Perceived Patient Safety Competence of Baccalaureate Nursing Students: A Descriptive Comparative Study

Lisa M. Rebeschi, PhD, MSN, RN, CNE ⓘ

Abstract

Introduction: Patient safety is an issue of utmost concern within health care. An interrelated approach between nursing education and practice is needed. For more than a decade, nursing education programs have responded to calls for curricular reform, integrating strategies to prepare graduates for safe nursing practice.

Objectives: The purpose of the descriptive study was to examine self-perceived safety competencies among baccalaureate (BSN) nursing students at end of program ($n = 72$) using the Health Professional Education in Patient Safety Survey. In addition to the objective of describing self-perceived safety competencies of BSN students, another objective was to investigate any significant differences in self-perceived competencies between traditional 4-year and accelerated 12-month program students.

Methods: A descriptive comparative design was used with a purposive sample of baccalaureate nursing students from both traditional and accelerated second-degree programs at a comprehensive university in the Northeast.

Results: Students rated self-confidence with patient safety learned in the clinical environment higher than within the classroom setting. Overall, students reported a high level of self-confidence within each of the seven patient safety dimensions with knowledge gained from the clinical setting higher than knowledge gained from the classroom setting. Paired t-test analyses revealed statistically significant differences ($p < .05$) between self-confidence gained in classroom and clinical environments with communicating effectively and managing safety risks. Independent t-test analyses revealed accelerated students reported lower self-confidence than traditional students, with statistically significant differences ($p < .05$) in dimensions of culture of safety, working in teams, managing safety risks, and disclosing adverse events/close calls.

Conclusion: In most patient safety dimensions, students felt confident with their competencies within each of the dimensions of patient safety. Results also revealed that accelerated second-degree students report lower confidence with their knowledge of patient safety gained from classroom and clinical settings. Nursing programs must continue to emphasize a culture of safety within the nursing curriculum.

Keywords

patient safety, nursing education, curriculum evaluation, nursing program outcomes

Received 31 January 2020; revised 11 April 2020; accepted 2 May 2020

Undeniably, patient safety remains at the forefront of health care. As described by The Leapfrog Group (2019), patient safety is defined as processes used by hospitals and other health-care organizations to protect patients from error, infection, accident, and injury, thus reducing risk of unnecessary harm. Despite landmark publications such as the 1999 Institute of Medicine Report *To Err is Human* and *Crossing the Quality Chasm* in 2001, patient safety improvement has not been fully realized. In fact, patient safety presents a significant public health concern across the health-care continuum of care on an international scale. In the United States, medical errors are now the third leading

School of Nursing, Quinnipiac University, North Haven, Connecticut, United States

Corresponding Author:
Lisa M. Rebeschi, Quinnipiac University—North Haven Campus, Bassett Road, North Haven, CT 06473, United States.
Email: lisa.rebeschi@quinnipiac.edu

cause of death with more than 250,000 annual deaths (Makary & Daniel, 2016). It is alarming to realize that nearly 100,000 patients die from health-care-associated infections annually (Klevens et al., 2007), more than 7 million patients each year suffer from a preventable medication error (da Silva & Krishnamurthy, 2016), and the incidence of medical errors in the intensive care unit has been reported as high as 51% with even a higher incidence for surgical patients (Ahmed et al., 2015). According to the National Patient Safety Foundation (2015), health-care systems operate with a low degree of reliability and unacceptable risk of error resulting in preventable patient harm. To effectively address this crisis and prepare a safe professional nursing workforce, a coordinated approach and shared responsibility between nursing practice and nursing education is imperative.

