PSYCHOMETRIC EVALUATION OF THE KNOWLEDGE, SKILLS, AND ATTITUDES – PART I: PATIENT-CENTERED CARE SCALE (KSAI-PCCS): A PILOT STUDY

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ABSTRACT

Recognition that adverse events are a significant cause for morbidity and mortality has led to a rise in global efforts to improve patient safety. Adaptations are needed in healthcare institutions and at the educational preparatory level for all healthcare providers. One change surrounds the significance of patient-centered care, an important concept new to healthcare over the last decade. The problem concerns the ability of healthcare educators to effectively measure knowledge, skills, and attitudes of student nurses in relation to the Quality and Safety Education for Nurses (QSEN) patient-centered care competencies.

The primary purpose of this study was to test the psychometrics of the Knowledge, Skills, and Attitudes Part I—Patient-centered Care Scale (KSAI-PCCS) instrument. A secondary purpose was to examine the perceived knowledge, skills, and attitudes of prelicensure nursing students specific to QSEN Core Competency: Patient-Centered Care. The knowledge of reliability and validity of the new instrument is critical for continued evaluation of patient-centered care from the nursing student's perspective.

The study was a cross-sectional non-experimental concurrent mixed-methods design that used non-probability convenience sampling and a web-based self-report survey. The learning framework was informed by a post-positivist worldview grounded in social constructivist and objectivist epistemology. The conceptual framework was informed by the theoretical perspectives of QSEN and Watson's Caring Model.

The KSAI-PCCS is a 54-item instrument with three subscales: Knowledge (19 items), Skills (17 items), and Attitudes (18 items)—KSA. The instrument subjectively measures the three domains of patient-centered care competencies for nursing practice.

The instrument was administered to 208 prelicensure nursing students using a test-retest method to establish preliminary reliability and validity. Validity was supported through expert review panel processes. Instrument reliability was established with Cronbach's alpha of .85 to .92 (pre to posttest; n = 12) and .96 to .97 (pre to posttest; n = 21). Item-total correlations of the KSA subscales were evaluated for acceptability and potential scale reduction. Paired samples t-test were utilized with reported significant results. Principal component analysis was also utilized; however, future testing is recommended with a larger sample. This study establishes preliminary reliability and validity to use in future refined studies exploring QSEN competencies.

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CHAPTER I: INTRODUCTION

Problem

A growing wave of recognition that adverse events are a significant cause for morbidity and mortality led to a rise in global efforts to improve patient safety (Donaldson & Fletcher, 2006; Institute of Medicine [IOM], 1999). Recent directives and reports from the Institute of Medicine (2003, 2010) have pointed to the need for changes in healthcare. These adaptations are needed in healthcare institutions as well as at the educational preparatory level for all healthcare providers in medicine and nursing. One of the changes surrounds the significance of patient-centered care, an important concept new to healthcare over the last decade. The problem concerns the ability of healthcare educators to effectively measure knowledge, skills, and attitudes of student nurses in relation to the Quality and Safety Education for Nurses (QSEN) patient-centered care competencies.

Institute of Medicine Report

The Institute of Medicine's [IOM] (2003) *Health Professions Education: A Bridge to Quality* report charged healthcare professions and educational settings to adapt and make changes that targeted improvement in patient outcomes through development in core competencies. According to the IOM,

> Patient-centered care requires the healthcare professional to be able to identify, respect, and care about patients' differences, values, preferences, and expressed needs;… to listen to, clearly inform, communicate with, and educate patients; share decision making and management; and continuously advocate disease prevention, wellness, and promotion of healthy lifestyles, including a focus on population health. (p. 45)

The Institute of Medicine (2010) *Future of Nursing: Leading Change, Advancing Health* report described patient-centered care as a way of providing care that values patient differences and includes the patient in decision-making. The approach includes listening, advocating, and coordination of care, as well as promoting health, wellness, and disease prevention. Patient-centered care has been defined by Hobbs (2009) as a complex occurrence involving interactions between the patient, nurse, and the environment, with the final goal of alleviating vulnerabilities. Patient-centered care is particularly relevant because of recent emphasis on care satisfaction among healthcare consumers (Epstein, Fiscella, Lesser, & Stange, 2010).

The IOM (2003) report was an historic impetus for change in the healthcare industry. At the same time, the National League for Nursing (NLN, 2003) called for nursing education reform at all levels of nursing education, "to integrate current technology into teaching" (p. 3). Furthermore, the league notes,

> Current literature is replete with calls to educate nurses who can champion health promotion and disease prevention, function effectively in ambiguous, unpredictable and complex environments, demonstrate critical thinking and flexibility, and execute a variety of roles throughout a lifetime career. Such competencies are essential in a dynamic and diverse healthcare environment. (NLN, p. 3)

American Association of Colleges of Nursing Baccalaureate Essentials

Following the IOM lead to improve patient outcomes, the American Association of Colleges of Nursing (AACN) revised the Baccalaureate Essentials (AACN, 2008). The *Baccalaureate Essentials I-IX* address and cite landmark documents such as the IOM's (2003) recommendations for the core knowledge required of all healthcare professionals (AACN, 2008). The *Essentials* emphasize concepts such as patient-centered care, interprofessional teams,

evidence-based practice, quality improvement, patient safety, informatics, clinical reasoning/critical thinking, genetics and genomics, cultural sensitivity, professionalism, and practice across the lifespan in a dynamic and complex healthcare environment. The *Essentials* note that learning opportunities also include simulation experiences to "augment clinical learning and are complementary to direct care opportunities essential to assuming the role of the professional nurse" (p. 3).

The *Essentials* (AACN, 2008) delineate the skills expected of graduates of baccalaureate nursing programs. Achievement of these abilities enables graduates to practice within complex healthcare systems and assume a variety of roles: provider of care; designer/manager/coordinator of care; and a member of the nursing profession. *Essential IX* describes generalist nursing practice at the completion of baccalaureate nursing education. This particular essential includes practice-focused outcomes that integrate the knowledge, skills, and attitudes delineated in *Essentials I – VIII*.

> *Essential IX*: Baccalaureate Generalist Nursing Practice proposes:
>
> The baccalaureate-graduate nurse is prepared to practice with patients, including individuals, families, groups, communities, and populations across the lifespan and across the continuum of healthcare environments. The baccalaureate graduate understands and respects the variations of care, the increased complexity, and the increased use of healthcare resources inherent in caring for patients. (AACN, 2008)

Development of Quality and Safety Education for Nursing

In 2009, the Robert Wood Johnson Foundation awarded the American Association of Colleges of Nursing (AACN) a $2.5 million grant titled, *Quality and Safety Education for Nursing: Enhancing Faculty Capacity.* Subsequently, the AACN led a train-the-trainer program

to enhance the ability of nursing faculty to effectively develop quality and safety competencies among graduates of their programs (AACN, 2009). Barnsteiner et al. (2012) report "over 1,100 nursing faculty from across the United States attended the [AACN QSEN training] institutes" (p. 68).

Within the United States, the Quality and Safety Education for Nurses (QSEN) project represents a national effort to redesign nursing education to focus on the knowledge, skills, and attitudes necessary to promote patient safety and improve care (Cronenwett et al., 2007). As such, QSEN describes six identified core competencies, developed on the basis of the IOM report. These include patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement, safety, and informatics (Cronenwett et al.). The QSEN project has increased in stature and credibility in both the academic and practice communities. QSEN language, for example, has been integrated into clinical performance evaluations (Lenburg, Klein, Abdur-Rahman, Spencer, & Boyer, 2009).

The QSEN organization is a coalition whose work led to efforts to prepare future nurses to have knowledge, skills, and attitudes necessary to continuously improve quality and safety in healthcare. The QSEN prelicensure competencies expand the original five IOM core competencies to six as listed above. The competencies were further developed and divided into individual knowledge, skills, and attitudes (KSAs) by the QSEN organization (Cronenwett et al., 2007). The QSEN project has become the "mandate to reshape nursing curricula" (Disch, 2012, p. 58). Cronenwett et al. determined the overall goal of the QSEN project was to "better prepare future nurses with the appropriate knowledge, skills, and attitudes (KSAs) necessary to continually improve the quality and safety of healthcare systems within which they work" (p. 122).

The first of the QSEN KSAs is *patient-centered care*. Patient-centered care is dependent upon completing a comprehensive assessment (American Nurses Association [ANA], 2004). Patient-centered care always focuses on the patient response and needs that vary depending on the individual's circumstances. This includes the stage of disease, treatment regimen, and individualized response to treatment, both short-term and long-term (Starkweather, 2010). Using best patient-centered care practices, the clinician knows the "patient or designee is a full partner and member of the healthcare team" (Barnsteiner et al., 2012). Patient-centered care is at the very heart of nursing care.

Significance of the Problem to Nursing

Several forces (IOM, AACN/RWJF, and QSEN) motivate nursing educators to utilize QSEN competencies. These motivating forces target improved patient safety and reduction in healthcare errors (Didion, Kozy, Koffel, & Oneail, 2013). QSEN competencies exemplify broad skill areas and, when applied to clinical implementation, represent an integrative view of operations (Benner, Sutphen, Leonard, & Day, 2010). Increasingly, QSEN is being integrated into curricula nationwide (Barnsteiner et al., 2012). Because of these developments, QSEN language provides the structural framework for the proposed study.

Framework

Learning Framework

For the proposed research to adequately assess the effectiveness of QSEN patient-centered care competencies among students, use of a learning framework was necessary. The framework utilized was informed by a post-positivist worldview grounded in social constructivist and objectivist epistemology. Social constructivism assumes that individuals seek

understanding of the world in which they live and work. Constructivism (Crotty, 1998) is based on several key assumptions:

1. Meaning is constructed by human beings as they engage with the world they are interpreting.
2. Humans engage their world and make sense of it based on historical and social perspectives.
3. Generation of meaning is always social, arising in and out of interaction with a human community.

Cognitive constructivist learning environments emphasize knowledge construction (Crotty, 1998) through real-world settings such as simulation or clinical experiences (Rutherford-Hemming, 2012). Reflection is an important component of constructivist educational activities (Rutherford-Hemming, 2012). Both simulation and clinical experiences often utilize reflective journaling as a required activity to enhance learning. In practice, nurses must reflect upon patient conversations to "make sense" of the situation, patient preferences, needs, and concerns in order to provide appropriate patient-centered care.

Objectivism defines human knowledge as "reached through a disciplined process of thought and logical deliberation" (Rand, 1982, as cited by Piekoff, 1991, p. 2). Objectivism describes *reason*—the aptitude that operates by way of observation and logic—as man's means of knowledge. Human mental capabilities of understanding are based on both abstract and logical comprehension of what we sense before us. Senses provide the matter of knowledge while conceptual processing is required to establish what we know or perceive. Both are important in patient-centered care as the nurse uses principles and intrinsic values in interactions with patients. The nurse internalizes facts and draws conclusions based on knowledge, then takes

appropriate actions based on patient-centered needs or concerns and the conceptual understanding of priority care.

This blended worldview guided efforts and understanding in the development of the proposed study. With the use of constructivism's three assumptions, one can envision how nurses construct meaning through communication with and knowledge of the patient. Humans create meanings while they engage with the world (Crotty, 1998) and interact with other humans. The process of communication and interaction with the patient provides an opportunity to produce meaning and form the trust-helping relationship which furthers patient-centered care.

Objectivism's key philosophy of *reason* would be important in formation of the trust-helping relationship and patient-centered care. Abstract and logical comprehension of patient perceptions, needs, and concerns are paramount to meaning-making and quality patient-centered care. Assessment, communication, and data gathering allow the nurse to reflect on principles and values. The nurse then takes appropriate actions in order to develop the trust-helping relationship and meet patient-centered care competencies. A patient-centered care competency is met when the nurse *communicates care provided and needed at each transition in care to healthcare team members* (from the KSAI-PCCS instrument, Appendix A).

Theoretical Framework

Watson's caring model. Jean Watson's (1988) Caring Model fits well with patient-centered care. Watson (1988) theorizes that nursing is a holistic practice and that "human caring involves values, a will, a commitment to care, knowledge, caring action and consequences" (p. 29). She further describes caring in nursing as "related to inter-subjective human responses to health-illness conditions; a knowledge of health-illness, environmental-personal interactions; a knowledge of the nurse caring process; self-knowledge, knowledge of one's power and

transaction limitations" (p. 29). Interaction is at the very core of both patient-centered care and Watson's caring theory. Relevance of the theory is important when examining student responses to QSEN patient-centered care KSAs.

The Caring Model relies on formation of the helping-trust relationship (Watson, 1985). One of the most common failures in the nurse-patient association is the inability to establish rapport and form the helping-trust relationship. In order for patient-centered care to be effective, the student nurse interacts with the patient and exhibits a caring approach. The caring nurse is able to see the patient's needs and hears the voice of the patient, whether the patient speaks or not. The "development of a helping-trust relationship is vital and must be acknowledged" in order to make a difference in the quality of care (Watson, 1985, p. 25).

This aspect of the Caring Model can be linked to the patient-centered care competency domain of knowledge, specifically to *integrate understanding of multiple dimensions of patient-centered care* (from the KSAI-PCCS instrument, Appendix A). The knowledge domain relates to descriptions of how diverse cultural, ethnic, and social backgrounds function as sources of patient, family, and community values (Cronenwett et al., 2007). When the student nurse fails to "know" the patient through a helping-trust relationship, patient-centered care becomes non-existent. Communication is vital to the development of knowing a patient. A patient-centered care competency may be met when the nurse *values an active partnership with patients or designated surrogates in planning, implementation, and evaluation of care* (from the KSAI-PCCS instrument, Appendix A).

According to Watson (1985), "within the context of a helping-trust relationship, general principles of communication need to be considered" (p. 33). Communication is not only verbal, but also consists of cognitive, affective, and behavioral responses in order to convey a message

to another person. Patient-centered care competencies include (a) *knowing the general principles of communication,* (b) *being able to effectively communicate with patients and their families*, (c) *assessment of communication skill in encounters with patients and families*, and (d) the *value of continuous improvement of communication* (from the KSAI-PCCS instrument, Appendix A).

Patient teaching requires a continuous form of assessment/reassessment and communication in response to patient perceptions, needs, disease process, treatment, and so on. It is well known that the nurse must learn what the patient's perceptions are before teaching in the cognitive domain (Watson, 1985). Patient-centered care competencies within the knowledge domain include the *incorporation of patient preferences and values along with family and community preferences and values* (from the KSAI-PCCS instrument, Appendix A). Throughout the care trajectory, nurses must *communicate patient values, preferences, and expressed needs to other members of the healthcare team* (from the KSAI-PCCS instrument, Appendix A) in order to maintain patient-centered care.

Patient needs often pertain to comfort. Comfort is an external variable that the nurse can control. Comfort has degrees of discomfort which can be addressed and, according to Watson (1985), partially controlled by the nurse. Comfort may include physical or psychological concerns (Watson). Patient-centered care competencies related to the skill domain require the nurse to *assess levels of physical and emotional comfort* (from the KSAI-PCCS instrument, Appendix A). The competencies also require the nurse to *assess the presence and extent of pain and suffering* (from the KSAI-PCCS instrument, Appendix A). The nurse should be able to *obtain expectations of patient and family for relief of pain, discomfort, or suffering* (from the KSAI-PCCS instrument, Appendix A). The patient-centered care competencies require the nurse to engage with the patient and/or family designee.

Humans require affiliation with others. According to Watson (1985), a basic assumption of affiliation is that people need people. This stems from a need for help and companionship. Affiliation is a "universal need and the basis for humanism" (Watson, p. 184). Within affiliation are three basic interpersonal needs: (a) inclusion, (b) control, and (c) affection (Watson). Affection can be trust, as in the trust-helping relationship within the context of patient-centered care. In relation to the attitude domain, the nurse *recognizes the boundaries of therapeutic relationships* (from the KSAI-PCCS instrument, Appendix A). The three basic affiliation needs can be met when the nurse *involves the patient or designated surrogates in active partnerships that promote health, safety and well-being, and self-care management* (from the KSAI-PCCS instrument, Appendix A).

Patient-centered care has moved to the forefront of healthcare over the last decade. Patient-centered care has become a phrase increasingly used by healthcare professionals to describe a quality of interactions between patients and healthcare workers that ultimately affect patient outcomes (Epstein et al., 2010). A patient-centered care competency from the knowledge domain requires the nurse to be *aware of how the safety, quality, and cost-effectiveness of healthcare can be improved through the active involvement of patients and families* (from the KSAI-PCCS instrument, Appendix A). Patient-centered care requires healthcare professionals to partner with patients and their family members in order to identify and satisfy the full range of patient needs and preferences.

Evaluation of Learning Outcomes

To gauge effectiveness, learning needs to be evaluated. The purpose of evaluation in education is to improve both teaching and learning (Knowles, 1990). Evaluation can take many forms. A popular form of evaluation is a Likert-type instrument with multiple items focusing on

key dimensions of a construct such as students' or teachers' perceptions of learning, satisfaction, or teaching effectiveness. The psychometrics of these instruments must be evaluated in order to establish results of acceptable reliability and validity. Acceptable reliability and validity promote sound tools of measurement in research development and program evaluation (DeVillis, 2003). Learning must be routinely evaluated using both formative and summative methods. According to Bourke and Ihrke (2009), formative evaluation refers to evaluation which takes place during the activity, and summative evaluation takes place at the end of the activity.

Summary

Based on a holistic blend of Watson's Caring Theory and constructivist learning theory within the QSEN competency framework, a new instrument was investigated in the context of clinical and simulation student nurse experiences. The study included formative evaluation of patient-centered care competencies. The study findings will contribute to the nursing profession by assisting nurse educators in evaluation of student competency and its translation to the practice of patient-centered care.

CHAPTER II: LITERATURE REVIEW

This chapter offers a discussion of the relevant literature significant to this study. The review of the literature examined current and historical perspectives related to simulation/clinical experiences, confidence, self-confidence, and self-efficacy. Current literature findings used to formulate the background are also discussed. Further research findings regarding simulation, student confidence, clinical teaching strategies, and patient-centered care evaluations are reviewed.

Clinical experiences are a significant component of prelicensure nursing education and are widely considered to be vital to the preparation of a competent nurse, ready and able to provide safe, quality care (Hayden, 2010; Ironside & McNelis, 2009; Weaver, 2012). However, lack of quality sites, lack of faculty qualified to teach on site, and restrictions on the number of students allowed or other limitations imposed by clinical agencies create barriers to effective clinical education in prelicensure nursing programs (Weaver). To address this issue, simulation lab experiences offer an adjunct source of clinical practice and education (Durham & Alden, 2008; Weaver).

Simulation is a relatively new pedagogical method in nursing education that can facilitate clinical learning in a risk-free environment (Feingold, Calaluce, & Kallen, 2004; Sinclair & Ferguson, 2009). Research studies reveal simulation lab experiences utilizing human patient simulation with basic scenarios for small groups of students theoretically allow for the development and acquisition of knowledge, skills, and attitudes pertaining to patient-centered care (Bearnson & Wiker, 2005; Feingold et al.; Sinclair & Ferguson; Weaver, 2012).

Simulation

While the simulation learning environment has been deemed safe and non-threatening, (Fountain & Alfred, 2009; Jeffries, 2003, 2008), the literature search revealed no single comprehensive definition of the process. Gaba (2004) described simulation as a technique that may be used "to replace or amplify real experiences with guided experiences that evoke or replicate substantial aspects of the real world in a fully interactive manner" (p. i2). Resnick (2004) defined simulation as "the act of mimicking a real object, event, or process by assuming its appearance or outward qualities" (p. 27).

For the purpose of this study, simulation will focus on mid-fidelity simulation and high-fidelity simulation. Mid-fidelity is defined as "a patient-care scenario that uses a full-body simulator with installed human qualities such as breath sounds without chest rise. An example of a medium-fidelity manikin is VitalSim™" (Hayden, 2010, p. 52). High-fidelity is defined as

> A patient-care scenario that uses a standardized patient with predetermined scripted auditory response, or a full-body patient simulator that can be programmed to respond to affective and psychomotor changes, such as breathing chest action. Examples of high-fidelity manikins include SimMan®, METIman, and Noelle® with Newborn Hal®. (Hayden, p. 52)

History

Simulation education has been utilized for about four decades, with commercial pilot training being one of the first domains to utilize simulation in training programs (Rolfe & Staples, 1986). Medical education followed, with training for endotracheal tube insertions by anesthesia residents (Abrahamson, Denson, & Wolf, 1969; Good, 2003; Freidrich, 2002). Human patient simulation (HPS) has been used to "teach pathophysiology, pharmacology, and

comprehensive scenario testing of one or more critical health incidents" in medicine since the 1980s (Nehring & Lashley, 2004, p. 244). Nursing anesthesia students are also familiar with simulation training (Henrichs, Rule, Grady, & Ellis, 2002). Simulation training has been used extensively in the military (Holcomb et al., 2002) and, according to Larew, Lessans, Spunt, Foster and Covington (2006), is a key method of training for mass casualty and catastrophic event responses.

Healthcare simulation can be used as a pedagogy that "can contribute to patient safety and optimize outcomes of care, providing learners with opportunities to experience scenarios and intervene in clinical situations within a safe, supervised setting without posing a risk to a patient" (Durham & Alden, 2008, para 5). High-fidelity simulation enables experiential learning and allows for real consequences of one's actions. High-fidelity simulation may assist nursing students to fully address the complexity of patient problems or events (Kolb & Shugart, 1984).

Search Strategies

Initial Search

An initial electronic search was conducted using CINAHL, PubMed, ERIC, Academic Search Premier, and Health Source: Nursing/Academic Edition databases using two different university library systems. Refer to Figure 1. The search intent was to identify evidence-based research concerning student confidence and clinical teaching strategies. Initial keywords selected were confidence, simulation, and nursing education. These terms were associated with competency and could serve as a foundation for future searches. Final search terms included *student confidence, confidence, self-efficacy, clinical practicum, simulation,* and *nursing education.* Further manual searches of resulting journals were conducted to identify additional articles related to those found online.

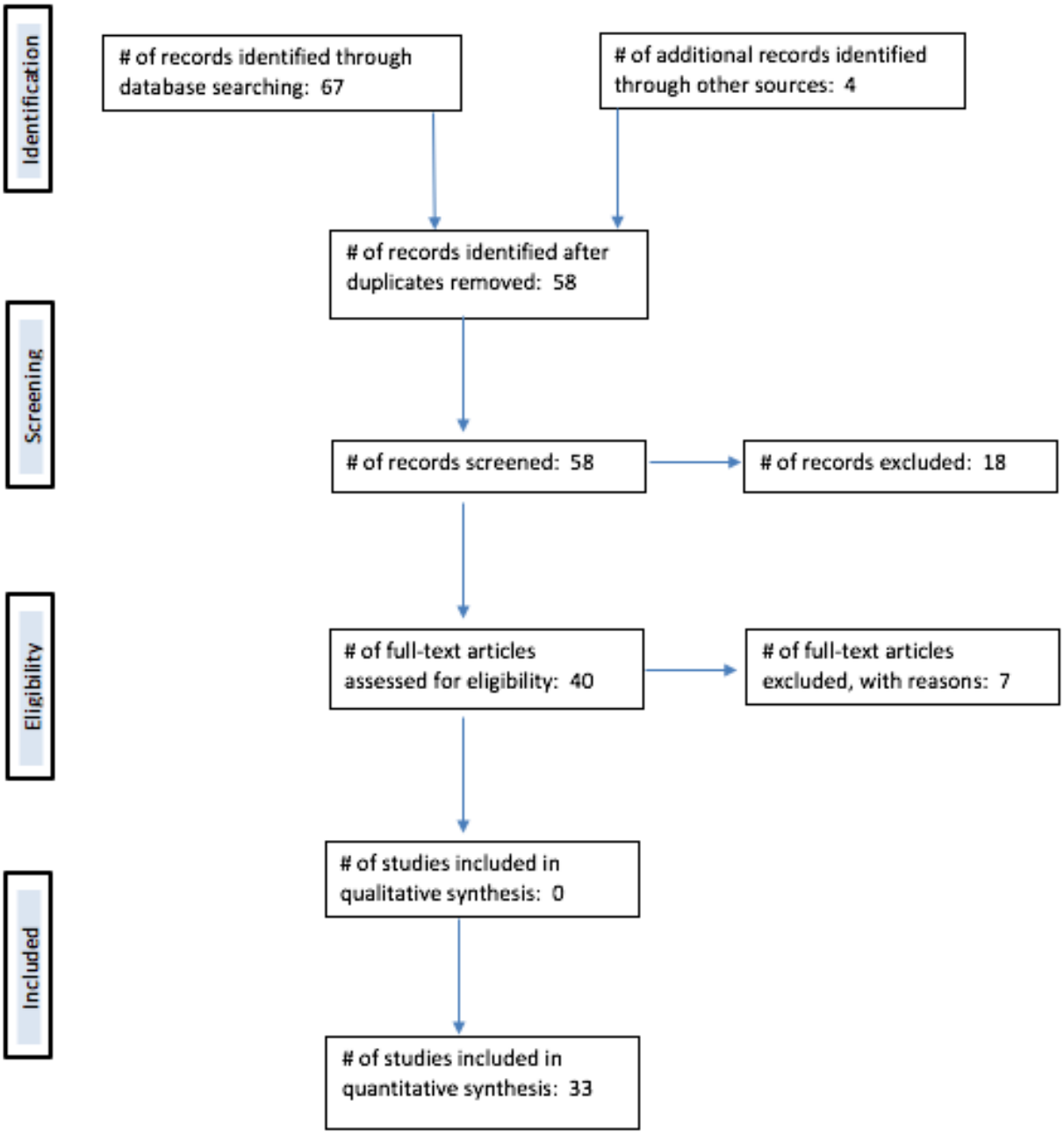

Figure 1. Literature search #1 flow diagram, with key words *student confidence*, *confidence*, *self-efficacy*, *clinical practicum*, *simulation*, and *nursing education*.

The initial results included 67 records with four related records identified through manual searches of the 67 records, totaling 71 records. Duplicate results of 13 were removed, resulting in 58 total records. Of these 58 records, 18 were excluded for a variety of factors: language, quality of study, non-relevant nursing implications, and fit. The number of full-text articles assessed for eligibility totaled 40. Upon re-review, another seven were excluded due to relevance and overall fit. There were no qualitative studies included in the synthesis. The total number of studies included in quantitative synthesis was 33. Refer to Figure 1.

The initial search took place over a period of time during 2009-2012 and included US, UK, and Canadian studies. The selected studies numbered 33. The secondary search took place from 2013-2015 and also included US, UK, and Canadian studies. Articles written in a language other than English were excluded. Moreover, as the use of simulation in nursing was still relatively new, there was no date range to exclude based on article age. The secondary search yielded 11 relevant research studies on patient-centered care and QSEN competencies. See Figure 2. The secondary search results include a total of six medicine studies on patient-centered care and five nursing studies related to QSEN quality and safety competencies. The medicine studies were included for relevance without exclusion for age of article.

Selection of Results for Review

Self-efficacy. In the initial literature search, these terms, or studies on these themes, appeared in the culled articles. The reviewed studies evaluated aspects of self-efficacy, which included self-efficacy, perceived confidence/confidence measurements, and confidence and self-confidence in the nursing student (Table 1).

