

Improving Clinical Competence and Confidence of Senior Nursing Students through Clinical Preceptorship

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Abstract

Clinical preceptorship provides an essential aspect of nursing education for senior nursing students. This descriptive study identified perceptions of senior nursing students about their clinical preceptorship experiences, evaluated their perceived levels of competency and confidence in providing nursing care; and examined their perceived confidence level in relation to the perceived competency level of nursing skills. Researchers approached 134 culturally diverse senior nursing students enrolled in Preceptorship courses at one of the state-funded California universities and collected anonymous data from 95 students in academic years 2010-2012, using three instruments; Senior Preceptorship Experience Questionnaire, Graduate Nurse Survey, and Quality and Safety Education for Nurses tools. Results indicated that the clinical preceptorship improved students' perceived competency skills and confidence in providing nursing care. Outcomes demonstrated that the level of students' perceived competency was positively associated with the level of their interaction with preceptor. There was a significant correlation between the overall perceived competency level and confidence level of students; however there was no relationship between the amount of preceptor interaction and the degree of perceived confidence. This information is useful to nursing education as educators continue striving to reconcile the lack of preparedness for new staff roles that employers see in new graduates.

Keywords: Clinical Competence, Confidence, Nursing Preceptorship, Senior Nursing Students, Quality and Safety Education for Nurses (QSEN)

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1.0 Introduction

A senior preceptorship embraces culmination of students' roles as nursing students; and it helps students attain the very beginning of their nursing career as professional nurses. During this time, student nurses transition into functional independent nurses under the supervision of a preceptor that serves as a clinical expert, role model, and direct supervisor of the preceptee. The students, known as preceptees, are expected to increase their workload gradually, until they are able to take on the full patient assignment. Benefits from this experience may include building professional roles, competence, confidence, and socialization in the nursing practice; as well as developing and achieving personal goals, learning about accountability, and becoming more familiarized with the organizational culture. The sum of these skills allows preceptees to deliver quality care to their patients.

Literature indicates that the transition from a student nurse to novice staff nurse could be a stressful experience. Student nurses felt frustrated when they did not receive adequate support during transition (Kumaran & Carney, 2014) and experienced significantly more stress during their academic preparation, especially during their senior clinical preceptorship than they did during the first year of employment (Younge, Myrick, & Haase, 2002). The change in role might increase unpleasant feelings such as frustration, anxiety, and depressed mood. These negative feelings (Mamchur & Myrick, 2003) could further lead to absenteeism. Some of the effects of unsuccessful transition from the student status to the professional status might be exhibited by lower work productivity, decrease in job satisfaction, burn out (Myrick, Luhanga, Billay, Foley, & Younge, 2012), or even leaving nursing.

Tumultuous healthcare environments and increasing healthcare costs have led the healthcare administrators and professionals to cautiously analyze their systems to ensure the effective utilization of human resources. Improving the productivity of nurses was one of the key issues in financial management for health care organizations (Kim, 2007). One study noted that the expenses of training and orienting a new professional nurse in an acute care hospital might cost high as \$96,595 (Arnold, 2012). Jones (2008) calculated the replacement cost of each new nurse in 2007 as \$82,000 to \$88,000 each. The study indicated that implementation of the effective preceptorship program decreased the turnover rate by \$186,102 during the first six month periods; and medication errors made by new nurse from 50% to 0%; and the incident rate of adverse events and falls (Lee, Tzeng, Lin, & Yeh, 2009).

Therefore, a well-planned senior preceptorship program may meet the recognized needs of senior nursing students by increasing their competence, confidence, and socialization in the clinical setting and help healthcare agencies reduce orientation costs when they hire participants after the program.

1.1 Purpose of the Study

The purposes of this study were to examine the perception of baccalaureate senior nursing students from diverse ethnic backgrounds about their clinical preceptorship in relation to the degree of interaction with the preceptor and to evaluate their perceptions of competence and confidence in providing care using the nursing process and quality and safety education for nurses (QSEN) core competency skills. The study specifically addressed the following research questions: (a) how competent do the senior nursing students feel about implementing the nursing process at the end of the preceptorship experience?; (b) how competent do the senior nursing students feel about implementing quality and safety education for nurses (QSEN) core competency skills; (c) how confident do the senior nursing students feel about transitioning to new nurses roles; (d) is there a relationship between the level of perceived nursing competency and the degree of interaction with the preceptors by the senior nursing students?; (e) is there a relationship between the level of perceived competency and the level of perceived confidence in senior nursing students? The question is how competent and confident do these senior nursing students feel in mastering the nursing process and providing quality and safe patient care at the end of the preceptorship experience. This study explored students' perceptions of competence in carrying out the nursing process and QSEN core competency skills and confidence in transitioning from students to new nurses during the senior preceptorship.

2.0 Conceptual Framework

The conceptual framework used for this study was derived from concepts embedded in the quality and safety education for nurses (QSEN). The content of the QSEN framework was originally documented by the Institute of Medicine (IOM, 2003) that reported its responses to challenging nations' healthcare needs.

