test mean for the AD simulation group was M = 22.45 and M = 24. Students in the AD simulation experienced a significant increase in AD knowledge from pre-test to post-test, (t (32) = -5.55, p < .001; Table 2). The results suggest the AD simulation group had greater AD knowledge than the control group following the educational experience, (t (63) = -2.20, p = .031; see Table 3).

AD Attitudes.

An Independent samples *t*-test comparing the mean pre-test DAS scores of the control group to the mean pretest DAS scores of the AD simulation group showed there were no differences between the AD simulation group and the control group (t (63) = -.926, p = .358). The control group's mean DAS pre-test was M = 102.54 and M = 107.15 at post-test. Significant change in AD attitude from pre- to post-test was found (t (31) = -2.31, p = .028) in control group scores. The AD simulation group's mean DAS was M = 105.72 at pre-test and M = 112.36 at post-test (See Table 2), a significant change (t (32) = -3.19, p < .003). No significant difference was found between groups (t (63) = -.703, p = .485); however, the mean of the calculated scores was greater for the intervention group, the pretest to posttest mean difference score for the Control group was 4.5 while the AD simulation group score was 6.0.

Table 2. Results of paired t-tests for within group differences

Measure	**Control Group n = 32**						**Intervention Group n = 33**					
	Pre *M*	Post *M*	*t*	*p*	ES *d*	95% CI	Pre *M*	Post *M*	*t*	*p*	ES *d*	95% CI
ADKS	22.68	23.59	-1.57	>.05	0.28	-2.07 to .26	22.45	24.96	5.55	< .05	0.87	3.4 to 1.59
DAS	102.54	107.15	-2.31	>.05	0.41	-8.68 to -.54	105.72	112.35	3.19	< .05	0.49	10.8 to 2.41

Table 3. Results of independent t-test for between group differences of the pre- to post-test change scores

Measure	Control *M*	Intervention *M*	*t*	*p*	ES *d*	95% CI
ADKS	906	2.51	-2.20	<.05	.55	-1.4 to 1.88
DAS	4.61	6.63	-.703	>.05	.17	-7.71 to 3.73

N=65

Discussion

The first hypothesis of this study sought to determine if baccalaureate nursing students who were randomized to an AD live-model simulation would have improved knowledge about AD compared to students who took part in non-AD simulation experiences. The ADKS was used to assess student knowledge of AD before and after an educational activity. Group statistics from the ADKS from pretest to posttest showed that both groups of students (Control and AD simulation) experienced improved knowledge toward AD. However, within respective groups; the control group scores were non-significant while the AD simulation group students had a significant change in knowledge from pre-test to post-test. These findings would indicate that students in the intervention group who participated in the AD lecture followed by the AD simulated experience had greater improvement in knowledge compared to the control who received only the AD lecture. Hypothesis one is supported by the findings of the study. The results of this study reflect those of others conducted on comparable samples showing that lecture reinforced with enhanced dementia learning experiences had a positive impact on student knowledge (Kimzey, 2014; Paquette et al., 2010; Webster & DiBartolo, 2014).

The second hypothesis sought to examine whether baccalaureate nursing students who took part in an AD live-model simulation would have improved attitudes toward AD compared to students who took part in non-AD simulation experiences. The DAS was employed before and after an educational activity to measure student attitudes toward AD. The DAS pretest showed there was no difference in attitudes between the groups (See Table 3). Results revealed that both groups' attitudes significantly improved from pretest to posttest and students who received the AD simulation, had a non-significant but greater improvement in attitude when compared to the group who received the AD lecture only. These findings may indicate that when students have an opportunity to interact with people with AD the experience may help to dispel myths and stereotypes and improve attitudes towards AD. Interestingly, students in the group who received the AD lecture only had improved DAS scores yet in a study by Kimzey (2014) findings showed students who did an on-line AD module as compared to students who did an AD clinical did not show improvement in AD attitudes. These findings may imply that face to face lecture and interaction with an instructor which allows students to ask questions and have them answered has an impact on attitude. The findings of this study are reflective of other previously reported studies in which quality educational strategies had a positive influence on attitudes toward people with dementia (Burbank, Dowling-Castronovo, Cozort, 2008; Crowther, & Capezuti, 2006; Kimzey, 2014; Scerri & Scerri, 2012). Because most nurses at one time or another will care for an older adult with or without dementia it is important that nursing curriculums provides innovative opportunities to learn about older adults and memory loss.

Strengths and Limitations

Findings must be viewed in the context of several limitations. The sample size was small and the use of a convenience sample can affect the generalizability of the study. Threats to internal validity included the amount of time from when the students experienced the simulation activity and the time they completed the ADKS and DAS, a last minute change in the faculty member who administered and collected the post-test; the faculty who administered the pretest gave students one grade point toward lecture participation for completing the instrument, the alternate posttest faculty did not; additionally, the day it was administered was the last day of class for the semester. These threats could account for the nine missing post-test surveys because participants might not have attended class on the last day of the semester or completed the questionnaires to receive a point. Changes in attitude and knowledge scores could have been changed by the order in which the students played the roles of the patient and nurse. By role playing the patient first, the student may have benefitted in some way from knowing the patient's background information i.e. medical and psychosocial conditions which could have affected their responses on the knowledge and attitude scales. The sample was diverse and English might be the second or third language for some students; therefore, questions might have been misunderstood. Conversely, the sample diversity can be viewed as a strength to the study. Anecdotally, white, non-Hispanic group scored the highest on the DAS pretest, their scores on the posttest remained relatively unchanged as compared to improved scores on the other group's scores (African American, Hispanic, Asian Pacific, and Other).

Conclusions and Recommendations

Since 1996 and the creation of the Hartford Institute of Geriatric Nursing, the state of science in gerontological nursing has been moving in a more positive direction but ageist attitudes among new nurses continues to exist (Bednash et al., 2003; Bednash et al., 2011; Goncalves, 2009; Holroyd et al., 2009). This study showed that AD lectures and simulation experience had a positive effect on AD knowledge and attitude; however, traditional teaching strategies have been unsuccessful in enticing students into working with older people. This may be because students fail to synthesize the complexities of the care required of older adults with AD (AACN, 2010). For this reason, it is important that nurse educators be creative and develop educational strategies that afford students dementia-specific learning experiences.

