Original Article

A comparison between the impacts of lecture and game based teaching on moral sensitivity among nursing students

Tayebe Jalali[1], Azam Heidarzadeh[1], Ali Ansari[2], Mohadeseh Motamed-Jahromi [3]*, Mina Mobasher[4], Mohammad Parvaresh Masoud[5]

1. M.Sc. Department of Medical-Surgical Nursing, School of Nursing and Midwifery, Geriatric Care Research Center, Rafsanjan University of Medical Sciences, Rafsanjan, Iran.
2. M.Sc. Department of Psychiatric and Mental Health Nursing, School of Nursing and Midwifery, Social Determinants of Health Research Center, Rafsanjan University of Medical Sciences, Rafsanjan, Iran.
3. Assistant Professor, Department of Public Health, School of Health, Fasa University of Medical Sciences, Fasa, Iran.
4. Associate Professor, Department of Medical Ethics and History of Medicine, School of Persian Medicine, Kerman University of Medical Sciences, Kerman, Iran.
5. Assistant Professor, Department of Emergency Medicine, Paramedical Faculty, Qom University of Medical Sciences, Qom, Iran.

Abstract

Effective educational strategies are crucial for developing moral sensitivity in nursing students. Traditional lecture-based methods may lack engagement, prompting the exploration of game-based approaches. This study compares the impacts of game-based and lecture-based teaching on nursing students' moral sensitivity.

In this quasi-experimental study, 46 fourth-semester nursing students from Rafsanjan University of Medical Sciences participated. The control group received traditional lectures, while the intervention group engaged in game-based learning focused on moral scenarios in eight 90-minute sessions.

Of the initial 46 students, 42 completed the study. Both groups had similar demographics. Post-intervention, the game-based group showed a statistically significant increase in total moral sensitivity scores ($P = 0.017$). Additionally, they scored higher in "experience of ethical problems and conflicts" ($P = 0.044$) and in "sincerity and benevolence" ($P = 0.007$) compared to the lecture group.

It was concluded that game-based teaching methods significantly enhance moral sensitivity among nursing students compared to traditional lectures, particularly in areas related to ethical conflicts and benevolence. Future research should focus on the long-term effects and integration of game-based learning in nursing education.

Keywords: *Ethics education; Moral sensitivity; Game-based learning; Lecture-based learning; Nursing student.*

Corresponding Author
Mohadeseh Motamed Jahromi
Address: *Ibn Sina Sq., School of Health, Fasa University of Medical Sciences, Fasa, Iran.*
Postal Code: *74616-8-6688*
Tel:(*+98) 71 53 31 63 24*
Email: *motamed@fums.ac.ir*

Received: *27 Jun 2024*
Accepted: *14 Oct 2024*
Published: *25 Dec 2024*

Citation to this article:
Jalali T, Heidarzadeh A, Ansari A, Motamed Jahromi M, Mobasher M, Parvaresh Masoud M. A comparison between the impacts of lecture and game-based teaching on moral sensitivity among nursing students. J Med Ethics Hist Med. 2024; 17: 1?.

Introduction

Nurses comprise the largest group of health professionals providing service in the health-care system and have a crucial effect on health-care quality (1). Adherence to ethical principles is vital for delivering quality care and significantly enhances nurses' performance (2, 3). In this context, moral sensitivity is essential as it empowers nurses to identify and navigate ethical dilemmas in their practice, ensuring that they make informed and compassionate decisions in complex situations (4).

Moral sensitivity is an internal factor that enables individuals to distinguish between proper and improper functions and perform the right ones (5). Moral sensitivity can be considered as awareness and attention to existing moral values in a contradictory situation, and individual self-awareness regarding one’s role and duty in that particular situation (6). In other words, moral sensitivity is not exclusively pertinent to an individual’s feelings but also requires personal capacity and experience to recognize the significance of the ethical issue in a situation (7).

Moral sensitivity is vital for enhancing the nurse-patient therapeutic relationship by fostering trust and improving patient care outcomes. Studies indicate that nurses with higher moral sensitivity not only are better at resolving ethical conflicts but also experience less distress; however, overall levels of moral sensitivity among nurses are typically reported as average (2, 8). This suggests a need for increased ethical training to elevate moral sensitivity and, consequently, the quality of care.

Appropriate educational planning is essential to develop moral sensitivity in nursing students. Research indicates that various methods of ethics education can impact moral sensitivity differently. For example, a study comparing role-playing and lecture methods for teaching nursing ethics found that role-playing was more effective in enhancing moral sensitivity and performance among nursing students (9). Similarly, a 2017 study conducted at a hospital in Bushehr, Iran revealed that reminiscence-based education effectively improved nurses' moral sensitivity, suggesting its incorporation into nursing curricula (10). In contrast, a quasi-experimental study on debate-based ethics education indicated that while it improved moral judgment among senior nursing students, it did not significantly affect their moral sensitivity (11).

