Effect of Simulation on Undergraduate Nursing Students’ Knowledge of Nursing Ethics Principles

Mary Broderick Donnelly¹, Trisha Leann Horsley², William H. Adams³, Peggy Gallagher⁴, and C. Dawn Zibricky⁵

Abstract

Background: Undergraduate nursing education standards include acquisition of knowledge of ethics principles and the prevalence of health-care ethical dilemmas mandates that nursing students study ethics. However, little research has been published to support best practices for teaching/learning ethics principles.

Purpose: This study sought to determine if participation in an ethics consultation simulation increased nursing students’ knowledge of nursing ethics principles compared to students who were taught ethics principles in the traditional didactic format.

Methods: This quasi-experimental study utilized a pre-test/post-test design with randomized assignment of students at three universities into both control and experimental groups.

Results: Nursing students’ knowledge of nursing ethics principles significantly improved from pre-test to post-test (p = .002); however, there was no significant difference between the experimental and control groups knowledge scores (p = .13).

Conclusion: Further research into use of simulation to teach ethics principles is indicated.

Keywords

simulation, nursing ethics, teaching methods, American Nurses Association code, ethics principles

Nurses, as a major part of their work day, witness and address many situations which may have ethical dilemmas at the core (Hosmer-Cernava, 2013). The American Association of Colleges of Nursing’s (2008) essentials of baccalaureate education include acquisition of knowledge of ethics principles. In teaching these principles, a baccalaureate program prepares the graduate to conduct themselves in a manner that exhibits knowledge of professional standards related to moral, ethical, and legal behaviors (American Association of Colleges of Nursing, 2008). The American Nurses Association (ANA) introduced a revised Code of Ethics for Nurses in 2015. The need for nurses to receive ethics education is recognized in the literature (Kangasniemi, Pakkanen, & Korhonen, 2015). Yet, there is little published research regarding methods of best practice for teaching undergraduate nursing students ethics principles, and using simulation as an instructional strategy to teach ethics principles is truly in an infancy stage. This study emphasizes acquisition of knowledge of the nursing ethics principles embodied in the first three provisions of the ANA Code, which focus in on the nurse–patient relationship.
Background

Nursing ethics principles

Ethics is a “systematic approach to understanding, analyzing, and distinguishing matters of right and wrong, good and bad, and admirable and deplorable as they relate to the well-being of and the relationships among sentient beings” (Butts & Rich, 2016, p. 4). Bioethics is a branch of ethics that focuses on health care (Butts & Rich, 2016). All health-care providers must be prepared to face the exigencies related to treatment decisions, including the ethical questions that may be inherent in complex patient conditions. Nurses working in any health-care setting are obligated to support their patients in facing these ethical dilemmas (Ulrich et al., 2010). The ANA declared 2015 as the Year of Ethics, emphasizing the importance of a sturdy ethics basis underlying all of nursing practice (ANA, 2015b). Despite this, there is little in the literature that indicates that nursing ethics has been comprehensively explored, and, therefore, further research on nursing ethics is essential in order for nurses to meet their patients’ needs in a comprehensive manner (Kangasniemi et al., 2015).

The ANA Code of Ethics for Nurses with interpretive statements (“ANA Code”) is a foundation for ethical nursing practice, and its provisions represent certain ethical principles which nurses are called to understand and to practice (Davis, 2015). The ANA Code traces its origins to the nursing ethics that were discussed in the late 19th century, at the time of Florence Nightingale (ANA, 2015a). The first ANA Code was adopted in 1950; as stated above, the most recent in January of 2015 (ANA, 2015a). The ANA Code contains nine provisions, which form the basis of ethical principles for nursing. The first three provisions focus on the nurse–patient relationship; the remainder, on the nurse’s ethical obligations to herself/himself, colleagues, the profession, the greater community, and social responsibility (ANA, 2015a). This ANA Code revision provides nurses with a tool that will assist them in addressing the often multi-layered ethical dilemmas that are an unavoidable result of the complexities of health care (Davis, 2015).