Future research should include repeated simulations across the curriculum culminating in complex dementia-focused scenario for a longer shift length (4-6 hours) for senior students. A more complex scenario may allow the student to develop a sophisticated understanding of dementia. The study should be repeated using a larger sample to improve the generalizability. Future research may also include investigating differences between ethnic groups and AD attitude, as this could have implications on the way those groups deliver care to people with AD. Researchers might partner with an assisted living facility that recruits resident volunteers to serve as live models. The effect of simulation with live older models compared with student models would provide insight into whether interactions with older adults are more beneficial compared to students as patients.

Much research has been devoted to understanding negative attitudes towards older adults with or without AD but few answers have been established as to how to improve student attitudes about AD and people with AD. Though relatively new to nursing education, simulation is an exciting teaching strategy and well received by students (Ayers, et al., 2015; Paquette, et al., 2010). Live-model patient simulation may be an effective alternative to conventional teaching modalities to teach gerontology to undergraduate nursing students. The live model simulated hospital experience allows faculty to develop scripts and control situations in which students can practice evidence-based care (Webster & DiBartolo, 2014). This method of exposing students to the contingencies of clinical nursing through the use of complex patient situations can help guide the actions of the advanced beginner (Waldner & Olson, (2007). Results of this study offers new insights into how live model simulations with a focus on geriatric care can help students to become more knowledgeable and have better attitudes about AD which can ultimately lead to positive patient outcomes.

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Chapter 4

Evaluation of the Project

As baby boomers continue to retire at unprecedented rates, nurses will care for more patients with chronic illnesses including ADRD. Nurses are posed to play a key role in patient care for older people, yet few choose to work with this population (Neville & Dickie, 2014). The literature showed nursing education continues to lag behind in its mission to prepare future nurses as compared to the growth of the older adult population.

The Portfolio includes two manuscripts the first manuscript *Changing Attitudes and Improving Gerontological Knowledge: Is Nursing Education making a Difference?* And *Live Model Simulation: Improving Nursing Students' Attitudes and Knowledge of Alzheimer's Disease*. The goal of the study was to determine if live-model simulation could improve student attitudes and knowledge of Alzheimer's disease (AD) as compared to usual teaching methods.

The literature review revealed that despite changes in nursing education, few nurses possess gerontological expertise and choose to work with older adults. Factors contributing to lack of interest in geriatrics included ageist attitudes and limited attention by nursing education to incorporate basic gerontological nursing principles into undergraduate programs. In recent years nursing faculty began to think outside the box and created innovative ways to deliver gerontological content. Methods ranged from traditional lecture, context based learning, role playing, and experiential learning to complex simulated experiences. Various teaching methods had positive and no effect on students' knowledge and attitudes about older adults and people with ADRD. Simulation

in nursing education has shown promise as an educational strategy that can help students develop needed clinical skills. Although several of the simulations studies focused on the older adult, dementia-specific teaching methods was scarce.

The Transformational Learning Theory was used as the framework for the study. The theory was found to support the use of live model simulation as the student became engaged and moved through the transformation process. Although students spend time with AD patients in the hospital setting they are often only an observer and are not able to become immersed in the care or develop a relationship with the patient, which is essential in providing patient centered care to people with AD (Baillie, Merritt, & Cox, 2012). The study simulation provided the students an opportunity to integrate theory into practice by allowing them to use their skills and knowledge and practice patient centered care in a safe environment.

The study was an RCT that used a convenience sample (N= 65) of undergraduate nursing student at a Texas university. The students were randomized to a control group that received AD lecture and a usual course simulation activity, and an intervention group that received the AD lecture and an AD simulation activity. Using the tools ADKS and DAS to measure AD knowledge and dementia attitude at pre and post intervention, findings showed the AD intervention to be effective in improving both knowledge and attitude. Results also suggested that lecture alone significantly improved student attitudes. The findings imply that nursing education can have a positive role in changing student knowledge and attitudes toward AD. The findings are promising as they support other studies that found traditional lecture augmented with an educational activity to be

effective in improving AD knowledge and attitude (Kimzey, 2014, Webster & DeBartolo 2014).

This experience provided many insights for future integrated simulations. Successful implementation of the integrated live model simulation needs both administrative and faculty support since it requires time to develop scripts and is labor intensive during the actual simulation. This is particularly true when scripts are developed for extended periods (2 or more hours). The script for this simulation ran for two hours allowing all students in the course to be the nurse and required less faculty oversight. This shorter integrated simulation may be an effective way to incorporate the learning method into the curriculum sooner, leading up to the longer more complex integrated simulation in the final semester. The patients who accurately and creatively became the AD patient challenged the nurse to interact and respond to them. It was noted, that more in-depth coaching for student patient actors is needed so that all students portray their patient role with added realism. Many students, who played the nurse role last, reported feeling as if they were cheated because they had more understanding of the patient than those who were the nurse first. Mental Health course instructors are often reluctant to utilize simulation as a teaching method. Their response to this experience was very positive leaving the PI hopeful that they will consider using live-model integrated simulation in the future. Live-model simulation can improve students' attitudes and knowledge toward patients with ADRD and could have long-term effects on the way AD content is delivered in schools of nursing. Future recommendations include replicating with a larger sample using more complex older adult scenarios.

Clinical experiences with older adults are essential in nursing education. Given the difficulty nursing programs face in securing clinical placements in mental health facilities, integrated simulation may be an appropriate substitute for clinical hours. More research is needed to better understand the patient role and learn how it can be an equally beneficial learning experience as the nurse role. Although more and more research is being done to evaluate the use of simulation in nursing education focusing on the older adult, the number of quantitative studies is limited especially in as it relates to patients with dementia. This RCT adds to the void in the research.