Nurses comprise the largest segment of the health-care system with nearly 3 million nurses practicing in the United States (Bureau of Labor Statistics, 2018) and nearly 20 million nurses practicing across the world (World Health Organization, 2018). Thus, it is critical that nurses are adequately prepared to practice within the complexity of the health-care system. Nursing education must be responsive to calls for curricular reform and create innovative strategies to prepare graduates well-positioned to deliver safe care. The Institute of Medicine (2003) and the Quality and Safety Education in Nursing initiative (Cronenwett et al., 2007) provide curricular frameworks centered on specific competencies such as quality and safety, patient-centered care, evidence-based practice, teamwork and collaboration, and informatics. Many nursing education programs now utilize these frameworks within prelicensure programs. Despite significant attention to the necessary knowledge, skills, and attitudes surrounding patient safety, there is insufficient research demonstrating the confidence and perceived competence of baccalaureate graduates as they transition from student to professional nurse.

A number of researchers have examined the perspectives on patient safety among baccalaureate nursing students in the United States, Canada, Italy, Australia, and South Korea. Duhn et al. (2012) conducted a cross-sectional study with baccalaureate nursing students. Although students reported confidence in learning about a variety of patient safety competencies, junior- and senior-level students reported decreased confidence. Similarly, in a cross-sectional study of baccalaureate nursing students in Canada, self-perceived patient safety competence scores declined during the junior and senior year (Lukewich et al., 2015). Significantly differing perception of patient safety competence between lower division and upper division baccalaureate nursing students was also found in a cross-sectional study conducted in two Italian universities (Stevanin et al., 2015). Usher et al. (2017) also found significant discrepancies in perceived patient safety competence among baccalaureate nursing students from seven Australian universities. In another study with 4,496 health profession students conducted by Ginsburg, Tregunno, et al. (2012), nursing students reported significantly higher scores than comparison pharmacy and medical students. However, results revealed that all learners require further education with the patient safety dimensions of managing safety risks and understanding human and environmental factors. In another cross-sectional study of baccalaureate nursing students in South Korea, researchers determined that student perception of competence was significantly higher than their actual skill and knowledge (Lee et al., 2016). Finally, Weatherford and Viveiros (2015) described high levels of self-reported patient safety competence in their study of senior-level baccalaureate students at end of program. Based on results of these quantitative studies, it is clear that nurse educators are charged with the need to further develop integrated teaching strategies aimed at ensuring patient safety. In addition, it is critical to evaluate the impact of the health-care environment on student learning in this area as well as evaluation of educational outcomes related to patient safety.

External accrediting agencies such as the Commission on Collegiate Nursing Education provide standards for professional programs in order to ensure the quality and integrity of baccalaureate and higher degree nursing programs. In fact, professional accreditation is designed to hold programs accountable to the community of interest which includes employers, consumers, and students (Commission on Collegiate Nursing Education, 2018). Despite standards regarding program outcomes such as program completion rates, National Council Licensure Examination – Registered Nurse (NCLEX-RN) pass rates, and employment rates, there are no specific program requirements with relation to patient safety other than NCLEX-RN pass rates, which may not be sufficient in adequately addressing the necessary preparation of baccalaureate prepared nursing professionals with regard to ensuring patient safety. Thus, nursing education programs must continue to emphasize the incorporation of specific educational strategies to address this public health concern. To determine effectiveness of these educational strategies, gaining students' perspectives on safety competencies at end of program may be particularly useful in redesigning curricula.

Theoretical Framework

The science of human factors serves as the theoretical framework for this study. Derived from both psychology and engineering disciplines, human factors emphasize

the design of all aspects of the work environment to support safety and human performance. Human factors science aims to promote safety, efficiency, and effectiveness by improving processes, work systems, and technologies. In health care, the framework of human factors focuses on supporting the cognitive and physical work of the health-care professional while promoting high-quality and safe patient care (Russ et al., 2013). For nurses, supporting cognitive and physical work begins during their nursing education and extends throughout their practice.