To prepare nursing students for real-world clinical settings, the curriculum must include realistic

education that enables them to recognize and address ethical issues effectively (12, 13). Previous studies have shown that teaching methods significantly impact the development of moral sensitivity in students (14, 15). Therefore, integrating games into professional morality training could make the learning process engaging, create a positive learning environment, and enhance students' moral sensitivity (16, 17).

Incorporating games into nursing education is an innovative approach that enhances learning outcomes by fostering critical thinking and engagement (18). While the use of game-based learning is still developing, it offers educators diverse methods to meet students' varied needs and support cognitive well-being (19). This method not only broadens their knowledge and skills but also improves moral sensitivity, making learning more enjoyable and effective (19). Although few studies support this approach (3, 14, 15), research indicates that game-based learning can significantly enrich the educational experience, equipping future nurses to navigate ethical challenges in their careers (3, 14).

This study addresses a significant gap in the existing literature regarding the comparative effectiveness of traditional lecture-based versus innovative game-based teaching methods in enhancing moral sensitivity among nursing students. Although previous research emphasizes the importance of moral sensitivity in nursing practice, few studies have systematically analyzed these two pedagogical approaches. Given the increasing complexity of ethical dilemmas in healthcare, it is essential to explore diverse educational strategies that effectively prepare nursing students for real-world clinical challenges. Therefore, this research aims to conduct a comparative analysis of professional ethics training utilizing both game- and lecture-based methods at the Nursing and Midwifery School of Rafsanjan in 2023. By providing empirical evidence on how these teaching methods influence moral sensitivity, this study seeks to contribute valuable insights for curriculum development in nursing programs, ultimately enhancing the ethical training of future nurses and improving patient care outcomes.

Method

The current research was a quasi-experimental study with two groups and a pre-test/post-test design to compare the effects of professional ethics training using game- and lecture-based methods on the moral sensitivity of the nursing students at Rafsanjan University of Medical Sciences. According to the education curriculum and rules

and regulations of the nursing schools of Iran, nursing students take professional ethics courses in the fourth semester. Therefore, the research population in this study included all nursing students in the fourth semester; accordingly, the sample size equals the entire population, with a total of 46 people participating in the study. The allocation of students into the intervention and control groups was conducted through a random assignment process. To control contamination between the intervention and control groups, several effective strategies were implemented. First, students were randomly assigned to minimize bias and to ensure that each group was comparable. Additionally, participants were explicitly instructed not to share information regarding the content or methods of their training with members of the other group. To further reduce the risk of contamination, the timing of the ethics training classes was carefully coordinated, with the intervention and control groups scheduled for their sessions during the first and last hours of each week, respectively. This strategic scheduling helped to limit any potential overlap or interaction between the two groups, thereby preserving the integrity of the study's design. Inclusion criteria were: not passing the professional ethics credit or course, not attending any identical research, not attending any ethics workshop, and not having any hospital work experience. Participants were excluded if they were unwilling to participate in the study or complete the questionnaires.

Intervention

The study involved all 46 fourth-semester nursing students in the university, divided into two groups: a control group and an intervention group, each consisting of 23 students. Both groups completed a pre-test to assess their knowledge of ethical training in nursing. The control group received traditional lecture-based instruction on ethics, focusing on structured presentations and discussions based on predefined headings. In contrast, the intervention group engaged in the same topics through game-based learning strategies, promoting active participation and enhancing engagement. The study aimed to evaluate the effectiveness of these teaching methods by comparing pre-test and post-test results, with the expectation that the intervention group would show greater improvement in understanding and applying ethical principles than the control group. The ethics training plan selected for each session in both groups was the updated curriculum of nursing, approved by the Ministry of Health, Treatment, and Medical Education of Iran (Table 1). The control group received training

according to the traditional procedure of teaching, where training is lecture-oriented and based on predefined headings, and in the intervention group, the training content was presented through an integration of gameplay in each session. The content of each session was designed with a concentration on ethical scenarios and healthcare-related questions by utilizing games and competition among the students while responding to the scenarios (Table 1). For better feedback, students in the intervention group were divided into three groups of six and one group of five to have a better exchange of views in each session.

In this study, elements of game-based learning methods (20) were incorporated to enhance moral sensitivity among nursing students. By integrating rules, competition, and storytelling into educational sessions, the intervention aimed to create an engaging environment that would deepen students' understanding of ethical scenarios in healthcare. The use of instant feedback during gameplay allowed students to reflect on their decisions in real-time, significantly enriching their learning experience compared to traditional lecture-based methods. This structured yet enjoyable approach was designed to foster collaboration among students while encouraging active participation in ethical discussions relevant to their future nursing practice.

