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Student Perceptions of Quality and Safety Competencies

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Abstract

Aim/Purpose: The purpose of the study was to evaluate senior students' level of preparedness to perform and perceived importance of 22 QSEN-related skills over a three year project period.

Background: The national Quality and Safety Education in Nursing (QSEN) project promotes student learning in the provision of safe, quality health care. One Midwestern nursing program attempted to address health care challenges by purposefully utilizing the QSEN competencies for curricular changes.

Methods: This study collected data from students in their final semester of a baccalaureate program using the QSEN Student Evaluation Survey.

Results/Findings: Students reported they were somewhat prepared to perform skills related to all six QSEN competencies. Students perceived all QSEN related skills as being at least somewhat important.

Conclusions: As a result of this study, the nursing program identified areas to be developed for further growth and utilized findings to aid in curriculum revision.

Keywords: Nursing Education, Baccalaureate, Nursing Students, Safety, Quality

Introduction

In response to the Institute of Medicine's (1999) report regarding the number of patient deaths every year in the United States from errors in health care, various approaches have been implemented in an attempt to improve quality and safety in health care. Specific to nursing education, the Robert Wood Johnson Foundation funded a national study to evaluate and enhance nursing curricula in terms of patient safety and health care quality, utilizing the Institute of Medicine report as a framework for development. As a result,

the Quality and Safety Education in Nursing (QSEN) project evolved and has transitioned through several phases over the last decade (QSEN Institute, 2013). The first phase began with the development of six competencies including patient centered care, teamwork and collaboration, evidence-based practice, quality improvement, safety, and informatics. The competencies, subdivided to include 128 knowledge, skill, and attitude objectives, are intended to prepare and engage nursing students as partners in the work of improving patient safety and outcomes as well as health care systems (QSEN Institute, 2013). As the QSEN project evolved, funding to the University of North Carolina and the American Association of Colleges of Nursing promoted faculty development activities for undergraduate and graduate level faculty aimed to assist nurse educators in discovering effective ways to promote student learning regarding the provision of quality and safe health care. Additionally, the relationship between QSEN and national accrediting agencies such as the National League for Nursing and the American Association of Colleges of Nursing was further expanded to emphasize the integration of the six competencies and corresponding knowledge, skill, and attitude objectives into nursing curricula across the nation. To aid in this nationwide effort, the American Association of Colleges of Nursing (2008) also made the Institute of Medicine report and the QSEN competencies a component of *The Essentials of the Baccalaureate Education for Professional Nurses*. Although the original source of funding from the Robert Wood Johnson Foundation has ended for the QSEN project, Case Western Reserve University has assumed leadership through supporting the website, QSEN national forums, and launch of the QSEN Institute (Bednash, Cronenwett, & Dolansky, 2013).

Purpose

The Simulation Informatics Technology Enhancement (SITE) project, occurring over three years, was initiated by faculty at a Midwestern public university as a strategy to implement increased simulation and other technology-related learning activities with a stronger emphasis on the QSEN competencies. The SITE project was supported by Health Resources and Services Administration funding, specifically the Nurse Education Practice Quality and Retention program.

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As a result of the three-year project, each year students were provided with more exposure to QSEN-specific activities in simulation and classroom experiences. The purpose of the study described here was to evaluate changes in student perceptions of preparedness to perform, and their perceptions of the importance of the six overall QSEN competencies and the subdivided 22 QSEN-related skills during each year of the three year project.

Review of the literature

A review of the literature, which included studies done from 2003–2015, was done using the following databases: CINAHL, Ovid, and Eric. Keywords used for the search were *quality and safety nursing education, student perception, simulation, student attitude, and undergraduate nursing education*. Research study manuscripts that reported results of measurement of student attitudes or perceptions of quality and safety in undergraduate education were included in the review. Manuscripts were excluded that reported research results on evaluation of simulation, QSEN competencies in graduate education, evaluation of QSEN tools, or quality and safety reports or benchmarking data. There are limited numbers of studies found in the literature since the national QSEN project, initiated in 2005, is still relatively new to undergraduate nursing curricula (QSEN Institute, 2013). Furthermore, there are also very few studies evaluating student perceptions of the QSEN competencies.