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O'Conner, M., & McFadden, S. (*2010*). Development and psychometric validation of dementia attitude scale. *International Journal of Alzheimer's Disease,* 2010, 1-10. doi: 10.4061/2010/454218

Appendix A. Theory Schematic

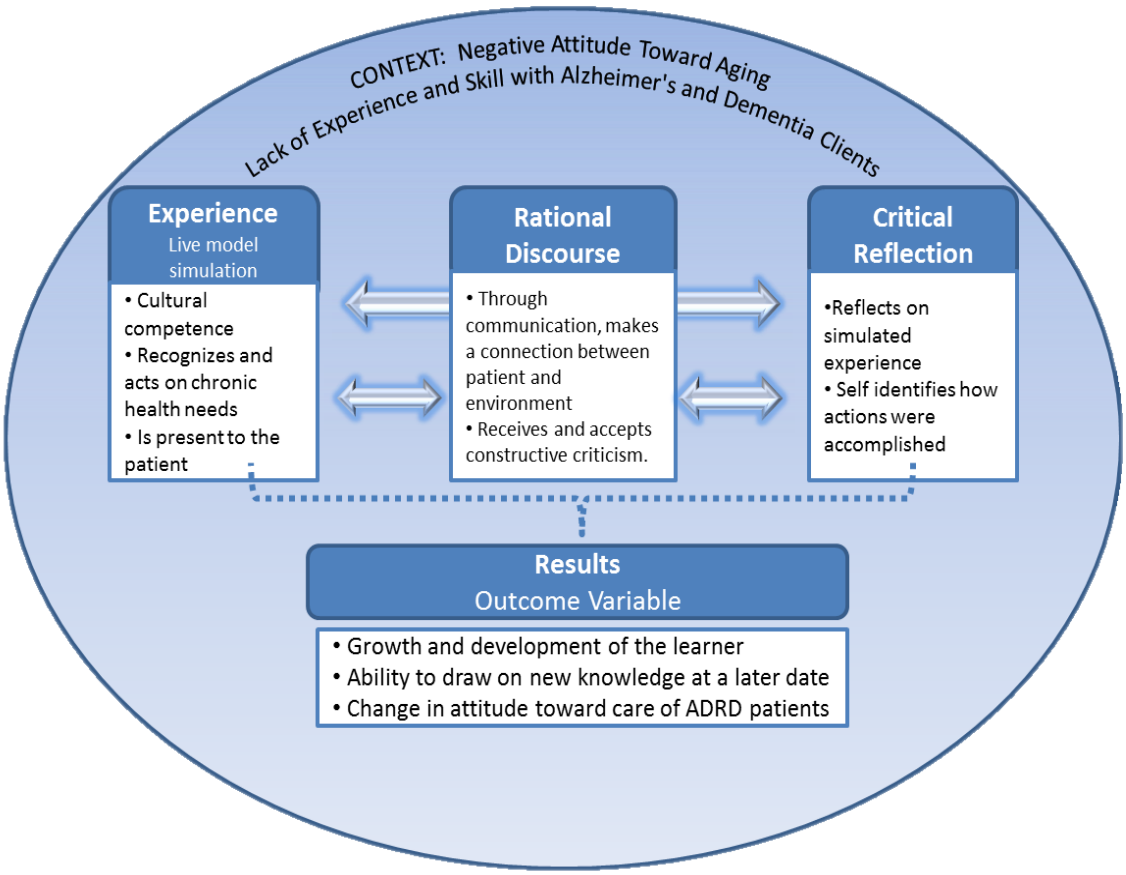


Figure 1. Adapted from "Mezirow's Transformation Theory," by J. Mezirow (1991), Transformative dimensions of adult learning. San Francisco, CA: Josse-Bass.