Purpose

The aim of this research study was to examine self-reported perceptions of safety competencies gained from both classroom and clinical learning experiences among baccalaureate nursing students at end of program. As in many schools of nursing, both a traditional 4-year and accelerated 12-month baccalaureate program tracks were available to students. Although traditional and accelerated programs follow similar curricula, the condensed timeframe of accelerated programs may provide limitations to the important professional socialization of new nurses. Based on results of a recently completed curricular gap analysis using the Nurse of the Future Core Competencies (Massachusetts Department of Higher Education Nursing Initiative, 2016), the baccalaureate program had identified patient safety as an area for additional emphasis within the curriculum. Specific curricular revisions had been made to address this gap. These included classroom and clinical learning assignments such as incorporation of safety science, high reliability organization training, presentations from nursing patient safety experts, and integration of The Joint Commission National Patient Safety Goals within the final semester Nursing Capstone course.

The research considered the following research questions:

- What are the self-reported patient safety competencies of baccalaureate nursing students at end of program?
- Are there significant differences in self-reported patient safety competencies between traditional program baccalaureate nursing graduates and accelerated program baccalaureate nursing graduates at end of program?

Method

Design, Setting, and Sample

A descriptive comparative design was utilized. A convenience sample of 96 undergraduate prelicensure students enrolled at a public, comprehensive metropolitan university in the Northeast of the United States were recruited to participate in this study. Of this sample, 72 students agreed to participate. The undergraduate students consisted of 65 traditional first-degree senior-level students and 31 second-degree accelerated students. Eligibility criteria included enrollment in the final Nursing Capstone course during the last semester of the program. Both traditional and accelerated students were enrolled in the same Nursing Capstone course at the end of their respective programs. A power analysis was completed using G*Power 3.1 and determined a necessary sample size of 71 participants based on a moderate effect size of 0.3, α of .05, and power of 0.80.

Data Collection Instrument

Self-perceived patient safety competencies were measured using the Health Professional Education in Patient Safety Survey (H-PEPSS; Ginsburg, Castel, et al., 2012). Designed as a tool for educational evaluation, the instrument was developed to specifically measure the perceptions of new health professional graduates, including nurses, with relation to patient safety competence. As noted by Ginsburg, Castel, et al. (2012), the tool is "best suited for use with those who recently completed or are near completing of their training" (p. 677). The H-PEPSS is comprised of 37 items designed to assess the learners' perceptions of their patient safety competencies in what was learned in the clinical and classroom settings using a 5-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The 37 items are divided into three sections. Items in Section 1 included patient safety dimensions of *clinical safety* (four items), *culture of safety* (four items), *working in teams with other health-care professionals* (six items), *communicating effectively* (three items), *managing safety risks* (three items), *understanding human/environmental factors* (three items), and *recognizing/responding to/disclosing adverse events and close calls* (four items). Participants were asked to answer each item twice based on their learning in the classroom and then again based on their learning in the clinical setting. Section 2 items included *broader patient safety issues* (seven items), and Section 3 items included *comfort speaking up about patient safety* (three items). Basic demographic data consisting of type of health professional program, previous degrees, age-group, gender, and previous training in a clinical setting were included on the survey. Confirmatory factor analyses were previously conducted to support the validity of the instrument using a cross-sectional sample of 1,016 graduates from medicine nursing and pharmacy in Ontario, Canada. Internal consistency reliability exceeded .80 for all factors (Ginsburg, Castel, et al., 2012). The calculated Cronbach α from the

study reported in this manuscript was .91. Permission to utilize the H-PEPSS for this research study was obtained from the authors.

Procedure

The study was reviewed and approved by the institutional review board at the university. The researcher received permission from the course instructors to recruit participants at the end of the Nursing Capstone last class. The researcher used a script in the classroom to invite students to participate in the study. The students were informed that their voluntary decision to participate in the study, or not to participate in the study, would not have any impact on their standing in the Nursing Capstone course, nursing program, or their scheduled graduation from the program the following week. The informed consent form was presented prior to data collection, and signed consent forms were returned to the researcher. A paper copy of the H-PEPSS which includes the demographic items was distributed to all those selecting to participate; students were advised not to provide any identifying information on the paper survey. After completing the instrument, students placed the anonymous surveys in a large collection envelope with the researcher. Each survey was numbered from 1 to 72 for data analysis.

