

Original Article

The Effects of Nursing Ethics Education through Case-Based Learning on Moral Reasoning among Nursing Students

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INTRODUCTION

Ensuring patient safety is among the most important components of ethical nursing care.^[1] However, scientific and technological advances in health-care delivery have faced nurses with difficult situations which require appropriate ethical decisions.^[2-4] A study in New Zealand indicated that nursing students faced different ethical problems in clinical settings, ranging from the violation of patients' rights and dignity to insecure care delivery. Thus, strategies are needed to improve nurses' and nursing students' ethical decision-making and moral reasoning abilities

to minimize the likelihood of these problems.^[5] Such improvements can positively affect appropriate and timely clinical decision-making, help achieve treatment outcomes, and reduce health-care costs.^[6,7] Yet, studies showed low levels of moral reasoning among nursing students.^[8,9]

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How to cite this article: Namadi F, Hemmati-Maslakpak MH, Moradi Y, Ghasemzadeh N. The effects of nursing ethics education through case-based learning on moral reasoning among nursing students. *Nurs Midwifery Stud* 2019;8:85-90.

ABSTRACT

Background: Despite their significant roles in patient care, most nursing students have limited ability to make wise ethical decisions in difficult situations. **Objectives:** This study aimed to examine the effects of nursing ethics education through case-based learning (CBL) on moral reasoning among nursing students. **Methods:** This controlled trial was conducted in 2016–2017 on 73 4th year nursing students recruited from Urmia Faculty of Nursing and Midwifery, Urmia, Iran. Participants were randomly allocated to an intervention ($n = 37$) and a control ($n = 36$) groups. Nursing ethics education to participants in the intervention and the control groups was provided through the case-based learning and the lecture methods, respectively. Using the Nursing Dilemma Test, participants' moral reasoning was assessed both before and 1 month after the intervention. Data were analyzed using the paired- and the independent-samples t and the Chi-square tests. **Results:** No statistically significant difference was found between the intervention and the control groups regarding the pretest mean score of moral reasoning (44.97 ± 7.50 vs. 43.64 ± 6.87 ; $P = 0.44$). However, the posttest mean score of moral reasoning in the intervention group was significantly greater than the control group (49.08 ± 5.74 vs. 44.67 ± 5.87 ; $P = 0.002$). **Conclusion:** Nursing ethics education through CBL is an effective strategy for improving moral reasoning among nursing students. Therefore, this method is recommended for ethics education to nursing students.

KEYWORDS: Education, Ethical analysis, Ethics, Learning, Nursing

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Website:
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DOI:
10.4103/nms.nms_33_18

Education is one of the methods for improving moral reasoning. Traditional teaching methods, such as lecture, can be used to provide a large amount of information in a short amount of time. However, in these methods, students are mostly passive, and hence, these methods cannot improve their problem-solving, decision-making, and analytical abilities.^[10] Some studies reported that current ethics education programs are not satisfactory^[11,12] and thus, students have still problems and low self-confidence for decision-making in difficult situations and knowledge use in practice.^[11] Accordingly, active learning strategies are needed to improve the outcomes of ethics education among nursing students. Studies showed that strategies such as simulation,^[13] exposure to challenging situations,^[14] and multimedia education can be more effective than pure theoretical education in improving students' professional abilities such as ethical decision-making.^[15]

One of the active learning strategies is case-based learning (CBL). As an innovative and student-centered method,^[16] CBL facilitates the active participation of both teachers and students in learning and helps students use their background knowledge to manage problems and challenges. In CBL, students are presented with a specific situational scenario which is the exact simulation of a real clinical situation. The scenario includes different questions about the intended situation, answering to which requires problem-solving and decision-making abilities.^[17] Then, students should analyze the intended scenario, brainstorm it, and integrate the findings of their analytical and brainstorming activities to provide solutions for managing the situation presented in the scenario and also to answer its associated questions.^[18] Thus, this teaching method is considered to be potentially effective in enhancing skills such as critical thinking, problem-solving, decision-making, and moral reasoning.^[16,19] A study showed that CBL was much more effective than lecture-based teaching in improving nursing students' critical thinking skills.^[20] Another study showed that both conceptual mapping and clinical simulation significantly improved medical emergency students' clinical decision-making ability.^[21] However, our literature search resulted in no study into the impacts of nursing ethics education through CBL on moral reasoning and thus, it is yet unclear whether CBL can be effective in improving this ability.