Appendix B. Sample Flow Chart

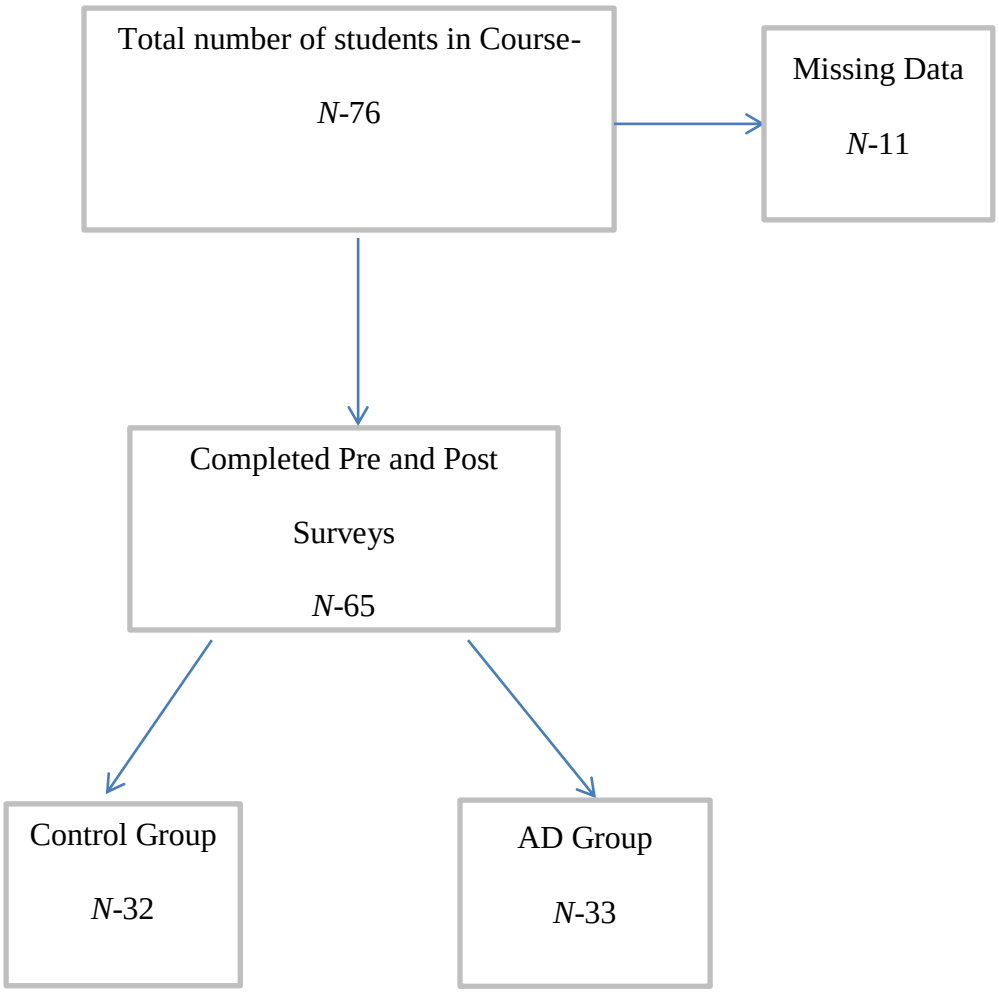
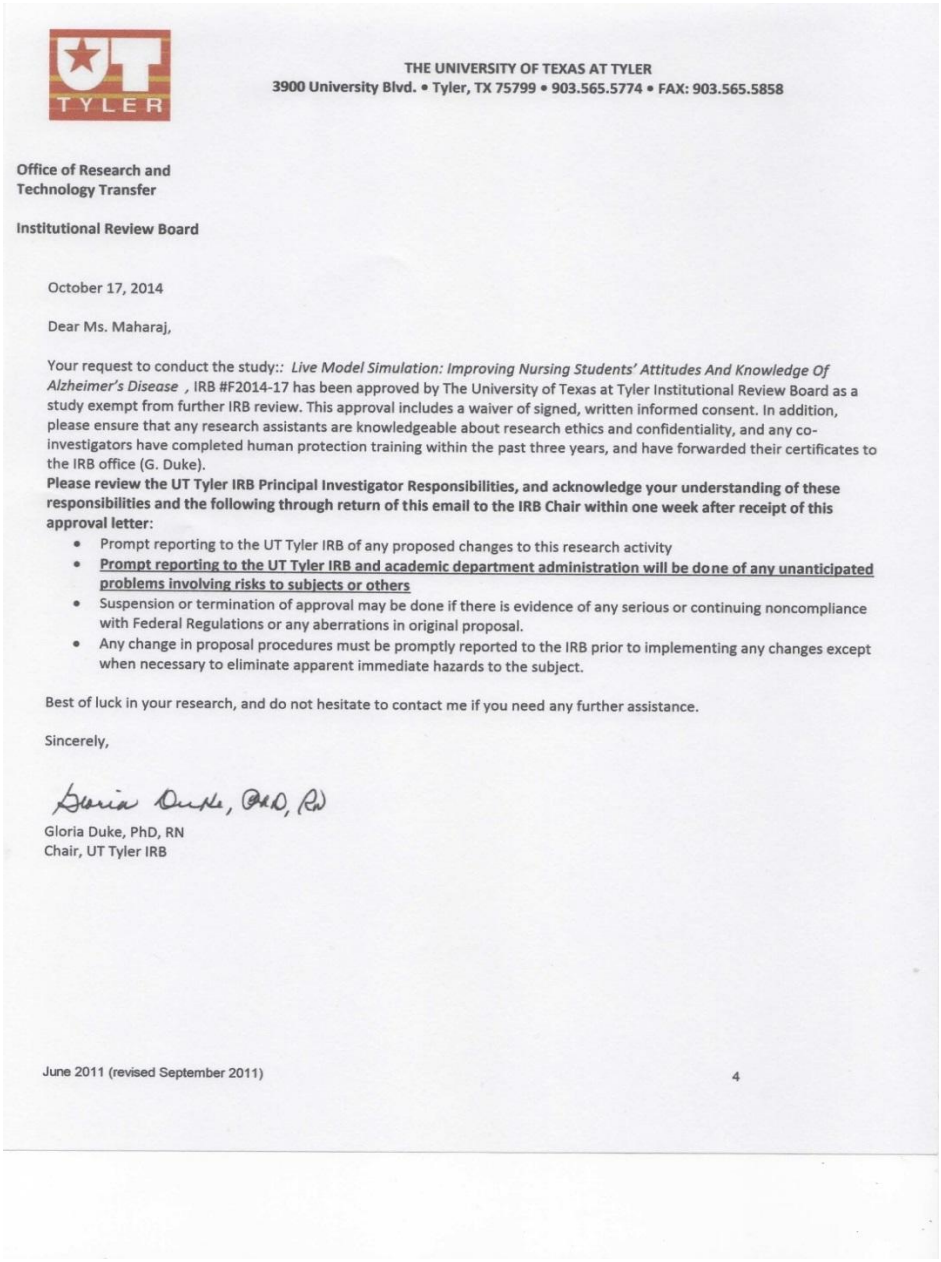


Figure 2. Flow of participants

Appendix C. UT Tyler IRB



THE UNIVERSITY OF TEXAS AT TYLER
3900 University Blvd. • Tyler, TX 75799 • 903.565.5774 • FAX: 903.565.5858

Office of Research and Technology Transfer

Institutional Review Board

October 17, 2014

Dear Ms. Maharaj,

Your request to conduct the study:: *Live Model Simulation: Improving Nursing Students' Attitudes And Knowledge Of Alzheimer's Disease* , IRB #F2014-17 has been approved by The University of Texas at Tyler Institutional Review Board as a study exempt from further IRB review. This approval includes a waiver of signed, written informed consent. In addition, please ensure that any research assistants are knowledgeable about research ethics and confidentiality, and any co-investigators have completed human protection training within the past three years, and have forwarded their certificates to the IRB office (G. Duke).

Please review the UT Tyler IRB Principal Investigator Responsibilities, and acknowledge your understanding of these responsibilities and the following through return of this email to the IRB Chair within one week after receipt of this approval letter:

- Prompt reporting to the UT Tyler IRB of any proposed changes to this research activity
- **Prompt reporting to the UT Tyler IRB and academic department administration will be done of any unanticipated problems involving risks to subjects or others**
- Suspension or termination of approval may be done if there is evidence of any serious or continuing noncompliance with Federal Regulations or any aberrations in original proposal.
- Any change in proposal procedures must be promptly reported to the IRB prior to implementing any changes except when necessary to eliminate apparent immediate hazards to the subject.