Statistical Analyses

Responses from the completed H-PEPSS were entered into Excel by the researcher and then imported into SPSS Statistics Version 24. Descriptive statistics (means, standard deviations [SDs], and frequencies) were used to present the survey and demographic data. To determine differences between how participants perceived their safety competencies learned within the classroom versus clinical settings, paired t tests were used. To determine differences between self-reported patient safety competencies between traditional versus accelerated students, independent sample t tests were calculated. The assumption of normality of data distribution was confirmed by using the Shapiro–Wilk test prior to performing t-test analyses.

Results

Response Rate

Of the 96 students recruited, 72 (50 traditional and 22 accelerated) participated in the study (75% response rate). Two surveys were returned as incomplete and thus that data were not included in the analyses.

Description of the Sample

Seventy three percent of the sample were females ($n = 53$) and 27% were males ($n = 19$). Sixty nine percent of the sample were enrolled in the first-degree traditional program ($n = 50$) and 31% were enrolled in the accelerated second-degree program ($n = 22$). The majority of the sample were between the ages of 21 to 25 years (68%). Forty percent had earned previous degrees including associate, bachelor's, master's, and doctoral degrees. Most of the sample (64%) had no previous clinical training. Demographic data are presented in Table 1.

H-PEPSS Dimensions

To compare self-reported patient safety competence, each of the dimensions were analyzed for learning gained within both the classroom and clinical setting for both traditional and accelerated students. The highest mean scores for self-reported patient safety competence gained by knowledge developed as a result of classroom learning were in the dimensions of clinical safety ($M = 4.45$; $SD = .671$) and communicating effectively ($M = 4.35$; $SD = .768$). Similarly, the highest means scores for self-reported patient safety competency gained by knowledge developed as a result of clinical learning were also in the dimensions of clinical safety ($M = 4.49$; $SD = .688$) and communicating effectively ($M = 4.41$; $SD = .768$). The lowest mean scores for self-reported patient safety competency gained by knowledge developed as a result of classroom learning were in the

Table 1. Demographic Data ($n = 72$).

Demographic information	Percentage (%)	Frequency (n)
Program information		
Traditional	69	50
Accelerated	31	22
Previous degrees		
None	60	43
Associate degree	6	4
Bachelor's degree	25	18
Master's degree	8	6
PhD	1	1
Age-group		
<21	0	0
21–25	67	48
26–30	17	12
31–40	15	11
41–50	1	1
>50	0	0
Gender		
Female	73	53
Male	27	19
Prior clinical training		
Yes	36	26
No	64	46

dimensions of managing safety risks ($M = 3.92$; $SD = .844$) and recognizing, responding to, and disclosing adverse events and close calls ($M = 3.96$; $SD = .766$). Similarly, the lowest mean scores for self-reported patient safety competency gained by knowledge developed as a result of clinical learning were in the area of recognizing, responding to, and disclosing adverse events and close calls ($M = 4.00$; $SD = .690$) and managing safety risks ($M = 4.09$; $SD = .787$). Mean scores of specific patient safety content areas learned in the clinical setting were all greater than classroom knowledge mean scores. To compare patient safety dimension scores between knowledge gained in the classroom and knowledge gained in the clinical setting, paired *t*-test analyses were conducted. Results revealed that there was a statistically significant higher clinical knowledge mean score in the dimensions of communicating effectively, $t(71) = 2.44$, $p < .05$, and managing safety risks, $t(71) = 3.66$, $p < .05$. Group scores for each dimension are presented in Table 2.

To compare patient safety dimension scores between traditional and accelerated students, independent *t*-test analyses were conducted. Mean scores for all dimensions were higher for traditional students as compared with accelerated students. Patient safety dimensions of culture of safety; managing safety risks; and recognizing, responding to, and disclosing adverse events and close calls learned in the classroom setting were scored significantly higher in the traditional student group. Furthermore, students in the traditional program reported statistically significant higher scores from their clinical instruction in those same patient safety dimensions as well as in the dimension of working in teams as presented in Table 3.