The first three provisions of the ANA Code emphasize the nurse–patient relationship. The first provision of the ANA Code requires the nurse be respectful of the inherent dignity of each human, as patients have a number of different rights, including that of self-determination, or the right to make decisions that affect their personal health care (ANA, 2015a). The second provision emphasizes that the nurse’s primary commitment is to the patient or client for whom they are caring (ANA, 2015a). Nurses are pulled by many different forces in any given day: family members, co-workers, and institutional constraints to name a few. The second provision reminds them to whom they owe primary focus. The third provision places emphasis on the nurse’s ethical obligation to safeguard the “rights, health, and safety of the patient” (ANA, 2015a, p. 9). These protections extend to protection against violations of confidentiality and protection from care that may be sub-standard.

Ethics consultations

At times, an ethical dilemma may arise that requires a meeting of the patient, the patient’s family, health-care providers, and an institutional representative knowledgeable in bioethics (Butts & Rich, 2016). The purpose of this meeting, frequently referred to as an ethics consultation, is to ascertain and scrutinize the components of the dilemma and to make recommendations for a plan to address it (Celie & Prager, 2016). These consultations are recognized as a means, required by the Joint Commission for the Accreditation of Health-care Organization, to approach ethical conflict (Celie & Prager, 2016). Considering this, it is likely that ethics consultation will be available to nurses at any institution where students may be employed. However, there were no findings in the literature that indicated that nursing students are exposed to ethics consultations in their clinical education activities at the undergraduate level.

Simulation

The use of simulation, defined as “a technique, not a technology, to replace or amplify real experiences with guided experiences, often immersive in nature, that evoke or replicate substantial aspects of the real world in a fully interactive fashion” (Gaba, 2004, p. 2), has been recognized as a means of increasing nursing student knowledge, and fulfillment in acquiring that knowledge, by the provision of a replica of what individuals will experience when working in clinical settings (Smith, Klaassen, Zimmerman, & Cheng, 2013). Studies have demonstrated that the use of simulation in nursing education increases preparation and confidence in clinical skills areas, as it creates a safe environment in which to learn but is also a standardized environment that enhances summative or high stakes evaluation (Bensfield, Olech, & Horsley, 2012). One recent study provided evidence that a simulation of a clinical setting emphasizing an ethical dilemma increased the students’ interest, confidence, and skill in applying ethical principles while working with that ethical dilemma (Buxton, Phillippi, & Collins, 2014). In light of the discussion above, a simulation of an ethics consultation
has potential as an instrument to enhance learning of ethics principles.

**Problem statement and research question**

Although nurses face ethical dilemmas on a regular basis, they frequently have not had the benefit of learning ethics principles to assist them in advocating for their patients while facing these dilemmas. This study examined the use of simulation to increase nursing students’ knowledge of nursing ethic principles, as knowledge of these principles is necessary in order to navigate the ethical dilemmas encountered by nurses in everyday practice. The research question explored in this study was as follows: What is the effect of participating in an ethics consultation simulation on nursing students’ knowledge of nursing ethics principles as embodied in the first three provisions of the ANA Code of Ethics?

**Methods**

**Design**

This quasi-experimental study was supported by two frameworks: the theory of constructivism and the NLN Jeffries Simulation Theory and performed at three private universities in the Midwest region of the United States. The subjects were students enrolled in undergraduate nursing programs, including both four-year baccalaureate and accelerated programs. The study utilized a pre-test/post-test design to measure undergraduate nursing students’ knowledge of the first three ANA Ethics Code provisions. Subjects were randomly assigned into control and experimental groups at each site using a random number device. The intervention received by the subjects in the experimental groups was participation in a one hour ethics consultation simulation in which nursing ethics principles, embodied in the ANA Code, were applied to a clinical ethical dilemma. For the protection of human subjects, the study protocol was reviewed and approved by all three university Institutional Review Boards.