Best of luck in your research, and do not hesitate to contact me if you need any further assistance.

Sincerely,

Gloria Duke, PhD, RN
Chair, UT Tyler IRB

June 2011 (revised September 2011) 4

Appendix D. TWU IRB

TWU
TEXAS WOMAN'S UNIVERSITY
DENTON DALLAS HOUSTON

Institutional Review Board
Office of Research
6700 Fannin, Houston, TX 77030
713-794-2480
mjackson3@twu.edu
http://www.twu.edu/irb.html

DATE: January 12, 2015

TO: Ms. Teresa Maharaj
Nursing - Houston

FROM: Institutional Review Board - Houston

Re: Exemption for Live Model Simulation: Improving nursing student's attitudes and knowledge of Alzheimer's Disease (Protocol #: 18017)

The above referenced study has been reviewed by the TWU Institutional Review Board (IRB) and was determined to be exempt from further review.

If applicable, agency approval letters must be submitted to the IRB upon receipt PRIOR to any data collection at that agency. Because a signed consent form is not required for exempt studies, the filing of signatures of participants with the TWU IRB is not necessary.

Although your protocol has been exempted from further IRB review and your protocol file has been closed, any modifications to this study must be submitted for review to the IRB using the Modification Request Form. Additionally, the IRB must be notified immediately of any adverse events or unanticipated problems. All forms are located on the IRB website. If you have any questions, please contact the TWU IRB.

cc. Dr. Brenda Binder, Nursing - Houston

Appendix E. ADKS

Below are some statements about Alzheimer's disease. Please read each statement carefully and circle whether you think the statement is True or False. If you aren't sure of the right answer, make your best guess. It's important to circle an answer for every statement, even if you're not completely sure of the answer.

1. People with Alzheimer's disease are particularly prone to depression.
True
False

2. It has been scientifically proven that mental exercise can prevent a person from getting Alzheimer's disease.
True
False

3. After symptoms of Alzheimer's disease appear, the average life expectancy is 6 to 12 years.
True
False

4. When a person with Alzheimer's disease becomes agitated, a medical examination might reveal other health problems that caused the agitation.
True
False

5. People with Alzheimer's disease do best with simple, instructions given one step at a time.
True
False

6. When people with Alzheimer's disease begin to have difficulty taking care of themselves, caregivers should take over right away.
True
False

7. If a person with Alzheimer's disease becomes alert and agitated at night, a good strategy is to try to make sure that the person gets plenty of physical activity during the day.
True
False

8. In rare cases, people have recovered from Alzheimer's disease.
True
False

9. People whose Alzheimer's disease is not yet severe can benefit from psychotherapy for depression and anxiety.
True
False

Appendix E. (continued)

10. If trouble with memory and confused thinking appears suddenly, it is likely due to Alzheimer's disease.
True
False
11 Most people with Alzheimer's disease live in nursing homes.
True
False
12. Poor nutrition can make the symptoms of Alzheimer's disease worse.
True
False
13. People in their 30s can have Alzheimer's disease.
True
False
14. A person with Alzheimer's disease becomes increasingly likely to fall down as the disease gets worse.
True
False
15. When people with Alzheimer's disease repeat the same question or story several times, it is helpful to remind them that they are repeating themselves.
True
False
16. Once people have Alzheimer's disease, they are no longer capable of making informed decisions about their own care.
True
False
17. Eventually, a person with Alzheimer's disease will need 24-hour supervision.
True
False
18. Having high cholesterol may increase a person's risk of developing Alzheimer's disease.
True
False
19. Tremor or shaking of the hands or arms is a common symptom in people with Alzheimer's disease.
True
False

20. Symptoms of severe depression can be mistaken for symptoms of Alzheimer's disease.
True
False
21. Alzheimer's disease is one type of dementia.
True
False
22. Trouble handling money or paying bills is a common early symptom of Alzheimer's disease.
True
False
23. One symptom that can occur with Alzheimer's disease is believing that other people are stealing one's things.
True
False
24. When a person has Alzheimer's disease, using reminder notes is a crutch that can contribute to decline.
True
False
25. Prescription drugs that prevent Alzheimer's disease are available.
True
False
26. Having high blood pressure may increase a person's risk of developing Alzheimer's disease.
True
False
27. Genes can only partially account for the development of Alzheimer's disease.
True
False
28. It is safe for people with Alzheimer's disease to drive, as long as they have a companion in the car at all times.
True
False
29. Alzheimer's disease cannot be cured.
True
False
30. Most people with Alzheimer's disease remember recent events better than things that happened in the past.
True
False
Carpenter, Balsis, Otilingam, Hanson, & Gatz, 2009).

Appendix F. ADKS Permission to Use Instruments

Dear Teresa,

Thank you for your interest in the ADKS. You have our permission to use the scale, and the link below will take you to some additional information about the scale:

http://pages.wustl.edu/geropsychology/adks

We would appreciate an update on your findings after you've completed your research. Good luck with the project, and let me know if you have any questions.

Regards,
Brian

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Appendix G. DAS

1. It is rewarding to work with people who have ADRD.
2. I am afraid of people with ADRD.
3. People with ADRD can be creative.
4. I feel confident around people with ADRD.
5. I am comfortable touching people with ADRD.
6. I feel uncomfortable being around people with ADRD.
7. Every person with ADRD has different needs.
8. I am not very familiar with ADRD.
9. I would avoid an agitated person with ADRD.
10. People with ADRD like having familiar things nearby.
11. It is important to know the past history of people with ADRD.
12. It is possible to enjoy interacting with people with ADRD.
13. I feel relaxed around people with ADRD.
14. People with ADRD can enjoy life.
15. People with ADRD can feel when others are kind to them.
16. I feel frustrated because I do not know how to help people with ADRD.
17. I cannot imagine caring for someone with ADRD.
18. I admire the coping skills of people with ADRD.
19. We can do a lot now to improve the lives of people with ADRD.
20. Difficult behaviors may be a form of communication for people with ADRD.