Discussion: Aspects of self-efficacy. The General Self-Efficacy Scale (GSE scale), originally developed by Jerusalem and Schwarzer in 1979 (as cited in Lauder et al., 2008),

examines competence in relation to self-efficacy. Aspects of Lauder and colleagues' (2008) UK study included math calculations, hand-washing, and communication. The communication component used a simulated interview situation with varied scenarios (upset and anxious). Limitations cited by the authors included the concern over what is actually measured in self-reports of competence. While the study findings do not support a correlation between self-assessment and competence in the pre-registration student, according to Lauder et al., knowledge transfer from simulation plays a fundamental role in learning, enabling a skill acquired in one setting to be applied to another.

Kameg, Clochesy, Mitchell and Suresky (2010) also utilized the self-report General Self-Efficacy Scale (GSE scale) in a non-random assignment, quasi-experimental study to evaluate the impact of high-fidelity human simulation on self-efficacy of communication skills in nursing students. The reported sample size was 38 prelicensure nursing students enrolled in a psychiatric nursing course at a private university in western Pennsylvania. The students were further subdivided into two groups for the rotation with community nursing and changed courses at midterm. Group 1 had 21 students; Group 2 had 17 students. Overall combined group (N = 38) results of the dependent t-test demonstrated a significant change in students' self-efficacy following the simulation experience. Cronbach's alpha of the GSE scale was .852, indicating the scale was reliable. Overall findings from this study support the hypothesis that knowledge gained from simulation experiences can be transferred to the clinical setting (Kameg et al., 2010). The authors concluded that simulation experiences enhance student communication skills. These findings are consistent with other simulation studies (Goldenberg, Andrusysyzn, & Iwasiw, 2005; Perry, 2013; Pike & O'Donnell, 2010; Schoening, Sittner, & Todd, 2006; Smith-Stoner, 2009). Reported limitations of this particular study included the inability of the simulator to

display facial expressions, and students may not take interaction with the simulator seriously and therefore may not feel that the simulation experience increased their confidence in communication with patients (Kameg et al.). Other reported limitations of the study included the small sample size, lack of diversity among the respondents (age, gender, and ethnicity), as well as the potential researcher bias as the researcher was also the instructor who provided the lecture-discussion on the communication skills content and facilitated the simulation experiences (Kameg et al.).

Perceived confidence/confidence measurements. Bremner, Aduddell, Bennett and VanGeest (2006) sought to determine the value of human patient simulation as an educational methodology. They focused on novice nursing students in four areas: teaching/learning utility, realism of the human patient simulation, limitations to human patient simulation methodology, and students' confidence and comfort with human patient simulation. The authors performed a mixed method study and found that 61% of the 56 students reported that simulation experience gave them confidence performing physical assessment skills. Qualitative data indicated simulation experiences benefited students' perceived clinical preparation (Bremner et al.).

Goldenberg et al. (2005) developed a 63-item Baccalaureate Nursing Student Teaching-Learning Self-Efficacy Questionnaire to determine the effect of classroom simulation on third-year prelicensure nursing students' degree of self-efficacy related to health teaching. Students were asked to recall their perceptions of how confident they were about health teaching before and after the simulation experiences. Cronbach's alpha for the questionnaire for this sample was 0.97. The authors reported paired *t*-tests were used, and "self-efficacy scores were significantly higher ($p = 0.001$), reflecting greater confidence related to health teaching (mean = 3.55) after participating in the workshop than before (mean = 2.96)" (p. 312). These results reflected greater

overall confidence after participating in the simulation experiences (Goldenberg et al.). Limitations included the small, nonprobability convenience sample from one setting, which provided little opportunity to control for bias, prohibited interpretation of possible correlations, and limited generalizability of the findings (Goldenberg et al.).

Confidence and self-confidence in the nursing student. Reese, Jeffries and Engum (2010) performed an interdisciplinary descriptive study that explored collaboration between medical and nursing students in the high-fidelity simulation lab. The convenience sample included 15 third-year medical students and 13 senior (seventh semester) nursing students. Both groups had completed didactic and clinical instruction in the care of postsurgical and cardiac patients. The medical students were certified in advanced cardiac life support. The sample was evenly divided with half male and half female. The authors used two instruments from the NLN, the Satisfaction and Self-confidence Scale, and Simulation Design Scale (SDS; Jeffries, 2007). Cronbach's alpha for the SDS from previous studies was 0.92 (Jeffries, 2007; Jeffries & Rizzolo, 2006), demonstrating reliability. The Satisfaction and Self-confidence Scale was used with previous Cronbach's alpha reported at 0.87 (Jeffries, 2003). Reliability for the current study on the Satisfaction and Self-confidence Scale was 0.86 (Reese et al., 2010). Student ratings of their self-confidence in caring for a surgical patient with complications had a high overall mean score of 4.09 (Reese et al.). Items with the highest mean scores included "students taking responsibility for their own learning" (M = 4.43), and "the simulation covered important content relating to caring for the surgical patient" (M = 4.36) (Reese et al.). The authors developed a new collaboration scale with reliability acceptable with Cronbach's alpha of 0.95. Overall findings suggested that collaborative simulations are beneficial for both disciplines (Reese et al.). The authors reported that "collaboration between disciplines is helpful for learning in real-world

situations, a finding that may lead to improved patient outcomes and fewer errors in the clinical setting" (p. 36). Limitations were not addressed, yet implications for future research noted students perceive debriefing and feedback as the most important features of simulation experiences.

Jarzemsky and McGrath (2008) compared beginning-level baccalaureate nursing students' self-reported assessment. The authors utilized pre- and post-testing using a 20-item survey designed to measure students' confidence, ability, feelings of stress, and critical thinking in the performance of various nursing skills. The reported results confirm prevalent research findings in other studies that "simulation increases self-ratings for confidence" (Jarzemsky & McGrath, p. 93).

Self-efficacy, perceptions of confidence, and self-confidence may have an impact on a student's ability to complete a self-report questionnaire pertaining to knowledge, skills, and attitudes. However, a number of limitations exist in the research conducted, including aspects of self-report such as dishonesty on the part of the respondent (Hoskin, 2012), inflated ratings (Polit & Beck, 2008), response bias, and possible lack of self-knowledge (Hoskin). For example, if a student nurse does not believe he or she has the knowledge, ability, or capability to perform a skill, or that he or she possesses a particular attribute or attitude, he/she might self-rate at the lower end of a rating scale. Conversely, a student may inflate his or her rating.

Confidence measurements. Simulation learning benefits identified by Bremner et al. (2006) include students with increased confidence, who are comfortable touching a patient on the first clinical day and are confident in their ability to perform head-to-toe assessment. A follow-up study by Bremner, Aduddell and Amason (2008) investigated the impact of simulation learning on nursing students' perceptions of confidence and comfort levels entering their first

clinical experience. Bremner et al. (2008) confirmed previously established results from earlier student self-report, which indicated that simulation educational technology assisted students in decreasing stress levels during first-time clinical experiences.

Sinclair and Ferguson (2009) explored the effect of an educational strategy that combined classroom and simulated learning activities of nursing students in a mixed methods design using a convenience sample of a collaborative baccalaureate nursing program. There were two sites in an urban center in southwestern Ontario. One site was the intervention group (N = 125), while those at the other site formed the control group (N = 125). Completion of the questionnaires and reflective review was voluntary and anonymous. A modified Baccalaureate Nursing Student Teaching-Learning Self-Efficacy Questionnaire (Goldenberg et al., 2005) was developed for pre- and post-lecture or simulation experience. The original questionnaire had a reported Cronbach's alpha 0.97. The modified Likert-type scale contained 16 items adapted from the competency-based evaluation tool used in the undergraduate nursing program to evaluate clinical practice. Reliability for the modified tool was not determined or reported. According to the authors, the response rate for the control group varied from "23-75 respondents" (p. 3) and 26-68 respondents for the intervention group (p. 4). Sinclair and Ferguson found that students reported higher levels of satisfaction, effectiveness, and consistency with their learning style.

Smith and Roehrs (2009) performed a descriptive, correlational study to examine the effects of a simulation experience on two outcomes (student satisfaction and self-confidence). The setting was a public university in the western United States. The sample consisted of 68/72 (94.4%) junior students in the traditional BSN program in the medical surgical course following a fundamentals course. The authors utilized two well-developed instruments from the NLN (Student Satisfaction and Self-confidence in Learning Scale and the Simulation Design Scale).

The 13-item Student Satisfaction and Self-confidence in Learning Scale had a reported Cronbach alpha of 0.94 for the Satisfaction scale and 0.87 for the Self-confidence subscale. The 20-item SDS consisted of five subscales (Objective, Support, Problem-solving, Feedback, and Fidelity) and had a reported Cronbach's alpha of 0.92. Overall results from the two instruments used suggest students were satisfied with simulation as a teaching method and felt confident in their ability to care for the specified simulation patient (Smith & Roehrs). Reported limitations included future studies to include varied students (from different levels, different programs), larger sample sizes, and experimental designs (Smith & Roehrs).

Table 1

Literature Review Results – Aspects of Self-Efficacy

Aspect	Relevant Studies
Self-efficacy	Kameg, Clochey, Mitchell, & Suresky, 2010; Lauder, Holland, Roxburgh, Topping, Watson, Johnson, et al., 2008; Moule, Wilford, Sales, & Lockyer, 2008; Pike & O'Donnell, 2010; Sinclair & Ferguson, 2009
Perceived confidence/confidence measurements	Bambini, Washburn, & Perkins, 2009; Bremner, Aduddell, Bennett, & VanGeest, 2006; Fountain & Alfred, 2009; Goldenberg, Andrusyszyn, & Iwasiw, 2005; Lisko & O'Dell, 2010; Shepherd, McCunnis, Brown, & Hair, 2010
Confidence and self-confidence in the nursing student	Bambini et al.; Bearnson & Wiker, 2005; Bremner, Aduddell, Bennet, & VanGeest, 2006; Jarzemsky & McGrath, 2008; Lisko & O'Dell; Moule et al., 2008; Prescott & Garside, 2009; Reese, Jeffries, & Engum, 2010; Schoening, Sittner, & Todd, 2006; Shepherd et al., 2010; Sinclair & Ferguson, 2009; Smith & Roehrs, 2009; Wagner, Bear, & Sander, 2009

Simulation learning supports competency. Initial literature search results indicate that simulation learning supports competency; the development of clinical skills, judgment, and reasoning; learning satisfaction; collaboration between nursing and medical students;

communication skills; rubric development; and increased student comfort after simulation (see Table 2).

Discussion: Supporting competency. Feingold et al. (2004) described a non-experimental descriptive quantitative study on clinical competence and transferability of knowledge to real clinical experiences. Transferability pertained to decision-making skills. The total sample size was 97 students enrolled in the Advanced Acute Care of the Adult course during two consecutive semesters of a single academic year (50 students enrolled in fall semester, and 47 students enrolled in the spring semester); however, 65 (28 from fall and 37 from spring) students participated. Results reported that "54.7% of respondents believed the simulated clinical prepared them to function in a real-life clinical environment" (Feingold et al., p. 160). Interestingly, in this study "less than half (46.9%) believed simulation helped build confidence" (p. 160). Limitations noted by the authors included not comparing grades on simulated and actual clinical experiences, lack of interviews, and videotaping of simulation experience may provide further information about the process (Feingold et al.).

Preliminary work by Perry (2010) used an original simulation learning evaluation instrument that had some QSEN threads in one unpublished study (Perry, 2010, 2013). The psychometrics of the Simulation Learning-Teaching Attitudes, Skills, and Knowledge (SIMLTASK) Scale were explored using the original 29-item instrument to evaluate simulation learning and confidence in specific areas. The instrument included five student-related subscales: experience, orientation, and preparation; anxiety/nervous (attitude); confidence; skills (includes communication); and knowledge (includes prioritization). The unpublished study achieved mixed results with a limited sample of 11 prelicensure nursing students (Perry, 2010).

Limitations of the study included content and format of the scale, as well as the small sample size.

In a subsequent feasibility pilot study, Perry (2013) reported that simulation increased students' confidence in communicating with healthcare team members. Overall Cronbach's alpha was .897. Of the five subscales noted above, skills (including communication) achieved Cronbach's alpha of .889. Experience, orientation, and preparation achieved Cronbach's alpha of .723. The results suggest that simulation may reinforce student learning and improve communication skills (Perry). Neither study used QSEN-specific language, though both focused on the student's confidence and ability to perform clinical skills, communicate effectively with patients and families, and prioritize nursing care.

Lasater (2007b) described the development and pilot-testing of the Lasater Clinical Judgment Rubric (LCJR) along with student responses to simulated scenarios. In the exploratory study, the author listed Benner, Tanner and Chesla's (1996) definition of clinical judgment to be "the ways in which nurses come to understand the problems, issues, or concerns of clients/patients, to attend to salient information and to respond in concerned and involved ways" (p. 2). The LCJR follows the four phases of Tanner's (2006) Clinical Judgment Model. These four dimensions include noticing, interpreting, responding, and reflecting. There are anecdotal reports of faculty use, notably for communicating with students about clinical judgment and incorporating standards that students can comprehend and work toward (Lasater). Qualitative results included five themes, of which "forcing [students] to think about what patients needed" had the highest level of agreement among the focus groups (Lasater, p. 502).

Table 2

Literature Review Results – Supporting Competency

Aspect	Relevant Studies
Competency	Alinier, Hunt, Gordon, & Harwood, 2006; Feingold, Calaluce, & Kallen, 2004; Lauder et al., 2008; Nehring & Lashley, 2004; Sinclair & Ferguson, 2009
Clinical skill development	Moule et al., 2008
Clinical judgment	Bambini et al., 2009
Clinical reasoning skills	Lapkin, Levett-Jones, Bellchambers, & Fernandez, 2010
Satisfaction with simulation learning	Smith & Roehrs, 2009
Simulation collaboration between nursing and medical students	Reese et al., 2010
Non-technical skills such as communication in the nursing student	Kameg et al., 2010; Pike & O'Donnell, 2010; Schoening et al., 2006; Smith-Stoner, 2009
Evaluation of simulation learning	Perry, 2010; Perry, 2013
Increased student comfort after simulation	Bremner et al., 2006
Rubric development	Lasater, 2007b

Competency tools. Initial search results also indicate that students gain competency and improved learning outcomes through simulation technology and clinical experiences (see Table 3).

Discussion: Competency tools and learning outcomes.

Competency tools and rubric development. One reliable and valid efficacy tool is the National League for Nursing's 13-item Student Satisfaction and Self-Confidence in Learning (Jeffries & Rizzolo, 2006). Using a five-point Likert-type scale, the study has a five-item subscale measuring student satisfaction with the simulation activity, and an eight-item subscale to determine self-confidence in learning. The authors report that this eight-item instrument measured how confident students felt about the skills they practiced and their knowledge about

caring for the type of patient presented in the simulation. Content validity was also "established by nine clinical experts in nursing" (p. 7), and reliability tested using Cronbach's alpha was 0.87 (Jeffries & Rizzolo).

Feingold and colleagues (2004) created a 20-item student satisfaction survey related to the value of the experience, the ability to transfer skills learned in simulation to the clinical world, realism of the simulation, and the overall value of the learning experience. A purpose of the descriptive evaluative study was to uncover undergraduate nursing students' and faculty members' perceptions about the experience of using the computerized patient model, SimMan, for teaching and assessment during simulated clinical scenarios. The sample consisted of all baccalaureate nursing students enrolled in the Advanced Acute Care of the Adult course during two consecutive semesters of a single academic year. A total of 50 students were enrolled in the fall semester, and a total of 47 students were enrolled in the spring semester; however, 28 and 27 students participated in the survey respectively (67% overall participation). T-tests and ANOVA analyses were used to examine differences between student factors GPA scores and age groups. There were no significant differences. Student responses to open items including "technical skills taught in this course are valuable" had the highest level of agreement, yet response to the statement "my interaction with SimMan improved my clinical competence" had the lowest level of agreement (Feingold et al.). Overall, out of 65 student respondents, less than half believed the simulation experiences increased their confidence (46.9%).

Lasater (2007a) found that Oregon Health and Sciences University, School of Nursing utilized high-fidelity simulation as a regular part of curriculum during the students' first term. According to student feedback, high-fidelity simulation learning has several strengths, including the frequently mentioned comment that it "brought together the theoretical bases from their

classes and readings, as well as the psychomotor skills from skills laboratory and lessons learned from clinical practice" (p. 272). The exploratory qualitative study examined the experience and its effect on the development of clinical judgment. Clinical judgment refers to "those thinking and evaluative processes that focus on a nurse's response to a patient's ill-structured and multilayered problems" (Lasater, 2007a, p. 269).

Table 3

Literature Review Results – Competency Tools

Tool	Relevant Studies
Competency tools pertaining to both simulation/clinical settings	Blum, Borglund, & Parcells, 2010; Feingold et al., 2004; Fountain & Alfred, 2009; Goldenberg et al., 2005; Jeffries & Rizzolo, 2006; Karayurt, Mert & Beser, 2008; Lasater, 2007a; Sullivan, Hirst, & Cronenwett, 2009
Student learning outcomes	Elfrink, Kirkpatrick, Nininger, & Schubert, 2010; Lauder et al., 2008; McKeon, Norris, Cardell & Britt, 2009; Moule et al., 2008; Reese et al., 2010; Rhodes & Curran, 2005; Shepherd et al., 2010; Sinclair & Ferguson, 2009; Smith & Roehrs, 2009

Student learning outcome measures. The initial literature search revealed 13 simulation studies that examined student learning outcomes. Specific outcomes studied were critical thinking, clinical skill performance, knowledge acquisition, self-reported levels of confidence, and student satisfaction with simulation experience (see Table 4).

Discussion: Learning outcomes. Elfrink et al. (2010) conducted an exploratory study "designed to inform teaching practices through the measurement of cognitive learning outcomes associated with human patient simulation" (p. 97). They found that "simulation-related content matter knowledge significantly improved for students" (p. 100). The findings are mixed in respect to the learning retention piece of their study. While 93% of the second-year students

retained knowledge from post-tests to the final, only 50% of third-year students retained the subject matter to the final (Elfrink et al.). The authors acknowledged variables in faculty simulation emphasis may have been a factor.

Findings of a UK study by Moule et al. (2008) suggest that simulation can support the development of knowledge and skills through a range of clinical practice scenarios. This method allows feedback and testing prior to clinical practice. The authors recommended collaboration between clinical and academic faculty to meet clinical applications in the creation and ongoing development of simulation learning experiences. The study also confirmed the importance of finding adequate clinical placements for students.

Dissertation work by Howard (2007) compared simulation with interactive case study learning. Howard utilized reliable and valid Health Education Systems Incorporated (HESI) exams for testing of knowledge. The simulation group felt that the knowledge gained through simulation experience could be transferred to the clinical setting, and the case study group believed the opposite to be true. Furthermore, students in the simulation group felt significantly stronger in regards to stimulation of critical thinking skills as compared to the interactive case study group (Howard). Howard noted limitations of the interactive case study component of her research but observed that positive responses of simulation group students aligned with those found in other studies, namely that the use of HPS was extremely valuable, the simulations were realistic, and the knowledge learned was transferable to the clinical setting (Feingold et al., 2004).

Findings of a UK study by Alinier et al. (2006) note a statistically significant improvement in performance (skill) for the experimental group (simulation experience, lecture, and clinical) as opposed to the control group (no simulation, only lecture and clinical). Control

group performance improved 7.18 percentage points (95% CI [5.33-9.05]) compared with an increase of 14.18 percentage points among the experimental group (95% CI [12.52-15.85]) (Alinier et al.). The results also confirm that simulation builds performance confidence (Feingold et al, 2004; Bambini et al., 2009; Bearnson & Wiker, 2005; Bremner et al, 2006).

Table 4

Literature Review Results – Learning Outcomes

Outcome	Relevant Studies
Student learning outcomes	Elfrink et al, 2010.; Lauder et al., 2008; McKeon et al., 2009; Moule et al., 2008; Reese et al., 2010; Rhodes & Curran, 2005; Shepherd et al., 2010; Sinclair & Ferguson, 2009; Smith & Roehrs, 2009
Critical thinking	Howard, 2007
Clinical skill performance	Alinier et al., 2006
Knowledge acquisition	Elfrink et al., 2010; Howard, 2007; Jeffries & Rizzolo, 2006
Self-reported levels of confidence	Alinier et al., 2006; Jeffries & Rizzolo, 2006
Student satisfaction with simulation experience	Howard, 2007; Jeffries & Rizzolo, 2006

The initial literature search findings provided the groundwork from which to move toward a more definitive tool for assessing how student perceptions of these skills gained in simulation or clinical settings lead to patient-centered care. Without perceived self-confidence in assessment, technical skills, communication, and similar self-behaviors, the student nurse may lack best-practice actions in developing patient-centered care. The next logical step was to search for patient-centered care studies using established measurement instruments.

Secondary Literature Review Search

A subsequent related literature search was conducted using CINAHL, Academic Search Premier, and Health Source: Nursing/Academic Edition online databases from two different

university libraries. See Figure 2. Search terms included *patient-centered care, patient encounters, healthcare,* and *instruments.* The secondary search results revealed six physician-oriented studies that used a patient-centered care instrument and five nursing studies related to QSEN quality and safety competencies. US and Canadian studies were included. Manual searches of the indexes of the newly found journals were also employed.

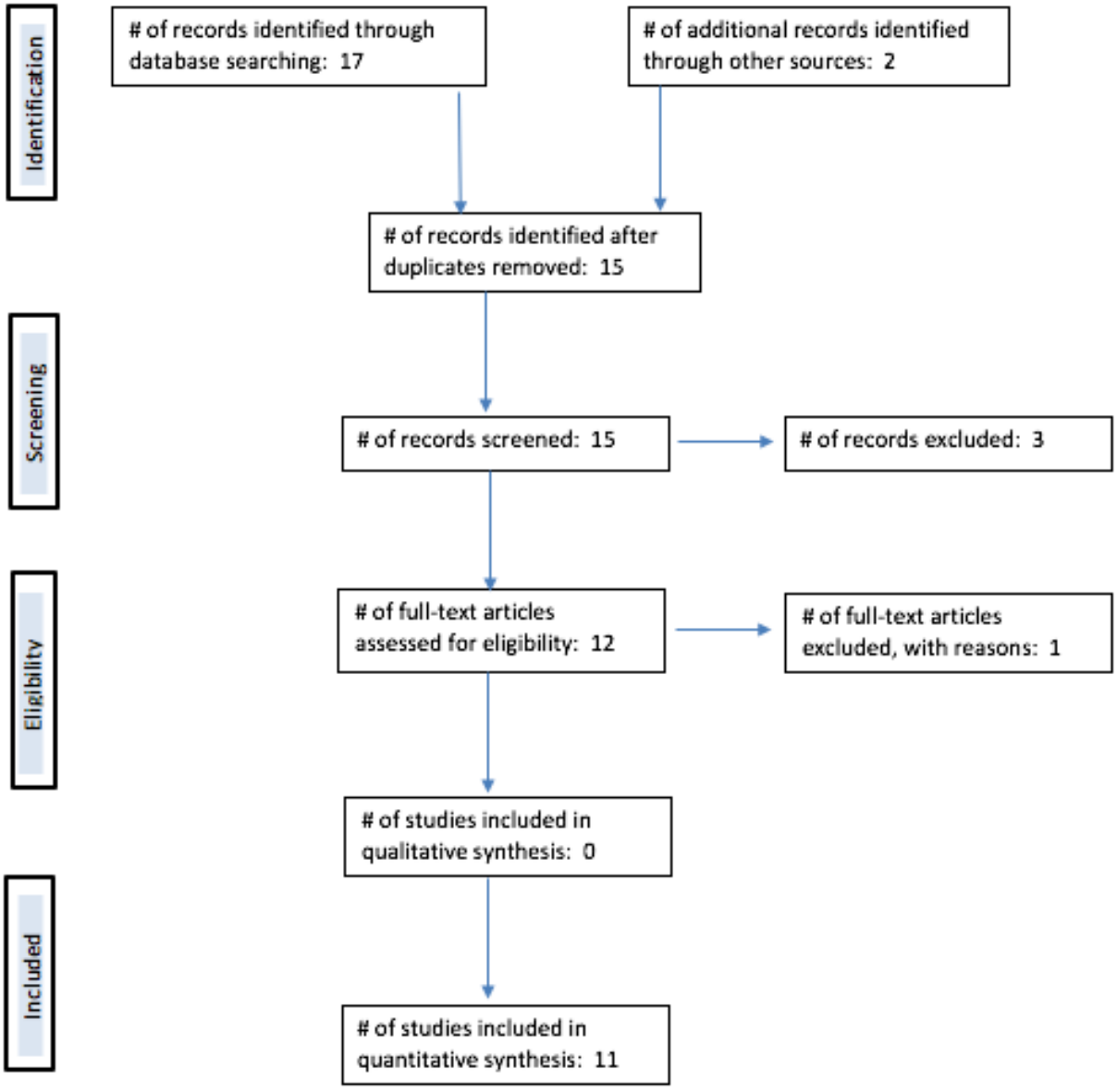

Figure 2. Literature search #2 flow diagram, with key words *patient-centered care, patient encounters, healthcare,* and *instruments*.

The secondary search resulted in 17 records identified through database searching. Two additional records were identified through manual searches, resulting in 19 total to be screened. After removal of four duplicates, a total of 15 records were screened for exclusion. Three were excluded based on country of origin and fit to topic. Upon further review of the 12 full-text articles for eligibility, one was excluded due to fit. Medicine and Nursing records were included. There were no qualitative studies included in this literature review. The number of quantitative studies included for final synthesis in this secondary literature review was 11. Refer to Figure 2.

Medicine – patient-centered care. Clayton, Latimer, Dunn, and Haas (2011) utilized a tool for scoring Canadian patient-physician encounters based on the Patient-Centered Clinical Method. Krupat, Hiam, and Fleming (1999) developed a Patient-Practitioner Orientation Scale (PPOS) tested on first-year medical students with unreliable validity reported. Shaw, Woiszwillo, and Krupat (2012) followed up with further validation of the PPOS tool.

Although initially developed by Stewart, Meredith, Ryan and Brown (2004), Reinders, Blankenstein, Knol, de Vet, and van Marwijk (2009) later examined validity aspects of the Patient Perception of Patient-Centeredness questionnaire. The 14-item patient perception instrument initially reported by Stewart et al. resulted in Cronbach's alpha of 0.71, N = 315. The 9-item patient questionnaire subsequently developed by Reinders et al. produced a Cronbach's alpha of 0.80, N = 85. The 9-item physician questionnaire resulted in Cronbach's alpha of 0.79, N = 117 (Stewart, Ryan, & Brown, 2004). Little et al. (2001) developed the Consultation Care Measure, a 21-item questionnaire with reported Cronbach's alpha of 0.84-0.96 (N = 661). Research by Krupat, Frankel, Stein, and Irish (2006) was an initial attempt to operationalize and code physician communication behaviors with Cronbach's alpha ranging from 0.51 to 0.81.

Nursing – QSEN.