The content of the games was designed based on the book “Moral Games for Teaching Bioethics” (21). It should be noted that nursing morality lessons were held in 8 weekly 90-minute sessions for both control and intervention groups. Owing to the nature of the games, a number of them were carried out in two sessions. Both groups did the post-test after one month.

Table 1. Session-based games to teach professional ethics

Session	Main Educational Items in the Two Groups	Games
1	Professional ethics in the health system	The Brainstorming Game
	Definition of nursing ethics and its significance	The groups were given an ethical scenario following the topic under discussion, and students were asked to comment on it in each group. The representative of each student group was then asked to express his/her opinion on the scenario raised. Finally, a list of various ideas and opinions of the groups was collected. Top views were awarded at the end.
	History of nursing ethics and human relations	
2	Types of physician-nurse-patient communication models	The Role-Playing Game

		Initially, types of physician-nurse-patient communication models were explained in a lecture-based manner. Then, the designed scenario was given to the groups and they were asked to designate a volunteer for role-playing. The groups had a few minutes to prepare for role-playing, and afterwards, students in the class discussed the performance and the moral situation they had encountered in the game.
3	Ethical aspects of decision-making	The Talking-in-Pairs Game To increase the students' participation, they were asked to start a conversation in pairs with someone sitting nearby. The professor designed a scenario and at the end, proposed several questions. The students were asked to have a discussion in their two-person groups and then respond to the questions. In this way, the students' interaction with each other increased.
4	Professional nursing responsibilities based on ethical standards	The Hot-Seat Game At first, professional responsibility was explained through a lecture based on ethical standards. Then, the groups were asked to design four moral questions with responses from the text. Afterward, the group members were asked to sit in a chair, so that they were facing their teammates, and answer questions on moral issues. The top group received some prizes at the end.
5	Ethical and legal issues in nursing .	The Agree or Disagree Game This section was a simple form of description of values. In this method, a general statement was first made in which each learner was asked to express his/her opinion and, as a result, develop his/her viewpoint by sharing it and listening to the opinions of others. Signs were placed around the class that read "I agree", "I'm not sure", and "I disagree". Students were informed that they would have to stand in front of the "I agree" badge if they fully agreed with the statement; if they were uncertain, they would have to stand somewhere in the middle near the "I'm not sure" sign; and those who did not agree had to stand next to the "I disagree" sign.
6	Professional offenses and special penalties	The Card Sorting Game In this method, first we asked a general question, the answer to which included a set of factors. Then we asked the students in each group to write all the factors, along with the reasons and logics associated with them, on separate cards, and finally, we sorted the cards according to preference. When all the groups had run out of time, one person from each group volunteered to explain the reason and logic for sorting cards. The groups could compare their answers and thus get newer ideas.
7	Human rights perception and respect for patients' rights .	The Case Study Game The instructor wrote case scenarios out of the session content, and the groups underwent a competition to respond to the scenarios.
8	Codes of ethics for professional nursing	The Courage to Change the Game In this method, the nursing ethical codes in Iran were first introduced to the students. Subsequently, the students went to the hospital with their professor and were assigned into seven small groups, and discussed the ethical codes with their professor alongside the patients.

Tools

In order to comply with the ethical considerations of research, we received written permission from the students and then gave them the questionnaires, emphasizing the confidentiality of their information. Given the aim of the research, two questionnaires of demographic information and Moral Sensitivity were used to collect data. The demographic information questionnaire contained the following variables: age, average score, marital

status, gender, prior seminar attendance, and hospital work experience.

Moral Sensitivity Questionnaire (MSQ)

A standard moral sensitivity questionnaire was used to assess moral sensitivity in decision-making processes. This questionnaire was developed by Lutzen et al. in 1994 to evaluate nurses' ethical decision-making capabilities while delivering clinical care. It includes various dimensions that reflect different aspects of moral sensitivity relevant to nursing practice (22). The number of items were reduced to 25 after being revised by Comrie in 2004 (23). The selection of the Moral Sensitivity Questionnaire (MSQ) over similar instruments is justified by its established validity and reliability in measuring moral sensitivity, specifically within nursing contexts. Various studies have demonstrated the MSQ's effectiveness in capturing the complexities of ethical decision-making in clinical settings, making it a preferred tool for assessing nurses' moral sensitivity (24 - 26). The psychometric properties of the MSQ, including strong internal consistency, further support its suitability for evaluating ethical considerations in nursing practice. Hassanpoor et al. examined the validity of the questionnaire and obtained a reliability of 0.81 (27). Its reliability was also assessed by Izadi et al. and its internal homogeneity was calculated with a Cronbach's alpha coefficient of 0.80 (28). In the current study, the reliability of the questionnaire was obtained at 0.78 using Cronbach's alpha coefficient. In this 25-item Likert scale questionnaire, each item was scored from 0 (completely disagree) to 4 (completely agree), with 100 as the highest score possible and 0 as the lowest. It should be noted that the average of all participants' scores was used in this study.