**Pre-test/post-test**

A pre-test/post-test was developed to measure the knowledge of the nursing students of certain ethics principles. The optimum mechanism to develop pre-test/post-test items was found in *The Guide to the Code of Ethics for Nurses with Interpretive Statements* written by Dr. Marsha Fowler (2015). Dr. Fowler was a member of the steering committee that developed the most recent ANA Code (ANA, 2015a), and the book is published by ANA’s publisher. Fowler’s book utilizes case studies to illustrate the content of each ANA Code provision, and, considering the authoritative nature of the work, the case study format was utilized as the best mechanism to develop the pre-test/post-test items.

The identical pre-test/post-test examination was composed of 10 multiple choice questions; students had ten minutes to complete each examination session. The basis of each pre-test/post-test item is a brief case study in which a nurse faces an ethical dilemma; the provision most relevant to the ethical dilemma was the correct response with the items covering the first three ANA Ethics Code constructs. The 10 items of the pre-test/post-test addressed the three provisions nearly equally: Four items addressed Provision One, three items addressed Provision Two, and three addressed Provision Three.

**Sample and setting**

The inclusion criteria consisted of junior or senior students in a baccalaureate nursing program. The potential subjects were approached in a nursing curriculum class by a faculty member or graduate student who was not teaching the course. No students within the selected nursing courses were excluded from participation. Principal Investigators that were teaching the class from which the subjects were accrued were blinded to the identity of the subjects until after final grade submission. All research procedures, with the exception of the simulation, took place during class time in a university classroom and were integrated into course content. The students who agreed to participate underwent the informed consent process, led by a faculty member or research assistant that was not teaching the course. Prior to taking the pre-test, subjects were asked to de-identify personalized information on the pre-test/post-test by using a combination of letters and/or numbers that were significant to them. This code ensured that the pre-tests and post-tests were easily compared, but that each subject’s confidentiality was protected.

The identities of the subjects were kept completely confidential from the Principal Investigators until after the final grade of the course was entered. The scores on the pre-test/post-test had no impact on the students’ grade in the course. Subjects were offered no incentive to participate in this study.

**Procedure**

The research was introduced in a standardized, approximately four minutes voice-over PowerPoint during week 1. The PowerPoint introduction was developed with accompanying voice-over and provided to each site so that the students viewed identical slides and heard the same voice and content. In addition, the students heard an introduction to the purpose, methods, and risks
associated with enrollment in the study. The informed consent process was undertaken in week 2 followed by the students viewing a standardized approximately five minutes voice-over PowerPoint that emphasized the first three provisions of the ANA Code. The first provision requires respect for human dignity, including recognition of a patient’s right to self-determination. The second provision mandates that the patient becomes the primary commitment of the nurse. The presentation also addressed the third provision, which places emphasis on the nurse’s ethical obligation to safeguard the “rights, health, and safety of the patient.” The pre-test was administered to all subjects over a ten minutes period of time during week 3.

Subjects in the experimental arm of the study participated in a one hour ethics consultation simulation during week 4. The INACSL Standards of Best Practice: Simulation™ were maintained during the design and implementation of the simulation and standardized debriefing. In order to ensure that subjects in the control group and students in the class that were not participating in the research were not at a disadvantage relative to content acquisition, the control group and non-participating students were shown a roughly 60 minutes video recording of an ethics consultation simulation during week 4. Care was taken to ensure that no confounding of the results would take place, as the ethics consultation presented in this video included ethics principles not being studied in the research and did not focus on the ANA provisions. However, viewing the video provided the students with subject matter content regarding the mechanism of ethics consultation in resolving ethical dilemmas.

The study concluded in week 5 when the post-test was administered to all subjects over ten minutes.