H-PEPSS Broader Patient Safety Issues and Comfort Speaking Up About Patient Safety

In addition to measuring health-care professionals' self-perception of their own patient safety knowledge and competence within each of the dimensions of patient safety, the H-PEPSS assesses how broader patient safety issues are addressed in their education. Specific areas included as survey items are clarity of what was *safe* for them to do in the practice setting, consistency in how patient safety issues were dealt with by different preceptors in the clinical setting, opportunity to interact with the interprofessional team, understanding that reporting of adverse events and close calls can lead to change and reduction of reoccurrence, whether patient safety was well integrated within the overall program, integration of clinical aspects of patient safety such as hand hygiene within the educational program, and whether *systems* aspects of patient safety (i.e., policies, resources) are well covered in the program of study. Furthermore, the survey instrument also measures the students' self-perceived comfort speaking up about patient safety. Survey items include whether there was discussion around adverse events at the system level in the clinical setting, whether reporting a patient safety problem results in negative repercussions for the person reporting it in the clinical setting, and if the student feels safe to approach someone they see engaging in unsafe care practice in the clinical setting. Both the traditional and accelerated groups agreed that broader patient safety issues were addressed in the program as evidence by overall mean scores ranging from 3.79 to 4.3 for the traditional group and 3.62 to 4.29 for the accelerated group. There were no statistically significant differences in scores between the traditional and accelerated student groups. Means scores were lower with the survey items addressing comfort speaking up about patient safety. Scores for the traditional student group ranged from 2.98 to 3.59, while scores for the accelerated group ranged from 2.75 to 3.57. Students in the accelerated group scored statistically lower than those in the traditional group ($p = .006$) on the survey item asking about a feeling of safety approaching

Table 2. Paired *t*-Test Analysis of Classroom and Clinical Patient Safety Dimensions.

Patient safety dimension	Classroom knowledge Mean (SD)	Clinical knowledge Mean (SD)	t test (df)	p
Clinical safety	4.45 (.671)	4.49 (.688)	2.59 (71)	.318
Culture of safety	4.20 (.786)	4.21 (.778)	2.62 (71)	.614
Working in teams	3.98 (.765)	4.05 (.718)	4.07 (71)	.298
Communicating effectively	4.35 (.768)	4.41 (.768)	2.44 (71)	.043*
Managing safety risks	3.92 (.844)	4.09 (.788)	3.66 (71)	.009*
Understanding human and environmental factors	4.06 (.823)	4.16 (.747)	3.80 (71)	.088
Recognize, respond to, and disclose adverse events close calls	3.96 (.766)	4.00 (.690)	2.48 (71)	.475

Note. SD = standard deviation.
*$p \leq .05$

Table 3. Independent *t*-Test Analysis of PS Scores by Program (Traditional vs. Accelerated).

PS dimension	Traditional	Accelerated	t test (df)	p
Clinical safety				
Classroom learning	4.55	4.42	0.19 (71)	.30
Clinical learning	4.59	4.46	0.97 (71)	.32
Culture of safety				
Classroom learning	4.41	3.90	1.98 (71)	.0017*
Clinical learning	4.385	3.91	2.24 (71)	.003*
Working in teams				
Classroom learning	4.12	3.82	1.99 (71)	.07
Clinical learning	4.19	3.88	2.05 (71)	.036*
Communicating effectively				
Classroom learning	4.47	4.26	0.58 (71)	.20
Clinical learning	4.53	4.31	1.64 (71)	.17
Managing safety risk				
Classroom learning	4.10	3.68	2.10 (71)	.03*
Clinical learning	4.28	3.82	3.00 (71)	.006*
Understanding human and environmental factors				
Classroom learning	4.21	3.88	1.87 (71)	.06
Clinical learning	4.29	4.01	0.78 (71)	.07
Recognize, respond to, and disclose adverse events and close calls				
Classroom learning	4.12	3.75	1.42 (71)	.02*
Clinical learning	4.13	3.87	2.07 (71)	.05*

Note. PS = patient safety.
*$p \leq .05$.