Student-oriented. With the relative newness of QSEN competencies extending into schools of nursing, it seems appropriate to evaluate. In the literature, there are only three instruments measuring QSEN competencies among prelicensure nursing student. Piscotty, Grobbel and Abele (2013) developed an 18-item Nursing Quality and Safety Self-Inventory to measure these competencies and tested it among a prelicensure BSN student population of 176. Three of the 18 items broadly address patient-centered care. The authors reported Cronbach's alpha of 0.93 for total inventory. This instrument has two subscales (knowledge and attitudes) with Cronbach's alpha ranging from 0.88 to 0.92. Hensel (2014) recently published a 46-item QSEN attitudes survey pertaining to patterns of professional identity, which was tested on 36 prelicensure BSN students using Q-methodology.

Sullivan, Hirst and Cronenwett (2009) provided initial work in a descriptive study "to assess student perspectives of quality and safety content in their nursing programs" (p. 323). The study also examined "self-reported levels of preparedness and perceived importance of the six QSEN competencies" (p. 323). The authors developed the QSEN Student Evaluation Survey (SES) consisting of three primary questions related to knowledge, skills, and attitudes. Sullivan and colleagues wanted to know "whether and where [knowledge] content was covered in the curriculum" (p. 324). Another goal of the study was to assess the "self-reported level of preparedness to perform skills" (p. 324). The final question related to the "perceived importance of the skills included in item 2" (p. 324). The authors also created scale surveys with 19, 22, and 22 items pertaining to knowledge, skills, and attitudes, respectively, drawn from all six QSEN competencies. Within the knowledge scale, four items related to patient-centered care; within the skills and attitudes scale, five items related to patient-centered care.

Dycus and McKeon (2009) utilized the QSEN competencies to develop a Quality Improvement Knowledge, Skills, and Attitudes (QulSKA) questionnaire to measure these attributes among practicing international pediatric oncology nurses. Overall, the respondents' average knowledge score was 69.2%, with 82.9% being the highest mean score, for safety, and 48.6% being the lowest, for teamwork. Reported inter-item correlation coefficient was 0.839 ($p = 0.001$).

Bradley (2013) developed a 73-item Quality Improvement Knowledge, Skills, and Attitudes electronic survey administered to 366 practicing nurses from all areas/levels of acute care facilities with reported Cronbachs' alpha of 0.94 (Sig. <0.001). Bertch (2012) utilized a Quality Improvement Knowledge, Skills, and Attitudes 73-item electronic survey for post-licensure new nurses ($N = 56$).

Faculty-oriented. Smith, Cronenwett and Sherwood (2007) surveyed 572 faculty leaders about quality and safety education in nursing programs. Of the 195 respondents, 95% felt that patient-centered care was woven through their curriculum in several courses and was the most commonly integrated competency (Smith et al.). Findings also indicate students were exposed to patient-centered care via lecture, readings, clinical experiences, case studies, and simulation (Smith et al.). Pollard et al. (2014) recently replicated this study with 147 faculty in the state of New York. There were more AD faculty than BSN faculty responders, which coincided with the fact there are more AD schools than BSN programs. The authors reported findings with competencies ranked most prevalent in curricula being patient-centered care, safety, and evidence-based practice. Classroom settings and clinical experiences were identified as the most common method of experiencing these competencies.

Disch, Barnsteiner and McGuinn (2013) reported on the Moore Foundation initiative and a 2010 QSEN project in San Francisco Bay area schools of nursing to integrate QSEN competencies into curriculum. Through follow-up on the initial training, the 2011 post-institute survey results indicated "faculty reported 3,173 (81%) of enrolled (3,906) students had completed a course with QSEN content over the past year" (p. 77). Furthermore, 2011 results indicated that 89% of courses included QSEN content (Disch et al.). Subsequent 2012 institute follow-up indicated that 88% of students (up from 81%) had completed a course with QSEN content.

Gaps in the Literature

Of note, the initial literature search revealed no existing tool to evaluate nursing students' knowledge, skills, and attitudes relative to complete QSEN patient-centered care competencies via the context of simulation or clinical experiences. Levels of simulation fidelity are presented in Chapter III: Operational Definitions. Overall, the majority of existing nursing tools were faculty-driven, created to address a need. These tools related more to program evaluation rather than being a valid tool for, in this case, QSEN core competencies focusing on patient-centered care in the practicum setting. The two searches revealed no existing tool to evaluate the knowledge, skills, and attitudes of prelicensure nursing students specific to QSEN patient-centered core competencies within the context of simulation or clinical experience.

Conclusion

This chapter provided a review of literature relevant to confidence, competence, simulation, learning outcomes, and Quality and Safety for Nursing Education patient-centered care competencies. The literature made clear that key aspects of patient safety, quality care, and patient-centered care were present within nursing education curricula (Smith et al., 2007). The

lack of literature on QSEN patient-centered care evaluation supported the need for an instrument specifically developed to measure KSA competencies from the perspective of the prelicensure nursing student within the context of simulation or clinical care settings. Nurse educators need to be able to measure student nurses' QSEN-specific patient-centered care knowledge, skills, and attitudes.

Purpose Statement

The primary purpose of the proposed study was to test psychometrics of the KSAI-PCCS instrument. A secondary purpose was to examine the perceived knowledge, skills, and attitudes of prelicensure nursing students specific to QSEN patient-centered care competencies.

CHAPTER III: METHODOLOGY

This chapter will describe the methodology for the proposed study of the Knowledge, Skills, and Attitudes – Part I: Patient-centered Care Scale (KSAI-PCCS), including (a) foundational operational definitions, (b) problem statement, (c) research questions, (d) research design, (e) setting, (f) population, (g) recruitment plan, (h) protection of human subjects, (i) instrumentation, and (j) procedures. The discussion will include a description of the KSAI-PCCS instrument development process, as well as the validity and reliability of the instrument.

The primary aim of the study was to test psychometrics of the KSAI-PCCS instrument. A secondary aim was to examine the perceived knowledge, skills, and attitudes of prelicensure nursing students specific to QSEN patient-centered care competencies.

Foundational Operational Definitions

According to Gaba (2004), simulation is defined as a pedagogical technique to "replace or amplify real experiences with guided experiences that evoke or replace substantial aspects of the real world in a fully interactive manner" (p. 126). Simulation offers various levels of fidelity, which is the accuracy with which it precisely reproduces life-like encounters (Seropian, Brown, Gavilanes, & Driggers, 2004). The combination of simulation with acute care practicum occurs widely in nursing education. The increasing use of simulation is driven in part by the limited availability of clinical sites (Hayden, Smiley, Alexander, Kardong-Edgren, & Jeffries, 2014). For the purposes of this study, simulation was categorized according to the level of fidelity of the manikin or scenario using the following fidelity simulation definitions from Hayden (2010):

- *Low-fidelity simulation/task trainer*. An anatomical part of a manikin designed for a specific psychomotor skill—for example, an arm for IV insertion practice, or a phlebotomy practice pad.

- *Mid-fidelity simulation*. A patient-care scenario that uses a full-body simulator with installed human qualities such as breath sounds without chest rise. An example of a medium-fidelity manikin is VitalSim™.
- *High-fidelity simulation.* A patient-care scenario that uses a standardized patient with a predetermined scripted auditory response, or a full-body patient simulator that can be programmed to respond to affective and psychomotor changes, such as breathing chest action. Examples of high-fidelity manikins include SimMan®, METIman, and Noelle® with Newborn Hal®.

For the purposes of this study, the following definitions were also included.

- *Patient-centered care.* Recognition of the patient or designee as the source of control and full partner in providing compassionate and coordinated care based on respect for patient's preferences, values, and needs (Cronenwett et al., 2007).
- *Self-report.* A report about one's behavior provided especially by one who is a subject of research (Self-report, n.d.). Self-report in this case also reflects beliefs and attitudes.
- *Ability.* The quality or state of being able: physical, mental, or legal power to perform the power or skill to do something; competence in doing (skill) (Ability, n.d.).
- *Integration.* To form, coordinate, or blend into a functioning or unified whole; to unite with something else (Integrate, n.d.).
- *Knowledge.* The fact or condition of knowing something with familiarity gained through experience or association; acquaintance with or understanding of a science, art, or technique; the fact or condition of being aware of something; the range of one's information or understanding (Knowledge, n.d.).

- *Skill.* The ability to do something that comes from training, experience, or practice; the ability to use one's knowledge effectively and readily in execution or performance; dexterity or coordination especially in the execution of learned physical tasks (Skill, n.d.).
- *Attitude. A* mental position with regard to a fact or state: A feeling or emotion toward a fact or state; an organismic state of readiness to respond in a characteristic way to a stimulus (as an object, concept, or situation) (Attitude, n.d.).
- *Matched.* For this research study, a subsequent data set (30-day, matched, $n = 21$) was created due to a flaw in the study design that not all subjects were matched in the original 30-day group ($n = 49$). In order to perform pre /posttest analysis, nine demographic variables were examined of the original 30-day group ($n = 49$) for a match. A matched pair defined met seven of nine variables matched. Due to passing of time from pre to posttest, it was understandable that a couple of variables would change. These included semester number, number of simulation sessions, current employment, and previous employment. Two participants modified their ethnicity in a way that the PI was able to conclude they were a match. The email submitted for incentive gift card also provided assistance in verifying a matched pair.

Problem Statement

There was an abundance of learning assessment and efficacy scales, confidence measurements, rubrics, and program evaluation and competency tools (See Chapter II). There was a dearth of literature that specifically addressed the QSEN patient-centered care competencies. Several QSEN-based instruments are in development, but only two published studies explored the prelicensure BSN student population. One examined knowledge and attitudes using subjective self-report, while the other study measured attitudes alone. A need

exists to measure nursing student knowledge, skills, and attitudes specific to QSEN patient-centered clinical competencies within the context of simulation or clinical practicum experiences.

Research Questions

The study addressed the following research questions:

1. What are the psychometric properties of the Knowledge, Skills, and Attitudes – Part I: Patient-centered Care Scale (KSAI-PCCS) in a sample of prelicensure entry-level nursing students?
2. What is the construct-related validity of the KSAI-PCCS in a sample of prelicensure entry-level nursing students?
3. What are common themes of patient-centered care occurring in translation to practice in a sample of prelicensure entry-level nursing students?

Hypotheses

1. The reliability coefficient (internal consistency) will meet acceptable parameters of >.70 (Nunnally & Bernstein, 1994).
2. KSAI-PCCS scores will show acceptable stability using test-retest reliability across the 7-day time period.
3. There will be a significant difference in KSAI-PCCS scores pre and post testing.
4. Factor analysis structure will show three factors loading on the knowledge, skills, and attitude domains.
5. It is expected that qualitative data will reveal common themes concerning the translation of QSEN patient-centered care to bedside care.

Research Design

The study was a cross-sectional non-experimental concurrent mixed methods design that used non-probability convenience sampling and a web-based self-report survey. According to Creswell (2009), non-experimental designs are appropriate for surveys. Survey research provides "quantitative or numeric descriptions of trends, attitudes, or opinions" (Creswell, p. 12). Concurrent mixed methods merge quantitative with qualitative data and collect the data at the same time (Creswell). Furthermore, Creswell explains that concurrent methods are used to "integrate the information in the interpretation of the overall results" (pp. 14-15).

Data Analysis Plan

Research question 1) ***What are the psychometric properties of the Knowledge, Skills, and Attitudes – Part I: Patient-centered Care Scale (KSAI-PCCS) among a population of prelicensure entry-level students?*** The first research question required evaluation of reliability and internal consistency. Aggregate responses were assessed with statistical software analysis incorporating Cronbach's alpha to evaluate the internal consistency of the instrument. According to Polit and Beck (2008), Cronbach's alpha is "the most widely used method for evaluating internal consistency" (p. 454).

Stability of an instrument is the ability to attain similar results on two separate occasions (Polit & Beck, 2008). To address the question of stability, the proposed instrument was administered at two separate times, once at the beginning of the academic semester, and a second time 7 days later with randomization of instrument items. The subpopulation was a convenience sample drawn from the pool of initial respondents. Test-retest reliability was computed utilizing the reliability coefficient, which is the correlation coefficient for test-retest comparisons between two tests (Polit & Beck). The reliability coefficient should meet minimum acceptable parameters

of >.70 (Nunnally & Bernstein, 1994). Item-total correlation will also be evaluated to assist with reliability analysis.

Research question2) ***What is the construct-related validity of the KSAI-PCCS in a sample of prelicensure entry-level nursing students?*** The second question related to construct-related validity and was assessed via factor analysis-PCA and paired samples *t*-test evaluation.

Research question 3) ***What are common themes of patient-centered care occurring in translation to practice in a sample of prelicensure entry-level nursing students?*** The third research question was assessed via qualitative data collected at two different points, once at the beginning of an academic semester and the second, 30 days into the semester. Open-ended questions contributed qualitative data to the study. For each section (Knowledge, Skills, Attitudes), there were three open-ended questions. See operational definitions earlier in this chapter. It was hoped that these would validate the instrument's subjective ratings. Thematic analysis will enable interpretation of qualitative data (Creswell, 2009). Interpretation of the qualitative data should reveal common themes. The study's qualitative component enhances and may increase study rigor (Creswell & Plano Clark, 2007).

Setting

The setting was six prospective participating school sites, labeled Sites A-F. One university has three regional centers in Southern California that will be included in the proposed study. These are sites A, B, and C. This university is informed by a Christian worldview. The School of Nursing provides a culturally diverse practice environment that includes both study abroad and global research opportunities. Another site, Site D, is a Seventh-day Adventist educational health-sciences institution located in Southern California; its School of Nursing is a research-focused school (Site D, 2014). Site E is located in the southwestern US and has one of

the nation's most diverse campuses for undergraduate students; its mission is to promote, improve, and sustain human health through evidence-based education and advances in research and practice (Site E, 2014). Lastly, site F is an institution located in the Pacific Rim with unique research opportunities and a diverse community (Site F, 2014).

Population

The study population was a convenience sample of 208 students from prelicensure nursing programs at the aforementioned universities. They were enrolled in clinical courses that use both simulation lab and acute care clinical settings. During data reporting, sites were coded to protect anonymity.

Site A, B, and C overarching University Fact Sheet reported total graduate enrollment at 4,165, of which full-time students account for 46%, while those with part-time status account for 54% (Site A-C, 2015b). Graduate nursing students are reported to number 663 (15.7%) (Site A-C, 2015a). Among all full- and part-time students, the gender distribution is 70.4% female and 29.6% male. Graduate student total (males and females combined) ethnicity demographics are reported in order of prevalence: White (41%), Hispanic of any race (21.4%), Unknown (12.3%), Asian (10.9%), Black or African American (8%), Nonresident Aliens (4.8%), Native Hawaiian/Pacific Islander (0.9%), American Indian/Alaskan Native (0.5%), and Two or more races (0.2%) (Site A-C, 2015a). According to the current Site A overarching Fact Sheet, ethnic minority citizens comprise 43% of the overall student population (Site A-C, 2015b).

The specific study population from Sites A, B, and C were students in the Entry-Level Master's program (ELM), specifically in the prelicensure portion of the graduate program. This university has three regional sites for the ELM program. These three site locations cover geographical southern California.

The ELM nursing study population from Site A was 84.2% females and 15.8% males (16 and 3 out of 19) for the fall 2014 incoming student demographic profile. Ethnicities were reported as follows: White/Caucasian (31.6%), Hispanic/Latino (21.1%), and Unknown Race (15.8%). Age demographics were reported in age brackets as 36.8% (21-25 years), 47.4% (26-30 years), and 15.8% (31-40 years).

Site B reported incoming ELM nursing student gender distribution of 90% female and 10% male (18 and 2 out of 20) for fall 2014. Ethnicities reported include Asian (35%), Hispanic (25%), White (15%), Black (10%), Other (10%), and Armenian (5%). The age range for the Site B site is 22-33 years of age, with an average reported age of 26.

The incoming ELM nursing student profile for Site C was 85% female and 15% male for fall 2014. Site C reported ethnicities as White/Caucasian (50%), Hispanic (25%), Asian (15%), Mixed Race (5%), and Other (5%). The age range for the site was 22-36 years of age, with an average reported age of 29.

The study population from Site D, School of Nursing was undergraduate or graduate students in prelicensure clinical coursework. Overall Site D demographic data extracted from the public domain report a total of 4,729 students, with 645 (13.6%) in nursing programs (Site D, 2015). Among the entire student body, the full-time/part-time distribution was 83% versus 17%, while the enrollment for undergraduate/graduate/professional is 27.4%, 36.4%, and 36.1% respectively as of fall 2014 (Site D). Among the entire student body, the prevalence of females was 60.8% versus 39.1% males. No further demographic data related to the nursing program or full-time/part-time status were found in the public domain. According to the overarching university for Site D, almost every state in the Union was represented among the student population, as were 80 international countries (Site D). As this university is a faith-based

university located in Southern California's Inland Empire, one can presume student diversity may be similar to sites A, B, and C.

The prospective study population for Site E was undergraduate or graduate students in prelicensure clinical coursework. Overall demographic data extracted from the public domain reported total student population to be 28,515, of which the undergraduate student population accounts for 84% and graduate student population for 16%. There are more females than male students at 55% to 45% respectively. Minorities make up 54% of the total student population (Site E, 2014).

The prospective study population for Site F was undergraduate or graduate students in prelicensure clinical coursework. Demographic data extracted from the public domain report that 66% of the total student population was from "In-state/Hawaii," 28% are "Out-of-state/US/National," and 6% are "International" (Site F, 2015). Fast Facts report 126 countries and regions represented in the total student population (Site F). Overall gender breakdown was 56% female to 44% male. Among all enrollees for fall 2014, there were 5,381 (27.6%) in graduate programs and 14,126 (72.4%) in undergraduate programs (Site F).

Inclusion Criteria – Study Sites

Inclusion criteria for proposed study sites consisted of (a) prelicensure nursing students currently enrolled in a nursing program, (b) site programs that incorporate QSEN in the curriculum, (c) site programs in the United States, and (d) students enrolled in a nursing course with a clinical component.

Exclusion Criteria – Study Sites

Excluded from this study were nursing students in post-licensure nursing programs or coursework, students enrolled in nursing programs outside the United States, and nursing

students not enrolled in a course with an acute care clinical component. There were no age exclusions. No student in the APU Undergraduate Nursing program at the Azusa Campus, where the PI is on faculty, was included in this research to prevent possibility of coercion and conflict of interest.

Recruitment Plan

The PI had existing relationships with the six proposed study sites and planned to identify site liaisons for recruitment assistance. All students fitting the inclusion criteria received, from their individual site's liaison, an email invitation to participate in the proposed study (see Appendix B). The invitation included an offer of participation, an informed consent (assent—see Appendix C), and a link to the survey study site at which the study and study participation were explained. An incentive was offered to the respondent upon completion of both pre and posttest measurement. The incentive was in the form of a gift card.

Procedure to Collect and Measure Stability

All students fitting the aforementioned inclusion criteria received, from their individual site's liaison, an email invitation to participate in the proposed study. The invitation included an offer of participation, an informed consent (assent), and a link to the survey study site at which the study and study participation were explained. An incentive was provided for participation for both pre and posttest measurement in the form of a gift card. Initial pretest respondents became the subsample population group and were sent a follow-up invitation to participate in the randomized posttest measurement on the seventh day from initial participation.

Pre and 7 Days

Upon assenting to the study, this group was asked to verify a qualifying statement: "I have completed the pretest measurement." A "yes" response triggered another question asking if

this was a 7-day measurement. A “no” response asked the respondent to come back on approximate day 7. The “yes” response allowed the respondent access to the randomized instrument items followed by the demographic question set.

Procedure to Collect and Measure Construct-Related Validity

All students fitting the inclusion criteria received, from their individual site’s liaison, an email invitation to participate in the proposed study. The invitation included an offer of participation, an informed consent (assent), and a link to the survey study site at which the study and study participation were explained. An incentive was provided for participation for both pre and posttest measurement in the form of a gift card.

Pre and 30 Days

Upon assenting to the study, this group was asked to verify a qualifying statement: “I have completed the pretest measurement.” A “yes” response triggered another question asking if this was a 30-day measurement. A “no” response asked the respondent to come back on approximate day 30. The “yes” response allowed the respondent access to the standard (non-randomized) instrument items followed by the demographic question set.

Protection of Human Subjects

This research study involved human subjects. Approval of Institutional Review Boards (IRBs) was required for each institution included in the study. However, because no identifying information was to be collected, it was expected that the study would receive exempt or expedited approval status. Participation in this study involved minimal risk and was not of a sensitive nature, and participation was voluntary.

The proposed study utilized an online data collection system using the secure web-survey site “Survey Monkey.” All responses to this survey were anonymous and confidential.

Demographic data were collected for aggregate analysis only. Survey Monkey uses some of the most advanced commercially available technology for internet security, including Secure Sockets Layer (SSL) and Transport Layer Security (TLS), which protected communication via server authentication and data encryption (Survey Monkey, 2013). This ensured that user data in transit was safe, secure, and available only to intended recipients (Survey Monkey). The survey was accessed by respondents at any time during the open survey period. Survey data were collected at two points, pre and post testing, approximately 30 days apart. This method was selected due to ease of application, fast response rates, cost-effectiveness, and ease of data retrieval.

Procedures

IRB approval. Institutional Review Board applications were submitted to the PI's affiliating school, the University of Hawai`i at Mānoa and the PI's institution of employment, Azusa Pacific University. After IRB approval (see Appendix D and Appendix E), follow-up letters of agreement were drafted for each participating site institution. Letters of support were required from each participating site (see Appendix F). Site approval and letters of support were gathered from schools and department leaders in advance of any data collection.

Identification of site liaisons. The PI had existing contacts at several potential study sites. Coordination of study sites was to be facilitated by the use of a site liaison. The liaisons were either a faculty member or designated administrative staff member who had access to student population email systems or site-specific list serves. An invitation to participate in the survey was sent to the participating schools' liaisons who then forwarded it to prelicensure nursing students who met the inclusion criteria.

Open survey. After IRB approvals were received, careful consideration was given to the survey period with regard to beginning of study site semesters/quarters. Consideration of semester/quarter breaks was also necessary throughout the data collection period. The PI worked closely with site liaisons to determine optimal survey collection periods.

Instrumentation

Instrument Development

Background. Within the United States, the Quality and Safety Education for Nurses (QSEN) project represents a national effort to redesign nursing education to focus on the knowledge, skills, and attitudes necessary to protect patient safety and improve care (Cronenwett et al., 2007). As such, QSEN includes six identified core competency areas developed from the IOM (2003) report: (a) patient-centered care, (b) teamwork and collaboration, (c) evidence-based practice, (d) quality improvement, (e) safety, and (f) informatics (Cronenwett et al.). Stature and credibility of the QSEN project has increased in both academic and practice communities. Its language has been integrated into clinical performance evaluations (Lenburg et al., 2009).

The PI has a keen interest in instrument development that expands on data from a previous unpublished pilot study (Perry, 2010) and a second feasibility study (Perry, 2013). (See Chapter II). These two studies used an original simulation learning evaluation instrument that had some QSEN elements. Over time, the PI felt significant changes in this instrument were needed. Findings from these two studies and committee feedback at the comprehensive examination level identified areas requiring improvement.

Procedures/Study Design

Measurement is an important concern across broad ranges of social research (DeVillis, 2003) and is required in order to quantify a specific phenomenon. Measurement of the patient-

centered care phenomenon and associated competencies will provide nurse educators with insight into student perspectives. The data may illustrate whether the patient-centered care knowledge, skills, and attitudes of nursing students translate to improved patient outcomes at the bedside. DeVillis (2003) describes an eight-step guideline for scale development. Steps 1-4 will be used to guide instrument development in this study.

Step one: Literature review and theoretical framework. The first step in scale development is familiarity with relevant research literature and identification of a theoretical framework for the scale. As previously described in Background (see Chapter I), Watson's Caring Theory was used as a theoretical framework for this research study. Among the QSEN Competencies (patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement, safety, and informatics), the Knowledge, Skills, and Attitudes of Patient-centered Care will provide the structural framework as detailed in Table 5.

Step two: Item pool. The second step, according to DeVillis (2003), is generation of an item pool. This study focused on the QSEN Core Competency: Patient-centered care (KSAs) language applied to simulation and/or clinical experience. The QSEN patient-centered care competencies were formulated into statements for evaluation using a Likert scale measurement. The patient-centered care competencies have three domains: knowledge, skills, and attitudes. There are 19 items in the proposed Knowledge subscale, 17 items for the proposed Skills subscale, and 18 items for the proposed Attitudes subscale, which combined make a 54-item instrument. A small selection of non-identifying demographic data will be collected to include in data analysis. The instrument is Knowledge, Skills, and Attitudes – Part I: Patient-centered Care Scale (KSAI-PCCS) – see Appendix A. Instructions were provided as well as a definition offered for patient-centered care.

Table 5

Patient-centered Care Competencies

Definition: Recognize the patient or designee as the source of control and full partner in providing compassionate and coordinated care based on respect for patient's preferences, values, and needs.		
Knowledge	Skills	Attitudes
Integrate understanding of multiple dimensions of patient centered care: • patient/family/community preferences, values • coordination and integration of care • information, communication, and education • physical comfort and emotional support • involvement of family and friends • transition and continuity. Describe how diverse cultural, ethnic and social backgrounds function as sources of patient, family, and community values.	Elicit patient values, preferences and expressed needs as part of clinical interview, implementation of care plan and evaluation of care. Communicate patient values, preferences and expressed needs to other members of healthcare team. Provide patient-centered care with sensitivity and respect for the diversity of human experience.	Value seeing healthcare situations "through patients' eyes." Respect and encourage individual expression of patient values, preferences and expressed needs. Value the patient's expertise with own health and symptoms. Seek learning opportunities with patients who represent all aspects of human diversity. Recognize personally held attitudes about working with patients from different ethnic, cultural and social backgrounds. Willingly support patient-centered care for individuals and groups whose values differ from own.
Demonstrate comprehensive understanding of the concepts of pain and suffering, including physiologic models of pain and comfort.	Assess presence and extent of pain and suffering. Assess levels of physical and emotional comfort. Elicit expectations of patient & family for relief of pain, discomfort, or suffering. Initiate effective treatments to relieve pain and suffering in light of patient values, preferences and expressed needs.	Recognize personally held values and beliefs about the management of pain or suffering. Appreciate the role of the nurse in relief of all types and sources of pain or suffering. Recognize that patient expectations influence outcomes in management of pain or suffering.
Examine how the safety, quality and cost effectiveness of healthcare can be improved through the active involvement of patients and families. Examine common barriers to active involvement of patients in their own healthcare processes. Describe strategies to empower patients or families in all aspects of the healthcare process.	Remove barriers to presence of families and other designated surrogates based on patient preferences. Assess level of patient's decisional conflict and provide access to resources. Engage patients or designated surrogates in active partnerships that promote health, safety and well-being, and self-care management.	Value active partnership with patients or designated surrogates in planning, implementation, and evaluation of care. Respect patient preferences for degree of active engagement in care process. Respect patient's right to access to personal health records.