To meet the challenge of future nurses, Cronenwett, Sherwood, Barnsteiner, et al (2007) organized the QSEN framework and identified the knowledge, skills and attitudes of six core competency nursing skills that should be mastered by pre-licensure nursing students. Levels of competency are categorized into three components; beginning, developing, and accomplished for this study. Beginners might demonstrate fundamental levels of nursing knowledge and skills; developing or intermittent level would emphasize system thinking and specialty populations; and accomplished level would focus their content on transition of senior students to practitioners, emphasizing more on quality and safety. The six QSEN competency skills include patient centered care, team work, evidence based practice, quality improvement, safety, and informatics (Cronewett, et al., 2007). Patient centered care recognizes the patient as the source of control and full partner in providing compassionate and coordinated care based on respect for patient's preferences, values, and needs (Cronewett, et al., 2007). For example, students might integrate understanding of multiple dimensions of patient centered care focusing on patient preferences, providing physical care and emotional support. Teamwork fosters collaboration among inter-professional team members by facilitating effective communication and shared decision-making. Evidence based practice promotes the best decision-making for patient care using best current evidence with clinical expertise and patient preference. Quality improvement achieves monitoring of patient care outcomes and standardizes patient care quality. Safety protects individuals from risk of getting harm. Informatics applies health information and technology to manage work flow and support providers of healthcare delivery systems. Therefore, themes included in QSEN aim to meet the challenge of preparing future nurses who should develop competency skills that are necessary for improving the quality and safety of healthcare systems within which they work (Cronewett, et al., 2007). Consequently, patient would receive safe and quality care.

In conjunction with QSEN competency concepts, the nursing process also provided a useful approach to evaluate individual learning experiences. The nursing process uses a problem solving approach to evaluate the effectiveness of nursing care given by the nursing profession. Though the components of the nursing process can be defined differently by various people, the following four steps of the nursing process are applied to this study: assessment, planning, implementation, and evaluation. While each step of the nursing processes can be used as a model to care for a person with health problems, it can also serve as a blueprint to assess a student's progression during preceptorship.

Preceptors and students assess the student's progress based on meeting objectives set for each week of the program, plan for opportunities to meet these objectives, carry out the objectives, and evaluate the effectiveness in meeting the objectives. In this study, both QSEN core competency skills and the nursing process are applied to evaluate the perceptions of senior nursing students about their experiences in a clinical preceptorship program.

3.0 Literature Review

Clinical preceptorship can be defined as a teaching-learning process that facilitates preceptees or learners to achieve new knowledge, skills and attitudes with support of experienced preceptors in clinical practice. During the preceptorship, experienced nurses develop working relationships with new preceptees and facilitate their orientation and integration into their new roles and responsibilities in the professional practice environments (Swihart, 2007). Preceptorship programs are found in most areas of the United States. Preceptees work full shifts for 8 to 40 hours per week and are scheduled to work the same schedule as their assigned preceptors, which could include day, evening, or night shifts. Most preceptorship programs at clinical settings are 8 to 16 week long transitional programs for senior nursing students that have completed the fundamentals of medical surgical and other specialty nursing courses. These programs are more comprehensive than traditional hospital orientation programs for new graduates hired at acute care settings.

The teaching-learning relationship in a senior preceptorship provides a short term solution to the dilemma of transition from a student to a prepared graduate nurse. However ineffective transition may cause new nurses feelings of helplessness. On the grounded theory study, Mellor & Greenhill (2014) claimed that new nurses in transition to practice reported to have feelings of underprepared for practice, overwhelmed by responsibility, and often abandoned when clinical support did not occur. Preceptors serving as role models to students must facilitate their teaching-learning process and socialization. In an ideal teaching and learning atmosphere, the preceptor would be paired up with a student that has similar learning style.

To be effective, a caring relationship was essential and the basis for student learning (Hilli, Melender, Salmu, & Jonsen, 2014); and the preceptor would also help the student develop critical thinking skills (Kaddoura, 2013) and link thinking and doing together (Forneris, 2009); and the hospital should preserve better practice environments that suits nursing foundations for quality of care, nurses' well-being and retention (Shang, Friese, Wu, & Aiken, 2013), and preceptors were, caring, competent, and emphatic. This increased the positive preceptorship experience (Willemsen-McBride, 2010). Preceptors might facilitate students' learning by allowing them to do more tasks, expanding their full scope of practice as they are familiar with the unit and function sufficiently. As the nursing students became more competent and confident in the unit's function, the preceptor might step back and assume the role of resource person and facilitator for nursing students, faculty, or nurse managers (Kim, 2007). However, Omer and colleagues (2013) reported that their study participants preferred the preceptorship that incorporated intensive support with feedback and socialization as more satisfactory than the preceptorship model where increasing students' independence and self-directed learning was required. An effective clinical preceptorship encouraged students' socialization process (Houghton, 2014; Lockwood-Rayermann, 2003), and it allowed students to develop critical thinking (Foley, Myrick, & Yonge, 2012), collaborating with and supporting colleagues, dealing with professional issues, implementing evidence based practice, and performing nursing skills competently.

Nursing preceptorship has implications for students developing their competency skills and confidence in clinical settings. Haggerty, Holloway, and Wilson (2013) identified four factors that supported effective preceptorships as students developed their competence and confidence; four important findings included participants' access to their preceptors, the importance of the preceptor/new graduate relationship, preceptor preparation for their role and the overall culture of support (Haggerty, Holloway, & Wilson, 2013). This indicates that the preceptors are in a unique position to assist students develop competency skills. A study completed by Altmiller demonstrated that the application of QSEN core competency skills in the preceptorship enhanced the orthopedic specialty by deepening the focus on patient safety and high-quality care (Altmiller, 2013), ultimately improving patient care outcomes (Hayes, 2001). Furthermore, the positive experience was identified as the most important determinants of nursing students' attitudes toward nursing (Charleston & Happell, 2004) that led to improved patient care outcomes and student competency.