**Experimental group: Simulation as intervention**

An expert simulation consultant was retained to design the simulation. Validity of the simulation was determined through further evaluation by a certified simulation educator and bioethicist as well as pilot testing the simulation prior to implementation. The physical, conceptual, and psychological fidelity of the simulation experience was determined appropriate and aligned with concepts of interest. In order to ensure continuity, the simulations and subsequent structured debriefing sessions at each site were facilitated by the same three faculty members, two per simulation. The simulations and debriefings took a total time of 60 minutes and were conducted in simulation debriefing rooms, conference rooms, or classrooms. The simulation emphasized the first three ANA provisions and this case study: An elderly man who lacked decisional capacity and had a complicated medical course with respiratory failure secondary to pneumonia was admitted to the hospital from a long-term care facility. The surrogate decision maker was the patient’s adult child, although the patient’s sibling also wished to participate in the decision-making process. Concerns had been raised about the aggressive nature of the care given to the patient. The need to clarify goals of treatment was the reason the ethics consultation was convened.

The first ANA provision was reflected in the patient’s lack of decisional capacity and the need for an appropriate decision maker. The second ANA provision was reflected in nurse’s need to focus on patient as primary commitment and not to lose that focus in the face of potentially competing interests. The third ANA provision was reflected in the ethical obligation of the nurse to protect the patient from questionable care. Experimental group subjects participated in the simulation in roles of surrogate, sibling, physician, nurse ethicist, nurse, and social worker, followed by a standardized simulation debriefing. These subjects met with the faculty coordinator and were pre-briefed regarding the general construct of an ethics consultation. Roles were randomly assigned, and the students took a few minutes to review the simulation information and script. The students then participated in the simulation.

**Statistical analysis**

For each item, a classical test theory approach was used to estimate item difficulty (using proportion correct scores) and item discrimination (using point biserial correlation coefficients and quartile spread). The Kuder-Richardson 20 (KR-20) formula was used to estimate the examination’s reliability.

Regarding improvement in ANA knowledge, univariable generalized linear mixed-effects models were used to estimate the odds of correctly answering each item during the post-test administration. In these models, a logit link was used to estimate the odds ratio, and random intercepts were allowed for each study site and for each student within his/her study site in order to account for students’ repeated and nested observations.

To assess improvement in total test performance from pre-test to post-test, a change score was calculated for each student by subtracting the pre-test score from his/her post-test score. Using this change score as the outcome, linear mixed-effects models were used to estimate the average number of points students were expected to gain from pre-test to post-test and whether the change in performance was different for those assigned to the intervention versus control cohorts. In these models, random intercepts were again allowed for each study site and for each student within his/her study site.

Finally, non-parametric sensitivity analyses were conducted to confirm conclusions related to students’ total
test performance. For example, an exact version of the Wilcoxon signed rank test was used to estimate the change in performance from pre-test to post-test, and an exact version of the Wilcoxon rank sum test was used to determine whether the change in test performance varied between those assigned to the intervention versus control cohorts. All analyses were conducted using SAS version 9.4 (Cary, NC).

Results

One hundred and sixty-seven students went through the informed consent process and completed the pre-test. Of these examinees, 154 completed the post-test (i.e., an 8% attrition rate) and exactly 145 paired (pre-test and post-test) observations were available for the analysis (\(n = 66\) from the intervention cohort and \(n = 79\) from the control cohort). Attrition may be due to students not being present in class at the time when the post-test was distributed. The decrease in matched pairs was due to one site failing to accurately link the pre-test and post-test responses for seven participants.

On pre-test, the average score was 3.85 (SD = 1.21) points. The examination was well balanced in difficulty with three considerably challenging items (i.e., items having a proportion correct score of less than 20%), four moderately difficult items (i.e., items with a proportion correct score between 20% and 38%), and three easy items (i.e., items with a proportion correct score between 60% and 80%; see Table 1). Regarding the examination’s discrimination, the point biserial coefficients demonstrated acceptable separation of high achieving students from low achieving students (range: 0.16–0.46). While the reliability of the examination was poor, this was likely due to the brevity of the examination (KR-20 = 0.168).