Subdomain:
Comfort (items 1, 2, 4, 5, 6, 8, 9, 13, 16, and 17).
Knowledge (items 3, 7, 10, 11, 12, 14, 15, 18, 19, and 20)
(O'Connor & McFadden, 2010).

*Post-Test will include the following questions
21. During simulation day, did you care for the patient with AD?
(Please circle)
Yes No
22. If **yes**, which role did you play first?
(Please circle) **AD Patient or Nurse**
**The DAS (with Likert type responses) pre and post versions are attached.

Appendix H. DAS Permission to Use Instrument

Hi Teresa,

I received your voicemail message and the e-mail message below. (My e-mail address is melissa.oconnor@ndsu.edu). I've attached a copy of the DAS for your use. Note that six of the items are reverse scored.

Good luck!

All the best, Dr. O'Connor

Appendix I. Demographic Information

1) Please complete the following demographic information

Personal Identifier (Password):

Home City:

Home State:

Home Zip:

2) Are you Male or Female? (Circle one)

Male

Female

3) What is your current marital status? (Circle one)

Single

Married

Separated

Divorced

Widowed

4) What is your date of birth? Month____ Year____

5) What is your race? Please Circle

White

White, Non-Hispanic

African American

Hispanic

Asian Pacific

Native American

Other

6) What is your highest level of education? (Please circle)

High School Associate Degree Bachelor's Degree Master's Degree PhD

Appendix I. (Continued)

7) Have you ever cared for elderly patients with Alzheimer's disease or dementia in the clinical area?

(Please circle) Yes No

8) Have you ever cared for elderly friends or family members with Alzheimer's disease or dementia? (Please circle) Yes No

Appendix J. Control Patient Script

NAME: Jenson, Mary/David

MEDICAL DIAGNOSIS: Exacerbation CHF MEDICAL HISTORY: *You are a 52 year old female/male admitted from ED two days ago with CHF exacerbation. You have moderate SOB at rest, + 2 edema in LEs, some wheezing on auscultation. You have a history of type 2 diabetes, hypertension, hyperlipidemia, Mild COPD. You are on telemetry with paced rhythm and have an IV D5.45NS @50cc/hr. You have moderate SOB at rest, edema in LEs, audible wheezing without auscultation.*

SOCIAL HISTORY: *You currently live with your 17 y.o. daughter and 18 y.o. son who are in high school, your husband/wife died 5 years ago in an auto accident, you are concerned about getting back to work and getting home to supervise your teens. You smoke 1ppd. and are a Social drinker 4-5 drinks per week usually weekends.*

HOME MEDICATIONS:
Docusate 100mg PO BID (9AM, 9PM)
Flecainide 100MG PO QD
Lisinopril 20 MG PO QD
Vitamin D
Salmeterol 50mcq oral inhaler (Diskus 60)
inhale I puff by mouth, bid
Glipizide 5mg TAB, qd, PO
Aspirin 81mg, qd, Chew tab
Warfarin(Coumadin) NA 2.5mg, qd at evening, PO
Simvastin 20mg, at bedtime, PO
Vitamin D 200 unit, qd, PO
Omeprazole 20mg, qd, PO
Docusate Na 100mg, qd, PO

Ted hose
SCDs-
Telemetry
O2@2L/NC
IS

Appendix J. (Continued)

0800: Provider rounds.

0830: If vitals are taken report-T 98.9; P: 100; BP 150/88 R 22; O2 sat 95% on 2L NC;

- Assessment: You are Alert and oriented X3.
- Ask the nurse when is the doctor going to discharge you… you need to get out as soon as possible your kids are at home alone and you need to get back to work.
- You refuse breakfast. If asked, why you didn't eat, respond: "I can't eat that food, it tastes terrible, it's not a very appetizing breakfast my kids will be bringing me something soon.
- Ask where you can go to have a smoke, it helps to calm you down.
- Cough and spit out mucous, complain, "I seem to still be short of breath, do I have this oxygen on right?

10:00

- Want to go and have a cigarette.
- Ask the nurse " Where is the cafeteria I'm hungry now my kids have not shown up with my breakfast yet so I want to go get something"
- Begin to cry and tell the nurse "I need to get out of here and take care of my kids."

Appendix K. AD Patient Script

NAME: Jenson, Mary/David

MEDICAL DIAGNOSIS: Exacerbation CHF

MEDICAL HISTORY: You are a 78 year old female admitted from ED two days ago with CHF exacerbation. You have moderate SOB at rest, + 2 edema in LEs, some wheezing on auscultation. You have a Hx of type 2 diabetes, hypertension, hyperlipidemia, arthritis Rt knee, and mild dementia score of 19 on the MMSE. Patient had L hip replacement 2008, L knee replacement 2009, pacemaker and defibrillator placement 2010. You are HOH on the left side. You are on telemetry with paced rhythm and have an IV D5.45NS @50cc/hr. Reddened pressure area to left elbow.

SOCIAL HISTORY: You currently live alone, your husband died 5 years ago, have a daughter who lives in the same area but works full time. You do not want to go to nursing home or rehab facility on discharge but your daughter does not want you to go home alone, you can't understand why she won't let you go home. You like to talk to people and are a little weepy today and have pain to your R knee due to arthritis.

HOME MEDICATIONS:
Docusate 100mg PO BID (9AM, 9PM)
Flecainide 100MG PO QD
Lisinopril 20 MG PO QD
Glipizide 5mg TAB, qd, PO
Aspirin 81mg, qd, Chew tab
Warfarin(Coumadin) NA 2.5mg, QD at evening, PO
Simvastin 20mg, at bedtime, PO
Calcium 500mg/Vitamin D 200 unit, QD PO
Omeprazole 20mg, QD, PO
Docusate Na 100mg, QD, PO
Aricept 5mg QD PO

Ted hose
SCDs-need to be put on by nurse
Foley catheter-30cc clear yellow urine
Telemetry

0800: Provider rounds.

0830: If vitals are taken report-VS 98/60, 76, 18, 99.4 O2 Sat: 94% on O2 @ 2 L NC.