Table 4. How Broader Patient Safety Issues are Addressed and Comfort Speaking Up About Patient Safety in Practice Setting.

Survey item	Traditional Mean (SD)	Accelerated Mean (SD)	t test (df)	p
Broader patient safety issues				
Scope of what was "safe" to do	4.21 (.359)	3.98 (.429)	5.16 (71)	.78
Consistency in how patient safety were dealt with by preceptors	4.28 (.299)	4.11 (.34)	3.19 (71)	.38
Opportunity to learn/interact with members of the interdisciplinary team	3.99 (.51)	4.04 (.67)	1.78 (71)	.21
Solid understanding of reporting adverse events	3.79 (.321)	3.62 (.43)	2.22 (71)	.88
Integration of patient safety into program	4.25 (.032)	4.29 (.021)	4.11 (71)	.51
Clinical aspects of patient safety well covered	4.16 (.78)	4.01 (.64)	3.11 (71)	.09
System aspects of patient safety well covered	4.3 (.862)	4.24 (.63)	1.97 (71)	.07
Comfort speaking up				
Discussion of adverse events at system level	3.59 (.472)	3.57 (.301)	0.22 (71)	.067
Reporting a patient safety problem results in negative repercussions for the reporter	2.98 (.702)	2.75 (.65)	1.16 (71)	.64
Feeling of safety approaching someone engaged in unsafe care practice	3.39 (.65)	3.09 (.40)	2.19 (71)	.006*

Note. SD = standard deviation.
*$p \leq .05$.

someone engaged in unsafe care practice. Group scores are presented in Table 4.

Discussion and Recommendations

Curricular program revisions were made to enhance student knowledge, skill, and attitude regarding patient safety. As one way to measure the impact of the recent curricular enhancements, the H-PEPSS was used to evaluate students' self-perceived patient safety competence. This study determined that in most areas, students felt confident in what they learned about patient safety in both the clinical and classroom settings. These results are similar to other published studies regarding student perspectives on classroom and clinical learning of patient safety competencies at end of program

(Bressan et al., 2016; Duhn et al., 2012; Ginsburg, Tregunno, et al., 2012; Lukewich et al., 2015; Raymond et al., 2016; Stevanin et al., 2015; Usher et al., 2017; Weatherford & Viveiros, 2015). In this study, students rated their confidence with patient safety learned in the clinical setting higher than their confidence with what was learned in the classroom setting. There is conflicting evidence in the literature as other studies have demonstrated either no statistically significant differences between knowledge gained in the classroom setting with that gained in the clinical setting or higher mean scores for confidence from classroom learning. These inconsistencies may be related to factors such as differences in the types of clinical experiences, number of clinical hours in the program, and actual clinical settings used within the program (i.e., size of facility, Magnet institutions).

Findings from this particular study also reveal that accelerated second-degree students are less confident with their knowledge of patient safety gained in the classroom and clinical settings as compared with traditional students. In fact, mean scores were higher for traditional students in each of the seven dimensions of patient safety, and this difference was statistically significant in four out of the seven patient safety dimensions at the $p \leq .05$ level. This may be attributable to the maturity and life experiences of the accelerated second-degree students as they may be more aware of the seriousness of patient safety and better able to recognize their limitations. However, this may also be attributable to the condensed timeframe of accelerated programs which may limit the professional socialization opportunities within accelerated programs. These findings warrant further study, especially with regard to the lower level of confidence that accelerated students report at end of program.

Another finding from this study was that accelerated nursing students are less comfortable speaking up about patient safety as compared with students in the traditional program. In fact, the difference in means between the traditional and accelerated groups was statistically significant for the question about a feeling of safety approaching someone engaged in unsafe care practice. While second-degree students generally have more life experience than those students in traditional programs, this experience in and of itself does not appear to affect their comfort in speaking up about patient safety. Again, this may be attributable to the shortened timeframe of the program and the resulting limitations in professional socialization into nursing practice.