Pauly-O'Neill and colleagues (2013) compared Quality and Safety Education for Nurses (QSEN) related student experiences during pediatric clinical and simulation rotations; and reported that three of the six QSEN competencies were observed more often than the others during both the simulation and clinical experiences (Pauly-O'Neill, Prion, Nguyen, 2013). This means that additional work needs to be explored to include all QSEN-related knowledge and skills into clinical rotations.

Preceptor role enhances their sense of responsibility and provides them with opportunities to demonstrate competence as a nurse and a teacher. Myrick and Yonge (2002) identified four areas in which preceptors must have strength: role modeling, facilitation, guidance, and prioritization. Preceptors demonstrating these competencies were clinically based nurses that supported nursing students in an effort to provide them the opportunities to reinforce the knowledge and skills in clinical practice (Lockwood-Rayermann, 2003).

Preceptorship has shown to help the student build the confidence and ease their transition from being a student to a nurse. Students may feel more confident in performing nursing procedures under their preceptor's supervision. Preceptorship was particularly beneficial to students in that it could help build the student's confidence and self-esteem (Wieland, Altmiller, Dorr, & Wolf, 2007), increase the level of independent functioning and for attaining competency and confidence, and aided in the application of theory to clinical practice and critical thinking (Mantzorous, 2004). Students who participated in a preceptorship program appeared more confident in their ability to manage care for a patient. For example, students felt a sense of inclusion on the unit and became more actively involved in communicating with other members of the healthcare team (Flynn & Stack, 2006). Precepted students could assume more responsibility, prioritize more acutely ill patients, and perform a greater number of skills than students in a non-precepted course.

Organizational and priority setting are also important skills to learn in preceptorship. A structured way to work could improve the outcomes (Price & Price, 2009). By role modeling organizational skills with a structured way at the beginning of the preceptorship, students could learn more about and apply critical nursing skills necessary to organize and prioritize their work.

The literature review indicates that senior nursing students who had positive preceptorship experiences have demonstrated higher levels of role transition, competency and confidence. Students also effectively promoted the critical thinking ability in the practice settings (Myrick et al, 2012). However, there is a paucity of data available on students' clinical competency and confidence applying the nursing process cycle and QSEN core competency skills that are necessary for providing safe and quality care in clinical practice.

4.0 Methods

4.1 Research Design and Sample

This descriptive study identified perceptions of senior nursing students about their clinical preceptorship experiences in relation to the degree of interaction with the preceptor, examined their perceptions of competency in providing patient care using the nursing process cycle and quality and safety education for nurses (QSEN) core competency skills, and compared the levels of their perceived confidence and competency in demonstrating newly acquired nursing skills before and after the preceptorship experiences. The preceptorship program required 240 hours of clinical experience over the course of 10 weeks with selected preceptors who had expressed interests in working with the students. These preceptors provided one-on-one supervision for students in various clinical settings. Clinical settings were based on students' individual interests and abilities and subject to faculty approval. Both preceptors and students received an orientation packet containing weekly written goals and objectives that communicated the students' interests and needs to the experienced preceptors. Faculty liaison initiated the preceptor/preceptee relationship; participated in initial orientation and midterm- and final evaluation conferences with preceptor and student; and assigned the student's course grade. The assigned preceptor met with the preceptee throughout the experience to review and evaluate objectives and activities in addition to the daily contact in the unit.

The sample included senior nursing students enrolled in the final clinical course of a baccalaureate nursing program in one of the State-funded California universities. Seventy-one percent (95 of $n = 134$) completed the informed consent and the questionnaire during academic year 2010-2012. A total of 95 students were included in the final post-preceptorship survey.

The majority of students described their clinical area as medical/surgical, telemetry, pediatrics, mother-baby units, intensive care units, emergency room, and operating room: The clinical arrangements were made by a clinical placement coordinator upon a request by each student prior to the preceptorship. Students filled out the survey before the preceptorship and after the preceptorship during their final semester: To see the difference in changes of clinical skills, we used the selected student data (n = 28 pre and, n = 29 post) for comparison between pre- and post preceptorship experiences.

4.2 Measurements

The following three instruments were used to collect data from students: Senior Nursing Preceptorship Experience Questionnaire-revised version (Kim, 2007), Graduate Nurse Survey (Casey and Fink, 2006), and Quality and Safety Education for Nurses (QSEN) Core Competency Tools. The Senior Nursing Preceptorship Experience Questionnaire was developed and content analyzed by this author and faculty in the Department of Nursing at the baccalaureate nursing program. Three faculty members teaching senior nursing courses reviewed the questionnaire which was then revised according to their recommendations. Evaluation of the questionnaire by the nursing staff helped to establish content validity. The questionnaire is divided into three categories. The first category consists of opinion statements that evaluate the perception of students' relationship with their preceptors. The second category consists of competency-oriented statements that indicate the students' perceptions about their ability to perform nursing tasks in clinical settings. The third category consists of demographic data. This instrument is a self-administered 67-item questionnaire using a 5-point Likert scale. Specifically, Item 1 ('I feel it is important to have a primary preceptor in the clinical agency') to 12 ('I feel it is important to implement the agency's policies and procedures') were derived from the literature on the theoretical perspective of the nursing preceptorship and the anticipated outcomes of a student preceptorship experience. Item 13 ('I feel I have the competence to identify and assess patients' health care needs') to 55 ('I feel I have competence to demonstrate understanding of reasons for checking at least two identifiers prior to each procedure and administration of medications') were derived from the senior clinical evaluation tool that illustrated the nursing process and professional growth and development.