Objectives

This study aimed to examine the effects of nursing ethics education through CBL on moral reasoning among nursing students.

METHODS

Study design and participants

This controlled trial was conducted in 2016–2017 in Urmia Faculty of Nursing and Midwifery, Urmia, Iran. The study population consisted of all students in the study setting who had not passed the Nursing Ethics course. In total, 73 students had not passed the course, and all were recruited to the study through the census method. Recruited participants were excluded if they had two or more absences from the intervention sessions. Using a table of random numbers, participants were randomly assigned to a 37-person CBL group and a 36-person lecture group. To prevent allocation bias, we concealed the allocation sequence from those who assigned participants to the groups up to the point of the assignment. This technique prevented the assigners from affecting allocation.

Data collection instrument

Study data were collected through the Persian translation of the Nursing Dilemma Test. This test was developed by Crisham at the University of Minnesota through studying 130 nurses. The test contains six scenarios on ethical dilemmas in nursing care, namely “Newborn with anomalies,” “Forcing medication,” “Adult’s request to die,” “New nurse orientation,” “Medication error,” and “Uninformed terminally-ill adult.” Each scenario suggests a situation which can be problematic for nurses. There are six common views for each scenario which are presented through six questions. The possible total scores of each scenario and all six scenarios are respectively 11 and 66, with lower scores showing lower moral reasoning ability.^[22,23] Borhani *et al.* translated this test into Persian and confirmed its face and content validity. They also twice applied the test to ten nursing students and ten nurses and reported a test-retest correlation coefficient of 0.82.^[14]

Intervention

The study intervention was nursing ethics education. Educational content for both groups was the same; however, education was provided to the students in the CBL group through the CBL technique and to the students in the lecture group through the lecture method. Due to the same educational content, there was no risk of between-group information leakage. The program syllabus included different definitions of ethics, the importance of nurses' awareness of ethics, the importance of ethics to nursing, the ethical principles of nursing practice (including independence, secrecy, and accountability), professional ethics, the codes of ethics for nurses, and the approaches to ethical decision-making and its process. This syllabus was developed based on a textbook on medical ethics.^[24] The program was

implemented for students in the lecture group through the lecture method in 62-h sessions. The answers to the questions of each scenario and the solutions to the ethical dilemmas presented in each scenario were provided to these students by their lecturer. On the other hand, students in the intervention group were provided with educations about the basic concepts of nursing ethics in a single 2-h session. In the 2nd session, students were familiarized with the basics of CBL, its steps, and its application. Then, they were divided into six- to seven-person groups (six in total), with a leader for each group, and students in each group were provided with one of the six above-mentioned scenarios in written format. They were required to review the provided scenario, think about it, consider its ethical issues, collect necessary data about it, and find possible solutions to the scenario in 1 week. In each of the third to the eighth sessions, students in each group provided their recommendations for their assigned scenario. Provided recommendations were discussed by all students in all groups under the supervision of their teacher. Discussions were continued until a practical solution was selected for the dilemma. This process was repeated in each session for each of the assigned scenarios. All students completed the Nursing Dilemma Test both at the beginning of the first intervention session and 1 month after the last intervention session. Both pretest and posttest were performed in a room in the hospital where students were passing their internship clinical courses.

Ethical considerations

This study obtained approvals from the Institutional Review Board and the Ethics Committee of Urmia University of Medical Sciences, Urmia, Iran (ethical approval code: IR.UMAU.REC.1395.204). In addition, it was registered (with the registration code of IRCT2016071317059N9) in the Iranian Registry of Clinical Trials. At the beginning of the study, the objectives of the study were explained to participants, they were assured of the confidentiality of their personal information, were provided with the opportunity to unilaterally withdraw from the study, and were asked to sign the written informed consent of the study. All questionnaires were anonymous.