- Assessment: You are Alert and oriented X2.
- Tell the nurse to speak to you on your left side because you can't hear very well in the right ear.
- You refuse breakfast. If asked, why you didn't eat, respond: "I can't eat that food, it tastes terrible, it's not a very appetizing lunch. My daughter should be here by now. "
- Report: "I am beginning to have pain in my knee – it' that arthritis".

9:30

You want to know where your daughter is. You tell the nurse your daughter usually helps you with evening ADL's: Brush teeth/comb hair/ prepare for bed. Wait a few minutes…

- Cough and spit out mucous, complain "I always have mucous in the morning but goes away later in the day but I usually take Benadryl to dry it up do can I have one please?
- You report to the nurse you are feeling constipated. You want to get out of bed. Anxious about going to you own home.
- Thank the nurse for being kind and taking care of you.

10:00

- Want assistance up to chair.
- Tell the nurse " I want to go to home, I have plants that need watering"
- Begin to cry and tell the nurse "I need to go take care of my husband."

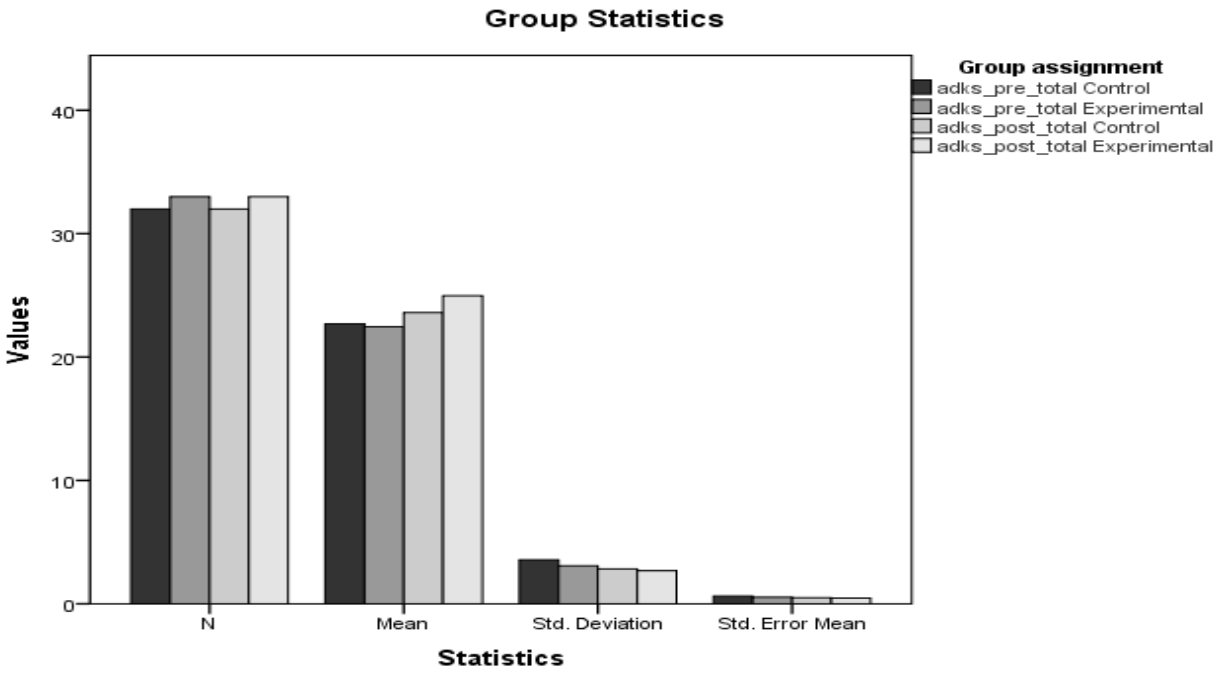
Appendix L. Moulage Guide

AD Patient	Non-AD Patient
O2/NC@2LM Pulse Ox IV D51/2 NS Hep lock set up Ted Hose LE Edema Gray or white wig Pale coloring Emesis basin Foley Catheter with 30cc yellow urine Reddened area to L elbow	O2/NC@2LM Pulse Ox IV D51/2 NS Hep lock set up Ted Hose LE Edema Can of coke at BS Purple lips Pale coloring Emesis basin

Appendix M. Faculty Debriefing Guide

1. Thank students for engaging in simulation and debriefing.
2. Establish confidentiality.
3. State the roles of the facilitator and students.
4. State the purpose of the overall simulation learning experience.
    A. Develop patient and relationship-centered care of simulated patients.
    B. Develop empathy and values, clinical competency and proficiency through participation in and management of pediatric and adult/AD simulated patients' care.
    C. Promote quality and safety nursing competencies in simulated learning experiences.
5. Faculty are to guide the debriefing using the following suggested questions
    A. What were the patient needs and the illness experience for either scenario?
    B. What was it like to communicate with patients and healthcare providers.
    C. How did you prioritize care of your patients?
    D. What was it like to care for your patients independently?
    E. What was good about your patient care?
    F. What is it about patient care that surprised you?
    G. Did you have a plan of care for patients and how well was it implemented?
    H. What current evidence did you use to plan and implement care of the AD patient?
    I. What was it like to care for a patient with AD? Where there any safety issues?
    J. How did you advocate for your patients?
    K. What were your favorite and least favorite aspects of the simulation?
    L. Did you have sufficient knowledge/skills to manage the patient situation?
    M. Was SBAR used when communicating with other healthcare professionals?
6. Encourage participants to fully discuss their feelings and personal reactions to the simulation experience.