Items from 56 to 67 asked the students' general demographic information including age, gender, ethnicity, clinical placements, hours of work, past work experiences, etc. A space was available for additional comments or suggestions regarding their preceptorship experiences at the end of the questionnaire. Alpha reliability coefficients were calculated for the different sections of the instrument and ranged from 0.86 to 0.97.

Graduate Nurse Survey (Casey & Fink, 2006) was used to assess students' confidence level in their newly acquired nursing skills before and after the preceptorship program reinforced these same skills. The responses are on a five-point Likert scale (1 – Strongly Disagree to 5 – Strongly Agree). Responses to questions that were negatively phrased were transformed so that the scale was consistent with the responses to the positively phrased questions. The survey had reliability coefficients of 0.78 to 0.92 for students experiencing preceptorship and residency programs (Casey & Fink, 2006). For the current study, alpha reliability coefficients were calculated for the different sections of the instrument and ranged from 0.72 to 0.97 (see Table 2).

Quality and Safety Competency Questionnaire in Transition by the Bay Area Transition Program Evaluation Committee (2010) was used to evaluate participants' six core competency knowledge, skills and attitude. This tool was developed and organized from the Quality and Safety Education for Nurses (QSEN) concepts (IOM, 2003; Cronenwett et al, 2007) and AACN competency guidelines. The Quality and Safety Competency Questionnaire completed by the students at pre- and post-program was divided into six areas of competency: Patient centered care, safety, evidence based practice, teamwork, quality and informatics. The possible responses for each question on the competency questionnaire are: 1 = Beginning, 2 = Developing, 3 = Accomplished. For each student, the sums were obtained from each section and averaged over the students for both pre- and post-surveys. Reliability coefficient of the instrument was calculated separately for each of the six competency questionnaires and ranged from 0.920 to 0.956. In addition, several questionnaire items were obtained from specific class requirements, such as goals and objectives identified both by faculty and students as necessary to enter a clinical preceptorship experience.

4.3 Data Collection and Analysis

After approval of the study by the institutional review board-human subjects (IRB-HS) at the university, a set of questionnaires was administered to each senior nursing student in preceptorship seminar classes during the first week and last week of courses. The study was explained, and each student was requested to read and sign the informed consent. Also students were informed that the surveys were voluntary, independent of their grades, and that their responses would remain confidential. The questionnaires were completed approximately in 15-20 minutes. A designated volunteer collected anonymous questionnaires after they were completed by participants and returned them in sealed envelopes to the researcher who kept collected materials confidentially and securely for data analyses.

Data were collected by means of questionnaire containing test items that elicited opinion- and competency statements as well as confidence measures of senior nursing students. Each category was coded for computer analysis, using the Statistical Package for the Social Sciences (SPSS-21) software. Descriptive statistics included means, medians, standard deviations, percentages, and cross-tabulations.

Summary variables were computed to gauge the per-student-average opinion of the preceptorship program, the per-student-average competency rating and the per-student-average experience rating from; the first 12 questions of the Senior Nursing Preceptorship Questionnaire, the last 43 questions of the Senior Nursing Preceptorship Questionnaire, and the 23 questions of the Graduate Nurses Survey respectively. The Pearson product-moment correlation coefficient was used to show the relationship between these three averages as well as relationships between the individual questions. Bonferonni's adjustment for multiple comparisons was used to adjust the level of significance.

Independent *t*-tests were used to compare the pre- and post-surveys for the reduced data set from one quarter ($n = 28$ pre-surveys and $n = 29$ post-surveys). Per-student averages were calculated for the first 12 questions (Average Opinion) of the Senior Nursing Preceptorship Questionnaire, for the 43 competency questions (Average Competency) of the Senior Nursing Preceptorship Questionnaire, and for the 23 questions (Average Confidence) of the Graduate Nurse Survey.

For the latter average, the responses to the negatively posed questions were transformed to align with the responses of the positively phrased questions.

5.0 Results and Discussion

The first twelve questions of the Senior Nursing Preceptorship Questionnaire measured senior nursing students' opinions of the clinical preceptorship and the interaction with their preceptor. The remaining 43 questions of the Senior Nursing Preceptorship Questionnaire measured self-perceived competency in nursing. The Graduate Nurse Survey measured self-perceived confidence. The QSEN surveys measured self-perceived competency in the six core competency areas.

The results here summarized (1) senior nursing students' opinions about the clinical preceptorship and their relationship with the clinical preceptor; (2) senior nursing students' self-perceived competency about implementing the nursing process and QSEN core competency skills; and (3) senior nursing students' self-perceived confidence in the nursing process. The research questions addressed were: (a) is there a relationship between overall opinion of the clinical preceptorship and self-perceived competency; and (b) is there a relationship between self-perceived competency and self-perceived confidence in the nursing process?

Demographic data were collected and summary statistics calculated. The students tended to be young; their age ranged from 21 to 60 years old (median age 28 years, third quartile 35 years) with the most frequent age being 22 years old. The majority of the students were female (78% female, 22% male, 1 missing datum). Over half (57%) reported having previous healthcare experience.

The internal consistency of the instruments used was measured by Cronbach's alpha. The measures of internal consistency were calculated separately for the sections of the instruments as each was measuring a different attribute of the preceptorship experience. Most showed a high degree of internal consistency with alpha ranging from 0.723 to 0.977. Results are shown in Table 1.