A study by Sullivan, Hirst, and Cronenwett (2009) aimed at assessment of the student perspectives of quality and safety content in their nursing programs along with self-reported preparedness and perceived importance of all six QSEN competencies. An electronic student evaluation survey was sent to graduating nursing students ($n = 565$) from 17 nursing schools in the United States. Results showed that pre-licensure nursing students from all 17 nursing schools perceived QSEN competencies as very important to their future professional nursing practice. Of all six QSEN competencies, the pre-licensure nursing students in this study perceived patient centered care as the most important skill level. Quality improvement, on the other hand, was rated to be the lowest perceived skill level and among the topics of lowest importance. Furthermore, the study also pointed out that clinical lab and simulations were underused in quality and safety education. These settings were identified to be potentially conducive environments for teaching the knowledge, skills, and attitudes related to the QSEN competencies.

Miller and LaFramboise (2009) conducted a pilot study to evaluate students' perceptions of their knowledge,

skills, and attitudes related to the six QSEN competencies. The study also examined the effect of integrating structured classroom and clinical content on senior-level nursing students' perceptions. Results showed that students in the intervention group perceived their knowledge, skills, and attitudes to be adequate or positive. Faculty members were also surveyed in this study and reported that their understanding and inclusion of QSEN competencies were well developed in the nursing courses. The results further showed that a combination of classroom and clinical learning activities had the strongest impact on student knowledge, skills, and attitudes related to QSEN.

One study by Djukic et al. (2013) provided an interesting perspective on the need to assess the effectiveness of the inclusion of quality and safety competencies in pre-licensure education through research with newly licensed registered nurses. The authors surveyed two cohorts of new registered nurses in 2004–2005 and 2007–2008 regarding their educational preparedness for the six QSEN competencies. Findings indicated a significantly greater increase in preparedness for evidence-based practice and quality improvement during the three year time span. While these results indicate some progression regarding education preparation for the QSEN competencies, they also indicate the need for further and ongoing assessment of the competencies.

The existing studies provide interesting results and indicate a gap in the literature regarding student perceptions of the QSEN competencies. While most of the studies emphasize the assessment and evaluation of the QSEN competencies, additional studies are needed which assess pre-licensure nursing student perceptions of the QSEN competencies.

Other literature regarding QSEN competencies that was eliminated from the literature review was related to associate degree education (Jones, 2013) and overall faculty perceptions of QSEN (Miller & LaFramboise, 2009; Pollard et al., 2014; Smith, Cronenwett, & Sherwood, 2007). While there are some existing studies that focus on assessment and evaluation of the QSEN competencies, they also support that additional studies are needed as QSEN competencies are further integrated into nursing curricula.

Methods

Background

As the QSEN project began to roll out nationwide, our College of Nursing deliberately planned several steps to

introduce faculty to the QSEN competencies and corresponding knowledge, skill, and attitude objectives for curricular improvement. Two faculty attended the initial QSEN National Forum in 2010, and, over the next two years, additional faculty members participated in the Regional QSEN Faculty Development Institutes. Additionally, a nationally recognized QSEN expert provided a one-day campus consultation in spring 2011. During the following months, faculty continued their dialogue on the curricular implications of QSEN during informal meetings. Widespread faculty exposure to QSEN served as a catalyst for curricular assessment and redesign, including the immediate integration of the terminology from the QSEN competencies into course assignments and clinical learning activities. The six competencies and 128 knowledge, skill, and attitude objectives also provided the foundation for later curriculum changes.