Appendix N. ADKS Group Statistics



Appendix O. DAS Group Statistics

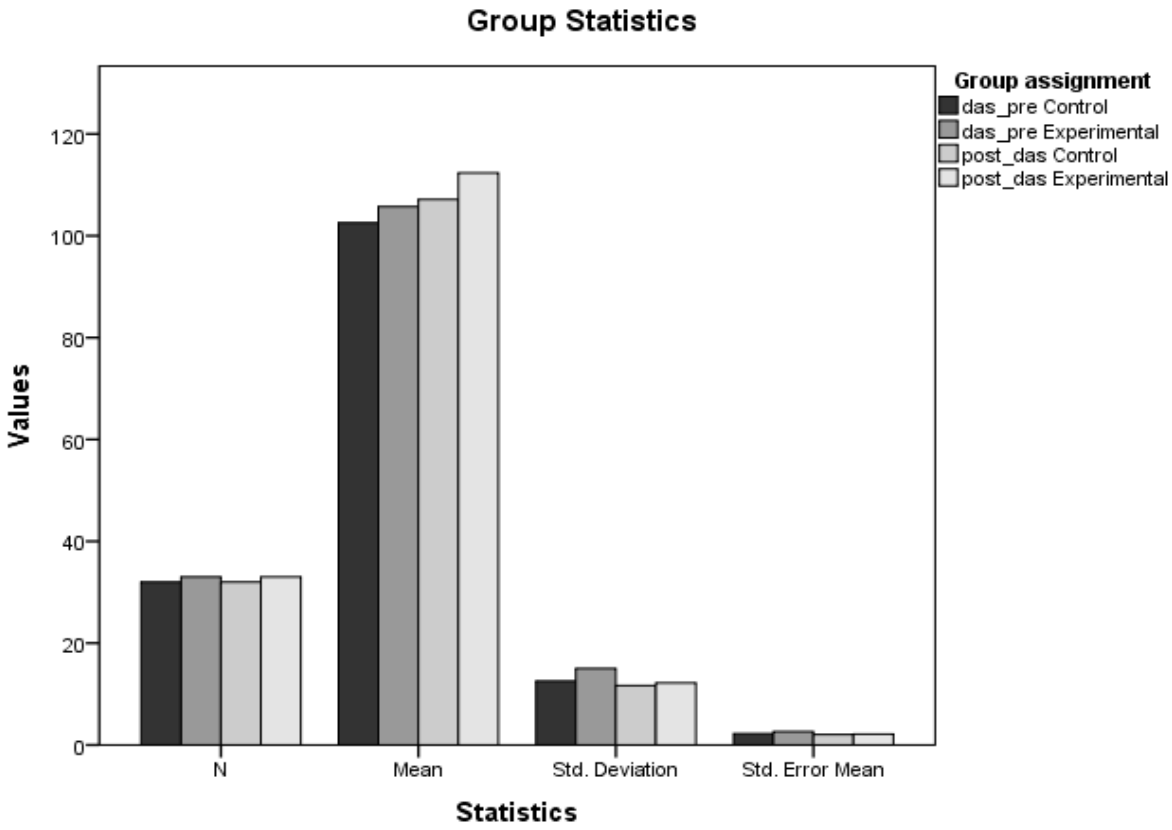


Figure 4. DAS Pre and Posttest scores

Appendix P4A

Table II
Demographics by Group

Demographics		**Group 1 Control Group *N*=32**	**Group 2 Simulation Group *N*=33**	**Total**	**Chi Square**	***P* Value**
Gender	Male	6	3	9	1.27	.259
	Female	26	30	56		
Marital Status	Single	22	21	33	2.01	.365
	Married	9	10	19		
	Separated	0	2	2		
	Missing	1		1		
Age	17-21	0	1	1	1.27	.866
	22-25	12	12	24		
	26-30	11	11	22		
	31-40	4	3	7		
	41-50	3	4	7		
	51-60	0	1	1		
	Missing	2	1	3		
Race	White (Non-Hispanic)	10	11	21	.63	.321
	African American	3	6	9		
	Hispanic	5	8	13		
	Asian, Pacific Islander	13	6	19		
	Other	1	2	3		
Education	High School	4	5	9	.07	.790
	Associate's	10	11	21		
	Baccalaureate	15	17	32		
	Masters	2	0	2		
	Missing	1	0	0		
Family with AD	Yes		10		.23	.632
	No		23			
Caregiver to AD	Yes	12	14	26	.16	.685
	No	20	19	39		

Biosketch

NAME: Maharaj, Teresa

University of Texas at Tyler

POSITION TITLE: Assistant Clinical Professor

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date	
Ocean County College	Associate Degree	00/1978	Associate of Arts
Drexel University	Associate Degree	00/1981	Nursing
Texas Woman's University	B.S.	00/2005	Nursing
Texas Woman's University	M.S.	00/2008	Nursing Education

A. Personal Statement

My long term research interests involve the development of an integrated simulation hospital to be used as alternate way to help undergraduate nursing students develop critical thinking, clinical judgment and patient centered care in a university learning lab environment. My academic training and research experience have provided me with an excellent background in nursing including clinical education with a focus on gerontology, community health and nursing education. I have gained expertise in live-model simulation development and am currently an assistant PI on a research grant for the Texas Higher Education Coordinating Board ENHASE: Education Nurses via Hospital and Simulated Environments. My interest in older adults started early in my nursing career when I observed how poorly many older adults were cared for by professional nurses. I worked many years as a registered nurse in home health in clinical and in administrative positions and eventually developed and open a licensed adult day center (ADC). At the ADC I cared for many older people with dementia and realized few nurses and other medical professionals had the knowledge needed to care for those individuals. My doctoral studies have focused on how to better teach nurses how to care for our nation's older population. I currently teach community health at Texas Woman's University and am the Baccalaureate Coordinator at the Houston Campus.

B. Positions and Honors

Positions and Employment

1981 Hermann Hospital, , TX, Staff RN. Houston, Texas
1983 LifeMark Home Health, Staff RN. Houston, Texas
1985 Concept of Care, Director of Services. Houston, Texas
1987 T.S. Care, Inc., Director of Services. Spring, Texas
2000 Applied Home Health, Assistant DON. Houston, Texas
2005 HealthSouth Rehabilitation Hospital, Charge Nurse. Houston, Texas
2008 Texas Woman's University, Research Assistant. Denton, Texas
2009-Now Texas Woman's University, Assistant Clinical Professor. Denton, Texas

C. Professional Memberships

Phi Kappa Phi, 2015
Sigma Theta Tau-Beta Beta, 2015
American Gerontology Association, 2014
American Nurses Association, 2014
Gerontological Nurses Association, 2014
Texas Nurses Association, 2014