Table 1: Cronbach's Alpha for Instruments Used: Post-Preceptorship Data

Part of Instrument	Number of Items	Cronbach's Alpha
Senior Nursing Preceptorship Experience Questionnaire – Opinion questions	12	0.866
Senior Nursing Preceptorship Experience Questionnaire – Competency questions	43	0.977
Graduate Nurse Survey – Confidence questions	24	0.723
Graduate Nurse Survey - Satisfaction questions	9	0.945
QSEN – Informatics	11	0.928
QSEN – Quality Improvement	13	0.948
QSEN – Safety Med and Blood Admin	14	0.920
QSEN – Evidence Based Pain Management	11	0.948
QSEN – Patient Centered Care	16	0.956
QSEN – Teamwork and Collaboration	12	0.943

To assess the perceptions of the senior nursing students about the clinical preceptorship and their relationship with their preceptor, items 1 through 12 on the Senior Nursing Preceptorship Questionnaire were used. Table 2 shows the mean and standard deviation for these 12 items, and the percentage of students who responded either 'important' to 'very important.' Ninety-eight percent (98%) of the students indicated that it was 'important to very important' to have a primary preceptor who was assigned to work with them throughout the preceptorship in the clinical agency, and only two percent indicated that it was 'somewhat important' and no student indicated that it was 'not important.' All the students responded with important to very important on the items of clarifying their roles, setting goals and objectives, developing a trusting relationship with their clinical preceptor, receiving constructive feedback, and developing positive relationships with staff and faculty. These statements indicate that the students value the one on one preceptorship program and are aware of the importance of constructive feedback, setting appropriate goals and objectives, and developing trusting, positive relationships with other medical staff. A few students indicated that it was either not important (1%) or only somewhat important (4%) to do formal self-evaluations with their preceptor and faculty; and two students (1%) indicated that evaluation of strength and weaknesses with his/her preceptor was only somewhat important.

A several students did not value participation in team meetings and conferences (8% indicated not important or somewhat important) and even more did not value continuing education (14% indicated not important or somewhat important).

Table 2: Summary Statistics of the Responses to Opinion Statements of Senior Nursing Preceptorship Experience Questionnaire (n = 95)

Opinion Statement "I feel it is important to:"	N (%) Responding	Mean (SD)	% Responses with 3 - 5
1. Have a primary preceptor in the agency	95 (100%)	4.71 (0.65)	98%
2. Clarify my role as new graduate with my preceptor	94 (99%)	4.65 (0.63)	100%
3. Set goals and objectives with my preceptor	95 (100%)	4.91 (0.49)	100%
4. Receive assignments based on my ability	95 (100%)	4.61 (0.75)	97%
5. Develop a trusting relationship with my preceptor	95 (100%)	4.93 (0.33)	100%
6. Receive constructive feedback from nurses	95 (100%)	4.67 (0.61)	100%
7. Develop positive relationships with staff	95 (100%)	4.67 (0.59)	100%
8. Do formal self-evaluations with preceptor and faculty	95 (100%)	4.29 (0.91)	95%
9. Evaluate my strengths and weaknesses with my preceptor	95 (100%)	4.67 (0.64)	99%
10. Participate in team conferences	94 (99%)	4.11 (1.03)	91%
11. Attend continuing education	94 (99%)	3.82 (1.13)	86%
12. Implement the agency's policies and procedures	95 (100%)	4.75 (0.58)	99%

Note: Scale of response: 1- Not important, 2- Somewhat important, 3- Important, 4- Moderately Important, 5 – Very Important

The latter part of the Senior Nursing Preceptorship Experience Questionnaire addressed competency by having students to complete statements: 'I feel I have the competence to identify patients' healthcare needs.' The responses ranged from 1 – not competent to 5 – very competent. The statements were divided into assessment skills (3 items), planning (10 items), implementation (22 items), and evaluation (8 items). The majority of the students reported that they were competent to very competent on each skill. Table 3 shows the mean and standard deviations for the average of the items in each skill category from the survey given at the end of the preceptorship. The average response for the each category was between moderately competent and very competent; the small standard deviations indicate very few students responded on the lower end of the scale (not competent). There were only 10 items with 'not competent' indicated, they were: 'maintain IV infusion therapy' (1%), 'insert nasogastric tubes' (7%), 'open wound care' (1%), 'set up I-Med suction and feeding without supervision' (6%), 'implement discharge plan' (2%), 'admit new patient without supervision' (7%), 'transcribe MD's orders' (4%), 'delegate assigned tasks' (1%), 'utilize and navigate patient care information on HIT' (1%), and 'integrate research findings into practice' (1%).

Table 3: Students' Perceived Competency Levels Using the Senior Nursing Preceptorship Experience Questionnaire (n= 95)

Skill Category (number of items)	n (%)	Mean	Standard Deviation
Assessment (3)	94 (99%)	4.26	0.66
Planning (10)	92 (97%)	4.01	0.72
Implementation (22)	92 (97%)	4.01	0.68
Evaluation (8)	93 (98%)	4.09	0.65

The Graduate Nurse Experience Survey contains 24 items addressing the confidence of the senior nursing students. The Likert scale 1 – strongly disagree to 5 – strongly agree (with 3 – neutral) was used to evaluate the statements.

Items that were negatively phrased were recoded so that all responses of 1 indicated a lack of confidence and all responses of 5 indicated a very high degree of confidence. The resulting responses were averaged over the 24 questions for each student. The summary statistics of these per-student averages over 24 items indicated a mean of 3.84 (SD = 0.42) and ranged from 2.83 to 4.67. Eleven of the students did not fill out the survey. Of the 84 who did, 70 (83%) had averages of 3.5 or higher. Thus, on the average the students showed agreement in feeling confident in their nursing skills.