On post-test, the mean score was 4.40 (SD = 1.83) points. Compared to performance on the pre-intervention examination, students were 2.33 (95% CI: 1.41–3.83) times more likely to get item 2 correct on post-test (\(p = .001\)), were 2.35 (95% CI: 1.26–4.40) times more likely to get item 4 correct on post-test (\(p = .01\)), and were 2.46 (95% CI: 1.46–4.13) times more likely to get item 6 correct on post-test (\(p = .001\)). Each item measured knowledge of one of each of the three provisions (see Table 2). Importantly, improvement in these items did not vary between those assigned to intervention versus control (all \(p > .05\); see Table 3).

Regarding improvement in total ANA knowledge, students gained approximately half a point from pre-test to post-test (\(M_{\text{diff}} = 0.55\), 95% CI: 0.21–0.89; \(p = .002\)). On average, students assigned to the intervention cohort gained approximately 0.85 (95% CI: 0.34–1.35) points from pre-test to post-test, while those assigned to the control cohort gained approximately 0.33 (95% CI: 0.13–0.79) points; there was no meaningful difference in the change score between the two cohorts (\(M_{\text{diff}} = 0.52\), 95% CI: 0.16–1.20; \(p = .13\)). The non-parametric sensitivity analysis revealed the same conclusions.

Discussion

The abstract nature of learning ethics principles presents a unique challenge in educating nursing students. How is

Table 1. Classical test theory analysis of the pre-intervention examination.

<table>
<thead>
<tr>
<th>#Key</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>Difficulty (%)</th>
<th>Pt. Biserial</th>
<th>Quartile</th>
<th>1 Proportion correct (%)</th>
<th>2 Proportion correct (%)</th>
<th>3 Proportion correct (%)</th>
<th>4 Proportion correct (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. B</td>
<td>19</td>
<td>80</td>
<td>0</td>
<td>1</td>
<td>80</td>
<td>0.35</td>
<td>50.0</td>
<td>72.5</td>
<td>82.0</td>
<td>97.9</td>
<td></td>
</tr>
<tr>
<td>2. B</td>
<td>32</td>
<td>60</td>
<td>4</td>
<td>4</td>
<td>60</td>
<td>0.32</td>
<td>22.2</td>
<td>49.0</td>
<td>68.0</td>
<td>79.2</td>
<td></td>
</tr>
<tr>
<td>3. C</td>
<td>37</td>
<td>13</td>
<td>34</td>
<td>17</td>
<td>34</td>
<td>0.29</td>
<td>11.1</td>
<td>27.5</td>
<td>32.0</td>
<td>50.0</td>
<td></td>
</tr>
<tr>
<td>4. A</td>
<td>13</td>
<td>51</td>
<td>15</td>
<td>21</td>
<td>13</td>
<td>0.29</td>
<td>5.56</td>
<td>5.88</td>
<td>12.0</td>
<td>22.9</td>
<td></td>
</tr>
<tr>
<td>5. B</td>
<td>31</td>
<td>13</td>
<td>20</td>
<td>36</td>
<td>13</td>
<td>0.25</td>
<td>0.00</td>
<td>7.84</td>
<td>12.0</td>
<td>25.0</td>
<td></td>
</tr>
<tr>
<td>6. C</td>
<td>53</td>
<td>13</td>
<td>22</td>
<td>13</td>
<td>22</td>
<td>0.46</td>
<td>0.00</td>
<td>5.88</td>
<td>22.0</td>
<td>45.8</td>
<td></td>
</tr>
<tr>
<td>7. B</td>
<td>7</td>
<td>87</td>
<td>7</td>
<td>0</td>
<td>87</td>
<td>0.16</td>
<td>72.2</td>
<td>82.4</td>
<td>90.0</td>
<td>93.8</td>
<td></td>
</tr>
<tr>
<td>8. B</td>
<td>19</td>
<td>19</td>
<td>26</td>
<td>37</td>
<td>19</td>
<td>0.17</td>
<td>11.1</td>
<td>13.7</td>
<td>20.0</td>
<td>27.1</td>
<td></td>
</tr>
<tr>
<td>9. C</td>
<td>33</td>
<td>11</td>
<td>20</td>
<td>36</td>
<td>20</td>
<td>0.40</td>
<td>5.56</td>
<td>2.00</td>
<td>20.0</td>
<td>43.8</td>
<td></td>
</tr>
<tr>
<td>10. D</td>
<td>36</td>
<td>19</td>
<td>8</td>
<td>38</td>
<td>38</td>
<td>0.26</td>
<td>5.56</td>
<td>34.0</td>
<td>42.0</td>
<td>50.0</td>
<td></td>
</tr>
</tbody>
</table>