Data analysis

Data were analyzed using the SPSS program for Windows (v. 16.0, SPSS Inc., Chicago, IL, USA). At first, the Kolmogorov–Smirnov test was run for normality testing. Then, within-group comparisons were made through the paired-sample *t*-test, while between-group comparisons were made through the independent-samples *t* and the Chi-square tests. The level of significance was set at <0.05.

RESULTS

One participant in the CBL and two in the lecture groups had frequent absences from the intervention sessions or incompletely filled out the study instrument and hence,

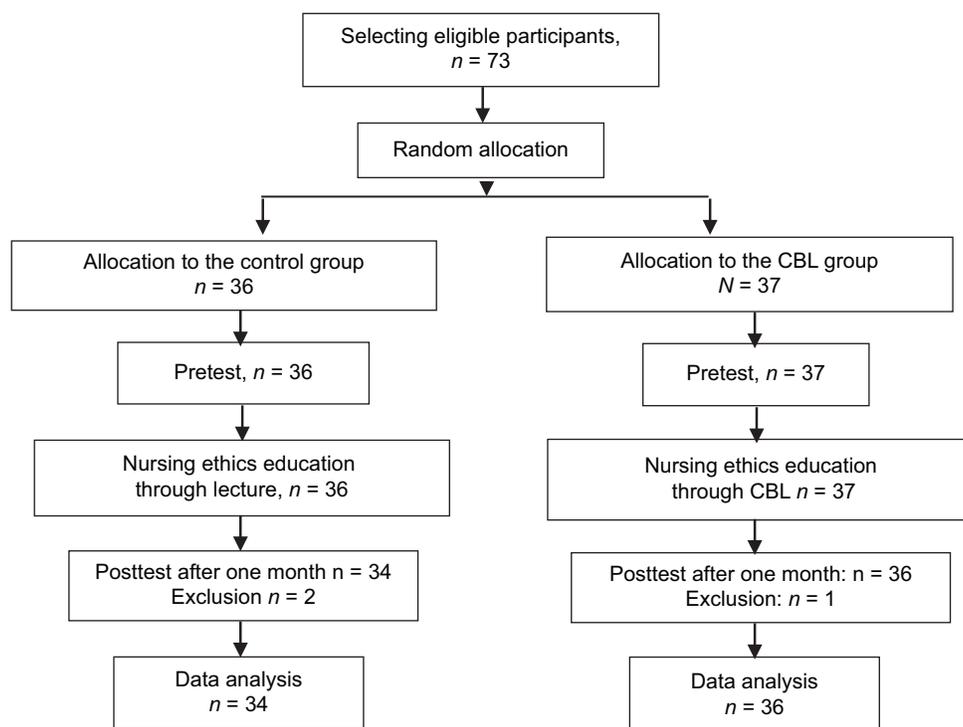


Figure 1: The study flow diagram

Table 1: Comparison of the groups in terms of participants' characteristics

Variable	Groups ^a		T (95% CI of the difference)	P
	Lecture	CBL		
Age (years)	23.52 ± 1.65	22.88 ± 1.46	1.72 (-1.38, 0.10)	0.091 ^b
Grade point average	16.14 ± 1.26	15.71 ± 0.97	1.61 (-0.96, 0.10)	0.110 ^b
Gender				
Female	16 (47.1)	19 (52.8)	$\chi^2=0.057$, df=1	0.811 ^c
Male	18 (52.9)	17 (47.2)		

^aData are presented as mean ± SD; ^bIndependent-sample *t*-test; ^cChi-square test. CI: Confidence interval, SD: Standard derivation, CBL: Case-based learning

Table 2: Comparison of the groups in terms of participants' moral reasoning

Time	Groups ^a		T (95% CI of the difference)	P ^b
	Control	CBL		
Before	43.64 ± 6.87	44.97 ± 7.50	0.772 (-2.10, 4.76)	0.442
After	44.67 ± 5.87	49.08 ± 5.74	3.178 (1.64, 7.17)	0.002
P ^c	0.508	0.007	-	-

^aData are presented as mean ± SD; ^bIndependent-sample *t*-test;

^cPaired-sample *t*-test. CI: Confidence interval, SD: Standard derivation, CBL: Case-based learning

were excluded from the study [Figure 1]. The results of the independent-samples *t* and the Chi-square tests illustrated no statistically significant differences between the groups regarding participants' age, grade point average, and gender [$P > 0.05$; Table 1].