To study the relationship between the overall opinion of the clinical preceptorship and self-perceived competency; an average opinion score was calculated per-student averages for the first twelve questions on the Senior Nursing Preceptorship Experience Questionnaire; an average competency score was calculated per-student averages for the last 43 questions on the Senior Nursing Preceptorship Experience Questionnaire; and the above-described per-student average for the Graduate Nurse Survey was used. Pearson's correlation coefficient for average opinion with average competency was $r = 0.4$ ($p\text{-value} = 0.006$), for average opinion with average Graduate Nurse Survey was $r = 0.38$ ($p\text{-value} = 0.02$), and for average competency with average Graduate Nurse Survey was $r = 0.67$ ($p\text{-value} < 0.001$). The per-student averages for opinion, competency and confidence were significantly correlated, although not strongly correlated. This indicates that students who perceived to be competent also perceived that they were confident with nursing care.

To further examine these relationships, correlation coefficients were calculated between the individual questions. Each opinion item was correlated with each competency item on the Senior Preceptorship Experience Questionnaire and with each of the confidence items on the Graduate Nurse Survey. In addition, the Graduate Nurse Survey items were correlated with themselves. Bonferonni's adjustment for multiple comparisons was used to adjust the level of significance. For example, there was a significant correlation ($r = 0.4$, $p = 0.001$) between assignment based on students' ability and competency teaching and implementing patient safety; participation in team conference was correlated with identifying special patient care needs; checking side effects of medication; collaboration ($r = 0.4$, $p < 0.001$); patient teaching ($r = 3.8$, $p < 0.001$); and admitting patients ($r = 0.38$, $p < 0.001$). No significant correlations were found between the twelve opinion items of the Senior Preceptorship Experience Questionnaire and the 24 confidence items of the Graduate Nurse Survey. The results are shown in Table 4 and Table 5.

Table 4: Significant Correlation Coefficients for Opinion versus Competency Questions of Senior Nursing Preceptorship Experience Questionnaire (n = 95)

Opinion Question	Competency Questions with $p < 0.001$, r and n
4. Assignments based on Ability	41. Teach & Implement Patient Safety, $r = 0.4$
10. Participation of Team Conference	15. Identify Special Needs, $r = 0.39$
	19. Check Side Effects of Medication, $r = 0.37$
	25. Collaboration, $r = 0.38$
	26. Patient Teaching, $r = 0.38$
	36. Admit Patient, $r = 0.38$
11. Continuing Education	16. Receive Patient Reports, $r = 0.36$

Table 5: Significant Correlation Coefficients for the Graduate Nurse Survey (n = 95)

Graduate Nurse Survey Question	Graduate Nurse Question Correlations with p-values < 0.001, $r < - 0.5$ or $r > 0.5$ and n
4. Help from RNs	7. Staff/New Situations, $r = 0.51$
	9. Supportive Nurses, $r = 0.57$
5. Difficulty Prioritizing Patient Needs	8. Overwhelmed, $r = 0.59$
	16. Diff Org Pt Needs, $r = 0.52$
6. Preceptor Encouragement	19. Preceptor aides developing Confidence, $r = 0.73$
7. Staff available in New Situations	9. Supportive Nurses, $r = 0.77$
	18. Positive Role Models, $r = 0.64$
	19. Preceptor aides in Confidence, $r = 0.51$
8. Overwhelmed	13. Realistic Expectations, $r = - 0.57$
	16. Diff Org Patient Needs, $r = 0.52$
9. Nurses are Supportive	18. Positive Role Model, $r = 0.54$
	19. Preceptor/Confidence, $r = 0.53$
10. Multiple Practice of Skills	21. Satisfied Specialty, $r = 0.56$
13. Realistic Expectations	14. Prepared to Complete, $r = 0.64$
14. Prepared to Complete Job Responsibilities	15. Making Suggestions, $r = 0.51$
16. Difficulty Organizing Patient Needs	17. Harm Patient, $r = 0.52$
18. Positive Role Models	19. Preceptor/Confidence, $r = 0.53$
21. Satisfied with Specialty	22. Work Exciting/Challenging, $r = 0.75$

5.1 Comparing Pre-Survey Responses with Post-Survey Responses

For one of the quarters, students filled out the surveys both before the preceptorship program and after the preceptorship program; per-student averages for Opinion (average of the first 12 opinion items of the Senior Nursing Preceptorship Questionnaire), for Competency (average of the 43 competency items of the Senior Nursing Preceptorship Questionnaire), and for Confidence (average from the Graduate Nurse Survey). There were highly significant differences (p -value < 0.001) between the pre- and post- means of the per-student-averages for Confidence and for Competency, but no significant difference in the pre- versus post-program means of the Opinion averages. The latter result could be interpreted that the students placed value on the program before experiencing the program. The significant differences show that the program is effective in improving feelings of competence and confidence. The means increased about 0.80 points for each of the surveys. The post-preceptor averages were well over 4.00 on a 5-point Likert scale. The summary statistics along with p -values and 95% confidence intervals for difference in pre-program mean and post-program mean are shown in Table 6.