(table continues)

Definition: Recognize the patient or designee as the source of control and full partner in providing compassionate and coordinated care based on respect for patient's preferences, values, and needs.		
Knowledge	Skills	Attitudes
Explore ethical and legal implications of patient-centered care. Describe the limits and boundaries of therapeutic patient-centered care.	Recognize the boundaries of therapeutic relationships. Facilitate informed patient consent for care.	Acknowledge the tension that may exist between patient rights and the organizational responsibility for professional, ethical care. Appreciate shared decision-making with empowered patients and families, even when conflicts occur.
Discuss principles of effective communication. Describe basic principles of consensus building and conflict resolution. Examine nursing roles in assuring coordination, integration, and continuity of care.	Assess own level of communication skill in encounters with patients and families. Participate in building consensus or resolving conflict in the context of patient care. Communicate care provided and needed at each transition in care.	Value continuous improvement of own communication and conflict resolution skills.

Reprinted with permission. From Cronenwett et al. (2007), Quality and safety education for nurses, *Nursing Outlook, 55*(3), 122-131.

Step three: Scale format.

Level of measurement. Level of measurement is "A system of classifying measurements according to the nature of the measurement and the type of permissible mathematical operations; the levels are nominal, ordinal, interval, and ratio" (Polit & Beck, 2008, p. 757). The level of measurement in the study was ordinal based on Likert frequency scale responses.

DeVillis' (2003) step three is determination of an appropriate scale format. In this case, a Likert-type scale format was selected. Likert-type scales require self-report responses. Self-report is a method of collecting data that involves direct report of information by the person who is being studied (Polit & Beck, 2008), in this case via online survey questionnaire. Questionnaires are generally a series of questions about one's beliefs, behaviors, or attitudes

(Polit & Beck). Self-report measures depend on study respondents' willingness to share personal information.

Advantages and disadvantages of self-report. Advantages to using self-report include cost-effectiveness, ease of application to online surveys, gaining respondents' views directly, access to the respondents' perceptions, and ease of administration (Hoskin, 2012). Disadvantages include dishonesty on the part of the respondent (Hoskin), inflated ratings (Polit & Beck, 2008), response bias, and possible lack of self-knowledge (Hoskin). All scale items are worded in a positive format. In order to prompt a valid response, scale response anchors must be selected carefully.

Scale response anchors. Consensus among the expert review panel over Likert scale response anchors was reached after some debate. Initially, standard Likert *frequency* wording of "*never*" to "*always*" was chosen over common *agreement* Likert language of "*strongly disagree*" to "*strongly agree*." Two of the three panel nurses, along with the principal investigator (PI), felt this modification was more appropriate for the items. The question was then posed to the two student members on the panel. The student members independently reported that *modified frequency* wording was a better fit. The panel subsequently agreed that the modified frequency option was the best fit for the scale response anchor wording of survey items. This option determined how frequently the student feels they know or possess the knowledge, have the ability to perform the skill, and embrace the attitude. Modified *frequency* scale response anchors of "*never* to *very frequently*" were selected for application of optimal fit with the survey items. (See Appendix A).

A variety of Likert-type scale response anchors exists, but selection of topic-specific anchors is a critical consideration. Siegle (2010) and Vagias (2006) described popular Likert-

type scale response anchors. It was determined that the common *agreement* wording of "*strongly disagree*" to "*strongly agree*" did not fit the proposed survey items, nor did the *likelihood* wording of "*almost never true*" to "*almost always true*." Similarly, *quality* wording of "*extremely poor*" to "*excellent*" did not fit. *Importance* wording did not fit the survey items ("*unimportant*" to "*important*"). Likewise, level of *awareness* wording of "*not at all aware*" to "*extremely aware*" was also not a complete match. *Frequency* wording of "*never"* to "*always*" initially seemed the best fit, but was subsequently modified to a scale of *"never*" to "*very frequently*" after panel discussion and consensus.

Step four: Expert review. Step four is completion of an expert review of the proposed item pool. This step was accomplished by soliciting feedback from a QSEN nurse consultant, a regional nursing simulation expert, a statistician, and the study PI. Panel feedback occurred on five occasions during the item pool development process. The feedback resulted in modifications to items based on overall feedback, discussion on wording, and consensus. As a result, the wording of several items was revised. Feedback from a variety of nurse experts and non-nurse experts provided consensus on a 48-item pool. The revised instrument was also vetted through two committee members with expertise in statistics and instrument development.

Multiple revisions occurred during step four as a result of feedback, discussion, and consensus among the panel (see Appendix A). Additionally, the PI sought input from two student representatives of the proposed study population to review the scale for clarity and comprehension. Their feedback improved the wording clarity and comprehensibility on three items. This feedback resulted in several complex items being divided into two or more separate items. The modifications increased the total survey items from 48 to 54.

Student feedback also included suggestions for increasing recruitment and participation. These recommendations included the following: (a) student introduction to study by course instructors, (b) introduction of study incentives, and (c) increased academic emphasis on the importance of nursing research.

Steps for future work. The final four of DeVillis' (2003) steps will not be used for this study but are listed below as they would apply to future research.

Step five: Inclusion of validated items. According to DeVillis (2003), step five relates to the inclusion of validated items, which works in conjunction with step four.

Step six: Development sample. Step six is to administer the study instrument to a development sample (DeVillis, 2003). At this point, the refined scale may be sent to the expert panel members for a final review.

Step seven: Item results. Step seven pertains to the evaluation of item results (item analysis; DeVillis, 2003).

Step eight: Optimization of scale length. Step eight relates to the optimization of scale length (DeVillis, 2003). Hypothesis 3 states, "There will be a significant difference in KSAI-PCCS scores pre and post testing." Empirical testing was required, however, due to study design testing options being limited to group means and paired samples *t*-tests. Evaluation of construct validity included factor analysis PCA. Factor analysis PCA was also used to consider scale reduction. Results are reported in Chapter IV.

Instrument Psychometrics

A primary goal of the proposed research is to contribute to the validity and reliability of the KSAI-PCCS instrument. This section will describe the instrument development process and psychometric testing of the Knowledge, Skills, and Attitudes – Part I: Patient-centered Care

Scale (KSAI-PCCS). The following will be addressed: validity, reliability, stability, internal consistency, level of measurement, factor analysis, and principal component analysis.

Validity.

Face validity. Face validity is "the extent to which a measuring instrument looks as though it is measuring what it purports to measure" (Polit & Beck, 2008, p. 753). Face validity was accomplished by the panel review and comparison to the QSEN patient-centered care framework.

Content validity. Content validity is "the degree to which the items in an instrument adequately represent the universe of content for the concept being measured" (Polit & Beck, 2008, p. 750). Content validity of this instrument was first established by a panel of simulation/instrumentation expert members. Each section of the scale (knowledge, skills, and attitudes) has 19, 17, and 18 items at 35, 31.5, and 33 percent respectively. The instrument was further tested in a non-probability, convenience sample of prelicensure nursing students.

Construct-related validity. Construct-related validity is "the validity of inferences from observed persons, settings, and interventions in a study to the constructs that these instances might represent: with an instrument, the degree to which it measures the construct under investigation" (Polit & Beck, 2008, p. 750). Construct validity is related to the theoretical underpinnings of a study. As noted earlier, QSEN language and competencies have been integrated into clinical performance evaluations (Lenburg et al., 2009). Hypothesis 3 states that there will be a significant difference in KSAI-PCCS scores pre and posttesting (predictive validity). It is the PI's assumption that, as students have more (experiential learning) time/exposure to QSEN concepts in classroom or practice settings, the students would increase their patient-centered care knowledge base, skills ability, and related attitudes. Experiential

learning includes three distinct components: a concrete experience, a contemplation phase (reflection), and the application phase (Kolb, 1984). The assumption is partially based upon the student role in experiential learning including reflection and self-evaluation as the primary means of assessment (Northern Illinois University, n.d.). This assumption implies that scores should improve over time with exposure to QSEN language and practices in the simulation or acute-care settings.

Criterion-related validity. Criterion-related validity is "the degree to which scores on an instrument are correlated with some external criterion" (Polit & Beck, 2008, p. 751). Criterion-related validity cannot be applied to the proposed instrument measurement as there is no existing external criterion.

Reliability. Reliability refers to precision or consistency in measurement including consistency over time (test retest) and internal consistency (split half; Cronbach's alpha) (Dunteman, 1989; Field, 2009; Polit & Beck, 2008). Test retest provides an objective assessment through the computation of a reliability coefficient. Test-retest reliability was utilized with pre /posttesting (shorter time frame/scrambled version) in order to detect the instrument's stability over time. This was accomplished without intervention other than the time interval (experiential learning) in the nursing program/academic semester.

Internal consistency. Internal consistency is "the degree to which the subparts of an instrument are all measuring the same attribute or dimension, as a measure of the instrument's reliability" (Polit & Beck, 2008, p. 756). Internal consistency will be determined by Cronbach's alpha, split-half reliability, and item total correlation calculations. Cronbach's alpha is a measure of internal reliability. Test-retest reliability is a measure of how consistent the results of a test are over time. A variant form was used with a shorter time frame (see Appendix G). A value >.70 is

considered a minimum acceptable measure of internal consistency (Nunnally & Bernstein, 1994). However, Carmines and Zeller (1979) report a Cronbach's alpha of >.80 to be an acceptable boundary for widely used instruments.

***Cronbach's alpha*.** Cronbach's alpha is "a widely used reliability index that estimates the internal consistency of a measure composed of several subparts: also called coefficient alpha" (Polit & Beck, 2008, p. 751). Cronbach's represents the average correlation among all split-half pairs. Cronbach's alpha was used as an index of internal consistency in the study.

Factor analysis. Factor analysis is "a statistical procedure for reducing a large set of variables into a smaller set of variables with common underlying dimensions" (Polit & Beck, 2008, p. 753). Factor analysis refers to "a variety of statistical techniques whose common objective is to represent a set of variables in terms of a smaller number of hypothetical variables" (Kim & Mueller, 1978, p. 9). Principal component analysis was applied to evaluate for factor loading and possible scale reduction.

Principal component analysis. Principal component analysis is "a statistical technique that linearly transforms an original set of variables into a substantially smaller set of uncorrelated variables that represents most of the information in the original set of variables" (Dunteman, 1989, p. 7). Principal component analysis was examined with regard to factor structure of the KSAI-PCCS instrument if a sufficient sample size (i.e., >200) was achieved.

Procedures

A non-probability, convenience sample was utilized for this instrument development study. Upon meeting IRB approvals at the host university and employer's university (Appendix D and Appendix E), data collection commenced using Survey Monkey. Email notifications were sent to site contacts, who then forwarded the invitation to participate in the research study

(Appendix B) to their respective prelicensure nursing students (n = 1,042). Of the 208 returned surveys, only 98 were complete (pre and post) and usable for the 30-day group (n = 98). The 7-day group return yielded 12 matched pre and posttest data (n = 12). Statistical testing and results are reported in Chapter IV.

Potential Limitations

There are potential limitations in the study. These include reliability (self-report) and threats to validity. Self-report has been identified as an issue with respondents rating themselves at a higher level than they may be (Polit & Beck, 2008). Unreliability is always present to a limited extent (Dunteman, 1989). The validity of Likert Scale attitude measurement can be compromised due to social desirability (Burns & Grove, 1997). Self-efficacy, perceptions of confidence, and self-confidence may have an impact on a student's ability to complete a self-report questionnaire pertaining to knowledge, skills, and attitudes. However, a number of limitations exist in existing research (Chapter II) conducted, including aspects of self-report such as dishonesty on the part of the respondent (Hoskin, 2012), inflated ratings (Polit & Beck, 2008), response bias, and possible lack of self-knowledge (Hoskin). For example, if a student nurse does not believe he or she has the knowledge, ability, or capability to perform a skill, or that he or she possesses a particular attribute or attitude, he or she might rate him/herself at the lower end of a rating scale. Conversely, a student may inflate his or her rating. Some may question the subjective (self-perception) approach, yet reflection has a valid role in the translation of experiential learning (Kolb, 1984). It is hoped that the inclusion of qualitative data will also help to mitigate self-report limitations and enhance the study.

Aspects of the study methodology may increase the risk for sampling errors. A Type I (false positive) error is possible if the researcher rejects a null hypothesis when, in fact, it is true

(LoBiondo-Wood & Haber, 2010). There is always a possibility of the more serious Type I error. This would amount to reporting there was a difference when there was not (LoBiondo-Wood & Haber). Setting the significance level at .05 before collecting the data generated a 95% confidence interval. In doing so, this reduced the risk of committing the Type I error by removing temptation to establish a cut-off designed to confirm the PI's hypotheses.

A Type II (false negative) error may occur when the researcher accepts a null hypothesis that is actually false (LoBiondo-Wood & Haber, 2010). Type II errors may occur when the sample size is too small. A small sample size limits the opportunity to measure treatment effect (LoBiondo-Wood & Haber). For example, the sample in the study might be one of the small percentage of samples given an unusually extreme test statistic. Using G-power a-priori calculation for *t*-tests, two-tailed (matched pairs) given an effect size of 0.3, alpha set at .05 and 80% power, the sample size was 34 for the total sample size (Faul, Erdfelder, Lang, & Buchner (2007).

CHAPTER IV: PRESENTATION AND ANALYSIS OF DATA

The primary purpose of this study was to test psychometric properties of the KSAI-PCCS instrument in the context of clinical and simulation student nurse experiences. A secondary purpose was to examine the perceived knowledge, skills, and attitudes of prelicensure nursing students specific to QSEN patient-centered care competencies. This chapter presents the analysis of data collected to address the following research questions:

1. What are the psychometric properties of the Knowledge, Skills, and Attitudes – Part I: Patient-centered Care Scale (KSAI-PCCS) in a sample of prelicensure entry-level nursing students?
2. What is the construct-related validity of the KSAI-PCCS in a sample of prelicensure entry-level nursing students?
3. What are common themes of patient-centered care occurring in practice in a sample of prelicensure entry-level nursing students?

This chapter provides results of data analysis including data collection, data entry, and data cleaning. The demographic profiles of the study sample are provided. Additionally, quantitative data to illustrate reliability and validity will be presented of pre and posttest (test-retest) of 7-day and 30-day groups. Qualitative data will be presented using text and inductive thematic analysis from the three open response items.

Summary of Data Collection Process

Upon meeting IRB approvals at the host university and employer's university, data collection commenced using Survey Monkey. Email notifications were sent to site contacts, who then forwarded the invitation to participate in the research study to their respective prelicensure nursing students (n = 1,042). Of the 208 returned surveys, only 98 were complete (pre and post)

and usable for the 30-day group (n = 98). The 7-day group return yielded 12 matched pre and posttest data (n = 12).

Descriptive Statistics

Description of Samples

Email invitations were sent via site liaisons to 1,042 eligible prelicensure nursing students for the 30-day original form KSAI-PCCS pre/posttest survey. Overall original 30-day returns numbered 208 (20% return rate) with 128 pretests and 80 posttests. Yet of the 128 pretests 72 were not usable due to missing responses. Of the original 80 posttests 27 were similarly not usable due to missing responses. A final further review revealed additional missing items in seven pretest and four posttest cases from the 30-day original group yielding a final 30-day pretest n=49, and posttest n=49. Of the original 128 pretests, 12 were matched with a 7-day variant posttest (i.e., same items but variable order). Out of these numbers, 21 were matched pairs of 30-day (original form) pre/posttests and 28 were unmatched pre/posttests. Non-usable returns (n= 110; pre=79 and post=31) had more than three items missing; however, the majority of the non-usable returns had at least one or more entire subscales unanswered.

Subsequently, invitations were sent to the 1,042 pool for the variant form, 7-day posttest (participants had to have previously completed a pretest). Returns numbered 19; however, five were not able to be used as there was no pretest found for pairing and two were not used due to the participant had submitted a total of three 7-day posttest returns (retained one). Final 7-day pre (original) /posttest (variant) sample was 12 matched cases (Figure 3).

Through the process of data analysis, the PI discovered the original 30-day group (pre n=49 and post=49) was not perfectly matched. Subsequently, a detailed review process was completed. Nine demographic variables per case were reviewed, and 21 matched pairs were

confirmed in order to conduct inferential testing of 30-day pre / posttest data. A matched (see Operational Definitions, Chapter III) pair was confirmed when seven of nine variables matched.

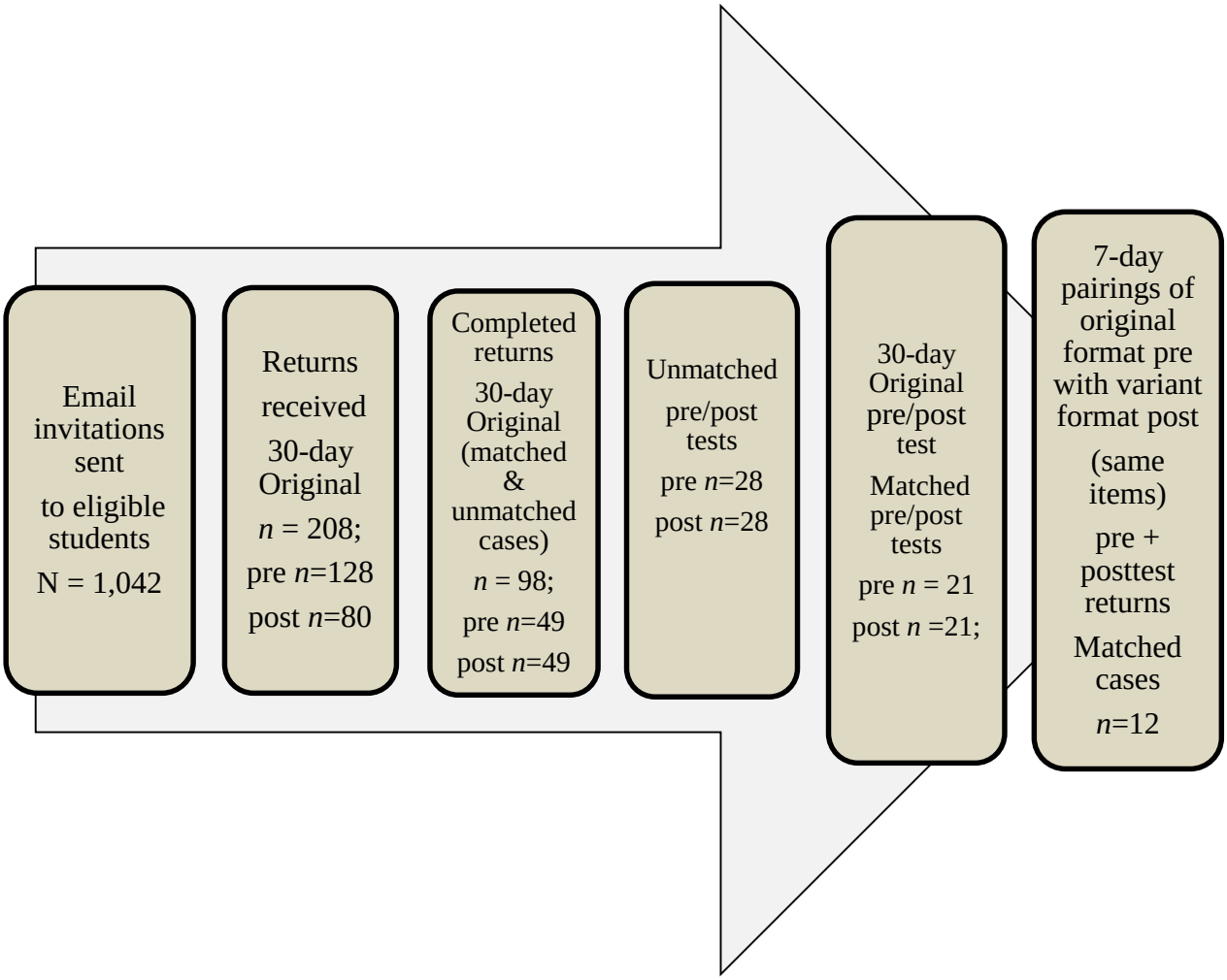

Figure 3. Flow diagram of sample development.

For purposes of demographic reporting, all n = 49 responses of the 30-day pretest group were used. For purposes of item-total correlation, all n = 49 responses of the 30-day pretest group were used. For performing psychometric analysis and inferential tests on the matched pre / posttest data, only the matched datasets were used (7-day, n=12; 30-day, n=21) separately. For the purpose of factor analysis-principle component analysis (FA-PCA), a max dataset was

created with three datasets, *n*=12, *n*=21, and *n*=28 for a combined sample of N=61. This max dataset was also used for analysis of correlations between KSA scores and selected demographic variables. For purposes of reporting qualitative data the *n*=49 sample was used.

Demographics

The demographic profile (Table 6) illustrates that the vast majority of the original 30-day group respondents (N = 49) selected the 18- to 24-year-old age group (49%). The 25- to 29-year-old age group had 26.5%, and the 30- to 34-year-old age group consisted of 16.3% (Table 6). Most respondents identified their gender as female (87.8%), with 12.2% as male. Identified ethnicities in the 30-day group primarily include Caucasian (36.7%) and Asian (32.7%). Pacific Islander ethnicity accounted for 12.2%. Hispanic, Latino, and Mexican American ethnicities combined account for 14.2% of the participants (Table 6). One respondent opted not to identify ethnicity.

The majority of respondents reported they were in their third semester (20.4%). Fourth semester accounted for 16.3%. First, second and fifth semesters each accounted for 14.3%. Sixth semester accounted for 12.2% and seventh semester accounted for 4.1% (Table 6).

The majority of respondents in the original 30-day group reported having had five or more (57.1%) simulation lab experiences to date. Having one simulation accounted for 18.4%, and four simulations accounted for 16.3%. Of the 49 respondents answering 63.3% overall respondents indicated they had not been previously employed in healthcare, and 75.5% indicated they were not currently employed in healthcare (Table 6).

The demographic data indicate that the majority (40.8%) of the original 30-day group respondents were enrolled in a traditional baccalaureate nursing program. Entry-level masters/graduate entry program accounted for 36.7% of the respondent pool. One fifth of the

respondents identified accelerated baccalaureate program (20.4%). One respondent identified with an Associate Degree (2%) program, yet this was more likely an error response, as the survey was not sent to any Associate Programs (Table 6).

All respondents in the original 30-day group identified their program site (N = 49). Site A had the most respondents at 36.7%. Site F had 13 respondents (26.5%). Respondents identified Site C at 16.3%. Site E had 12.2%. Site B had 8.2%, and Site D had 0% (Table 6).

Table 6

Demographics (n=49)

Characteristic	*n*	**%**
Age		
18-24 yrs	24	49
25-29 yrs	13	26.3
30-34 yrs	8	16.3
35-39 yrs	1	2
40-44 yrs	2	4.1
45-49 yrs	0	0
$\geq$ 50 yrs	1	2.0
Total	49	100
Gender		
Male	6	12.2
Female	43	87.8
Total	49	100
Ethnicity		
African American	1	2.0
Asian	16	32.7
Caucasian	18	36.7
Hispanic	5	10.2
Latino	1	2.0
Mexican American	1	2.0
Pacific Islander	6	12.2
Mixed Race	0	0
Total	48	98
Missing	1	2.0
Total	49	100.0
Semester (#)		
1st	7	14.3

(table continues)

Characteristic	*n*	%
2nd	7	14.3
3rd	10	20.4
4th	8	16.3
5th	7	14.3
6th	6	12.2
7th	2	4.1
>7th	1	2.0
Total	48	98.0
Missing	1	2.0
Total	49	100.0
Simulation lab sessions (#)		
1	9	18.4
2	2	4.1
3	1	2.0
4	8	16.3
≥5	28	57.1
Total	48	98.0
Missing	1	2.0
Total	49	100.0
Previously employed in healthcare		
No	31	63.3
Yes	17	34.7
Total	48	98.0
Missing	1	2.0
Total	49	100.0
Currently employed in healthcare		
No	37	75.5
Yes	12	24.5
Total	49	100.0
Nursing program		
ADN	1	2.0
Trad BSN	20	40.8
Accelerated BSN	10	20.4
ELM or GEPN	18	36.7
Total	49	100.0
Sites		
Site A	18	36.7
Site B	4	8.2
Site C	18	16.3
Site D	0	0
Site E	6	12.2
Site F	13	26.5
Total	49	100.0

Note. Bold is used for clarity.

With the matched *n*=21 group, there were some expected changes of demographic variables due to passing of time; e.g., such as semester number increased by one, simulation sessions attended increased by one or two, or currently or previously employed in healthcare changed (supplemental Table 7). In this study there was no treatment other than the elapsed time interval within the academic semester.

Table 7

Demographics – Supplemental (n=21)

Characteristic	*n*	**%**
Age		
18-24 yrs	12	57
25-29 yrs	6	28.6
30-34 yrs	2	9.5
35-39 yrs	0	0
40-44 yrs	1	4.8
45-49 yrs	0	0
$\geq$ 50 yrs	0	0
Total	21	100
Gender		
Male	4	19
Female	17	81
Total	21	100
Ethnicity		
African American	0	0
Asian	9	42.9
Caucasian	9	42.9
Hispanic	0	0
Latino	0	0
Mexican American	0	0
Pacific Islander	2	9.5
Mixed Race	0	0
Total	20	95.2
Missing	1	4.8
Total	21	100.0
Semester (#)		
1st	4	19
2nd	3	14.3
3rd	4	19

(table continues)

Characteristic	*n*	%
4th	2	9.5
5th	5	23.8
6th	3	14.3
7th	0	0
>7th	0	0
Total	21	100.0
Simulation lab sessions (#)		
1	5	23.8
2	1	4.8
3	1	4.8
4	2	9.5
≥5	12	57.1
Total	21	100.0
Previously employed in healthcare		
No	14	66.7
Yes	7	33.3
Total	21	100.0
Currently employed in healthcare		
No	17	81
Yes	4	19
Total	21	100.0
Nursing program		
ADN	1	4.8
Trad BSN	10	47.6
Accelerated BSN	3	14.3
ELM or GEPN	7	33.3
Total	21	100.0
Sites		
Site A	6	28.6
Site B	1	4.8
Site C	1	4.8
Site D	3	14.3
Site E	2	9.5
Site F	8	38.1
Total	21	100.0

Note. Bold is used for clarity.

Descriptive Group Means

Group means were evaluated using descriptive statistics for both 7-day (n = 12) and 30-day (n = 21) KSA subscales and are reported in Table 8.

Table 8

Group Means for 7- and 30-day (Matched) Groups of KSA Subscales

7-day group (*n* = 12)			
Subscale	Mean	Subscale	Mean
PreKTotal	74.92	PostKTotal	74.08
PreSTotal	65.92	PostSTotal	69.42
PreATotal	84.50	PreATotal	79.75
30-day group (*n* = 21)			
Subscale	Mean	Subscale	Mean
PreKTotal	75.00	PostKTotal	79.90
PreSTotal	68.00	PostSTotal	71.57
PreATotal	82.19	PostATotal	78.80

Note. Bold is used for clarity.

Simple line graphs illustrated the means in Figures 4 and 5.