Data Analysis

The obtained data were analyzed using descriptive statistics (frequency, percentage, mean, and standard deviation), implementing SPSS version 22. The results of the Kolmogorov-Smirnov test showed that the data were normally distributed; therefore, the inferential statistics including independent t-test, paired t-test, and chi-square test were applied. Also, standardized effect size estimates (Cohen's *d*) were used to quantify the difference between the two group means in the context of t-tests. Effect sizes are classified into three categories: small (0.20), medium (0.50), and large (0.80), providing a framework for interpreting the impact of an intervention on student outcomes (29). The significance level was considered 5% in all tests ($\alpha = 5\%$).

Ethical approval and consent to participate

All participants signed informed consent to participate in the study. They were ensured that all personal information would be kept confidential, and they would be anonymous and could resign at any stage of the study. After the intervention, an educational workshop was held for the students in the control group who were interested in learning ethics through games. Permission was received from the Rafsanjan University of Medical Sciences' authorities. Additionally, the Local Ethics Committee and Ethics Committee of the School of Medicine at Rafsanjan University of Medical Sciences approved the study (IR.RUMS.REC.1398.179).

Out of a sample size of 46 nursing students, 42 continued participation in the study up to the end of the research, 22 in the intervention and 20 in the control group, 24 (57.1%) of whom were female and 18 (42.8%) male. The mean and standard deviation of age in the intervention and control groups were 21.22 ± 2.68 and 20.68± 1.10, respectively. Independent t-test and chi-square test indicated that there was no significant difference between the intervention and control groups in the demographic variables of age, average score, gender, marital status, prior seminar attendance, and hospital work experience, and the two groups were homogeneous (Table 2).

Results

Table 2. Comparison of demographic information of the intervention and control groups

Variables		Intervention (n = 22)	Control (n = 20)	*P*-Value
		Mean±SD	Mean±SD	
Age		21.22±1.68	20.68±1.10	0.417
Average Score		16.40±1.75	15.58±1.23	0.146
Gender		Frequency (%)	Frequency (%)	
	Male	9 (40.9)	9 (45)	0.373
	Female	13 (59.1)	11(55)	
Marital Status	Single	22 (100)	18 (90)	0.135
	Married	0 (0)	2 (10)	
Prior Seminar Attendance	Yes	3 (13.6)	6 (30)	
	No	19 (86.4)	14 (70)	0.206
Hospital Work Experience	Yes	21 (95.5)	1 (5)	
	No	1 (4.5)	19 (95)	0.947

The findings concerning the impact of training on students' moral sensitivity before and after the intervention in the gameplay group were 61.72 ± 5.16 and 63.54 ± 5.54, respectively, denoting no statistically significant difference (P = 0.279). Moreover, the mean scores before and after the

intervention in the lecture group were reported as 58.75 ± 5.92 and 59.25 ± 5.65, respectively, which was not statistically significant (P = 0.703). Also, no statistically significant difference was observed among moral sensitivity dimensions in the two groups before and after training (P > 0.5) (Table 3).

Table 3. *Comparison of moral sensitivity scores by dimension in the intervention and control groups before and after the intervention (intragroup comparison)*

Variables		Before	After	*P*-Value
		Mean±SD	Mean±SD	Paired T-Test Statistics
Total Score of Moral Sensitivity	Intervention (n=22)	5.16±61.72	63.54±5.54	*P*-value=0.279 t=-1.11
	Control (n=20)	58.75±5.92	59.25±5.65	0.808
Respecting Patients' Autonomy	Intervention (n=22)	7.45±1.35	7.40±1.50	0.537
	Control (n=20)	7.30±1.55	7.50±1.43	0.627
Awareness of How to Communicate with the Patient	Intervention (n=22)	15.27±2.64	14.27±1.48	*P*-value=0.167 t=1.43
	Control (n=20)	14.25±1.99	15.00±2.29	*P*-value=0.270 t=-1.136
Professional Knowledge	Intervention (n=22)	3.36±1.55	3.81±1.65	*P*-value=0.389 t=-0.879
	Control (n=20)	3.50±1.33	3.55±1.66	*P*-value=0.90 t=-0.127
Experience of Ethical Problems and Conflicts	Intervention (n=22)	8.09±1.68	8.13±1.52	*P*-value=0.883 t=-0.149
	Control (n=20)	6.95±2.28	7.00±2.00	*P*-value=0.959 t=-0.090
Implementation of Ethical Concepts in Decision-Making	Intervention (n=22)	11.81±2.55	12.22±2.89	*P*-value=0.554 t=-0.604
	Control (n=20)	12.15±2.27	11.35±1.98	*P*-value=0.107 t=1.69
Sincerity and Benevolence	Intervention (n=22)	15.72±3.31	17.68±3.25	*P*-value=0.064 t=-1.95
	Control (n=20)	14.60±2.68	14.85±3.15	*P*-value=0.731 t=-0.343