Study design and sample

A convenience sample of students from three campus locations were included in this Institutional Review Board approved descriptive study. All participants were asked to complete a brief demographic form and the QSEN Student Evaluation Survey. Each year of the project (2011–2014), all senior baccalaureate nursing students ($n=830$) at the three campus locations were invited to participate in this study with a total of 461 students completing the survey (response rate = 55%).

Instrument

The QSEN Student Evaluation Survey, developed by Sullivan et al. (2009) is organized into three scales in order to assess knowledge, skills and attitudes. For the purpose of this manuscript, skill and attitude results will be reported and discussed. The QSEN Student Evaluation Survey includes 22 representative skills organized by each of the six QSEN competencies. To assess self-reported preparation to perform skills and attitude regarding perceived importance of the skills, students scored each of the 22 skills on a four-point Likert scale. Response choices for student preparation were 1 = very unprepared, 2 = somewhat unprepared, 3 = somewhat prepared, or 4 = very prepared. Options for student perceived importance were 1 = very unimportant, 2 = somewhat unimportant, 3 = somewhat important, 4 = very important.

Sullivan et al. (2009) assured validity through expert review and used the results from their pilot testing to

provide further clarity of the instrument. Reliability was not reported by the original authors. In this study, the instrument yielded a reliability co-efficient of .969 for the skills subscale and a reliability coefficient of .979 for the attitudes subscale.

Procedure

During the three year SITE project period (2011–2014), all senior students at each of the three campus locations enrolled in their final semester of the nursing program were approached a few weeks prior to graduation and asked to voluntarily complete the demographic form and the QSEN Student Evaluation Survey, using the online survey tool, Qualtrics. Students were instructed to answer the survey questions reflecting how they felt as senior nursing students. Since the survey tool was administered online, a faculty member or a researcher from this study visited the students during a regularly scheduled class time to explain the study and answer any questions.

Data analysis

Data analysis was completed using IBM SPSS (Statistical Product and Service Solutions) Statistics Software version 22 (IBM Corporation, Armonk, NY). Descriptive statistics were conducted, including summing each of the two scales on the QSEN Student Evaluation Survey. Overall mean scores for each of the six QSEN competencies were calculated for each of the three project years. Additionally, mean scores that reflected data for the overall three year project period were calculated for each of the 22 individual QSEN-related skills. Differences in overall mean scores for each of the QSEN competencies across the three project years were calculated using one-way analysis of variance (ANOVA). A p value of <0.05 was used to indicate statistical significance.

Findings

Levels of perceived preparedness

On one scale of the QSEN Student Evaluation Survey, students were asked to rate their preparedness to perform the 22 representative skills organized by each of the six QSEN competencies. A higher score indicated a perception of better preparedness. The overall means for each of

Table 1: Student levels of perceived preparedness by QSEN competency.

QSEN Competency	Year 1		Year 2		Year 3	
	Mean	SD	Mean	SD	Mean	SD
Patient Centered Care	3.46	0.61	3.46	0.75	3.45	0.70
Teamwork & Collaboration	3.20	0.70	3.32	0.76	3.30	0.73
Evidence-Based Practice	3.39	0.60	3.33	0.78	3.30	0.75
Quality Improvement	3.15	0.73	3.22	0.76	3.16	0.75
Safety	3.37	0.64	3.41	0.77	3.35	0.71
Informatics	3.55	0.63	3.50	0.75	3.48	0.72

Note: Response choices: 1 = very unprepared; 2 = somewhat unprepared; 3 = somewhat prepared; 4 = very prepared; Sample size for year 1 = 55, year 2 = 176, year 3 = 225; No significant differences found across three measurement times.

the six competencies were calculated for each year of the three year project, and ranged from 3.15 to 3.55 (see Table 1). During all three years of the SITE project, students perceived themselves as least prepared regarding the QSEN competency of quality improvement and most prepared regarding informatics. No statistically significant differences were found in students' perceived preparedness for the six QSEN competencies across the project years.