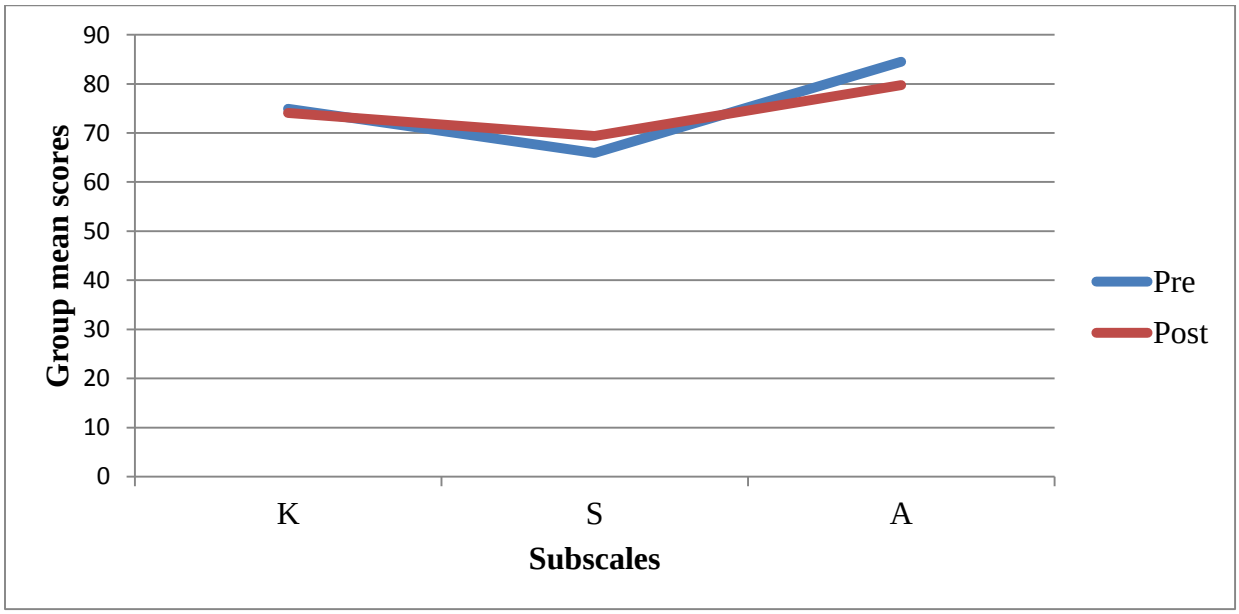

Figure 4. Line graph showing group mean scores of 7-day (matched, *n* = 12) pre and posttest knowledge, skills, and attitudes subscales.

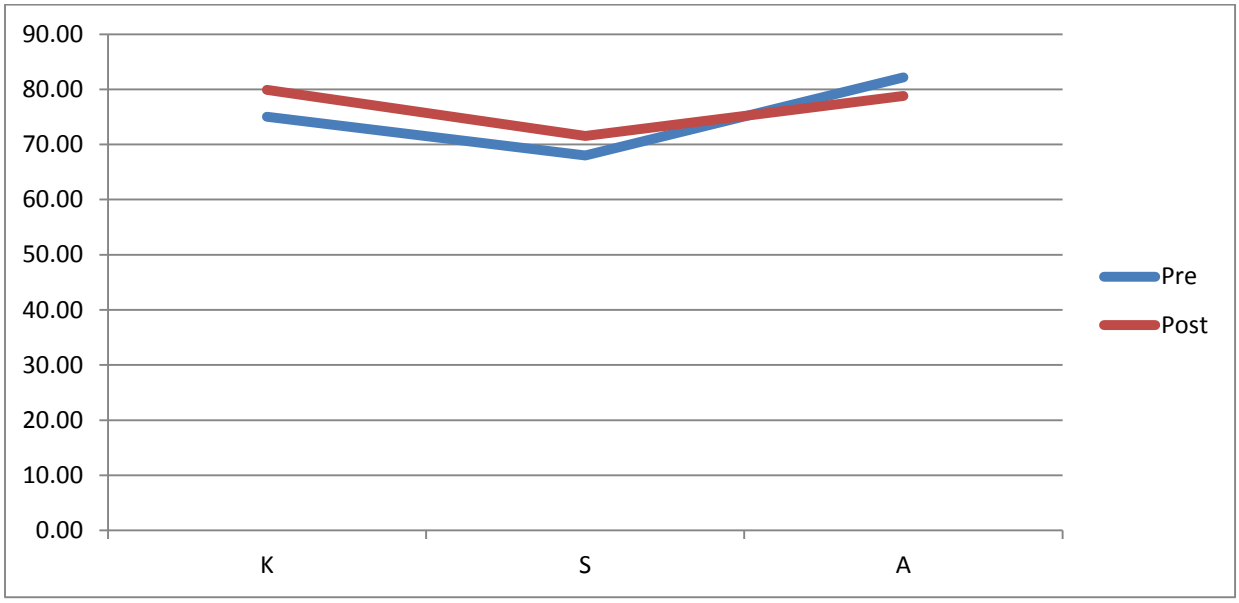

Figure 5. Line graph showing group mean scores of 30-day (matched, n = 21) pre and posttest knowledge, skills, and attitudes subscales.

Higher scores reflected greater frequency of either "having the knowledge of patient-centered care," "performing a patient-centered care technique/skill," or "retaining a patient-centered care attitude."

Research Question 1: Psychometric Properties

Research Question 1 required testing reliability; therefore, results of reliability (test-retest, Cronbach's alpha) will be reported.

Reliability

Test-retest stability reliability.

Seven-day group. Seven-day stability analysis of the KSAI-PCCS was performed using a variation of the KSAI-PCCS instrument (different order of items). Reliability assessment was

performed on the overall scale and each of the three subscales: Knowledge, Skills, and Attitudes (KSA).

Seven-day internal consistency of the KSAI-PCCS instrument at pretest demonstrated acceptable (>.70; Nunnally & Bernstein, 1994). Cronbach's alpha for each of the KSA subscales was greater than .70 (Table 9).

Table 9

Reliability: Internal Consistency (Cronbach's alpha) 7–day KSAI-PCCS Pretest Score (n = 12)

Scale/Subscale	Cronbach's Alpha	*n* Items
Combined scales	.851	54
Knowledge	.857	19
Skills	.782	17
Attitudes	.761	18

The KSAI-PCCS (combined scales) and the KSA subscales demonstrated good (≥0.8 to >0.9; Nunnally & Bernstein, 1994) to excellent (≥ 0.9; Nunnally & Bernstein) reliability (internal consistency) in the 7-day posttest (Table 10).

30-day matched group internal consistency. Cronbach's alpha was calculated for the 30-day (n = 21) pretest scores of the KSAI-PCCS. The KSAI-PCCS (combined scales) and the KSA subscales all demonstrated good (≥.8) to excellent (≥ 0.9; Nunnally & Bernstein, 1994) reliability (internal consistency) in the 30-day pretest (Table 11).

Table 10

Reliability: Internal Consistency (Cronbach's alpha) 7–day KSAI-PCCS Posttest Score (n = 12)

Scale/Subscale	Cronbach's alpha	*n* Items
Combined scales	.925	54
Knowledge	.848	19
Skills	.871	17
Attitudes	.855	18

Table 11

Reliability: Internal Consistency (Cronbach's alpha) 30-day KSAI-PCCS Pretest Score (n = 21)

Scale/Subscale	Cronbach's alpha	*n* Items
Combined scales	.962	54
Knowledge	.919	19
Skills	.924	17
Attitudes	.877	18

Cronbach's alpha was also calculated for the 30-day (n = 21) posttest scores of the KSAI-PCCS. The KSAI-PCCS (combined scales) and the KSA subscales all demonstrated excellent ($\geq$ 0.9; Nunnally & Bernstein, 1994) reliability (internal consistency) in the 30-day posttest (Table 12).

Table 12

Reliability: Internal Consistency (Cronbach's alpha) 30–day KSAI-PCCS Posttest score (n = 21)

Scale/Subscale	Cronbach's alpha	*n* Items
Combined scales	.971	54
Knowledge	.956	19
Skills	.934	17
Attitudes	.902	18

Psychometric analysis. Pearson's correlation coefficients *r* was used to assess stability of the tool over a 7-day period (T1 and T2). Pearson *r* correlations met the acceptable threshold of $\geq$ .70 (LoBiondo-Wood & Haber, 2010) in the 7-day group. Correlations met the threshold with Skills pretest and posttest measures ($r = .856$; $p<.01$). Correlations met the threshold with combined KSA pretest and posttest measures ($r = .715$; $p<.01$). Data are reported in Table 13.

Table 13

Stability of KSAI-PCCS using 7-day Pre and Post test Scores

Pretest (T1; *n* = 12)	Posttest (T2; *n*=12)
Combined KSA pre with posttest	***r* = .715****
Knowledge pre with posttest	*r* = .259
Skills pre with posttest	***r* = .856****
Attitudes pre with posttest	*r* = .076

**. significant at the 0.01 level (2-tailed)
Note. Bold is used for clarity.

Item-Total Correlation

Item-total correlation is a measure of the reliability of a multi-item scale and is a common tool for improving such scales (Field, 2009). Corrected item-total correlation represents the correlation between an individual item and the total score without said item. In this case, the Knowledge subscale had 19 items. Knowledge subscale corrected item-total correlation value results ranged from .40 to .70 (Table 14). Table 14 indicates item-total statistics for the overall Knowledge subscale with Cronbach's alpha value if a specific item was deleted. The data (30-day; n = 49) revealed that no deletion would lead to an improvement in previously discussed Cronbach's alpha (α = .91); in fact, any one deletion would result in a minor drop in Cronbach's alpha ranging from .90 to .91 for the Knowledge subscale. Significance was set at <.05 throughout.

The Skills subscale had 17 items. Skills subscale corrected item-total correlation values ranged from .26 to .81 (Table 15). Item-total correlation statistics for the overall Skills subscale indicated that the deletion of the poorly (r = .269) correlated S17 item would improve previously discussed Cronbach's alpha (α = .93) slightly to .94. All other Skills item deletions would result in a small drop ranging from .92-.93. Any additional deletions would not be beneficial.

The Attitudes subscale had 18 items. Attitudes subscale corrected item-total correlation value results ranged from .52 to .86 (Table 16). Item-total statistics for Attitudes subscale indicated that none of the items would improve previously discussed Cronbach's alpha (α = .95). As Cronbach's is already high, any deletions would not be beneficial.

Table 14

Knowledge Subscale Item-Total Statistics (n = 49)

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
K1	.401**	.916
K2	.462**	.915
K3	.605**	.912
K4	.575**	.912
K5	.631**	.912
K6	.632**	.911
K7	.458**	.915
K8	.620**	.911
K9	.549**	.913
K10	.622**	.912
K11	.481**	.915
K12	.585**	.912
K13	.535**	.913
K14	.660**	.910
K15	.627**	.911
K16	.668**	.910
K17	.675**	.910
K18	.702**	.909
K19	.534**	.914

** Significant at the .01 level as per Table of Critical Values.
df = 47

Table 15

Skills Subscale Item-Total Statistics (n = 49)

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
S1	.500**	.931
S2	.650**	.928
S3	.646**	.928
S4	.789**	.925
S5	.637**	.929
S6	.621**	.929
S7	.690**	.927
S8	.812**	.925
S9	.709**	.926
S10	.744**	.926
S11	.786**	.925
S12	.761**	.925
S13	.699**	.927
S14	.714**	.926
S15	.720**	.926
S16	.694**	.927
S17	**.269**	.944

** Significant at the .01 level as per Table of Critical Values.
Note. Calculated *df* = 47. Bold used for clarity.

Item-total correlation indicated the three subscale correlation results were acceptable (Polit & Beck, 2008). The knowledge subscale corrected item-total correlation value results ranged from .40-.70 (Table 14). The skills subscale corrected item-total correlation value results ranged between .26-.81. Specifically, Item S17 held a less-than-acceptable (<.30; Field, 2009) reliability value of .26 (Table 15). Therefore, a subsequent skills subscale item-total correlation was analyzed with deletion of S17 item (Table 17). Results of the subsequent item-total

Table 16

Attitudes Subscale Item-Total Statistics (n = 49)

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
A1	.740**	.951
A2	.747**	.951
A3	.725**	.951
A4	.522**	.955
A5	.668**	.952
A6	.634**	.952
A7	.751**	.950
A8	.689**	.951
A9	.800**	.950
A10	.700**	.951
A11	.811**	.950
A12	.667**	.952
A13	.739**	.951
A14	.753**	.950
A15	.864**	.948
A16	.720**	.951
A17	.641**	.952
A18	.779**	.950

** Significant at the .01 level as per Table of Critical Values.
Note. Calculated *df* = 47

correlations without item S17 increased corrected item-total correlation range from .26-.81 to .52-.80 and the Cronbach's alpha from .92-.94 to .94-.95 (Table 18). Moreover, since the overall Skills Cronbach's alpha (α = .93) is already high, deletion was not recommended. However, the particular item (S17) was further evaluated in factor analysis. Corrected item-total correlation

results for attitude items indicated the majority were acceptable (Polit & Beck, 2008) values ranging from .52-.86 (Table 16). Therefore, all items were validated and retained in the KSAI-PCCS instrument.

Table 17

Skills Subscale Subsequent (with Item S17 Deleted) Item-Total Statistics (n = 49)

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
S1	.521**	.945
S2	.691**	.941
S3	.644**	.942
S4	.771**	.940
S5	.676**	.942
S6	.645**	.942
S7	.710**	.941
S8	.803**	.939
S9	.702**	.941
S10	.748**	.940
S11	.799**	.939
S12	.758**	.940
S13	.680**	.941
S14	.712**	.941
S15	.701**	.941
S16	.700**	.941

** Significant at the .01 level as per Table of Critical Values.
Note. Calculated *df* = 47

A post-hoc power analysis was completed for correlation using the 30-day (n = 49) sample size. Using G*Power (http://www.gpower.hhu.de) for two-tailed correlation, bivariate normal model, two-tailed, correlation probability set at 0.3, alpha set = 0.5, and sample size n =

49, resulting in .56 power (Faul et al., 2007). Therefore, this sample was under-powered with regard to item-total correlation.

Research Question 2: KSAI-PCCS Construct-related Validity

KSAI-PCCS Construct-related Validity

Validity confirms the scales are true to the behavior domain (knowledge, skills, and attitudes). Validity is a critical step in establishing a measurement tool. There are multiple forms of validity:

1) Content validity is a non-statistical type of validity that is relevant for both affective and cognitive measures (Polit & Beck, 2008). Content validity involves "the systematic examination (typically a panel review) of the test content to determine whether it covers a representative sample of the behavior domain to be measured" (Anastasi & Urbina, 1997, p. 114). For example, does an IQ questionnaire have items covering all areas of intelligence discussed in the scientific literature? Content validity was accomplished by multiple panel reviews and outlined previously in Chapter III.
2) Construct validity refers to the extent to which operationalizations of a construct (e.g., practical tests developed from a theory) measure a construct as defined by a theory. It is the degree to which the item measures the construct under investigation (Polit & Beck, 2008). It subsumes all other types of validity. For example, the extent to which a test measures intelligence on an IQ test is a question of construct validity. There are numerous threats to construct validity. Listed are a few and include hypothesis guessing, evaluation apprehension, researcher expectancies and bias, poor construct

definition, construct confounding, unreliable scores, and mono-operation bias (Field, 2009).

3) Criterion validity evidence involves the correlation between the test and a criterion variable (or variables) taken as representative of the construct (Polit & Beck, 2008). In other words, it compares the test with other measures or outcomes (the criteria) already held to be valid. Criterion validity was not utilized, as there was no other valid like-measurement available for comparison. Concurrent validity and predictive validity are specific types of criterion validity.
    a. Concurrent validity refers to the degree to which the operationalization correlates with other measures of the same construct that are measured at the same time (Polit & Beck, 2008). When the measure is compared to another measure of the same type, they will be related (or correlated). An example could be a type of psychological test to differentiate between those patients in a mental hospital who can and cannot be released could be correlated with current behavioral ratings of the institution's healthcare personnel administered to current employees and then correlated with their scores on performance reviews.
    b. Predictive validity is a subset of criterion-related validity where the criterion being compared lies in the future (Polit & Beck, 2008). An example would be using freshman year GPA as a criterion to validate the SAT test—in that case the GPA comes at least a year after the SAT is taken; hence it is predictive.

Construct-related validity is "the validity of inferences from observed persons, settings, and interventions in a study to the constructs that these instances might represent: with an

instrument, the degree to which it measures the construct under investigation" (Polit & Beck, 2008, p. 750). Construct validity is related to the theoretical underpinnings of a study. As noted earlier, QSEN language and competencies have been integrated into clinical performance evaluations (Lenburg et al., 2009).

Face and content validity.

Constitution of item pool. This study focused on the QSEN Core Competency: Patient-centered care (KSAs) language applied to simulation and/or clinical experience. Devillis' (2003) eight-step process was utilized for scale development. Steps one-four were previously discussed in detail within Chapter III. Step one revolved around the literature review and state of the science. Step two pertained to the item pool. Step three required selection of scale format. Step four related to expert review. The QSEN patient-centered care competencies (Chapter III, Table 5) were formulated into statements for evaluation using a Likert scale measurement structure. The patient-centered care competencies have three practice domains: knowledge, skills, and attitudes. There are 19 items in the Knowledge subscale, 17 items for the Skills subscale, and 18 items for the Attitudes subscale, which combined make a 54-item KSAI-PCCS instrument (Appendix A).

***Analysis and selection of internal structure of item pool*.** Devillis' (2003) eight-step process for scale development guided analysis and selection of internal structure of the item pool. Initial development resulted in a 48-item KSAI-PCCS instrument. Steps one-four were previously reported and discussed in Chapter III. Multiple revisions occurred during step four as a result of feedback, discussion, and consensus among the panel to establish a representative sample of the behavior domain to be measured (see Appendix A). The PI also sought input from two prelicensure nursing students as representative of the proposed study population to review

the scale for clarity and comprehension. The student representatives were not in the actual study population. Their feedback improved the wording clarity and comprehensibility on three items. This feedback resulted in several complex items being divided into two or more separate items. The modifications increased the total scale items from 48 to 54.

Scale response anchors were carefully selected based on panel group debate and consensus. The final selection was presented to two student members on the panel. The student members independently recommended a modification to the scale response anchors. The expert panel group agreed to the modified response anchors. The revised instrument was vetted through two committee members with expertise in statistics and instrument development.

Predictive validity. The underlying assumption for this analysis was that, as students have more (experiential learning) time/exposure to QSEN concepts in classroom or practice settings, they would increase their patient-centered care knowledge base, skills ability, and related attitudes scores. Experiential learning includes three distinct components: a concrete experience, a contemplation phase (reflection), and the application phase (Kolb, 1984). The assumption was partially based upon the student role in experiential learning including reflection and self-evaluation as the primary means of assessment (Northern Illinois University, n.d.). This assumption implied that scores should improve over time with exposure to QSEN language and practices in the simulation or acute-care settings. Although there was no treatment per se (other than the passage of time), Hypothesis 3 was able to be evaluated through paired samples *t*-test.

Paired samples *t*-test. A paired samples *t*-test was performed on the matched subgroup ($n = 21$) obtained from the original 30-day group (unmatched). Discussion of the process of matching is reported earlier in this chapter. Paired *t*-tests were conducted on the 7-day ($n = 12$) and 30-day ($n = 21$) groups separately.

Assumptions. Paired samples testing included that parametric assumptions were met (dependent variable was continuous, at least interval and normal distribution); data were matched (pairings); and normality distribution was assessed for the 30-day (n = 21) data set, Knowledge and Skills subscale total scores via Shapiro-Wilk's test (p = .640; p = .378, respectively reported). However, the Attitudes subscales pretest and posttest total scores were both significant (p = .041, p = .046, respectively). The decision was made to carry on with paired samples t-test due to the fact that this test is fairly robust to deviations from normality. Furthermore, both the Knowledge and Skills subscales met the assumption. Violation of normality occurred on Attitudes subscale for the 30-day (n = 21) group.

Results 7-day (n = 12). Paired samples test results demonstrate no pairings are statistically significant. Table 18 provides the data showing no significance reached in this small dataset.

Table 18

Paired Samples Test (n = 12)

		Paired Differences							
					95% Confidence Interval of the Difference				
	Pairs	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	*df*	Sig. (2-tailed)
Pair 1	KpostTotal - preKTotal	-.16667	8.80943	2.54306	-5.76391	5.43058	-.066	11	.949
Pair 2	SpostTotal - PreSTotal	2.50000	4.70010	1.35680	-.48630	5.48630	1.843	11	.092
Pair 3	ApostTotal - PreATotal	-2.33333	7.76160	2.24058	-7.26482	2.59815	-1.041	11	.320

A post-hoc power analysis was completed using the 30-day, matched sample size (n = 12) and G*Power (http://www.gpower.hhu.de) for two-tailed (matched pairs) t-tests. Given a medium effect size (Cohen's d = 0.5), alpha set = .05, with sample of 12, the resulting power was

.35 (Faul et al., 2007). Therefore, this sample was under-powered with regard to detecting differences between pretest and posttest values.

Results 30-day (n = 21). Paired samples test results indicate that Knowledge subscale scores elicited a statistically significant change in posttest scores of 4.9, 95% CI [1.63, 8.17] when compared to pretest total scores. Attitude subscale total scores elicited a statistically significant change in posttest scores of -3.38, 95% CI [-6.72, -.04] when compared to pretest total scores; however, it was important to note the attitudes subscale (both pre and posttest) violated normality as evidenced by significance of Shapiro-Wilks (p = .041, p = .046, respectively). Skills subscale pretest to posttest was not statistically significant (Table 19). The calculated effect size for the Knowledge paired test was r = .57 (large effect; Cohen, 1988). The calculated effect size for the Attitude paired test was r = .43 (moderate effect; Cohen).

Table 19

Paired Samples Test (n = 21)

		Paired Differences							
					95% Confidence Interval of the Difference				
	Pairs	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	*df*	Sig. (2-tailed)
Pair 1	KpostTotal - KTotal	4.90476	7.18961	1.56890	1.63209	8.17743	3.126	20	.005
Pair 2	SpostTotal - STotal	3.57143	10.32749	2.25364	-1.12959	8.27245	1.585	20	.129
Pair 3	ApostTotal - ATotal	-3.38095	7.33809	1.60130	-6.72121	-.04069	-2.111	20	.048

A post-hoc power analysis was completed using the 30-day, matched sample size (n = 21) and G*Power (http://www.gpower.hhu.de) for two-tailed matched pairs t-tests. Given a medium effect size (Cohen's d = 0.3), alpha set = .05, with sample of 21, the resulting power was .26. (Faul et al., 2007). Thus the lack of significant difference for the Skills subtest may have

been due to the low power of this test (e.g., less than the recommended level of .80 per Cohen, 1988).

Correlations between KSA scores and demographic variables. Evaluation also explored correlations of the max dataset (7-day, *n* = 12; 30-day, *n* = 21, and 30-day, *n* = 28; N=61), posttest combined and subscale total scores with selected demographic variables. The demographic variables of interest included age, gender, current semester, number of SIM sessions, previously employed in healthcare, and currently employed in healthcare. Results of the maximum dataset (N = 61) correlation values with selected demographic variables are reported in Table 20.

Table 20

Correlations (Pearson) of Max Dataset (N = 61) Post Totals with Selected Demographic Variables

Selected Variables	Max dataset posttest subscale scores (N = 61)			
	postKSA combined	Knowledge	Skills	Attitudes
Age	*r* = .101	*r* = .019	*r* = .096	*r* = .184
Gender	*r* = .133	*r* = .073	*r* = -.158	*r* = .138
Current Semester	*r* = .033	*r* = .128	*r* = -.048	*r* = -.004
# SIM sessions	*r* = .018	*r* = .033	*r* = -.023	*r* = .042
Prev employed	*r* = -.133	*r* = -.101	*r* = -.150	*r* = -.110
Current employed	*r* = -.155	*r* = -.047	***r* = -.264***	*r* = -.113

* Significant at the 0.05 level (2-tailed)
Note. Bold used for clarity.

The PI hypothesized that students of younger age and less experience would subjectively possess less knowledge or skills. This premise was not supported, because there were no significant findings (max group, N = 61) when age was correlated with knowledge, skills, or attitudes (r = .019, r = .096, r = .184, respectively; Table 20). However, there was a significant negative correlation between currently employed and skills subscale posttest scores (r = -.264, p < 0.05; Table 20). The further along in the nursing program (the higher the semester number) as reported by participants, the lower the skills posttest total scores. Discussion will follow in Chapter V. Personal anecdotal reflections unrelated to this study have indicated students tend to report increased confidence with exposure to clinical practice and increased simulation sessions. However, this theory was not supported through above reported correlations. The limited sample size may have impacted these results. Further discussion will follow in Chapter V.

A post-hoc power analysis was completed using the maximum dataset (N = 61) and G*Power (http://www.gpower.hhu.de) for correlation, normal bivariate, exact tests. Given a correlation of 0.3, alpha set = .05, with sample of 61, the resulting power was .66 (Faul et al., 2007).

Construct Validity

Evaluation of construct validity included factor analysis PCA. Factor analysis PCA was also used to investigate the factor structure of the scores and confirm the presence of three core factors corresponding to the KSA subscales.

Factor analysis of instrument/principal component analysis. According to Comrey and Lee (1992), factor analysis works best with sample size >200. The authors also note that 100 is a poor sample size for factor analysis. Field (2009) notes a Kaiser-Meyer-Olkin (KMO; range from 0-1) statistic closer to 1 to be acceptable with patterns of correlation comparatively

compressed with a resulting factor analysis yielding "distinct and reliable factors" (p. 647). Principal components Analysis (PCA) is a common factor analysis tool used to look at a lot of information (variables) while applying inductive reasoning to reduce and summarize variables to a more manageable size and make them easier to understand (Tabachnick & Fidell, 2007). Part of the process prior to using PCA involves checking assumptions to make sure that the data are appropriate for PCA analysis. PCA has critical assumptions to be met in order to evaluate as to fitness of statistical maneuvers and analysis.

Assumptions. Assumption one recommends data measured at the continuous level, although ordinal (e.g., Likert scales) level of measurement is frequently used. Assumption one was met using ordinal data in the form of a 6-point Likert scale on the scale instrument. Assumption two requires a linear relationship between all variables; this was checked by looking at Pearson correlation coefficients. Assumption two pertains to factorability. The correlation matrix should have correlations >0.3 (Field, 2009), of which there were multiple correlations >0.3. All KSA subscale variables had numerous correlations $\geq$ 0.3. The Skills subscale Item 17 had a limited amount (although several correlations $\geq$ 0.3), and as such was monitored throughout the analysis process. Assumption two was met as described above.

Assumption three pertained to sampling adequacy. Although the sample size was poor (N = 61), adequacy was checked by analyzing Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy. However, with all KSA items inserted as variables, there was no KMO or Bartlett's Test of Sphericity output. Results and explanation follow.

Tests of assumptions. Factor analysis PCA was applied to the KSAI-PCCS 54-item instrument (combined dataset, N = 61) to evaluate for possible scale reduction. Interpretation of the results demonstrated that Assumption three was met for suitability with KMO >6 (Field,

2009), by analogy. Using the same sample size with all items entered, there was no KMO or Bartlett's output, implying Assumption three was not met. However, by analogy the instrument should have met suitability; therefore, using the maximum dataset (N = 61) and entering only Knowledge and Skills items, KMO and Bartlett's output was obtained (Table 21). As such, by similarity, KMO and Bartlett's output appeared to satisfy Assumption three. Normality was assessed by Kolmogorov-Smirnov and was not significant (p = .200), indicating normal distribution in relation to age (Table 22); therefore, Assumption four was met. Assumption five predicted there would be no outliers present in the data, of which there were none. Therefore PCA analysis appeared to be appropriate.