Comparing the total score of moral sensitivity in the game and lecture groups indicated no statistically significant difference between the two groups before the intervention (P > 0.05). However, after the intervention, a statistically significant difference was observed between the two groups (P = 0.017), in that the mean score of moral sensitivity was reported higher in the intervention group. In addition, comparing the scores of the moral sensitivity dimensions in the two groups demonstrated that they were significantly different only in the dimensions of "experience of ethical problems and conflicts" (P = 0.044) and "sincerity and benevolence" (P = 0.007) after the intervention, in that the mean scores of the mentioned dimensions were higher in the game group than in the lecture group. Cohen's *d*-effect coefficient was used to compare the impacts of

game-based and lecture-based training on moral sensitivity after the intervention. The game-based group showed a medium effect size of 0.77, indicating significant improvement in moral sensitivity. In addition, the game-based intervention was highly effective in enhancing the "sincerity and benevolence" dimension, with a large effect size of 0.88. However, a comparison of scores on the dimensions of "respecting patients' autonomy", "awareness of how to communicate with the patient", "implementation of ethical concepts in decision-making", and "professional knowledge" among the two groups indicated no significant difference after the intervention (Table 4).

Table 4. *Comparison of the mean scores of moral sensitivity and its dimensions between the control and intervention groups before and after the intervention (intergroup comparison)*

Variables		Intervention	Control	*P*-Value (Independent T-Test)	Effect Size (Cohen's *d*) after Intervention
Total Score of Moral Sensitivity	Before intervention	61.72±5.16	58.75±5.92	0.090	
	After intervention	63.54±5.44	59.25±5.65	0.017	Cohen's *d* = 0.77
Respecting Patients' Autonomy	Before intervention	7.45±1.37	7.30±1.55	0.734	
	After intervention	7.40±1.50	7.50±1.43	0.842	Cohen's *d* = 0.06
Awareness of How to Communicate with the Patient	Before intervention	15.27±2.64	14.25±1.99	0.168	
	After intervention	14.27±1.48	15.00±2.29	0.226	Cohen's *d* = 0.37
Professional Knowledge	Before intervention	3.36±1.55	3.50±1.31	0.762	
	After intervention	3.81±1.65	3.55±1.66	0.604	Cohen's *d* = 0.15
Experience of Ethical Problems and Conflicts	Before intervention	8.09±1.68	6.95±2.28	0.071	
	After intervention	8.13±1.52	7.00±2.00	0.044	Cohen's *d* = 0.63
Implementation of Ethical Concepts in Decision-Making	Before intervention	11.81±2.55	12.15±2.27	0.661	
	After intervention	12.22±2.89	11.35±1.98	0.263	Cohen's *d* = 0.35
Sincerity and Benevolence	Before intervention	15.72±3.31	14.60±2.68	0.236	
	After intervention	17.68±3.25	14.85±3.15	0.007	Cohen's *d* = 0.88

Discussion

The current study aimed to compare the effects of lecture- and game-based teaching methods on the moral sensitivity of nursing students. The findings indicated that game-based education significantly enhances moral sensitivity compared to traditional lectures. This aligns with previous research by Maddineshat et al., which also demonstrated that game-based educational programs effectively improve the moral sensitivity of nursing students (16). In line with our findings, a study on Iranian nursing students demonstrated that a 17-week game-based ethics education program significantly improved moral sensitivity scores, particularly in

areas such as patient relationships and ethical decision-making (16). A systematic review also indicated that game-based methods promote positive learning experiences and improve analytical skills among nursing students (30). However, it is important to note that some studies have reported no significant changes in moral sensitivity despite the implementation of ethics training courses, highlighting the variability in outcomes associated with different educational methods (31, 32). This suggests that while game-based approaches can be effective, their success may depend on various factors, including the specific context and implementation of the educational program.