The students indicated they were "somewhat prepared" for a majority of the 22 individual QSEN-related skills. The individual QSEN-related skill within the competency of teamwork and collaboration with the lowest mean rating was "Consult with clinical experts before deciding to deviate from evidence based protocols" (mean score across years 1–3 = 2.97). The individual skill within the QSEN competency of informatics which received the highest mean score was "Document and plan patient care in an electronic health record" (mean score across years 1–3 = 3.63).

Levels of perceived importance

An additional scale on the QSEN Student Evaluation Survey asked students to rate the 22 representative skills organized by the six QSEN competencies according to importance to nurses in their first year of practice. A higher score indicated the perception that the skill or QSEN competency was of greater importance. The overall means for each of the six QSEN competencies were calculated for each year of the three year project and ranged from 3.49 to 3.87 (see Table 2). During all three years of the SITE project, quality improvement was perceived as least important by students. Patient centered care was perceived

Table 2: Student levels of perceived importance by QSEN competency.

QSEN Competency	Year 1		Year 2		Year 3	
	Mean	SD	Mean	SD	Mean	SD
Patient Centered Care	3.85	0.43	3.87	0.43	3.74	0.60
Teamwork & Collaboration	3.82	0.46	3.83	0.46	3.69	0.63
Evidence-based Practice	3.63	0.68	3.76	0.51	3.61	0.68
Quality Improvement	3.49	0.79	3.70	0.58	3.54	0.72
Safety	3.81	0.55	3.86	0.43	3.76	0.58
Informatics	3.76	0.55	3.86	0.45	3.70	0.64

Note: Response choices: 1 = very important; 2 = somewhat important; 3 = somewhat important; 4 = very important; Sample size for year 1 = 55, year 2 = 176, year 3 = 225; Significant differences found during years 2 and 3 for the following competencies: patient centered care, teamwork and collaboration, evidence-based practice, quality improvement, and informatics.

as most important during years one and two of the study with safety perceived as most important during year three. There were statistically significant differences found between groups for the following competencies as determined by one-way analysis of variance: patient centered care ($F(3.650) = 2, 439, p = 0.027$); teamwork and collaboration ($F(4.783) = 2, 442, p = 0.009$); evidence-based practice ($F(3.285) = 2, 440, p = 0.038$); quality improvement ($F(3.609) = 2, 439, p = 0.028$); and informatics ($F(4.577) = 2, 441, p = 0.011$). No statistically significant difference was found between groups for safety ($F(1.903) = 2, 442, p = 0.150$). A Tukey post-hoc test revealed that significant differences occurred during project years 2 and 3 for all competencies except safety: patient centered care ($p = 0.026$); teamwork and collaboration ($p = 0.008$); evidence-based practice ($p = 0.034$); quality improvement ($p = 0.50$); and informatics ($p = 0.008$).

The individual QSEN-related skill, "locate evidence reports related to clinical practice, topics and guidelines," received the lowest mean score and was within the competency of evidence-based practice (mean scores across years 1–3 = 3.53). The individual skill within the QSEN competency of patient centered care with the highest mean score was "Assess presence and extent of pain and suffering" (mean score across years 1–3 = 3.85).

Discussion

Student level of preparedness

There were no significant changes found in students' perceived preparedness of the six QSEN competencies across

the three project years. Students indicated they were “somewhat prepared” to “very prepared” for a majority of the individual QSEN-related skills. A study by Sullivan et al. (2009) in which similar results were found validates these findings. Furthermore, Sullivan et al. (2009) found students were most prepared in skills related to patient centered care and informatics and least prepared in skills related to evidence-based practice and quality improvement. Students in this study also perceived they were most prepared in skills related to patient centered care and informatics and least prepared in skills related to quality improvement. Additionally, they also felt unprepared for skills related to teamwork and collaboration.