Component extraction. Component extraction required several data exploration techniques for interpretation of the Total Variance Explained (TVE) report using best judgment. The standard technique is to apply the eigenvalue of >1 rule (Kaiser, 1960; Tabachnik & Fidell, 2007). The second technique is inspection of the scree plot for the inflection point, retaining those components above the scree (Cattell, 1966; Tabachnik & Fidell). A third technique is visual examination of the Component Matrix for associated correlations. Field (2009) recommends exclusion if correlation is <0.3. The final technique is the interpretability criterion as the most important criterion (Laerd, 2015; Tabachnik & Fidell). This key step required analysis of the rotated (Varimax) component matrix. The rotated Varimax Component Matrix for KSAI-PCCS total items was not produced in the max dataset output. This absence was more than likely due to violating the sampling adequacy (i.e., small sample size) and, therefore, a limitation for valid results. Had it been present, the PI would have examined for items loading on factors with $\geq$ .65 (Field, 2009).

Table 21

Assumptions for KMO and Bartletts of KSAI-PCCS Instrument (Knowledge and Skills)

Knowledge and Skills combined KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.701
Bartlett's Test of Sphericity	Approx. Chi-Square	2141.909
	df	630
	Sig.	.000

Table 22

Test of Normality for KSAI-PCCS Total Items and Age

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PreKSAOverallTotal	.085	61	.200*	.915	61	.001

*. This is a lower bound of the true significance.
[a] Lilliefors Significance Correction

Upon examination of the KSAI-PCCS 54-item instrument combined TVE (Table 23), output indicated 12 components to be extracted based on associated eigenvalues >1, Components 1-12. Components 1-12 account for a combined 82% of the total variance explained (Table 23). Upon inspection and analysis of the associated scree plot (Figure 6) and component matrix (Table 24), the PI justified retention of the first 3 of the 12 identified components. Components 1-3 account for 52% of TVE. Although the eigenvalues of Components 4-12 exceed 1.0 and the 12 components combined explained 82% of the total variance, the scree plot (Figure 6) exhibited a clear inflexion after Component 3. Furthermore, Laerd (2015) notes another suggestion in

criteria to retain a component: it should explain a minimum of 5% of TVE. This criterion was met with the inclusion of the first three factors (Table 23). This suggestion aided the inductive reasoning decision-making process of how many components to be retained. True to the foundation of this new instrument (QSEN patient-centered care KSA competencies), retention of the top three relative to scree plot illustration made theoretical sense.

Table 23

KSAI-PCCS Combined Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	20.802	38.522	38.522	20.802	38.522	38.522	6.767	12.532	12.532
2	3.943	7.303	45.824	3.943	7.303	45.824	5.909	10.943	23.475
3	3.184	5.897	51.721	3.184	5.897	51.721	4.869	9.017	32.493
4	2.901	5.372	57.093	2.901	5.372	57.093	3.800	7.037	39.530
5	2.295	4.249	61.343	2.295	4.249	61.343	3.733	6.912	46.443
6	2.073	3.838	65.181	2.073	3.838	65.181	3.598	6.664	53.106
7	1.991	3.687	68.867	1.991	3.687	68.867	2.754	5.100	58.207
8	1.876	3.474	72.341	1.876	3.474	72.341	2.714	5.027	63.233
9	1.640	3.037	75.378	1.640	3.037	75.378	2.665	4.936	68.169
10	1.264	2.340	77.718	1.264	2.340	77.718	2.639	4.888	73.057
11	1.120	2.074	79.792	1.120	2.074	79.792	2.432	4.504	77.561
12	1.009	1.869	81.661	1.009	1.869	81.661	2.214	4.100	81.661
13	.983	1.821	83.482						
14	.892	1.652	85.134						
15	.845	1.565	86.699						
16	.810	1.500	88.199						
17	.700	1.296	89.495						
18	.699	1.294	90.789						
19	.587	1.086	91.875						
20	.574	1.063	92.939						
21	.484	.895	93.834						
22	.454	.842	94.675						

(table continues)

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
23	.394	.730	95.406						
24	.357	.660	96.066						
25	.297	.550	96.616						
26	.276	.512	97.127						
27	.237	.438	97.565						
28	.190	.351	97.917						
29	.175	.323	98.240						
30	.149	.275	98.515						
31	.133	.246	98.761						
32	.122	.227	98.988						
33	.105	.194	99.182						
34	.091	.168	99.350						
35	.083	.153	99.503						
36	.071	.131	99.634						
37	.057	.105	99.739						
38	.045	.083	99.823						
39	.030	.056	99.878						
40	.021	.040	99.918						
41	.016	.029	99.947						
42	.013	.024	99.971						
43	.008	.016	99.986						
44	.005	.010	99.996						
45	.002	.004	100.000						
46	2.791E-15	5.169E-15	100.000						
47	1.932E-15	3.578E-15	100.000						
48	8.203E-16	1.519E-15	100.000						
49	4.215E-16	7.805E-16	100.000						

(table continues)

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
50	-2.664E-16	-4.934E-16	100.000						
51	-5.167E-16	-9.568E-16	100.000						
52	-1.278E-15	-2.367E-15	100.000						
53	-1.465E-15	-2.712E-15	100.000						
54	-1.789E-15	-3.312E-15	100.000						

Note. Extraction method: Principal component analysis. Bold is used for clarity.

KSAI-PCCS component 1. The PCA component matrix revealed all items with the exception of Skills Item 17 loading on Component 1 (Table 24). However, as the output failed to reveal the Varimax Component Matrix, it was difficult to evaluate further, likely due to violating the assumption of adequate sample size as previously mentioned. Component 1 accounted for 38.5% of total variance explained (Table 23, above). As all KSAI-PCCS item wording pertained to knowledge in some way of patient-centered care, it was understandable that the majority of items loaded on Component 1. The Component Matrix (Table 24) revealed 20 items load heavily ($\geq$ .65), 27 had a modest factor loading score (e.g., $\geq$.5), and seven held a factor loading range of .3 to .5 (acceptable). As mentioned previously, Skills Item 17 did not load on Component 1. All Knowledge items loaded on Component 1 as expected. Skills items, with the exception of Item

17, also loaded on Component 1, which made theoretical sense due to wording of items. Finally, all Attitude items loaded on Component 1, which also made sense due to wording of the items.

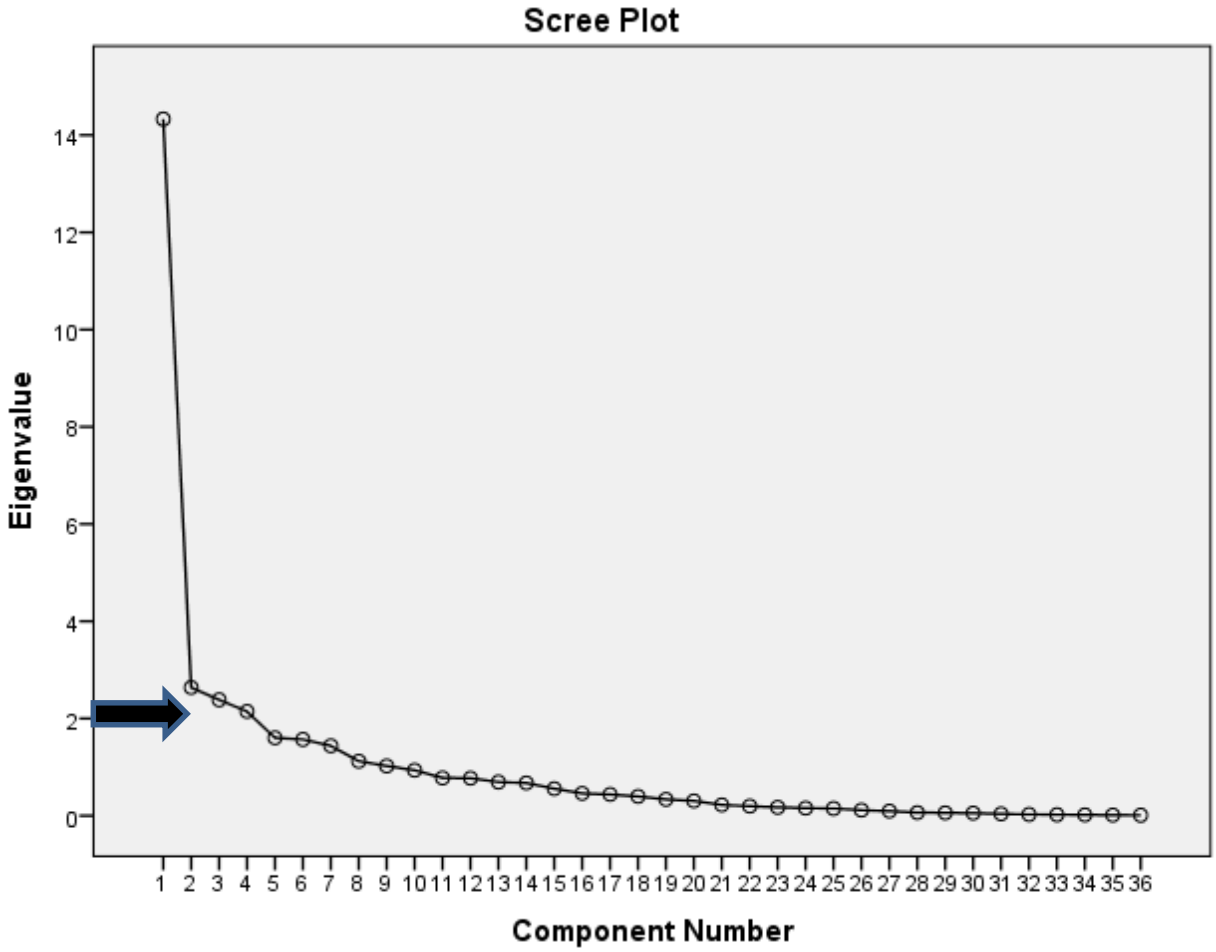

Figure 6. The KSAI-PCCS instrument combined scree plot showing an early point of inflection of eigenvalue.

The stems of each Knowledge item varied slightly to indicate whether the respondent held the belief they were "able to do," "I am aware of," or "I know" something. The stem wording of the Skills items varied to indicate the respondent perceived ability to perform something such as "obtain," "communicate," "provide," "assess," "initiate," "manage," "involve," "recognize," "facilitate," or "participate" (as related to patient-centered care). This

indicated the respondent's ability to actually *do/perform* patient-centered care. The stems of the Attitudes items also varied with words such as "value," "demonstrate," "encourage," "seek," "recognize," "support," "appreciate," "respect," and "acknowledge" (as related to patient-centered care). The analysis made theoretical sense in the loadings on Component 1 (Knowledge). The KSAI-PCCS Instrument is found in Appendix A.

Table 24

Component Matrix (Truncated for Space and Applicability) Showing Factor Loadings on Components 1-3

Component	**1**	**2**	**3**	4
K1	.319	.309		.699
K2	.478			.505
K3	.492	.561		
K4	.669			
K5	.589			
K6	.527			.403
K7	.455		-.360	
K8	.395	.417	.549	
K9	.510			
K10	.542			
K11	.537	.312		-.391
K12	.551	.349		
K13	.518			
K14	.629		.447	
K15	.573	.413		
K16	.661	.398		
K17	.637	.339		
K18	.621	.418	.314	
K19	.622			
S1	.464	.315		
S2	.664	.467	-.403	
S3	.512			
S4	.740			

(table continues)

Component	**1**	**2**	**3**	4
S5	.678			
S6	.684			-.416
S7	.673		-.528	
S8	.794			
S9	.714			
S10	.772			
S11	.857			
S12	.761			
S13	.663		.324	
S14	.633			
S15	.684			
S16	.663		-.322	
S17			.354	
A1	.799			
A2	.767			
A3	.640	-.389		
A4	.625			
A5	.527	-.306	.574	
A6	.464			
A7	.573		.307	
A8	.570	-.331	-.449	
A9	.535	-.338		
A10	.568	-.347		.415
A11	.662	-.382		
A12	.637			
A13	.645	-.460		-.357
A14	.631	-.324		
A15	.789			
A16	.615	-.367		
A17	.608			-.437
A18	.722			

Note. Extraction method: Principal component analysis. 12 components extracted. Bold used for clarity.

KSAI-PCCS component 2. The KSAI-PCCS PCA component matrix showed that 20 items loaded on Component 2 (Table 24, above). Component 2 accounts for 7.3% of total variance explained (Table 23, above)—9 Knowledge items, 2 Skills item, and 9 Attitude items.

All items pertained to patient-centered care with varied wording (as described above). Stem wording of the 9 Knowledge items loading on Component 2 included “aware” and “able.” Stem wording of the two Skills item loading on Component 2 was “obtain” and “communicate.” Stem wording of Attitude items loading on Component 2 included “encourage,” recognize,” “support,” “appreciate,” “value,” “respect,” and “acknowledge” (Appendix A). All of these words were applied to patient-centered care and can be related to Component 2 (Skills).

KSAI-PCCS component 3. The KSAI-PCCS PCA component matrix revealed 12 items loaded on Component 3 (Table 24, above). Component 3 accounts for 5.9% of total variance explained (Table 23, above). Component 3 loaded with four Knowledge items, five Skills items, and three Attitudes items. All items pertained to patient-centered care. All loading Knowledge items stem wording included “able.” The Skills stem wordings included “assess,” “communicate,” “obtain,” and “recognize.” The Attitudes stem wordings included “encourage” and “recognize.” Although a mix of wordings was used in the items, all of these words were applicable to patient-centered care and were related to Component 3 (Attitudes).

An initial attempt was made to utilize PCA in order to estimate number of factors, presence of outliers, absence of multicollinearity, and factorability of the correlation matrices. Through this preliminary review, 12 components were identified. With further analysis, the PI limited the selection to retaining three components as reported earlier in this chapter. Ideally, one would have utilized the rotated (Varimax) component matrix to assist in the decision-making; however, the small sample may have been prohibitive for that important process. Hence, due to limitations of study design and small sample size, further and accurate factor analysis options were not feasible.

Research Question 3: Common Patient-centered Care Themes

The world is a dynamic reality within which nurses must provide appropriate and caring interventions for patients, families, students, and themselves. The characteristics of qualitative research outlined by Munhall (2007) include beliefs of a dynamic reality, components and values, along with characteristics, which give a voice to people and include holism and narratives based on subjectivity and intersubjectivity. Van Manen (1990) described this dynamic reality as the lived experience, or the infusion of meaning to a participant's language and words of choice, the individual's personal world as directly experienced, stating that "a lived experience has a certain essence, a 'quality' that we recognize in retrospect" (p. 36). In this study, the PI used open response items to gain a contextual understanding of participant perspectives in relation to patient-centered care by exploring their lived experiences.

Beneloiel (1994, as cited by Munhall, 2007) stated there are five points to help researchers separate quantitative approaches from qualitative approaches. These five points are a) a shared creativity of individuals and their perceptions; b) social world is dynamic and changing; c) multiple realities and frameworks for viewing the world—the world is not independent of humanity and is objectively identifiable; d) humans construct their own realities; and e) response sets are unpredictable. Qualitative research looks beyond the hard facts and brings new life and meaning to descriptive vocabulary elicited from individuals. Qualitative research reflects the human science of patient-centered caring as a nurse and puts a face on (humanizes) the research participants. For this reason, qualitative analysis was added to this primarily quantitative study to reflect these elements of nursing.

Qualitative Analysis

Qualitative analysis was used to explore Hypothesis 4. It was expected that qualitative data would reveal common themes concerning the translation of QSEN patient-centered care to bedside care. Three open response items were embedded throughout the survey in order for respondents to elaborate on their experiences in a way fitting to the item. The three sections (domains) Knowledge, Skills, and Attitudes each contained an open response (journal) item and separately elicited a variety of responses that required basic text and inductive thematic analysis as related to patient-centered care.

Utilizing thematic analysis made the most sense to the PI due to its flexibility and ability to be used within constructivist methods (Braun & Clarke, 2006). The respondents (prelicensure nursing students) created their own meaning to what they are learning didactically and translated their knowledge, skills, and attitudes to behavior and actions in clinical or simulation settings. Survey Monkey provided the management of text for basic analysis. The PI analyzed the data corpus for common themes related to patient-centered care submitted by respondents in data items. Upon consideration of respondents' open response items, the PI made inductive connections between the domain (Knowledge, Skills, and/or Attitude) and the open response data sets that clearly illustrate common themes. The primary common themes extracted include clinical care, learning experience, therapeutic communication, patient safety, family, culture/cultural differences, gaining skill practice, importance of assessment, listening, confidence, and planning care. The connections between patient-centered care and the identified common themes are clearly evident.

Knowledge journal responses. The knowledge journal response survey item was "Identify three (3) specific examples of didactic knowledge and clinical or simulation

experiences coming together (you were able to connect lecture content with clinical care) in relation to care of the patient and how they were the same or different." This survey item garnered 77 responses overall. Basic text analysis extraction provided 26 common words and phrases/themes used in order of importance:

1. clinical care (*n* = 22; 29%);
2. lecture (*n* = 17; 22%);
3. learned in class (*n* = 14; 18%);
4. therapeutic communication (*n* = 10; 13%);
5. lab (*n* = 8; 10%);
6. pain (*n* = 8; 10%);
7. education (*n* = 8; 10%);
8. experience (*n* = 8; 10%);
9. level (*n* = 8; 10%);
10. apply (*n* = 7; 9%);
11. patient safety (*n* = 6; 8%);
12. family members (*n* = 4; 5%);
13. labor and delivery (*n* = 4; 5%);
14. team (*n* = 4; 5%);
15. vital signs (*n* = 3; 4%);
16. disease process (*n* = 3; 4%);
17. tools (*n* = 3; 4%);
18. renal failure (*n* = 2; 3%);
19. first semester (*n* = 2; 3%);

20. respiratory distress (*n* = 2; 3%);

21. took (*n* = 2; 3%);

22. respect (*n* = 2; 3%);

23. code (*n* = 2; 3%);

24. question (*n* = 2; 3%);

25. silence (*n* = 2; 3%); and

26. terms (*n* = 2; 3%).

The top five common knowledge words/phrases and themes included clinical care/care, lecture, learned in class/taught, therapeutic communication/communication, and lab. Examples of participant comments (direct quotations) were extracted from data sets to illustrate the common words/phrases and are provided.

The following participant response exemplified knowledge of patient-centered care and align with eight of the most common text words/phrases and themes. This is a well-developed example of how nurse educators might want to see the student take-away from lecture, lab, and SIM experience and the student's ability to put it all together to provide necessary patient-centered care.

Knowledge themes: Clinical care, learning, therapeutic communication, patient safety. Several knowledge themes emerged from the individual participant responses. These were clinical care/care, learning, therapeutic communication, and patient safety. For example, all these themes appeared in one participant's response (marked in bold):

> One example that we have **learned** in didactic that I try to constantly demonstrate in **clinical care** is **patient safety**. We have **learned** about **patient safety** since day one of nursing school. Since then, I believe that is one thing that I constantly try to exceed in

during **clinical**. A second example would have to be about **therapeutic communication**. I learned a lot about **therapeutic communication** during my mental health course this semester. **Therapeutic communication** is just as important for all patients and family members just as it is for mental health patients... In order to work with a **patient** and providing the best **care**, it is important to **know** the culture and what you can do to incorporate their beliefs and their culture into their **care**. All these three examples were **taught** in class as well as simulated in our time in the SIM **lab**. I have also experienced these three examples in **clinical care**. And because of the simulation and the didactic knowledge, I believe that I was able to connect these things to **clinical care.**

Another participant's response was more specific (marked in bold). The response illustrated connecting the importance of medication accuracy and all its nuances learned in a didactic setting. The comment also implied the transference and application of said knowledge to clinical or simulation situations.

Learning the best way to explain things to a patient has been invaluable in caring for my patients during **clinicals.** I learned in class the importance of medication accuracy and **understanding** what med you are giving, and those are critical while passing meds in the hospital. Simulation **taught** me how to constantly assess my patients, and that has been very important as well in the **clinical** setting.

A final example of a participant's response demonstrated clinical prep work as a benefit to real-world experience and application of knowledge to provide patient-centered care. Clinical prep work is a common expectation and requirement in clinical courses within nursing education. This particular participant response also identified the ability to better connect with the patient due to clinical prepping.

After going through a case study about CF and how to care for the pediatric patient I had a patient in the hospital I was able to better connect with. Each **clinical** write up includes a discussion on spiritual **care** and how I was able to meet the needs of my patient. After **learning** about comfort positions for laboring women, I was able to help a woman cope and have a peaceful delivery.

Skills journal responses. The skills journal item was "Identify three (3) specific examples of clinical skills and clinical or simulation experiences coming together (you were able to connect lecture content with clinical care) in the care of the patient and how they were the same or different." This open response item received 53 overall responses in its data set, with 18 common identified words and phrases extracted in order of importance:

1. care (*n* = 16; 30%);
2. skills (*n* = 13; 25%);
3. lecture (*n* = 12; 23%);
4. clinical setting (*n* = 11; 21%);
5. simulation (*n* = 9; 17%);
6. assessment (*n* = 9; 17%);
7. therapeutic communication (*n* = 6; 11%);
8. response (*n* = 5; 9%);
9. listen (*n* = 5; 9%);
10. pain relief (*n* = 3; 6%);
11. teaching (*n* = 3; 6%);
12. NG insertion (*n* = 2; 4%);
13. wound vac (*n* = 2; 4%);

14. healthcare (*n* = 2; 4%);

15. bleeding (*n* = 2; 4%);

16. feeding (*n* = 2; 4%);

17. restroom (*n* = 2; 4%); and

18. infection (*n* = 2; 4%).

The top six common skills words/phrases and themes included care, skills, lecture, clinical setting, simulation, and assessment. Examples of participant comments (direct quotations) were extracted from data sets to illustrate the common words/phrases and are provided.

Due to the context of the open response item, it is not surprising that the majority of these participant responses pertained to the domain of bedside care of the patient, such as interventions and patient conditions. This particular journal item pertains to skills and, as such, it is not unexpected of the open response participant comments. The PI selected four separate participant comments that showed common skills themes.

Skills themes: Care, clinical, culture. Several skills themes emerged from the participant responses. These were care, clinical, and culture. One participant's response illustrated all three of these themes (marked in bold):

> As we all know, and have been instructed to be aware of, **cultural** differences can impact the type of **care** to be delivered. I met an elderly Asian woman during **clinicals** who kept asking ME if I was hungry and comfortable. She didn't eat very well until she knew that I had eaten. After I realized this **cultural** difference was occurring, I was sure to inform her that I had eaten prior to delivering her food, which worked perfectly in facilitating her feedings where she consumed > 75% of the food on her plate.

Another participant's response illustrated learning experience, skill practice, and assessment skills themes (marked in bold):

> I had a client once that had urinary retention due to a spinal fracture with an order for a straight catheter. It was a great **learning experience** since I just studied, that with spinal cord injuries there is a greater risk for urinary retention, so I was familiar with the topic. Her labs [**assessment**] then showed a marked increase in BUN and Creatinine, which ultimately alarmed us of a possible AKI. The doctor then ordered a Foley catheter and put her on some fluids since she was also dehydrated due to poor PO intake.

Themes: Skills, clinical, therapeutic communication. Another participant response illustrated skills, clinical, and therapeutic communication skills themes (marked in bold):

> **Communication skills** learned in lecture and simulation are often used in the **clinical** setting. An understanding of cultural differences and how they affect patient care is taught in lecture and comes up often in **clinicals**. The importance of listening to the patient carefully is stressed in lecture and is critical in **clinicals** as well.

Finally, another participant response also illustrated skills, clinical, and communication skills themes (marked in bold):

> **Skills** are important in nursing. I believe that during the first year of nursing, skills were a huge part in the didactic course as well as in simulation and **clinical** care. From **communication skills**, to hands on **skills** such as inserting IV's, and providing comfort to the patient are all critical. Learning the content in the didactic course and practicing in simulation has helped prepare me during **clinical** care.

Attitudes journal responses. The attitudes journal item was "Identify three (3) specific examples of personal attitudes/values related to working with patients from different ethnic,

cultural, and social backgrounds and clinical or simulation experiences coming together (you were able to connect your attitudes/values with aspects of clinical care) in the care of the patient."

This particular open response item received 63 overall responses with 25 common identified words and phrases/themes extracted in order of frequency:

1. able (*n* = 16; 25%);
2. family (*n* = 15; 24%);
3. learned (*n* = 11; 18%);
4. values (*n* = 11; 18%);
5. experience (*n* = 9; 14%);
6. clinical (*n* = 8; 13%);
7. health care (*n* = 6; 10%);
8. pain medication (*n* = 3; 5%);
9. Chinese (*n* = 3; 5%);
10. upset (*n* = 3; 5%);
11. concerned (*n* = 3; 5%;
12. involved (*n* = 3; 5%);
13. blood transfusion (*n* = 2; 3%);
14. charge nurse (*n* = 2; 3%);
15. refused blood (*n* = 2; 3%);
16. food (*n* = 2; 3%);
17. connect (*n* = 2; 3%);
18. encouraging (*n* = 2; 3%);

19. faith (*n* = 2; 3%);

20. given (*n* = 2; 3%);

21. honest (*n* = 2; 3%);

22. regarding (*n* = 2; 3%);

23. remember (*n* = 2; 3%);

24. acceptance (*n* = 2; 3%); and

25. Micronesian (*n* = 2; 3%).

The top six common attitudes words/phrases and themes included able, family, learned, values, experience, and clinical. Examples of participant comments (direct quotations) were extracted from data sets to illustrate the common words/phrases and are provided.

Although not apparent in text analysis, there were several thematic responses pertaining to cultural competence and working with diverse cultures with a focus on patient-centered care. Several participant response comments are particularly eye-opening.

Attitudes themes: Family, listening. As an example, one participant response illustrated family and listening attitudes themes (marked in bold):

> A gentleman was staying with **his young son** in the pediatric unit. He was from North Africa. I understand that there is political turmoil and his mistrust of various agencies. We had a discussion, I **listened**, and he felt better about the care he was receiving as no one had asked him why he was refusing various services offered to **his child.**

Themes: Learning, family, culture. Another participant's response illustrated learning, family, and culture attitudes themes (marked in bold):

> One of my clients was from Samoa and I **learned** much about their **culture.** A very large group would sleep over and it would often get crowded. Instead of getting annoyed, like

other nurses would, I chose to incorporate the **family** in my patient's care and let them know every step I would take. I respected their **cultural** practices and helped facilitate them.

Themes: Learning, care, planning, confident. A final participant response illustrated learning, care, planning, and confident attitudes themes (marked in bold):

Learning to be **confident** in **caring** for any patient of any background. Engaging in meaningful spiritual discussions with patients whose religious beliefs are different from mine. **Learning** to **plan care** according to what the patient has access to (for instance, not expecting a homeless client to have ready access to clean water).