The independent-samples *t*-test showed the groups did not significantly differ from each other regarding the pretest mean score of moral reasoning ($P = 0.44$). However, the posttest mean score of moral reasoning in the CBL group was significantly greater than the lecture group ($P = 0.002$). The Paired sample *t*-test also indicated that although the mean score of moral reasoning in the lecture group did not change significantly ($P = 0.50$), the posttest mean score of moral reasoning in the CBL group was significantly greater than the pretest mean score [$P = 0.007$; Table 2].

DISCUSSION

Results illustrated that ethics education based on CBL significantly improved nursing students' moral reasoning. Students put great importance on learning ethical principles; thus, selecting effective teaching strategies for ethics education is of great importance.^[25] In line with our findings, several studies reported the significant positive effects of CBL or its significantly greater effects compared with the lecture method on medical students' communication and analytical skills,^[26] nursing students' critical thinking skills,^[20] critical care nurses' clinical decision-making,^[27] nursing students' greater satisfaction with learning,^[28] dental students' interest in learning, communication and diagnostic

skills, interactions with teachers, and treatment-related thinking,^[29-31] and medical students' learning.^[32] Another study reported that simulation-based teaching positively affected operating room students' clinical decision-making ability.^[19] Similarly, another study showed the effectiveness of both simulation and CBL in significantly improving drug calculation skill among nursing students.^[33] The positive effects of CBL can be attributed to the active involvement of students in the process of learning, their group discussions on learning materials, and their exposure to realistic or simulated situations and cases.^[27] Such positive effects might also be attributed to the improvement in the students' critical and creative thinking skills that might be improved after the involvement in the CBL.^[20,28]

Our findings also indicated that lecture-based ethics education had no significant effects on nursing students' moral reasoning. However, unlike this finding, some earlier studies reported the effectiveness of the lecture method in improving critical care nurses' clinical decision-making and in training professional ethics to nursing students.^[15,27] Another study also reported that the problem- and the lecture-based teaching methods had the same effects on medical students' knowledge.^[31] The significant effects of the lecture method on learning outcomes in these studies were attributed to the facts that lecture provides learners with the opportunities for careful listening, greater respect for others' rights and opinions, easier acceptance of opposite viewpoints, and observation of conversational etiquette.^[15,27]

One of the study limitations was the fact that the educational program of this study was offered to participants as an optional course and hence, some of them might have been a little reluctant to take the course. Of course, we tried to manage this limitation and encourage their participation in the study by offering them some gifts. Moreover, study data were collected through a self-report questionnaire due to our inability to run the educational program in clinical settings. Furthermore, although we included almost

all eligible students in the study, the sample of our study was rather small. The time interval between the intervention and posttest outcome assessment was also short, and thus, the study provided no information about the long-term effects of CBL on moral reasoning. The replication of this study on larger samples with longer follow-up assessment intervals is recommended.

CONCLUSION

The findings of this study indicate that nursing ethics education through CBL is an effective strategy for improving moral reasoning among nursing students. This teaching method is also useful for actively engaging students in learning and facilitating the learning process. Thus, this method is recommended for ethics education to nursing students. Of course, similar studies need to be conducted in other nursing schools and using random sampling techniques to produce firmer evidence concerning the effects of CBL.

Acknowledgment

The present study was granted by Urmia University of Medical Sciences, Urmia, Iran. We would like to thank all students who agreed to participate in the study.

Financial support and sponsorship

This article was part of a master's thesis in nursing education approved and financially supported by the Research and Technology Administration of Urmia University of Medical Sciences, Urmia, Iran.

Conflicts of interest

There are no conflicts of interest.

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