The lack of significance changes in preparedness over the three project years may be attributed to several curricular changes done within the College of Nursing prior to the start of the project. For example, in regards to the teamwork and collaboration competency, clinical simulation scenarios, developed prior to the start of the project in 2011, included simulated members of the health care team. As part of these simulations, nursing students were able to play the role of other health care disciplines and interact as a member of the interprofessional team. This preceded the recent emphasis on interprofessional teamwork and collaboration at the state and national levels. This exposure may have contributed to the general lack of change in perceived preparedness in regards to teamwork and collaboration throughout the SITE project period.

Furthermore, in regards to the informatics competency, proficiency with technology has been required since 2003 when the individual student “laptop in the classroom” was instituted. Students have also gained exposure by utilizing various clinical agency’s electronic health record systems for data retrieval and documentation during clinical hours. Magnet-recognized facilities allow students access to patient charting and documentation following specialized agency- required training sessions. Additionally, the College of Nursing also implemented an academic electronic health record during fall 2011 for use in simulations and laboratory experiences. As simulations were developed and implemented as part of the SITE project, students utilized the campus-based electronic health records more frequently. This previous exposure to various aspects of informatics may have attributed to the lack of change in students’ perceived preparedness.

Student level of importance

There were significant changes found in students’ perception of the importance of five of the six QSEN competencies

across the three project years, including patient centered care, teamwork and collaboration, evidence-based practice, quality improvement, and informatics. No statistically significant difference was found between groups for safety. Students perceived patient centered care as most important during years 1 and 2 of the project and safety as most important during year 3. Quality improvement was perceived as least important. Sullivan et al.’s (2009) study further supports these findings. Their research indicated patient centered care was most important with evidence-based practice and quality improvement determined as least important.

Significant changes in teamwork and collaboration, evidence-based practice, quality improvement, and informatics may be attributed to curricular changes that were occurring during the project years. Parallel work conducted by faculty to map the curriculum against all six competencies and 128 knowledge, skill, and attitude objectives identified gaps in each of these areas and specific plans for inclusion of necessary content were implemented. As faculty gained knowledge about the QSEN competencies, templates developed for simulations, including the student guides for preparation and debriefing, and for assignments also heavily emphasized the six QSEN competencies. During this time, textbook authors and publishers also began to emphasize the QSEN competencies throughout their textbooks as new editions were printed. These deficits were also addressed as a part of curriculum revision efforts, with a new curriculum beginning in fall 2014.

While the parallel work by faculty to map the curriculum against all six competencies and 128 knowledge, skill, and attitude objectives did not identify gaps related to patient centered care and therefore, no specific strategies were implemented to further highlight this competency, there was a significant difference between project years 2 and 3. While the rationale for this change is unknown, speculation is that it could perhaps be due to student clinical experiences in Magnet-recognized facilities and the deliberate techniques used by nurses and other staff to deliver patient centered care.

The finding that evidence-based practice was perceived as somewhat important by students but still less important than the other QSEN competencies may be attributed to a change in terminology. Previous to the QSEN project, the term “research utilization” was commonly used at this College of Nursing. Even though changes have been made, and continue to occur, emphasizing the term “evidence-based practice,” students may not have recognized the meaning of it when completing the survey. Furthermore, in the literature, students have

often perceived lower importance for evidence-based practice (Sullivan et al., 2009).

While there were no statistically significant differences in safety perceptions, the competency did receive the second highest mean score during year one and the highest mean score during year three in regards to perceived importance. The change in importance is certainly a desired outcome of the QSEN project and may be attributed to the increased emphasis on safety by clinical agencies and faculty. In recent years, clinical agencies have also increased their emphasis on the National Patient Safety Goals which has led to changes in classroom and clinical instruction as well as overall curriculum changes. Additionally, the numerous reports published by the IOM also provided more focus on and attention to patient safety.