The findings indicate that the mean moral sensitivity scores of both intervention and control groups were at an average level at the onset of the study. This aligns with previous studies that have similarly shown the mean moral sensitivity score of nursing students to be within the average range (33 - 35). On the other hand, one study found that nursing students exhibited higher moral sensitivity compared to midwifery students and practitioners; this difference is attributed to the extensive training and exposure to ethical dilemmas that nursing students, particularly those nearing graduation, experience in clinical settings (36).

The results indicated that after the intervention, moral sensitivity scores in the game-based group were significantly higher than before in the dimensions of "experience of ethical problems and conflicts", as well as "sincerity and benevolence". This improvement supports existing research that highlights the effectiveness of interactive and experiential learning strategies, such as games, in fostering deeper ethical awareness and enhancing decision-making skills (37). Research has consistently demonstrated that game-based approaches not only engage students but also lead to substantial advancements in their understanding of moral dilemmas and ethical reasoning, thereby equipping them with essential skills for navigating complex, ethical landscapes (38). In addition, one study has shown that digital game-based teaching effectively improves ethical instruction, fostering virtues such as responsibility and respect among students through experiential learning methods (39). Another study has emphasized the importance of selecting games that promote emotional intelligence and character development, thereby reinforcing moral values like sincerity and benevolence (40).

Based on the results, there was no significant difference in the dimension of "respect for patient autonomy" between the game-based and lecture-

based education groups after the intervention. Effective respect for autonomy appears to require active patient participation, and if patients are not sufficiently empowered or engaged in their care discussions, both groups may show similar levels of respect. In line with this finding, one study discusses how the principle of autonomy is linked to informed decision-making, stressing that patients need to be actively involved in their health-care choices for their autonomy to be genuinely respected (41).

The results displayed no significant difference in the dimension of “awareness of how to communicate with the patient “between the two groups after the intervention. It is possible that neither of the two teaching methods adequately emphasized practical communication skills or provided sufficient opportunities for students to practice these skills in realistic scenarios. This finding is confirmed by another study that showed effective communication training often requires interactive methods, such as role-playing or small group discussions, which may not have been sufficiently incorporated in either approach (42). Additionally, the inherent complexity of effective patient communication necessitates comprehensive instructional strategies that extend beyond standard educational interventions to enhance real-world application. This aligns with findings from studies emphasizing the importance of tailored communication strategies to improve patient interactions and outcomes (43).

The findings indicated that there was no significant difference between the two groups regarding "professional knowledge" after the intervention, suggesting that both methods were effective in conveying similar foundational knowledge about professional concepts. A supporting study highlights that the complexity of professional knowledge necessitates not only theoretical understanding but also practical application, implying that neither educational approach sufficiently emphasizes the practical aspects of professional knowledge (44).

The results showed that the dimension of “implementation of ethical concepts in decision-making” showed no significant differences after the intervention, regardless of whether lecture-based or game-based teaching methods were used. This finding aligns with prior research suggesting that although students may acquire knowledge of ethical principles, neither method effectively facilitates the translation of this knowledge into practical decision-making skills (45). Furthermore, this finding may reflect the students' pre-existing competencies or underscore the inherent

complexity of ethical decision-making, which requires more than mere theoretical understanding for effective application in real-world situations (46).

Conclusion

This study provides compelling evidence that game-based teaching methods significantly enhance the moral sensitivity of nursing students compared to traditional lecture-based approaches. The results indicate notable improvements in dimensions such as "experience of ethical problems and conflicts", as well as "sincerity and benevolence". These findings underscore the benefits of game-based learning, including increased student engagement, motivation, and critical thinking skills. While game-based methods show promise, future research should explore their long-term effects and strategies for effective integration into nursing education. Overall, incorporating game-based approaches can better prepare nursing students to navigate complex ethical challenges in their professional practice. It is worth noting that the dimensions of moral sensitivity discussed here do not carry equal weight, and while all dimensions are important, their effectiveness can vary based on context and implementation. Therefore, although each dimension contributes to moral sensitivity, strengthening all of them is essential as key principles that enhance the overall effectiveness of ethical practice in nursing and healthcare.

Funding

This research was supported by Rafsanjan University of Medical Sciences, Rafsanjan, Iran.

Acknowledgments

The authors would like to thank all the students who participated in the study.

Conflict of Interests

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

Authors' contributions

TJ &MMJ: Conceptualization, Methodology, Investigation, Formal analysis, writing – original draft, Writing – review& editing. AH: Data Collection and Data Analysis, AA: Education. MM&MPM: Writing – review & editing, Supervision.

References:

1. Tran KT, Nguyen PV, Dang TT, Ton TN. The impacts of the high-quality workplace relationships on job performance: A perspective on staff nurses in Vietnam. Behavioral sciences. 2018;8(12):109.