Note. N = 167 and KR-20 = 0.168. #Key: item number with its answer key; Choices: the proportion of students marking answer options A, B, C, and D for the item; Difficulty: the proportion of students marking the correct response for the item; Pt. biserial = the point biserial discrimination statistic; Quartile: the proportion of students marking the correct response within their overall test performance quartile.
it possible to demonstrate the application of principles to specific clinical situations? What is the best method to teach the ANA provisions to nursing students? In this study, an ethics consultation simulation provided a vehicle to demonstrate how ethical dilemmas are identified, nursing ethics principles are applied to the dilemmas, and appropriate recommendations are constructed.

Ethics consultants, by their definition, must apply accepted ethical principles in order to formulate recommendations, and an ethics consult simulation may provide nursing students with an opportunity to apply what they have learned about the ANA provisions described above. An ethics consultation simulation demonstrates how situations that arise in clinical situations are approached, ethical issues are identified, and ethics principles are applied in order to determine an appropriate recommendation for ethical actions, and provides the opportunity to apply classroom learning. As it is likely that health-care institutions where the students are eventually employed will have an ethics consultation mechanism, a simulation of an ethics consultation will likely be congruent with nursing students’ experiences as employed nurses, and may be congruent to their clinical experiences as undergraduates.

The study found there was a statistically significant change in the students’ knowledge of nursing ethics principles from pre-test to post-test, yet there was no statistically significant difference between the control and experimental groups. Anecdotal feedback from the subjects was positive, yet quantitative results did not reveal a difference. This may be due to a dosing amount of the intervention which brings about further questions for the researchers. Would increasing the amount of time or number of exposures to simulation within an ethics course change the outcome? Overall student response rate with matched pairs (pre-test with post-tests) was 88%, lower than expected. One possible explanation for this low response rate is that students did not remember their personally selected identification code and another explanation is that a student may have been absent during the repeat survey period. The possibility that students may have placed little value on research participation was also considered.

**Strengths and limitations**

This study addressed a gap in the nursing literature on methods to enhance student nurse’s knowledge of ethics principles. Strengths of the study include faculty expertise; data collection at multiple sites; experimental design that included manipulation, control, and randomization; and ease of recruitment. In addition, a commitment to the first three provisions from the ANA Code of Ethics remained the focus of the consultative simulation. An additional strength was the commitment made to ensure that the control groups received the same didactic content so as not to jeopardize the control groups’ attainment of knowledge. Students who participated in the simulation anecdotally expressed that it was a positive experience that allowed them, in the debriefing, to describe and discuss the experience of ethical dilemmas in clinical setting, and that assisted them in further understanding ethics principles.

Limitations of the study include sampling and recruitment. The sample consisted of students from three United States Midwest colleges/universities, and nursing students from Midwest college/universities may not be representative of all United States nursing students. The study utilized a convenience sample within each of the three universities, which, again, may not be representative of a larger randomized sample. Student experiences and comfort with simulation as a learning activity as well as uniqueness of curriculums likely varied across programs. Finally, students’ lack of familiarity with the use of a consultative simulated experience, which included the actual simulated experience as well as the debriefing, may have impacted outcomes.