Table 6: Results for Pre-Program minus Post-Program per-Student-Averages

Survey (# items)	Pre-program Mean (SD), $n = 28$	Post-program Mean (SD), $n = 29$	p -value	95% CI for difference in means (Pre minus Post)
Opinion (12 items)	4.58 (0.59)	4.66 (0.44)	0.586	- 0.35 to +0.20
Competency (43 items)	3.44 (0.71)	4.20 (0.65)	< 0.001	-1.12 to - 0.39
Confidence (24 items)	3.38 (0.42)	4.22 (0.45)	< 0.001	-1.08 to -0.59

Note: All surveys on a 5-point Likert scale

5.3 Quality and Safety Education for Nurses (QSEN) Results

QSEN Questionnaires was used to evaluate participants' six core competency knowledge, skills and attitude.

Key items were selected from each of the six categories. The nursing student was asked to self-evaluate their skills as ‘beginning,’ ‘developing,’ ‘accomplished,’ or ‘N/A.’ Seventy-four nursing students completed the survey. The summary is shown in Table 7. For all except one item, the majority of the nursing students felt ‘accomplished;’ the highest percent ‘accomplished’ was 80%. The one item with less than a majority (44%) feeling ‘accomplished’ was under Teamwork and Collaboration: ‘Provides clear and concise patient report to other members of the healthcare team utilizing SBAR or other tool.’ Most of the students did not perceive themselves to be ‘beginning.’ Nine of the 22 items had no students reporting a ‘beginning’ competency and the highest percentage was 7% for ‘Uses organizational error reporting for near miss and error’ under Safety Medication and Blood Administration.

Table 7: Responses to Select OSEN Items by Core Competency (n = 74)

Core Skill	Item	Beginning (% of n)	Developing (% of n)	Accomplished (% of n)	N/A (% of n)
Informatics	Documents and plans patient care in electronic health record	3 (4%)	23 (32%)	36 (50%)	10 (14%)
	Applies technology and information management tools	3 (4%)	24 (33%)	44 (61%)	1 (1%)
	Understands how HIPAA applies to computerized systems	1 (1%)	20 (28%)	50 (69%)	1 (1%)
Quality Improvement	Documents accurately patient’s clinical condition	0	19 (28%)	49 (71%)	1 (1%)
	Adheres to the aims, measures and changes in improving care	2 (3%)	21 (31%)	46 (67%)	0
	Progressively demonstrates ability to identify concerns and intervene in an effective and timely manner	2 (3%)	25 (36%)	42 (61%)	0
Safety	Follows policy and procedures for administration of IV medications, blood/blood components	0	17 (25%)	50 (73%)	2 (3%)

	Able to keep track of multiple responsibilities	2 (3%)	24 (36%)	40 (60%)	1 (1%)
	Able to anticipate risk. Conducts appropriate follow-up after medication	1 (1%)	25 (37%)	40 (60%)	1 (1%)
	Applies the basic principles and practices of sterile asepsis	0	17 (25%)	51 (74%)	1 (1%)
	Completes medication administration within time frame	0	20 (29%)	48 (71%)	0
	Uses organizational error reporting for near miss and error	5 (7%)	17 (25%)	35 (52%)	11 (16%)
Evidence Based Practice	Asses patient's attitude about use of analgesics, adjuvant drugs, non-pharmacological treatments	2 (3%)	23 (34%)	43 (63%)	0
	Observes for nonverbal and behavioral signs of pain	0	18 (27%)	50 (74%)	0
	Takes initiative to advocate for patients	1 (1%)	21 (31%)	46 (68%)	0
Patient Centered Care	Completes a comprehensive health history/ appraisal of patients issues and needs	2 (3%)	26 (38%)	38 (55%)	3 (4%)
	Provides patient education as needed	0	16 (23%)	53 (77%)	0
	Conducts comprehensive assessment of all patient systems	1 (1%)	19 (28%)	49 (71%)	0
	Provides patient-centered care with sensitivity, empathy, and respect	1 (1%)	13 (19%)	55 (80%)	0
Teamwork and Collaboration	Provides clear and concise patient report to other members of the healthcare team utilizing SBAR or other tool	0	36 (55%)	29 (44%)	1 (1%)
	Asks questions to appropriate team member when unsure about any aspect of care	0	19 (29%)	46 (71%)	0
	Uses appropriate language and tone when resolving conflict	0	16 (25%)	48 (74%)	1 (1%)

6.0 Discussion

This descriptive study identified perceptions of senior nursing students about their clinical preceptorship experiences during the capstone practicum, evaluated their perceptions of competency in providing care using the nursing process and quality and safety education for nurses (QSEN) core competency skills, and examined the levels of their perceptions of confidence and competency acquiring nursing skills before and after the preceptorship experiences. The results indicated that the clinical preceptorship program increased the overall perceived competency skills and confidence of senior nursing students. Outcomes of the study demonstrated that the levels of students' perceived competency was positively associated with the level of their interaction with preceptor, indicating that the increased preceptor interaction, there was a greater perceived competency levels in students. There also was a significant correlation between the overall competency level and confidence level among students; however there was no relationship between the amount of preceptor interaction and the degree of perceived confidence.

Findings from the previous study suggest that the development of a professional working relationship between the preceptor and student was a vital aspect of the preceptor-guided practicum experience (Haitana& Bland, 2011; Kim, 2007). These findings are consistent with our current study in that the majority of our participants also rated their relationships with the preceptors as 'important to very important.' This confirms findings from another study where authors reported that; when students met with their preceptors on a regular basis (54%), the preceptor provided more guidance and support and facilitated stress reduction for the majority of the participants (Beecroft, Santner, Lacy, Kunzman, & Dorey, 2006). A positive professional relationship enabled the students to better socialize and learn clinical skills.