The PI used careful inductive thematic analysis of participant open response items. The participant responses illustrated multiple aspects of patient-centered care, reflecting the wording and location of the items in the scale, and the participants' clinical practice experiences. This analysis revealed common themes concerning the translation of QSEN patient-centered care to knowledge (clinical care, learning experience, therapeutic communication, patient safety), skills (gaining skill practice, importance of assessment, listening) and attitudes (confident, culture/cultural differences, family, and planning care). These thematic responses led the PI to confirm that students are in tune with their skill-related patient-centered care interventions. The KSA qualitative findings support quantitative findings such as the significant knowledge paired *t*-test and the significant attitudes paired *t*-test. The analysis aligns with the literature and is discussed in Chapter V.

CHAPTER V: DISCUSSION AND SUMMARY

As an aid to the reader, this final chapter of the dissertation restates the research problem, reviews the major methods used, and summarizes the implication of the statistical results.

Statement of the Problem

It is important that healthcare educators be able to effectively measure the knowledge, skills, and attitudes of student nurses, particularly in relation to the Quality and Safety Education for Nurses (QSEN) patient-centered care competencies. QSEN competencies exemplify broad skill areas and, when applied to clinical implementation, represent an integrative view of operations (Benner et al., 2010). Increasingly, QSEN competencies are being integrated into curricula nationwide (Barnsteiner et al., 2012). The findings of this preliminary research provided some important groundwork and recommendations for future research.

The first of the QSEN KSAs is patient-centered care. Patient-centered care is dependent upon completion of a comprehensive assessment (American Nurses Association [ANA], 2004) and applying the nursing process. Patient-centered care always focuses on the patient response and needs that vary depending on the individual's circumstances.

As explained in Chapter II, the primary purpose of this study was to test psychometrics of the KSAI-PCCS instrument. A secondary purpose was to examine the perceived knowledge, skills, and attitudes of prelicensure nursing students specific to QSEN patient-centered care competencies. The knowledge of validity and reliability of a new instrument is critical in moving forward in evaluation of patient-centered care from both a subjective and objective viewpoint as well as future research. The study findings contribute to the nursing profession by assisting nurse educators in QSEN evaluation of self-rated student competency and its translation to the practice

of patient-centered care. The preliminary reliability and validity findings establish a foundation and direction from which to move forward in future related research.

Review of the Methodology

The study was a cross-sectional non-experimental concurrent mixed-methods design that used non-probability convenience sampling. The convenience sample arose from prelicensure nursing programs located in the western United States and Pacific Rim known to thread QSEN framework in curricula. The study utilized a web-based self-report survey. A prospective database of 1,042 potential participants was established through coordination of site liaisons. The liaisons sent the invitation to participate to the eligible prelicensure nursing students. Using the secure, online survey dissemination tool Survey Monkey, the KSAI-PCCS instrument was distributed to the 1,042 potential participants.

Psychometric analysis was completed to establish reliability and validity of the KSAI-PCCS instrument. To measure and establish internal consistency, scale reliability was evaluated with Cronbach's alpha. To measure stability, test-retest reliability was examined using established threshold criterion. Paired *t*-tests were evaluated for difference in pre and posttesting. Factor analysis was completed to validate factor identification. Thematic analysis using text analysis and inductive reasoning allowed for qualitative reporting. The results of these tests and associated analysis were provided in detail in Chapter IV and will be summarized in the following section of this chapter.

Summary of the Results

This section will provide a brief overview of the results of this study. A detailed explanation of the implications will be provided in the next section.

From the student population of 1,042 potential participants, 208 completed the pretests (20% return rate), responding at varied timeframes consistent with the study design (7-day, 30-day). However, as reported in Chapter IV, final usable returns were 49 for the pretest, 12 for the 7-day original pretest with variant posttest, and 49 for the 30-day posttest. Through a detailed examination of returns in the 30-day group, 21 matches were identified yielding 30-day, matched $n = 21$. Final groupings included 30-day unmatched ($n = 28$), 30-day matched ($n = 21$), and 7-day matched ($n = 12$). Psychometric and subsequent quantitative and qualitative analyses were run.

Demographics

The demographic profiles of the participants illustrated that the vast majority were female (87.8%) and in the 18- to 24-year-old age group (49%). Identified ethnicities were primarily Caucasian (36.7%) and Asian (32.7%). The majority of respondents reported being in their third semester (20.4%) followed by first, second and fifth semester (each at 14.3%). The majority of respondents reported experiencing ≥ 5 simulation sessions (57.1%). Additionally, the majority reported no previous employment in healthcare (63.3%) and not currently working in healthcare (75.5%). The majority of respondents were in a traditional BSN program (41%) or the ELM/GEPN programs (37%; data from Chapter IV, Table 6).

Research Questions and Associated Hypotheses

Research question 1. What are the psychometric properties of the Knowledge, Skills, and Attitudes – Part I: Patient-centered Care Scale (KSAI-PCCS) in a sample of prelicensure entry-level nursing students?

Hypothesis 1. The reliability coefficient (internal consistency) will meet acceptable parameters of >.70 (Nunnally & Bernstein, 1994).

H1 was supported by evidence of Cronbach's alphas $\geq .70$ for the KSAI-PCCS instrument and each KSA subscale (7-day, $n = 12$; 30-day, $n = 21$). The implications of these findings will be discussed in the next section of this chapter.

Hypothesis 2. KSAI-PCCS scores will show acceptable stability using test-retest reliability across the 7-day time period.

There was partial support for H2, since only two scales met the criterion ($p \geq .70$) for acceptable reliability. The implications of these findings will be discussed in the next section of this chapter.

Research Question 2. What is the construct-related validity of the KSAI-PCCS in a sample of prelicensure entry-level nursing students?

Hypothesis 3. There will be a significant difference in KSAI-PCCS scores between pre and post testing.

H3 was supported by statistically significant paired samples *t*-test results in the 30-day group ($n = 21$). Implications of these findings will be discussed in the next section of this chapter.

Hypothesis 4. Factor analysis structure will show three factors loading on the knowledge, skills, and attitude domains.

H4 was supported as results of the factor analysis PCA provided evidence that suggests that the KSAI-PCCS instrument contains three factors, which supports the QSEN literature of three domains of competencies. However, these results should be viewed with caution and verified in a subsequent analysis with adequate sample size. Further discussion and implications are discussed in the next section.

Research Question 3.

Hypothesis 5. It is expected that qualitative data will reveal common themes concerning the translation of QSEN patient-centered care to bedside care.

H5 was supported by qualitative findings as reported in Chapter IV. The implications of these qualitative findings will be discussed in greater detail in the next section of this chapter.

Implications of Results

An interesting finding in demographic data was that the majority of participants had not and were not currently working in healthcare. Although working in healthcare as a student is not a requirement for nursing students, is certainly encouraged for the process of enculturation and socialization. Enculturation is thought to be a product of learning (Hagge, 1995) and a form of socialization – an internal process of developing a professional identity (Newton & Newton, 1998). Socialization arises from experience (Newton, 1999). This individual demographic characteristic may have limited or enhanced the participants' experience with knowledge of QSEN and the related KSA patient-centered care competencies.

Extraneous variables such as personal experience within healthcare, whether as a patient or a family member of a patient, were not reflected. As the PI went through the analysis, it became clear that this factor may have been an unforeseen variable. Furthermore, probable survey fatigue or perceived difficulty of the survey may have been a contributor to numerous incomplete survey returns.

Research Question 1

Research Question 1 asked, "What are the psychometric properties of the Knowledge, Skills, and Attitudes – Part I: Patient-centered Care Scale (KSAI-PCCS) in a sample of prelicensure entry-level nursing students?" Results for reliability and validity were reported in Chapter IV.

Internal consistency reliability discussion. The KSAI-PCCS data revealed good to excellent internal consistency for 7-day posttest overall and KSA subscales with the exception of Attitudes subscale (acceptable). The data demonstrate a high level of internal consistency (stability). Instrument reliability was established with Cronbach's alpha of .85 to .92 (pre to posttest; *n* = 12; Chapter IV, Tables 9 and 10) and .96 to .97 (pre to posttest; *n* = 21; Chapter IV, Tables 11 and 12). The KSA subscales Cronbach's alpha's ranged from .78 to .87 (pre to posttest; *n* = 12; Chapter IV, Tables 9 and 10). Additionally, the KSA subscales Cronbach's alpha's ranged from .87 to .95 (pre to posttest; *n* = 21; Chapter IV, Tables 11 and 12). Detailed findings have previously been reported in Chapter IV.

The resulting Cronbach alphas align with somewhat-similar scales found in the literature (Bradley, 2013; Goldenberg et al., 2005; Jeffries, 2003, 2007; Jeffries & Rizzolo, 2006; Kameg et al., 2010; Piscotty et al., 2013; Reese et al., 2010; Reinders et al., 2009; Stewart et al., 2004). The PI believes the gray area of attitudes may have created a challenge for subjective self-report. The analysis revealed good to excellent internal consistency for the instrument as a whole and for each individual KSA subscale. The complete results met acceptable internal consistency criterion with Cronbach's alpha $\geq$ .70 (Nunnally & Bernstein, 1994; Tabachnick & Fidell, 2007). As such, the KSAI-PCCS instrument should be used in further research with larger sample size to confirm internal consistency.

Test-retest analysis was conducted using Pearson *r* correlations. As reported in Chapter IV, test-retest (7-day group, variant) analysis indicated only two correlations met the acceptable threshold of $\geq$ .70 (LoBiondo-Wood & Haber, 2010). The most stable domain was the Skills subscale over the 7-days ($r = .856$; $p<.01$). The second was the Combined KSA ($r = .715$; $p<.01$; Chapter IV, Table 13).

Implications. Internal consistency was established via scale reliability analysis of the KSA subscales and evaluation of Cronbach's alphas ($r \geq .80$). Although all results (Chapter IV, Tables 9-12) met acceptable reliability, the KSAI-PCCS instrument should be evaluated and compared in future research to confirm the reported results. Further exploration would assist researchers and nurse educators in establishing robust evidence and applicability of the KSAI-PCCS instrument or individual KSA subscales.

Test-retest analysis results do not indicate a high level of test-retest stability for all domains. However, it is possible the results may have been impacted by two major factors: small sample size and the possibility of elapsed longer time period for some respondents (e.g., up to 30-days, despite instructed to complete at 7-day). Too much time may have elapsed for the respondent (e.g., 30 days). These were limitations to the study. These limitations should be addressed in future research with a larger sample size, enhanced study design, and improved timing administration. It is important to note test-retest acceptability was reached in the 7-day group (n=12) with Combined KSA and Skills pretests to posttests. Although these results should be confirmed as further research with improved sample size, enhanced study design, and administration is warranted.

Item-total correlation discussion. Item-total correlation indicated the three subscale corrected item-total correlation results were strongly significant and acceptable (Polit & Beck, 2008). Analysis revealed that no deletion would lead to an improvement in the Knowledge subscale Cronbach's alpha. Item-total correlation statistics for the Skills subscale indicated that the deletion of S17 item would improve Cronbach's alpha slightly to from .93 to .94 (Chapter IV, Table 16). Skills item 17 performed poorly (r = .26, p <0.05; Chapter IV, Table 16) and a subsequent item-total correlation with said item deleted improved overall Cronbach's slightly to

.94 (Chapter IV, Table 18). Item-total statistics for the Attitudes subscale indicated that deletion of any one of the items would improve Cronbach's alpha (Chapter IV, Table 17) from previously discussed Attitudes subscale Cronbach's alpha of .90 up to .94 to .95. However, as Cronbach's alpha were already high on all subscales, any deletions would not be beneficial. Therefore, all items were validated and retained in the KSAI-PCCS instrument. These results should be viewed with caution as post-hoc power analysis supports that the sample size was under-powered with regard to item-total correlation at .56. As such, a larger sample size might improve overall item-total correlation statistics.

Implications. Although the results indicated all items to be retained, further research using scale reduction methods may improve item-total correlations. Furthermore, ensuring a larger sample size could confirm or negate the current findings related to power analysis. Survey instruments are meant to be assessment tools and can become burdensome in length and time to the participants, which may yield false results due to a variety of personal factors in responses. As this is the first research study using the KSAI-PCCS, further research is warranted.

Research Question 2

Research Question 2 asked, "What is the construct-related validity of the KSAI-PCCS in a sample of prelicensure entry-level nursing students?" Results of paired samples *t*-test, correlations between KSA scores and selected demographic variables, and factor analysis PCA were reported in Chapter IV.

Paired samples *t*-test discussion. Paired samples *t*-tests were performed on two datasets, 7-day (n = 12), 30-day (n = 21). As expected, results were not statistically significant for the small dataset (7-day, n = 12; Chapter IV). Post-hoc power analysis for the 7-day (n = 12)

exposed a resulting power of .35 as under-powered with regard to detecting differences between pretest and posttest values.

Assumptions for the 30-day (n = 21) group, Attitudes subscale (pre and posttest) violated normality via Shapiro-Wilks test (presented in Chapter IV). As paired samples t-test is known to be fairly robust to deviations from normality, the analysis continued. The 30-day (n = 21) paired t-test results detected a significance positive change between Knowledge subscale pretest and posttest values. The results detected a significance negative change between Attitudes pretest and posttest values. The results did not show any significance for the Skills subscale pretest and posttest values (n = 21; Chapter IV, Table 19). Post-hoc power analysis given a medium effect size (Cohen's d = 0.3), alpha set = .05, and sample size of 21 revealed power was .26. Therefore, the lack of significant difference for skills subscale may have been due to low power.

Implications. The 30-day (n=21) results showed statistical significance for the Knowledge subscale pretest and posttest values. These findings support construct validity. The findings imply that the participants improved in their perceived self-report related to Knowledge items (QSEN competencies). One can theorize that the educational programs of the participants are threading the QSEN material, and the prelicensure nursing students are comprehending the requisites of patient-centered care practices. In addition, simulation and clinical experiences may account for enhanced abilities to perform in line with expectations. In regard to attitudes t-test results, hypothetically speaking, the student would have an encouraging (everything wonderful) attitude at pretest; however, with the passage of time or the presence of other extraneous variables, may be disenchanted at posttest. Nurse educators could be encouraged by these findings, yet consider further research, not only on patient-centered care but all of the QSEN

competencies (patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement, safety, and informatics).

Correlations between KSA scores and selected demographic variables discussion. Correlations of KSA post total scores with selected demographic variables such as age, gender, current semester, number of simulations, and previously and currently employed in healthcare were explored. The results indicated two significant negative correlations. The first was a significant negative correlation between current semester and skills subscale posttest scores (r = -.280, $p < 0.05$; maximum dataset, N = 61; Chapter IV, Table 20). In this dataset, the majority (21%) were in their third semester, with fourth semester and second semester at 18% and 17%, respectively. A negative correlation was demonstrated (r = -.231, $p < 0.05$; N = 61; Chapter IV, Table 20) between currently employed in healthcare and attitudes subscale posttest scores. The combined dataset (N = 61) sample population was primarily female (87%) and not currently employed (78%) in healthcare.

There were findings that appeared to conflict with existing theory. The literature is replete with evidence that the more time/exposure to learning skills, the better confidence and ability to complete skills (Blum et al., 2010; Bremner et al., 2008; Bambini et al., 2009; Feingold et al., 2004; Goldenberg et al., 2005; Holcomb et al., 2001; Kameg et al., 2010; Lauder et al., 2008; Pike & O'Donnell, 2010; Wagner et al., 2009). Post-hoc power analysis was reported on the combined dataset (N = 61) for correlation and yielded resulting power of .66 (reported in Chapter IV).

Implications. Although this was only an exploration of demographic characteristics to see if there was a correlation, the sample size may have impacted the results. Confounding factors such as primarily female sample and not currently employed in healthcare may have

played a part in these unexpected findings. Extraneous variables were not taken into account, such as personal, previous or current, or family experiences in healthcare. For example, when working in healthcare, has the participant become jaded with attitudes related to work environment, administration, patients, and/or staff issues? More research could be conducted considering other and multiple characteristics and analysis.

Factor analysis PCA discussion. In order to ensure validity of the KSAI-PCCS instrument, a factor analysis was conducted to determine whether the survey items loaded onto the expected factors. There was no instrument to compare precisely with KSAI-PCCS in order to evaluate concurrent validity. This aspect was not incorporated into the study design. Regardless, factor analysis, principal component analysis was evaluated.

Due to the small sample size, all datasets were combined in order to maximize a dataset (n = 12 + n = 28 + n = 21 yields N = 61) for the purpose of the PCA process and to increase statistical power. Despite this attempt to maximize sample size, sampling adequacy assumption was not met inputting all KSA instrument items. However, KMO measure of sampling adequacy and Bartlett's test of Sphericity was met with having only Knowledge and Skills items as variables for the overall dataset (N = 61) with an indication of sample adequacy (Chapter IV, Table 21). Test of normality via Kolmogorov-Smirnov significance indicated normality was met (Chapter IV, Table 22). Therefore, by similarity the PCA procedure was continued, as it appeared to be appropriate.

Overall results of the factor analysis PCA indicated items loading on 12 components. However, the critical interpretability criterion, rotated (Varimax) component matrix, was not produced. This was likely due to poor sample size (e.g., $\leq$ 200; Field, 2009). Through inductive reasoning, three components (Components 1-3) were retained accounting for 57% of the total

variance explained (Chapter IV, Table 23). Rationale for retention of components was explained in Chapter IV using key rules (e.g., eigenvalue >1, scree plot evaluation; Chapter IV, Figure 6; and the individual component accounted for >5% of TVE). Knowledge Component 1 accounted for 38.5% of total variance explained (Chapter IV, Table 23).

In this analysis, Component 1 (Knowledge) related to the patient, family, or nurse within patient-centered care dynamics as a critical component of patient-centered care. Patient-centered care has been identified as focusing on the patient/family during the entire healthcare process. Key policymakers and previous research has shown patient-centered care requires active partnerships with patients and families in all aspects of care (AACN, 2008; Cronenwett et al., 2007; IOM, 2010; Watson, 1985). Component 1 also included key aspects of incorporation and integration within patient-centered care. Integration was concerned with incorporation of patient and family preferences and values and effective communication. These aspects of care approaches have been identified in the literature as key elements of patient-centered care, whether in the knowledge, skills, or attitudes domain (Cronenwett et al.; Watson). These results support previous research in which communication skills reportedly transfer to the clinical setting through experience in simulation, clinical, or the classroom (Bremner et al., 2006; Kameg et al, 2010). These findings are also consistent with other simulation studies (Goldenberg et al., 2005; Kameg et al.; Perry, 2013; Pike & O'Donnell, 2010; Schoening et al., 2006; Smith-Stoner, 2009).

Component 1 (Knowledge) also related to the nurse role as coordinator of care, which has been identified as a key role for the primary bedside nurse (AACN, 2008; Hobbs, 2009). Involvement and coordination of care require effective communication to be at the core of nursing practice (Cronenwett et al., 2007) and are the very essence of Watson's Caring Model

(Watson, 1985). Effective communication is a thread throughout the three behavior domains (knowledge, skills, and attitudes). The subsequent qualitative open response thematic analysis results also found communication skill as a common theme discussed in next section.

In this analysis, Component 2 (Skills) accounted for 7.3% of the total variance explained (Chapter IV, Table 23). A blend of knowledge, skills, and attitudes items loaded on Component 2 (Skills). The nursing process is embedded in the skills component loadings pertaining to pain assessment, interventions, and treatment along with patient preferences. Similarly, this component finding is strongly supported in the literature and by key policymakers (AACN, 2008; ANA, 2004; Barnsteiner et al., 2013; Cronenwett et al., 2007; Watson, 1985). Pain management is an integral aspect of patient-centered care and would be ineffective without regard to patient preferences.

Component 2 (Skills) also related to sensitivity and respect. Loaded factors pertained to trusting relationships. Trusting relationships involve patient preferences, implementation and evaluation of care, as well as communicating patient values and preferences to the healthcare team. The formation of trusting relationships is the foundation of Watson's (1985) Caring Model. This component strongly aligns with study-related literature (AACN, 2008; Barnsteiner et al., 2013; Cronenwett et al., 2007; Starkweather, 2010; Watson).

In this study, Component 3 (Attitudes) accounted for 5.9% of the total variance explained. Identified with Component 3 was the practice of recognizing one's own attitudes related to diversity and dynamics of the patient population as vital to patient-centered care and is supported in the literature (ANA, 2004; Watson, 1985). Component 3 also focused on encouraging the patient to express his/her individualized needs. This component finding is

strongly supported in the literature as well as by study-related key policymakers (AACN, 2008; Cronenwett et al., 2007; IOM, 2010; Watson).

Furthermore, Component 3 loaded with factors related to aspects of the bedside nurse role and an active partnership with the patient/family with key communication at each transition of care. One very important factor/item loading on Component 3 pertained to assessment of emotional comfort, as well as the support of physical and emotional comfort. Recognition of boundaries of therapeutic relationships is essential to bedside care. These aspects are supported in the literature (AACN, 2008; Cronenwett, et al., 2007; Hobbs, 2009; IOM, 2010).

Finally, it was compelling to note that a total of five items loaded on all three retained components (Chapter IV, Component Matrix, Table 24). These five common items are of most importance in view of patient-centered care approaches and competencies. The five items were K8-incorporation of physical and emotional support to patients and families, K18-role of nurse; S2-obtain, implement, and evaluate patient needs in the plan of care; A5-encourage patient to express their needs; and A8-recognition of own attitudes about working with patients from diverse backgrounds (Chapter IV, Table 24; Appendix A).

Implications. The results of the factor analysis PCA yielded evidence that suggests that the KSAI-PCCS instrument contains three factors, which supports the QSEN literature of three domains of competencies. However, these results should be viewed with caution and verified in a subsequent robust factor analysis with adequate sample size. Components 1, 2, and 3 combined accounted for 57.1% of the total variance explained. However, due to small sample size and inability to produce and evaluate the rotated (Varimax) component matrix, a thorough FA-PCA analysis was unable to be completed with valid results. It is highly probable that PCA results would be more meaningful with an improved sample size. However, the three components

identified are strongly supported by the foundational basis of this instrument (QSEN patient-centered care KSA competencies) and throughout the literature.

Future evaluation limited to the five common items identified would simplify a brief patient-centered care inventory instrument. The five common items included two Knowledge items, one Skills item, and two Attitudes items. This brief PCC inventory could be used as a self-report evaluation combined with either (or both) formative and summative evaluations from instructors in order to provide a snapshot of prelicensure nursing students' patient-centered care competencies.

Research Question 3

Research Question 3 asked, "What are common themes of patient-centered care occurring in practice in a sample of prelicensure entry-level nursing students?" Results of the qualitative analysis were reported in Chapter IV.

Qualitative analysis discussion. Inductive thematic analysis provided insight and encouragement to this PI, specifically pertaining to student reflections on important QSEN patient-centered care strategies. The majority of these open response items were reflective of a simulation experience. Simulation lab settings have been reported to be a safe place to practice and learn bedside care (Blum et al., 2010; Gaba, 2004; Jeffries, 2007; Jeffries & Rizzolo, 2006).

Qualitative analysis findings were promising in relation to knowledge. Students reported linking didactic content with lab/clinical activities, which makes theoretical sense as the students are learning important content in the form of knowledge. Specific knowledge responses of important interest include maintaining patient safety, therapeutic communication, learning, and the importance of preparing for clinical care. These knowledge-related qualitative findings

pertained to clinical preparation, which also supported the literature (Bremner et al., 2006; Elfrink et al., 2010).

Qualitative findings pertaining to skills revealed appropriate responses relating to key patient-centered care activities and strategies. Prominent themes articulated include assessment, communication skills, respecting cultural differences, and skill practice. The analysis makes theoretical sense in that these listed themes are vital components of patient-centered care. These findings supported literature related to confidence or degree of self-efficacy related to assessment and communication skills (Alinier et al., 2006; Bremner et al., 2006; Moule et al., 2008; Sullivan et al., 2009).

Qualitative findings revealed expected responses relating to important patient-centered care in relation to attitudes. Analysis revealed students embraced learning, reported increasing confidence in clinical care, and became more aware of the importance of culturally appropriate care, effective communication skills, and keeping in mind patient differences and individuality.

Implications. Establishing a caring relationship/rapport is central to quality patient-centered care. Overall common themes emerged concerning the translation of QSEN patient-centered care to the bedside. These related to building rapport include listening, confidence, therapeutic communication, family, and culture/cultural differences and are supported in the literature (Alinier et al., 2006; Bremner et al., 2006; Moule et al., 2008; Watson, 1985).

The overall thematic analysis revealed qualitative common themes concerning the translation of QSEN patient-centered care to knowledge (clinical care, learning experience, therapeutic communication, and patient safety), skills (gaining skill practice, importance of assessment, and listening) and attitudes (confident, culture/cultural differences, family, and planning care). These thematic responses led the PI to confirm that students are in tune with their

knowledge-, skill-, and attitude-related behaviors and patient-centered care interventions. Furthermore, qualitative responses implied the transference and application of didactic learning and simulation practice into clinical care including communication skills, practical skills and providing comfort to the patient. More importantly, the KSA qualitative findings support quantitative findings such as the significant knowledge paired *t*-test and the significant attitudes paired *t*-test.

Challenges

As with any research, there were challenges that came up during the research process. A small challenge successfully navigated were the staggered start dates of semesters of the participating sites. However, the primary overwhelming challenge in this study was the return of incomplete surveys, which made it challenging to meet a minimum sample size in a timely manner. A possible primary factor contributing to the incomplete returns was the optional response per item. The desire, or lack of desire, to complete the survey was more than likely a probable personal factor despite the presence of a small incentive gift card. Other factors related to lack of responses may have included the student perception of lack of time to complete the survey, survey fatigue, and no interest to participate regardless of topic. The PI periodically sent reminders of the opportunity to participate in research to the site liaisons. The site liaisons, in turn, forwarded the reminder to their respective site populations. These initially occurred every 10-14 days at the start of data collection. This changed to occurring weekly toward the end of data collection when the PI was nearing the required sample size. The reminders turned out to be a successful strategy.

A more important challenge came up in that, as designed, there was no way to guarantee the pre and posttest samples were truly matched. Despite the fact respondents were asked the

qualifier, “Please identify which survey this is for you: the pre-or post-test survey,” the PI could not confirm the integrity of the respondents in general. Running matches on provided IP addresses proved to be unsuccessful, as people often work on more than one computer, especially students (personal, library, borrowed, work, etc.). E-mails were only to be used for the incentive gift card yet proved to be a small way to attempt to crosscheck and verify pre/post samples, yet that method proved fallible due to the fact that respondents may have used multiple emails. The study design would have benefited from including a method to attach unique identifier codes to each respondent dataset in order to match respondents in subsequent dataset entries.

The PI believes the attempt to have respondents subjectively rate the gray areas of knowledge and attitudes may have posed a limitation whilst creating a challenge for accurate and consistent self-report. When asked, “Do you know this or that?”, confidence, mood, and other personal factors may play a part in how participants respond.