2. Baghaei R, Moradi Y, Aminolshareh S, Zareh H. The ethical sensitivity of nurses in decision making in Ayatollah Taleghani Hospital, 1391. Nursing And Midwifery Journal. 2014;11(11):0-.

3. Mohamadi J, Azizi A. Effectiveness of nursing ethics education on ethical reasoning nurses. 2015.

4. Amiri E, Ebrahimi H, Vahidi M, Asghari Jafarabadi M, Namdar Areshtanab H. Relationship between nurses' moral sensitivity and the quality of care. Nursing ethics. 2019;26(4):1265-73.

5. Costa BdJ, Azevedo MdC, Relva IC, Simões AM. Relationship between psychopathic traits and moral sensitivity in a university student sample. Legal and Criminological Psychology. 2022;27(2):216-33.

6. Sherblom SA. What develops in moral development? A model of moral sensibility. Journal of Moral Education. 2012;41(1):117-42.

7. Murayama S. Cultural sensitivity removes barriers to better care. A letter to the editor on article" parental preference or child well-being: an ethical dilemma". Journal of pediatric nursing. 2010;25(2):71-.

8. Zirak M, Moghaddsiyan S, Abdollahzadeh F, Rahmani A. Moral development of nursing students of Tabriz University of Medical Sciences. Iranian Journal of Medical Ethics and History of Medicine. 2011;4(4):45-55.

9. Jasemi M, Goli R, Zabihi RE, Khalkhali H. Educating ethics codes by lecture or role-play; which one improves nursing students' ethical sensitivity and ethical performance more? A quasi-experimental study. Journal of Professional Nursing. 2022;40:122-9.

10. Bahrieni F, Azodi P, Hajivandi A, Jahanpour F. The effect of education in nurse's moral sensitivity. Journal of Pharmaceutical Sciences and Research. 2017;9(10):1817-21.

11. Kim W-J, Park J-H. The effects of debate-based ethics education on the moral sensitivity and judgment of nursing students: A quasi-experimental study. Nurse Education Today. 2019;83:104200.

12. Bruce A, Rietze L, Lim A. Understanding philosophy in a nurse's world: What, where and why. Nursing and Health. 2014;2(3):65-71.

13. Nasrabadi AN, Joolaee S, Parsa-Yekta Z, Bahrani N, Noghani F, Vydelingum V. A new approach for teaching nursing ethics in Iran. Indian J Med Ethics. 2009;6(2):85-9.

14. Jafari H, Khaghanizade M, Nouri JM, Nir MS, Jafari H, Khaghanizade M. Developmental strategies for nursing ethics education. Medical Ethics Journal. 2017;10(38):81-90.

15. Park M, Kjervik D, Crandell J, Oermann MH. The relationship of ethics education to moral sensitivity and moral reasoning skills of nursing students. Nursing ethics. 2012;19(4):568-80.

16. Maddineshat M, Yousefzadeh MR, Mohseni M, Maghsoudi Z, Ghaffari ME. Teaching ethics using games: impact on Iranian nursing students' moral sensitivity. Indian J Med Ethics [Internet]. 2019;4(1):14-20.

17. Xu J-h. Toolbox of teaching strategies in nurse education. Chinese Nursing Research. 2016;3(2):54-7.

18. Royse MA, Newton SE. How gaming is used as an innovative strategy for nursing education. Nursing Education Perspectives. 2007;28(5):263-7.

19. Murad SS. Brain involvement in the use of games in nursing education. Journal of Nursing Education and Practice. 2017;7(6):90-4.

20. Adipat S, Laksana K, Busayanon K, Asawasowan A, Adipat B. Engaging students in the learning process with game-based learning: The fundamental concepts. International Journal of Technology in Education. 2021;4(3):542-52.

21. Macer DR. Moral games for teaching bioethics: Unesco chair in bioethics Haifa, Israel; 2008.

22. Lützén K, Nordin C, Brolin G. Conceptualization and instrumentation of nurses' moral sensitivity in psychiatric practice. International Journal of Methods in Psychiatric Research. 1994.

23. Comrie RW. Identifying and measuring baccalaureate and graduate nursing students' moral sensitivity: Southern Illinois University at Carbondale; 2005.

24. Jiménez-Herrera MF, Font-Jimenez I, Bazo-Hernández L, Roldán-Merino J, Biurrun-Garrido A, Hurtado-Pardos B. Moral sensitivity of nursing students. Adaptation and validation of the moral sensitivity questionnaire in Spain. Plos one. 2022;17(6):e0270049.