In an ideal teaching and learning atmosphere, the preceptor would be paired up with a student with a similar learning style. However such a pairing was not possible due to limitation of students setting preferences and availability of preceptors; participants reported that it was 'very important' to have a primary preceptor in the clinical setting.

This confirms findings from two other studies that a one-to-one relationship in the preceptorship experience fostered a rich and successful learning environment, and implications for nursing education, practice and research (Luhanga, Billay, Grundy, Myrick, & Yonge, 2010); and one-to-one preceptorship increased the positive preceptorship experience (Willemsen-McBride, 2010). Setting goals and objectives with their preceptors and developing trusting relationships with preceptors were also reported as 'very important.' Assignment based on students' ability was significantly related to the students' competency teaching and implementing patient safety. Furthermore, participation in team conference was correlated with identifying special patient care needs; checking side effects of medication; collaboration with interdisciplinary team members; patient teaching; and admitting new patients by students.

The majority of the students reported that they were competent to very competent in performing each skill of the nursing process cycle by the end of their preceptorship. Of the nursing process steps; assessment, planning, implementation and evaluation, students were most competent in performing skills related to assessment. The significant differences from initial and final survey responses indicated that the program was effective in improving students' clinical competence as well as their confidence demonstrating each step of the nursing process cycle.

With a greater amount of confidence, there was a greater degree of perceived nursing competence in skills. This result coincides with the study reported by Shepard (2009) in that the author reported that the preceptorship enhanced learning and the overall perceived competency and confidence of the nursing students; and Wieland, Altmiller, Dorr, & Wolf (2007) on their qualitative study also noted that students' confidence increased with their performance; 'stimulated by the challenge, students became increasingly comfortable with, and proud of their developing skills.' In this study, the clinical preceptorship facilitated the transition of critical period between education and competent practice where the senior nursing student experienced practice and received support from their preceptor in order to develop professionally and improve clinical competence, confidence and socialization skills.

The majority of the students reported that they felt 'accomplished' providing patient-centered care with sensitivity, empathy, and respect on the QSEN core competency tools. Students were able to provide patient education as needed.

On their QSEN report, Cronenwett and colleagues also documented that pre-licensure nursing students could integrate their understanding of multiple dimensions of patient-centered care; recognize personally held attitudes about working with patients from different ethnic, cultural and social backgrounds; and improve knowledge, skills and attitude related to patient-centered care (Cronenwett, et al., 2007). Students rated the highest on the patient-centered care category of QSEN followed by, teamwork and quality improvement. In evaluation of QSEN competency skills, the majority of the students reported that they felt “developing and accomplished” on survey items. This finding confirms from a study conducted by McKown, McKeon, and Webb (2011) where authors evaluated the effectiveness of a new academic-practice unit in facilitating QSEN competency achievements among 12 students, and they found that the majority of students achieved QSEN competencies through clinical mentoring in interdisciplinary collaboration, using electronic information for best practice and patient teaching, patient/family decision making, quality improvement, and resolution of safety issues. Pauly-O'Neill, Prion, and Nguyen (2013) also reported that three of the six QSEN competency skills were observed more often than the others during clinical experiences. This supports outcomes of the current study. The process of evaluating the patient care and education by students as a group puts together a compendium of the highest quality, and improves patient-centered care, and updates patient education on the unit (Day & Smith, 2007).

6.1 Strengths and Limitations

Clinical preceptorship allows senior nursing students to participate in a unique learning experience that could never be replicated in a classroom setting. The strength of the study was that the evaluation of the clinical competency and confidence of senior nursing students occurred during their capstone year, giving the researchers insight into the students' perceptions at that very moment. Specifically the study identified the perceptions of senior nursing students about their relationships with the assigned preceptors, evaluated clinical competency skills and confidence using the nursing process cycle and QSEN core competency tools. These perceptions serve as benchmarks for assessing the successful segue from senior nursing students into staff nurses.

The limitations of the study include the use of sample from only two school sites under one type of the nursing program. This may have captured additional ideas if students from a greater number of nursing programs were considered. A second limitation was variables that were beyond control, including the diversity of assigned preceptors, individual students' work experiences, and different clinical specialty placements resulting in different clinical experiences. Further research in this area that increases types of nursing programs and additional geographical representation is warranted. Additionally, research using both preceptors and preceptees may provide additional information that would be valuable for the preceptorship.

6.2 Conclusions

Clinical preceptorship provides the senior nursing student with an experience as close to an actual work situation as possible in a less threatening atmosphere. It helps students with the opportunity to gain nursing knowledge, skills, and attitudes of QSEN core competency skills and fundamental framework necessary for carrying out the nursing processes: assessment, diagnosing, planning, implementation and evaluation. Results of the study showed that the nursing competency skills and confidence among students improved over time. Outcomes of the study indicated that most of the students felt that it was important to have a primary preceptor in the clinical agency. However the success in improving the competency skills was not related to having a primary preceptor on the unit. The important finding in the study again was that the greater amount of interaction with preceptors for senior nursing students, the greater degree of nursing competency skills. There was a significant correlation between the mean competency score and mean confidence score, indicating that the students who perceived that they were competent also perceived themselves as confident. Given this information, feelings of competency and confidence are more of a function of time on the unit than of having a primary preceptor. Since senior preceptorships can vary from 8 weeks to 16 weeks or 90 hours to 240 hours, further studies should be conducted on students' feelings of competence and confidence among programs with different lengths of preceptorships to explore the possibility of standardizing preceptorship weeks/hours of commitment. This information is useful to nursing education as educators continue strive to reconcile the lack of preparedness for the new staff role that employers see in new graduates.

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