Further research is suggested. While results of this study, and other previously published studies, indicate that baccalaureate nursing students report a high degree of patient safety competence learned within the nursing program, actual student learning outcomes with regard to specific patient safety competencies should be measured. As an example, correlations between self-perceived competence and actual competence can be determined by integrating objective structured clinical examinations at end of program. Correlations between performance on objective structured clinical examinations and self-reported competence can then be made to best describe patient safety competence.

Nursing education programs must ingrain a culture of safety within the undergraduate curriculum, including increasing student comfort in speaking up about patient safety concerns. Further innovative educational strategies that promote deep learning such as high-fidelity simulation, role-playing, and the use of published teaching strategies from Quality and Safety Education in Nursing should be considered in order to address student learning needs as related to patient safety (Billings & Halstead, 2019). Nursing students should be afforded interprofessional clinical learning experiences where they specifically interact with members of the health-care team such as risk management professionals and designated safety nurses in order to enhance their patient safety knowledge, skill, and competencies in preparation for entering a complex health-care environment (VanGraafeiland et al., 2019).

Limitations

One of the limitations of this research is the convenience sampling from just one site which limits the generalizability of these study results to other populations. In addition, the survey was administered during the last Nursing Capstone class just prior to graduation. Data were collected during the final capstone course which has a pronounced emphasis on patient safety during an immersive 120-hour preceptor-led clinical learning experience. This may have contributed to the higher confidence ratings from clinical learning as compared with classroom learning. Furthermore, demographic data regarding race and ethnicity are not included on the H-PEPSS instrument and thus not collected. This further limits the generalizability of these study results to other populations. Finally, study results are based on self-reported data. As such, response bias should be considered in that students may have rated their patient safety competencies higher as they may have felt that higher patient safety competence was more socially acceptable for a student about to graduate from nursing school.

Conclusion

Patient safety remains at the forefront of health care, yet the literature is lacking in terms of actual patient safety learning outcomes in baccalaureate nursing programs.

Based on a recent study conducted by Gropelli and Shanty (2018), the authors suggest that nursing graduates may not be prepared in promoting a culture of safety especially as related to communicating concerns in practice. To maximize safe patient outcomes, academic nurse educators and clinical staff share responsibility in preparing a professional nursing workforce to affect positive change.

Declaration of Conflicting Interests

Funding

ORCID iD

Lisa M. Rebeschi https://orcid.org/0000-0002-2427-3674

References

Ahmed, A., Giri, J., Kashyap, R., Singh, B., Dong, Y., Kilickaya, O., Erwin, P., Murad, M., & Pickering, B. (2015). Outcome of adverse events and medical errors in the intensive care unit: A systematic review and meta-analysis. *American Journal of Medical Quality*, *30*(1), 23–30.

Billings, D., & Halstead, J. (2019). *Teaching in nursing: A guide for faculty* (6th ed.). Elsevier.

Bressan, V., Stevanin, S., Bulfone, G., Zanini, A., Dante, A., & Palese, A. (2016). Measuring patient safety knowledge and competences as perceived by nursing students: An Italian validation study. *Nurse Education in Practice*, *16*(2016), 209–216.

Bureau of Labor Statistics. (2018). *Occupational outlook handbook: Registered nurses*. https://www.bls.gov/ooh/health care/registered-nurses.htm

Commission on Collegiate Nursing Education. (2018). *Standards for accreditation of baccalaureate and graduate nursing programs*.

Cronenwett, L, Sherwood, G., Barnsteiner, J., Disch, J., Johnson, J., Mitchell, P., Sullivan, D., & Warren, J. (2007). Quality and safety education for nurses. *Nursing Outlook*, *55*(3), 122–131.

da Silva, B., & Krishnamurthy, M. (2016). The alarming reality of medication errors: A patient case and review of Pennsylvania and national data. *Journal of Community Hospital Internal Medicine Perspectives*, *6*(4), 31758. https://doi.org/10.3402/jchimp.v6.31758

Duhn, L., Karp, S., Oluwabusola, O., Edge, D., Ginsburg, L., & VanDenKerkhof, E. (2012). Perspectives on patient safety among undergraduate nursing students. *Journal of Nursing Education*, *51*(9), 526–531.