25. Kuilman L, Jansen GJ, Mulder LB, Middel B, Roodbol PF. Re-assessing the validity of the Moral Sensitivity Questionnaire (MSQ): Two new scales for moral deliberation and paternalism. Journal of evaluation in clinical practice. 2020;26(2):659-69.

26. Khorany H, Momeni M, Ahmadi A, Motalebi SA. Predictive Value of Moral Sensitivity for Quality of Care Among Iranian Nurses. Jundishapur Journal of Chronic Disease Care. 2024;13(1).

27. Hassanpoor M, Hosseini M, Fallahi Khoshknab M, Abbaszadeh A. Evaluation of the impact of teaching nursing ethics on nurses' decision making in Kerman social welfare hospitals in 1389. Iranian Journal of Medical Ethics and History of Medicine. 2011;4(5):58-64.

28. Izadi A, Imani H, Khademi z, FariAsadi Noughabi f, Hajizadeh N, Naghizadeh F. Moral sensitivity of critical care nurses in clinical decision making and its correlation with their caring behavior in teaching hospitals of Bandar Abbas in 2012. Iranian Journal of Medical Ethics and History of Medicine. 2013;6(2):43-56.

29. Cohen J. Statistical power analysis for the behavioral sciences: routledge; 2013.

30. Xu Y, Lau Y, Cheng LJ, Lau ST. Learning experiences of game-based educational intervention in nursing students: A systematic mixed-studies review. Nurse Educ Today. 2021;107:105139.

31. Tanner C, Schmocker D, Katsarov J, Christen M. Educating moral sensitivity in business: An experimental study to evaluate the effectiveness of a serious moral game. Computers & Education. 2022;178:104381.

32. Ergin E, Koçak Uyaroğlu A, Altınel B. Relationship between emotional intelligence and ethical sensitivity in Turkish nursing students. Journal of Bioethical Inquiry. 2022;19(2):341-51.

33. Shayestehfard M, Torabizadeh C, Gholamzadeh S, Ebadi A. Ethical Sensitivity in Nursing Students: Developing a Context–based Education. Electronic Journal of General Medicine. 2020.

34. Kosicka B, Ozdoba P, Dziurka M, Boczkowska S, Machul M, Chrzan-Rodak A, et al. Experiential methods in ethical education of nursing and midwifery students. Pielegniarstwo XXI wieku / Nursing in the 21st Century. 2023;22:195 - 207.

35. Ergin E, Koçak Uyaroğlu A, Altinel B. Relationship Between Emotional Intelligence and Ethical Sensitivity in Turkish Nursing Students. Journal of Bioethical Inquiry. 2022;19:341 - 51.

36. Hoseini BL, Shomoossi N, Rakhshani MH, Norouzi ZB. Moral sensitivity among nursing and midwifery students and practitioners: A comparative report from Iran. Journal of Biostatistics and Epidemiology. 2020.

37. Huang W, Ho JC. Improving moral reasoning among college students: a game-based learning approach. Interactive Learning Environments. 2018;26(5):583-96.

38. Blanié A, Amorim M-A, Benhamou D. Comparative value of a simulation by gaming and a traditional teaching method to improve clinical reasoning skills necessary to detect patient deterioration: a randomized study in nursing students. BMC medical education. 2020;20:1-11.

39. Zhao Y, Ding T. Effects of Digital Game-Based Experiential Learning on Students' Ethical Instruction Effectiveness. EURASIA Journal of Mathematics, Science and Technology Education. 2018;14(7):3347-54.

40. Audu OC, Asino TI. Teaching Moral and Ethical Values Through Game-Based Learning.

41. Pennings S, Symons X. First among equals? Adaptive preferences and the limits of autonomy in medical ethics. Journal of medical ethics. 2024;50(3):212-8.

42. Voogt SJ, Pratt K, Rollet A. Patient communication: Practical strategies for better interactions. Family Practice Management. 2022;29(2):12-6.

43. Haesum LKE, Hejlesen OK, Udsen FW. An Interactive Communication Model for Self-Care—Regardless of Health Literacy: Protocol for a Quasi-Experimental Study. JMIR Research Protocols. 2023;12(1):e37673.

44. Loughran J. Pedagogical reasoning: The foundation of the professional knowledge of teaching. Teachers and Teaching. 2019;25(5):523-35.

45. McDonald WM, Ebelhar MW, Orehovec ER, Sanderson RH. Ethical Decision Making: A Teaching and Learning Model for Graduate Students and New Professionals. College Student Affairs Journal. 2006;25(2):152-63.

46. Khazen M. Fostering Decision-Making and Ethics: Problem-Based Learning for Female Tertiary Learners in Israel. European Journal of Educational Research. 2024;13(3).