### Table 2. Improvement in item performance (N = 145).

<table>
<thead>
<tr>
<th>Item</th>
<th>Odds ratio</th>
<th>Lower</th>
<th>Upper</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 1</td>
<td>1.066</td>
<td>0.609</td>
<td>1.867</td>
<td>.82</td>
</tr>
<tr>
<td>Item 2</td>
<td>2.326</td>
<td>1.413</td>
<td>3.828</td>
<td>.001</td>
</tr>
<tr>
<td>Item 3</td>
<td>1.006</td>
<td>0.627</td>
<td>1.615</td>
<td>.98</td>
</tr>
<tr>
<td>Item 4</td>
<td>2.349</td>
<td>1.255</td>
<td>4.397</td>
<td>.01</td>
</tr>
<tr>
<td>Item 5</td>
<td>1.662</td>
<td>0.888</td>
<td>3.109</td>
<td>.11</td>
</tr>
<tr>
<td>Item 6</td>
<td>2.457</td>
<td>1.463</td>
<td>4.125</td>
<td>.001</td>
</tr>
<tr>
<td>Item 7</td>
<td>0.664</td>
<td>0.348</td>
<td>1.266</td>
<td>.21</td>
</tr>
<tr>
<td>Item 8</td>
<td>1.120</td>
<td>0.628</td>
<td>1.997</td>
<td>.70</td>
</tr>
<tr>
<td>Item 9</td>
<td>1.476</td>
<td>0.872</td>
<td>2.497</td>
<td>.15</td>
</tr>
<tr>
<td>Item 10</td>
<td>0.913</td>
<td>0.541</td>
<td>1.539</td>
<td>.73</td>
</tr>
</tbody>
</table>

*Note.* For each item, the odds of a correct response at post-test versus pre-test are tabled with its 95% confidence interval.

### Table 3. Test performance (N = 145).

<table>
<thead>
<tr>
<th></th>
<th>Mean difference</th>
<th>95% Confidence interval</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-test vs. pre-test</td>
<td>0.5510</td>
<td>0.2124</td>
<td>0.8896</td>
</tr>
<tr>
<td>Experimental vs. control</td>
<td>0.5194</td>
<td>0.0163</td>
<td>1.2020</td>
</tr>
</tbody>
</table>
Recommendations for the future

This study underscores the need for further research into the use of simulation in nursing ethics education. Further study needs to be undertaken with a larger number of student subjects and, again, at multiple sites. Adding a qualitative component to measure the students’ reaction to participation in the simulation is also indicated to fill in the gaps uncovered in this study.

Conclusions

This study was instructive in highlighting the student nurses’ lack of familiarity with the objectives and dynamics of an ethics consultation and with nursing ethics principles. If nursing educators are to develop leaders who are prepared to request and/or participate in ethics consultation, in order to ensure that patients receive optimal support and care, familiarity with this format will be essential for effective nursing practice. Anecdotal comments from the students, not gathered as data relative to the study but important nonetheless, indicated that the simulation experience was generally positive and enhanced learning. The use of simulation should be considered as an addition to undergraduate nursing students’ ethics curriculum.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

References


Author Biographies

Mary Broderick Donnelly is an assistant professor at the Marcella Niehoff School of Nursing. Her areas of interest include nursing ethics and nurses’ involvement in the ethics consultation process.

Trisha Leann Horsley is an assistant dean at the South Dakota State University College of Nursing. Her research interests are in advancing the science of clinical simulation as well as promoting interprofessional education and collaborative practice.

William H. Adams is biostatistician in the Clinical Research Office at the Loyola University Chicago. His main research interests include applied biostatistics and latent trait modeling.

Peggy Gallagher is an associate professor of nursing at the Saint Xavier University. Her areas of interest include gerontology and research on methods of teaching and learning.

C. Dawn Zibricky is an assistant professor of nursing at the Elmhurst College. Her areas of interest include teaching students with disabilities, domestic poverty, and health-care disparities.