The PI suggests the gray areas of knowledge and attitudes may have created a challenge for subjective self-report. Knowledge is either right or wrong (correct or incorrect) and should be tested as opposed to subjectively rated. Attitudes may be observed and interpreted in a variety of ways. When the student/respondent is being asked, “Do you know something?”, it may influence/inflate their subjective self-rating. Yet perhaps the student with a lack of confidence may likely rate him/herself lower. On the other hand, when self-rating a skill, one either does it mostly correct or not well, or is aware of their skill accuracy/deficiency. Respondents (7-day group; $n = 12$) likely were able to accurately self-report the Skills subscale items, which may have led to a more acceptable correlational value ($r = .85$, $p < .01$; Chapter IV, Table 14). Future research on this phenomenon should require objective measurement using interrater reliability

means to accomplish full assessment of the concepts of patient-centered care focusing on the QSEN theoretical framework of knowledge, skills, and attitudes.

Limitations

The major limitations of this non-experimental study included small sample size, self-report, scale length (number of items), scale design, and incomplete survey return. Ideally, there should have been 10 participants per item (Polit & Beck, 2008)—in this case 54 x 10 = 540. The literature recommends more than 300 for factor analysis (Kline, 1986). As completed, the risk of committing a Type II error was compounded due to limited sample size. As designed, there was no guarantee of a respondent completing a pre and posttest survey. Assigned coding would have helped in matching returned survey data.

Although Cronbach's alpha provided an overall reliability coefficient for each set of variables, at present there are no other QSEN comparable scale/instruments. In addition, the literature recommends adequate sample size such as more than 300 (Kline, 1986). This also confirms a clear limitation of this study, yet it presents an opportunity toward future research using the instrument in a repeated study for further investigation and comparison.

Summary

Patient-centered care is concerned with the patient/family during the entire healthcare process and requires trusting relationships and effective communication to establish caring. This model of care also requires active partnerships with patients and families in all aspects of care. Patient-centered care is based on active involvement, whether from the nurse or patient and family, with and for patients and their families during healthcare processes. This interactive model must incorporate and integrate patient and family preferences and values to reflect patient needs, desires, and goals along the healthcare process. Patient-centered care is based on

individualized needs and sociocultural backgrounds of the patient yet also pertains to the nurse. Diversity is an integral aspect of patient-centered care. Patient-centered care requires that nurses recognize their personally held values and beliefs in relation to caring for a diverse patient population. The KSAI-PCCS instrument provides a foundation that includes key competencies related to the QSEN framework.

Suggestions for Future Research

Scale design could be improved using a seven-point Likert response scale with only the end values anchored to interpretations, which would allow the items to be treated as scale data. Samuels (2015) reports this would allow more descriptive statistics to be calculated. Future research using the KSAI-PCCS as is should require a more robust sample size ($n > 200$) in order to allow factor analysis to be completed in a more meaningful and complete manner. This would potentially yield robust results to reduce items based on additional research. A final consideration in future related research would be to limit the scales to administering one at a time, keeping the study concise and more manageable. The Knowledge subscale could also be accompanied by a test or objective rating by a trained observer. The subjective Skills subscale could benefit from an objective rating by a trained observer rater in a controlled simulation lab to control and mitigate variables. Attitudes could be assessed through subjective rating along with a trained observer in the clinical or simulated setting. This would require training of the observers for interrater reliability considerations. These recommendations could be accomplished together in one large pre/posttest repeated measures longitudinal design or just one domain at a time in a repeated measures longitudinal design.

Conclusion

This chapter has provided an overview of the study. The use of such an instrument could improve student learning through reflective processes and provide for better and safer care of patients. The refinement and use of this instrument could aid nurse educators in formative and summative evaluation of patient-centered care competencies of prelicensure nursing students. Finally, this chapter presented recommendations for further research in order to cultivate the advancement of QSEN KSA competency evaluation within prelicensure nursing education and nursing practice.

APPENDIX A

INSTRUMENT (KSAI-PCCS)

Knowledge, Skills, and Attitudes – Part I: Patient-centered Care Scale (KSAI-PCCS)

Directions: On a scale of 0 to 5 rate the frequency of your ability and application of knowledge, skills and attitudes specific to patient-centered care.

0 = NEVER
1 = VERY RARELY
2 = RARELY
3 = OCCASIONALLY
4 = FREQUENTLY
5 = VERY FREQUENTLY

Patient-Centered Care (definition):
Recognize the patient or designee as the source of control and full partner in providing compassionate and coordinated care based on respect for patient's preferences, values, and needs (QSEN, 2007).

Instructions: In clinical or simulation, rate the frequency of your ability to apply or understand the following QSEN patient-centered care competencies in these three domains, Knowledge, Skills, and Attitudes

Domain 1: Knowledge - Describe how diverse cultural, ethnic and social backgrounds function as sources of patient, family, and community values (QSEN, 2007).

1) I am able to incorporate patient preferences and values.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

2) I am able to incorporate family preferences and values.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

3) I am able to incorporate community preferences and values.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

4) I am able to coordinate the integration of care.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

5) I am able to use pertinent information for patient-centered care.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

6) I am able to use effective communication with patients and their families.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

7) I am aware of the need to provide patient-centered education to my patient.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

8) I am able to incorporate physical comfort and emotional support in my dealings with patients and their families.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

9) I am able to involve the patient's family and friends (as appropriate) in his/her care.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

10) I am able to integrate an understanding of transition and continuity of care for the patient.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

11) I am able to demonstrate a comprehensive understanding of the concepts of pain and suffering, including physiologic models of pain and comfort.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

12) I am aware of how the safety, quality and cost effectiveness of healthcare can be improved through the active involvement of patients and families.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

13) I am aware of common barriers to active involvement of patients in their own healthcare processes.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

14) I am able to describe strategies to empower patients or families in all aspects of the healthcare process.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

15) I am aware of ethical and legal implications of patient-centered care.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

16) I am able to describe the limits and boundaries of therapeutic patient-centered care.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

17) I know principles of effective communication.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

18) I am aware of the basic principles of consensus building and conflict resolution.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

19) I reflect on my role as a nurse in the coordination, integration, and continuity of care for my patients.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

Journal response (open response): Identify three (3) specific examples of didactic knowledge and clinical or simulation experiences coming together (you were able to connect lecture content with clinical care) in relation to care of the patient and how they were the same or different:

1)

2)

3)

Domain 2: Skills – Provide patient-centered care with sensitivity and respect for the diversity of the human experience (QSEN, 2007).

1) I obtain preferences as part of the clinical interview, implement those preferences in the care plan, and apply them to the evaluation of care

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

2) I obtain patient needs as part of the clinical interview, implement those needs in the care plan, and apply them to the evaluation of care.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

3) I communicate patient values, preferences and expressed needs to other members of the healthcare team.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

4) I provide patient-centered care with sensitivity and respect for the diversity of the human experience.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

5) I assess the presence and extent of pain and suffering.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

6) I assess levels of physical comfort.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

7) I assess levels of emotional comfort.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

8) I obtain expectations of patient and family for relief of pain, discomfort, or suffering.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

9) I initiate effective treatments to relieve pain and suffering in light of patient values, preferences and expressed needs.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

10) I effectively manage the presence of families and other designated patient representatives based on patient preferences.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

11) I assess the level of patient's decisional conflict and provide access to resources.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

12) I involve patients or designated surrogates in active partnerships that promote health, safety and well-being, and self-care management.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

13) I recognize the boundaries of therapeutic relationships.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

14) I facilitate and obtain informed patient consent for care.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

15) I assess my own level of communication skill in encounters with patients and families.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

16) I participate in building agreement or resolving conflict in the context of patient care.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

17) I communicate care provided and needed at each transition in care to healthcare team members.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

Journal response (open response): Identify three (3) specific examples of clinical skills and clinical or simulation experiences coming together (you were able to connect lecture content with clinical care) in the care of the patient and how they were the same or different:

1)

2)

3)

Domain 3: Attitudes – Recognize personally held attitudes about working with patients from different ethnic, cultural and social backgrounds (QSEN, 2007).

1) I value seeing healthcare situations "through patients' eyes".

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

2) I demonstrate an attitude of respect.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

3) I encourage individual expression of patient values.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

4) I encourage the patient to verbalize their preferences.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

5) I encourage the patient to express their needs.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

6) I value the patient's expertise with their own health and symptoms.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

7) I seek learning opportunities with patients who represent all aspects of human diversity.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

8) I recognize my own attitudes about working with patients from different ethnic, cultural and social backgrounds.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

9) I willingly support patient-centered care for individuals and groups whose values differ from my own.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

10) I recognize my own values and beliefs about the management of pain or suffering.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

11) I appreciate the role of the nurse in relief of all types and sources of pain or suffering.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

12) I recognize that patient expectations influence outcomes in management of pain or suffering.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

13) I value an active partnership with patients or designated surrogates in planning, implementation, and evaluation of care.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

14) I respect patient preferences for their degree of active participation in the care process.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

15) I respect the patient's right to access to personal health records.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

16) I acknowledge the tension that may exist between patient rights and the organizational responsibility for professional, ethical care.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

17) I appreciate shared decision-making with empowered patients and families, even when conflicts occur.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

18) I value continuous improvement of my own communication and conflict resolution skills.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

Journal response (open response): Identify three (3) specific examples of personal attitudes/values related to working with patients from different ethnic, cultural and social backgrounds and clinical or simulation experiences coming together (you were able to connect your attitudes/values with aspects of clinical care) in the care of the patient:

1)

2)

3)

Demographic data: (please mark selection)

Age group: 18-24 25-29 30-34 35-39 40-44 45-49 ≥50

Gender: Male Female

Ethnicity: African American Asian Caucasian Hispanic Latino Mexican American Pacific Islander Mixed Race Other

Current semester in nursing program: 1 2 3 4 5 6 7 >7

Number of simulations completed to date: 1 2 3 4 ≥5

Previously employed in healthcare: yes no

Currently employed in healthcare: yes no

Select your nursing program:

ADN Traditional BSN Accelerated BSN Entry-level Masters (Prelicensure level)/Graduate Entry Program in Nursing (Prelicensure level)

Current Program Site: Please select from

Site A (coded)

Site B (coded)

Site C (coded)

Site D (coded)

Site E (coded)

Site F (coded)

Thank you, this is the end of the survey.

Follow link to external site for one $5 gift card. Note: One card earned for pre-test & one card earned for post-test.

~~~end~~~
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APPENDIX B

UNIVERSITY OF HAWAI'I CONSENT TO

PARTICIPATE IN RESEARCH: FORM I

Psychometric Evaluation of the Knowledge, Skills, and Attitudes, Part I – Patient-centered Care Scale Instrument: Pilot Study (KSAI-PCCS)

My name is Patricia Esslin. I am a graduate student at the University of Hawai'i (UH). As part of my dissertation, I am conducting a research project. The purpose of my study is to test reliability and validity of the question items on the survey tool (KSAI-PCCS). Further, I am also looking at whether the items continue to be reliable, or continues to assess what it is meant to assess over time. A secondary purpose is to examine your perceived knowledge, skills, and attitudes specific to QSEN patient-centered care competencies. You are being asked to participate in this anonymous self-report electronic survey that consists of 54-item Likert-type series of statements specific to QSEN patient-centered care competencies and up to 9 open response/short answer questions. There are nine general demographic questions. It is expected the survey may take approximately 45-60 minutes of your time.

Project Description – Activities and Time Commitment: If you decide to take part in this project, you will be asked to fill out a survey on minimum of two separate occasions. The possibility of being asked to complete it a third time will exist for anyone completing it the first time for a smaller subgroup at a different time period. The survey questions are mainly multiple choice. However, there will be a few questions where you add an open response/short answer. The survey is accessed on a website which I will provide you with a link to. Completing the survey will take approximately 45-60 minutes. I expect around 200 people will take part in this project.

Benefits and Risks: There will be no direct benefit to you for taking part in this project. The study findings will contribute to the nursing profession by assisting nurse educators in evaluation of student competency and its translation to the practice of patient-centered care. There is a $5 gift card awarded as an incentive each time you participate in the survey (pre- and post-testing). There is little risk to you in participating in this project. You will be asked to provide your email address at the end of each survey in order to claim the e-gift card to be sent to you directly from Starbucks. The participant provided email addresses will be destroyed upon payout of incentives.

Confidentiality and Privacy: I will not ask you for any personal information, such as your name or address. Please do not include any personal information in your survey responses.

Voluntary Participation: You can freely choose to take part or to not take part in this survey. There will be no penalty or loss of benefits for either decision. If you do agree to participate, you can stop at any time.

Questions: If you have any questions about this study, please call or email me at [626-893-8627 & perrypat@hawaii.edu]. You may also contact my adviser, Dr. Estelle Codier, at [(808)783-1583 & codier@hawaii.edu]. **For APU participants**: Concerning your rights or treatment as a research

subject, you may contact the Research Integrity Officer at Azusa Pacific University at 626.812.3034. **All other site participants**: If you have questions about your rights as a research participant, you may contact the UH Human Studies Program at 808.956.5007 or uhirb@hawaii.edu.

To Access the Survey: Please click on the next button to access the survey. You should find instructions for completing the survey. Completing the survey will be considered as your consent to participate in this study.

Please print a copy of this page for your reference.

APPENDIX C

INFORMED CONSENT FORM FOR ELECTRONIC SURVEY

Voluntary Status: You are being invited to participate in a survey research study. Your participation is voluntary which means you can choose whether or not you want to participate. You may withdraw any time without penalty.

Purpose: My name is Patricia Esslin. I am a graduate student at the University of Hawai'i (UH). As part of my dissertation, I am conducting a research project. The study for which you are being asked to participate is designed to test reliability and validity of the question items on the survey tool (KSAI-PCCS). Further, I am also looking at whether the items continue to be reliable, or continues to assess what it is meant to assess over time. A secondary purpose is to examine your perceived knowledge, skills, and attitudes specific to QSEN patient-centered care competencies. You are being asked to participate in this anonymous self-report electronic survey that consists of 54-item Likert-type series of statements specific to QSEN patient-centered care competencies and up to 9 open response/short answer questions. There are nine general demographic questions. It is expected the survey may take approximately 45-60 minutes of your time.

Project Description – Activities and Time Commitment: If you decide to take part in this project, you will be asked to fill out a survey on minimum of two separate occasions. The possibility of being asked to complete it a third time will exist for anyone completing it the first time for a smaller subgroup at a different time period. The survey questions are mainly multiple choice. However, there will be a few questions where you add an open response/short answer. The survey is accessed on a website which I will provide you with a link to. Completing the survey will take approximately 45-60 minutes. I expect around 200 people will take part in this project.

Possible Risks: It is expected that participation in this study will provide you with no more than minimal risk or discomfort which means that you should not experience it as any more troubling than your normal daily life. While there are no direct benefits to participating, your response will help us to better understand the research topic. There is a $5 gift card awarded as an incentive each time you participate in the survey (pre- and post-testing).

Confidentiality: The investigator involved with the study will not be collecting any personal information for the study. All responses to this survey are anonymous and confidential. Your name or identity will not be linked in any way to the research data. Concerning your rights or treatment as a research subject, you may contact the Research Integrity Officer at Azusa Pacific University (626) 812-3034. You may also contact the UH Human Studies Program at 808.956.5007 or uhirb@hawaii.edu.

Consent: I understand that my participation in this study is entirely voluntary and that I may refuse to participate or may withdraw from the study at any time without penalty. I have read this

entire form and I understand it completely. By clicking below and completing the online assessments that follow I am giving my consent to participate in this study.

Please print a copy of this page for your reference.

APPENDIX D

UNIVERSITY OF HAWAI`I AT MĀNOA IRB EXEMPT APPROVAL

Office of Research Compliance
Human Studies Program

UNIVERSITY of HAWAI'I® MĀNOA

July 1, 2015

TO: Patricia Esslin
Principal Investigator
School of Nursing and Dental Hygiene

FROM: Denise A. Lin-DeShetler, MPH, MA
Director

SUBJECT: CHS #23197 - "Psychometric Evaluation of the Knowledge, Skills, and Attitudes - Part I: Patient- Centered Care Scale (KSAI-PCCS): A Pilot Study"

This letter is your record of the Human Studies Program approval of this study as exempt.

On July 1, 2015, the University of Hawai'i (UH) Human Studies Program approved this study as exempt from federal regulations pertaining to the protection of human research participants. The authority for the exemption applicable to your study is documented in the Code of Federal Regulations at 45 CFR 46.101(b) (Category 2).

Exempt studies are subject to the ethical principles articulated in The Belmont Report, found at http://www.hawaii.edu/irb/html/manual/appendices/A/belmont.html

Exempt studies do not require regular continuing review by the Human Studies Program. However, if you propose to modify your study, you must receive approval from the Human Studies Program prior to implementing any changes. You can submit your proposed changes via email at uhirb@hawaii.edu. (The subject line should read: Exempt Study Modification.) The Human Studies Program may review the exempt status at that time and request an application for approval as non-exempt research.

In order to protect the confidentiality of research participants, we encourage you to destroy private information which can be linked to the identities of individuals as soon as it is reasonable to do so. Signed consent forms, as applicable to your study, should be maintained for at least the duration of your project.

This approval does not expire. However, please notify the Human Studies Program when your study is complete. Upon notification, we will close our files pertaining to your study.

If you have any questions relating to the protection of human research participants, please contact the Human Studies Program at 956-5007 or uhirb@hawaii.edu. We wish you success in carrying out your research project.

1960 East-West Road
Biomedical Sciences Building B104
Honolulu, Hawai'i 96822
Telephone: (808) 956-5007
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APPENDIX E

AZUSA PACIFIC UNIVERSITY IRB EXEMPT APPROVAL

Azusa Pacific University
Institutional Review Board
Office of Research and Grants

Exempt Status

DATE: July 20, 2015

TO: Patricia Esslin

FROM: Joanie Stude, Coordinator, Institutional Review Board

IRB ID NUMBER: #90-15

PROJECT TITLE: Psychometric evaluation of the Knowledge, Skills, and Attitudes – Part I: Patient-centered Care Scale (KSAI-PCCS): A pilot study

Based on the information you have submitted, the project referenced above has been reviewed and declared **Exempt** from the requirements of the human subject protection regulations as described in 45 CFR 46.101(b).

PELASE NOTE: You may use the current Informed Consent form, as long as you include the following statement for use with APU participants. "Concerning your rights or treatment as a research subject, you may contact the Research Integrity Officer at Azusa Pacific University at 626.812.3034". This will replace the similar statement from University of Hawaii.

The determination of Exempt status means that:

- Further review in the form of filing an annual Renewal form or a Closure report form is not necessary.
- Research must be carried out exactly as describe in the application. Additional review is required for *any* modifications to the research procedures.
- All protocol deviations, unanticipated or serious adverse events must be reported to the IRB within one week. See the IRB handbook for instructions.

For assistance please contact the Institutional Review Board Coordinator at jstude@apu.edu or 626.815.2036.

APPENDIX F

SITE LETTER OF SUPPORT

June 1, 2015

Patricia Esslin, MSN, APRN-CNS, CNE
Assistant Professor, School of Nursing
Azusa Pacific University
701 East Foothill Blvd.
Azusa, CA 91702

Re: *Psychometric Evaluation of the Knowledge, Skills, and Attitudes – Part I - Patient-centered Care Scale (KSAI-PCCS): A Pilot Study*

I am aware of your proposed research study with the primary purpose to test psychometrics of the KSAI-PCCS instrument. I also note your secondary purpose is to examine the perceived knowledge, skills, and attitudes of pre-licensure nursing students specific to QSEN patient-centered care competencies. I understand this will be for your dissertation.

It is my pleasure to support you in this manner. Upon IRB approval from both the University of Hawaii at Manoa (UHM) and Azusa Pacific University (APU), you will be able to survey students in the Entry Level Master's Program located at our regional sites, and not on the main campus. You will have a site liaison at the three regional sites (Monrovia, Inland Empire, and San Diego) to assist with sending out the invitation to participate to eligible student population.

Sincerely,

Aja Tulleners Lesh, PhD, RN
Dean, School of Nursing

901 East Alosta Avenue, PO Box 7000
Azusa, California 91702-7000 | (626) 969-3434

APPENDIX G

KSAI-PCCS VARIANT FORM (7-DAY GROUP)

Instrument

Knowledge, Skills and Attitudes – Part I: Patient-centered Care Scale (KSAI-PCCS)

Directions: On a scale of 0 to 5 rate the frequency of your ability and application of knowledge, skills, and attitudes specific to patient-centered care.

0 = NEVER
1 = VERY RARELY
2 = RARELY
3 = OCCASIONALLY
4 = FREQUENTLY
5 = VERY FREQUENTLY

Patient-Centered Care (definition):
Recognize the patient or designee as the source of control and full partner in providing compassionate and coordinated care based on respect for patient's preferences, values, and needs (QSEN, 2007).

Instructions: In clinical or simulation, rate the frequency of your ability to apply or understand the following QSEN patient-centered care competencies in these three domains, Knowledge, Skills, and Attitudes

Domain 1: Knowledge - Describe how diverse cultural, ethnic and social backgrounds function as sources of patient, family, and community values (QSEN, 2007).

Domain 2: Skills – Provide patient-centered care with sensitivity and respect for the diversity of the human experience (QSEN, 2007).

Domain 3: Attitudes – Recognize personally held attitudes about working with patients from different ethnic, cultural and social backgrounds (QSEN, 2007).

Qualifier item:
Identify which survey this is for you.
***This version is for 7-day post initial survey only. Please clarify this is "7-day post-survey" for you.**
Yes/No item

1) I am able to incorporate family preferences and values.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

2) I reflect on my role as a nurse in the coordination, integration, and continuity of care for my patients.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

3) I am able to describe the limits and boundaries of therapeutic patient-centered care.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

4) I know principles of effective communication.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

5) I am aware of the basic principles of consensus building and conflict resolution.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

6) I am able to incorporate community preferences and values.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

7) I am able to incorporate patient preferences and values.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

8) I am able to coordinate the integration of care.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

9) I am able to use pertinent information for patient-centered care.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

10) I am able to use effective communication with patients and their families.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

11) I am able to integrate an understanding of transition and continuity of care for the patient.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

12) I am able to demonstrate a comprehensive understanding of the concepts of pain and suffering, including physiologic models of pain and comfort.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

13) I am aware of how the safety, quality and cost effectiveness of health care can be improved through the active involvement of patients and families.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

14) I am aware of the need to provide patient-centered education to my patient.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

15) I am able to incorporate physical comfort and emotional support in my dealings with patients and their families.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

16) I am able to involve the patient's family and friends (as appropriate) in his/her care.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

17) I am aware of common barriers to active involvement of patients in their own health care processes.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

18) I am able to describe strategies to empower patients or families in all aspects of the health care process.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

19) I am aware of ethical and legal implications of patient-centered care.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

20) I obtain preferences as part of the clinical interview, implement those preferences in the care plan, and apply them to the evaluation of care

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

21) I recognize the boundaries of therapeutic relationships.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

22) I obtain patient needs as part of the clinical interview, implement those needs in the care plan, and apply them to the evaluation of care.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

23) I communicate patient values, preferences and expressed needs to other members of the health care team.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

24) I provide patient-centered care with sensitivity and respect for the diversity of the human experience.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

25) I assess the presence and extent of pain and suffering.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

26) I assess levels of physical comfort.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

27) I assess levels of emotional comfort.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

28) I obtain expectations of patient and family for relief of pain, discomfort, or suffering.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

29) I initiate effective treatments to relieve pain and suffering in light of patient values, preferences and expressed needs.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

30) I effectively manage the presence of families and other designated patient representatives based on patient preferences.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

31) I assess the level of patient's decisional conflict and provide access to resources.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

32) I involve patients or designated surrogates in active partnerships that promote health, safety and well-being, and self-care management.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

33) I communicate care provided and needed at each transition in care to health care team members.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

34) I participate in building agreement or resolving conflict in the context of patient care.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

35) I assess my own level of communication skill in encounters with patients and families.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

36) I facilitate and obtain informed patient consent for care.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

37) I value seeing health care situations "through patients' eyes".

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

38) I value continuous improvement of my own communication and conflict resolution skills.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

39) I appreciate shared decision-making with empowered patients and families, even when conflicts occur.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

40) I acknowledge the tension that may exist between patient rights and the organizational responsibility for professional, ethical care.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

41) I respect the patient's right to access to personal health records.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

42) I respect patient preferences for their degree of active participation in the care process.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

43) I value an active partnership with patients or designated surrogates in planning, implementation, and evaluation of care.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

44) I demonstrate an attitude of respect.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

45) I encourage individual expression of patient values.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

46) I encourage the patient to verbalize their preferences.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

47) I encourage the patient to express their needs.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

48) I value the patient's expertise with their own health and symptoms.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

49) I seek learning opportunities with patients who represent all aspects of human diversity.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

50) I recognize my own attitudes about working with patients from different ethnic, cultural and social backgrounds.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

51) I willingly support patient-centered care for individuals and groups whose values differ from my own.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

52) I recognize my own values and beliefs about the management of pain or suffering.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

53) I appreciate the role of the nurse in relief of all types and sources of pain or suffering.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

54) I recognize that patient expectations influence outcomes in management of pain or suffering.

0 NEVER 1 VERY RARELY 2 RARELY 3 OCCASIONALLY 4 FREQUENTLY 5 VERY FREQUENTLY

Journal response (open response): Identify three (3) specific examples of didactic knowledge and clinical or simulation experiences coming together (you were able to connect lecture content with clinical care) in relation to care of the patient and how they were the same or different:

1)

2)

3)

Journal response (open response): Identify three (3) specific examples of clinical skills and clinical or simulation experiences coming together (you were able to connect lecture content with clinical care) in the care of the patient and how they were the same or different:

1)

2)

3)

Journal response (open response): Identify three (3) specific examples of personal attitudes/values related to working with patients from different ethnic, cultural and social backgrounds and clinical or simulation experiences coming together (you were able to connect your attitudes/values with aspects of clinical care) in the care of the patient:

1)

2)

3)

Demographic data: (please mark selection)

Age group: 18-24 25-29 30-34 35-39 40-44 45-49 >50

Gender: Male Female

Ethnicity: African American Asian Caucasian Hispanic Latino Mexican American Pacific Islander Mixed Race Other

Current semester in nursing program: 1 2 3 4 5 6 7 >7

Number of simulations completed to date: 1 2 3 4 >5

Previously employed in healthcare: yes no

Currently employed in healthcare: yes no

Select your nursing program:

ADN Traditional BSN Accelerated BSN Entry-level Masters (pre-licensure level)/Graduate Entry Program in Nursing (pre-licensure level)

Current Program Site: Please select from

Site A (coded)

Site B (coded)

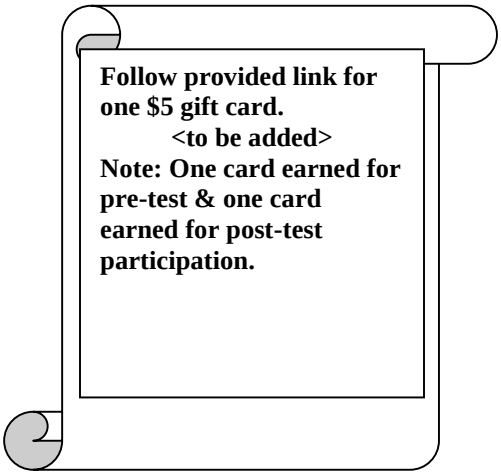
Site C (coded)

Site D (coded)

Site E (coded)

Site F (coded)

Thank you, this is the end of the survey.



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