Recommendations for nursing education

There are several recommendations for nursing education based on the results of this study and other studies related to quality and safety in pre-licensure education. First, schools of nursing need to become familiar with and implement the QSEN competencies and corresponding knowledge, skills, and attitude objectives if not already done (Sherwood & Zomordi, 2014). This terminology is becoming a common language among schools of nursing and prepares students for caring for patients in the 21st century. After achieving a quality and safety mindset, students will transition to professional practice as nurses more prepared for communicating and working within an interprofessional team; more prepared to redesign and deliver patient centered, evidence-based nursing care; and more prepared to engage in the delivery of safe, quality care.

Quality and safety are a concern for all nurses and all patients, regardless of location or health care system. Therefore, schools of nursing have a responsibility to include quality and safety in their curriculums. As a starting point, Barnsteiner and colleagues (2012) recommend including quality and patient safety in the school mission or vision statement. Another recommended strategy is the formation of academic service partnerships, allowing faculty members and clinical partners to work together to promote greater faculty awareness of hospital initiatives (Barnsteiner et al., 2012).

As schools of nursing determine their status in regards to integrating the six QSEN competencies and

corresponding knowledge, skills, and attitude objectives, discussion may need to occur about how students are educated and whether or not this needs to change based on the emerging needs of today's patients and healthcare systems. According to Chenot and Daniel (2010), "significant pre-licensure curricular innovation will need to occur now so that the next generation of nurses will emerge from their programs prepared with the requisite knowledge, skills, and attitudes... competency development related to improving systems that affect the individual's ability to provide that care" (p. 561). Dramatic changes at the curricular level may need to be considered by faculty members in order to fully implement and capitalize on the student preparation and importance of the six QSEN competencies.

One of the goals of Phase 3 in the QSEN initiative was to promote innovative evaluation methods to assess the six QSEN competencies and the 128 knowledge, skills, and attitude objectives with the dissemination of findings. While there have been several recent publications under the umbrella of quality and safety in pre-licensure education, the articles are focused on a single QSEN competency, such as safety, (Chenot & Daniel, 2010; DeBourgh & Prion, 2012; Lukewich et al., 2015) or focused on faculty perceptions (Pollard et al., 2014). While this is helpful information, there needs to be continued emphasis on the publication of findings related to all of the QSEN competencies such as the work done by Sullivan et al. (2009) and this study.

Limitations

There are limitations to this study that must be considered. This study took place at one Midwestern university, with only baccalaureate students, and therefore, may not be representative of all colleges of nursing. Another limitation was the challenge of collecting data from senior nursing students. Often data was collected a week before graduation and students may have been preoccupied, potentially impacting results. Additionally, there was an overall lack of familiarity with the QSEN competencies and terminology. Faculty were just beginning to recognize the significance of the QSEN competencies and make smaller-scale curricular changes to reflect the new terminology during the initial two years of the project. Curricular documents, including clinical evaluations and assignment templates, were realigned with a new emphasis on the QSEN competencies. Faculty education on the QSEN competencies and knowledge, skill, and attitude objectives was an ongoing process throughout the SITE project.

Conclusions

Overall students rated the six QSEN competencies and the 22 QSEN-related skills as somewhat important and themselves as somewhat prepared to perform them. However, considering that quality improvement in particular received the lowest mean scores, with faculty simultaneously identifying curricular shortcomings related to this competency, strategies have been implemented to strengthen the emphasis on quality improvement in undergraduate courses. Concurrent faculty work further highlighted the QSEN competencies as part of a major curriculum change that was implemented in fall 2014. Particularly reassuring is the increase that students reported in the importance of safety, a core goal of the QSEN project. While this study has limitations, the findings will contribute to the gap in the literature regarding student perceptions of the QSEN competencies. While nursing education will continue to evolve, the integration of the QSEN competencies into undergraduate nursing education is one of the efforts nurse educators have made to meet the needs of a changing health care system and improve overall patient safety. As student and faculty knowledge regarding the QSEN project increases, future research is needed to examine student and faculty perceptions.

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