Ginsburg, L., Castel, E., Tregunno, D., & Norton, P. (2012). The H-PEPSS: An instrument to measure health professionals' perceptions of patient safety competence at entry into practice. *BMJ Quality & Safety*, *21*(8), 676–684.

Ginsburg, L., Tregunno, D., & Norton, P. (2012). Self-reported patient safety competence among new graduates in medicine, nursing, and pharmacy. *BMJ Quality & Safety*, *22*(2), 147–154.

Gropelli, T., & Shanty, J. (2018). Nursing students' perceptions of safety and communication issues in the clinical setting. *Journal of Nursing Education*, *57*(5), 287–290.

Institute of Medicine. (2003). *Health professions education: A bridge to quality*. Washington, DC: National Academies Press.

Klevens, R., Edwards, J., & Cardo, D. (2007). Estimating healthcare-associated infections and deaths in U.S. hospitals. *Public Health Reports*, *122*(2), 160–166.

Lee, N., Jang, H., & Park, S. (2016). Patient safety education and baccalaureate nursing students' patient safety competency: A cross sectional study. *Nursing and Health Sciences*, *2016*(18), 163–171.

Lukewich, J., Edge, D., Tranmer, J., Raymond, J., Miron, J., Ginsburg, L., & VanDenKerkhof, E. (2015). Undergraduate baccalaureate nursing students' self-reported confidence in learning about patient safety in the classroom and clinical settings: An annual cross-sectional study. *International Journal of Nursing Studies*, *52*(5), 930–938.

Makary, M., & Daniel, M. (2016). Medical error—The third leading cause of death in the US. *British Medical Journal*, *3*, 353. https://doi.org/10.1136.bjm.i2139

Massachusetts Department of Higher Education Nursing Initiative. (2016). *Massachusetts nurse of the future nursing core competencies*. https://www.mass.edu/nahi/documents/ NOFRNCompetencies_updated_March2016.pdf

National Patient Safety Foundation. (2015). *Free from harm: Accelerating patient safety improvement fifteen years after To Err Is Human*.

Raymond, J., Medves, J., & Godfrey, C. (2016). Perspectives on patient safety among practical nursing students. *Canadian Journal of Nursing Research*, *48*(2), 41–47.

Russ, A., Fairbanks, R., Karsh, B., Militello, L., Saleem, J., & Wears, R. (2013). The science of human factors: Separating fact from fiction. *BMJ Quality & Safety*, *22*(10), 802–808.

Stevanin, S., Bressan, V., Bulfone, G., Zanini, A., Dante, A., & Palese, A. (2015). Knowledge and competence with patient safety as perceived by nursing students: The findings of a cross-sectional study. *Nurse Education Today*, *35*(8), 926–934.

The Leapfrog Group. (2019). *Hospital safety grade*. https:// www.hospitalsafetygrade.org

Usher, K., Woods, C., Parmenter, G., Hutchinson, M., Mannix, J., Power, T., Chaboyer, W., Latimer, S., Mills, J., Siegloff, L., & Jackson, D. (2017). Self reported confidence in patient safety knowledge among Australian undergraduate nursing students: A multi-site cross-sectional survey study. *International Journal of Nursing Studies*, *71*, 89–96.

VanGraafeiland, B., Sloand, E., Silbert-Flagg, J., Gleason, K., & Himmelfarb, C. (2019). Academic-clinical service partnerships are innovative strategies to advance patient safety competence and leadership in prelicensure nursing students. *Nursing Outlook*, *67*(1), 49–53.

Weatherford, B., & Viveiros, J. (2015). Senior nursing students' perspectives on safety competencies: An end-of-program outcome evaluation. *Nursing Education Perspectives*, *36*(3), 182–184.

World Health Organization. (2018). *World health statistics 2018: Monitoring health for the sustainable development goals*.