**Title of the article**:

Impact of teaching ethics using games on Iranian nursing student’s moral sensitivity

### Running title : Ethics training using games

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**Abstract**

**Introduction*:*** It is vital to consider putting ethical education to actual use and not simply focus on informing or training students. Ethics is a dynamic field; it is not a subject that one learns once and then forgets. Ethics is learned through case studies that clarify values and their application. The purpose of this study was to develop a method of teaching ethics using games on nursing student’s moral sensitivity at Malayer Nursing Faculty in western Iran.

**Method:**In this study we used one-group pretest–posttest. As part of a nursing ethics program, thirty undergraduate nursing students at the Malayer Nursing Faculty in western Iran participated in this study. Professional ethics education was provided from January 2016 to May 2017 to students for 17 weeks including 90-minutes sessions. The Lutzen ethical sensitivity questionnaire and a checklist of the satisfaction levels of games were used to measure the effects of training. Repeated measures ANOVA and the Greenhouse-Geisser correction were used to measure ethics game.

**Results:**After training, total moral sensitivity questionnaire scores increased significantly (p = 0/02). The score on awareness of the relationship with the patient and the application of ethical concepts in ethical decisions from the sub-domain of moral sensitivity increased significantly. Card sorting and drawing or art production earned the highest scores of satisfaction.

**Conclusion**:

Playing game is a useful approach to develop moral sensitivity among nursing students to make them more sensitive toward ethical issues in their professional environment. It will prepare them to deal with moral issues and enable them to make ethical decisions in the clinical environment.

**Keywords**: Education, Student, Nursing, Ethics, , Nursing Ethics, Teaching, Moral development

**Introduction**

The rapid advances in science and technology have many personal and social consequences. Nurses must shape their goals and purposes in line with technology and science and, because of the nature of their profession, they face moral dilemmas every day. (1)Nurses who must care for a specific population, must develop the skills of critical thinking, decision-making, conflict resolution and the ability to support that population. They require ethical education (2)(3)in all levels of their professional life.(2)Many books, theories and articles describe how nurses are confronted with ethical challenges.(3) It must be determined whether or not Iranian nursing students are ready to face the ethical challenges of their careers. As a short answer to this question we must say "no" .(4) Studies emphasize that nursing is ethics based and ethics are fundamental to nursing care. The use of interactive education can help to teach this concept. One way to increase the ethical sensitivity of students in identifying ethical violations is the use of appropriate models and content for nursing ethics education at all educational levels .(5, 6)

Latzen et al. have defined moral sensitivity as consciousness and attention to the ethical values in a situation with individual challenges and individual self-awareness about the role and duty in that particular situation.(7) Previous studies also reported that the ethics training for nursing students was aimed to develop moral sensitivity and promote their professional ethics. Moral sensitivity is the basis of ethics in nursing to enable them for effective and ethical care of their patients. Moral sensitivity makes the nurse susceptible to ethical issues in their professional environment and enable them to make moral decisions for their patients.(8, 9) Nursing students have the clinical education in the second semester and the practical courses are taught alongside theoretical courses. Therefore, they encounter ethical challenges and problems in the clinic environments. Needless to say that, having essential background is necessary for professional ethics.

Jafari et al. (10)described several nursing strategies in the development of ethical education. These include ethics curriculum with a consolidated approach, ethical training at all levels of education, and ethics internship and professional ethics education at the patient's bedside. Bearing in mind the large volume of material to be covered in the current methods of nursing ethics education, use of modern methods for professional ethics education, and the use of mentors and student feedback are the most important factors in the development of nursing professional ethics. Ozgonul et al. (11) in Turkey suggested that medical ethics education should be learner-centered and problem-based. They recommended that its aims should be to assist students in deep information processing in order to link new information with existing ideas and experiences. The use of games is an innovative method that according to the researchers may improve student learning outcomes. The use of games can improve learning, encourage critical thinking, and make learning more exciting. In fact, a game can draw on real-life scenarios; however, few studies support this approach (12). Games are not only fun, but also provide an effective educational strategy to enhance learning by provoking student interest and participation in learning. The combination of a game with lectures may help create an organized educational environment and promote student’s knowledge. This approach is more effective than the use of lecture method alone.(13) White and Davis (14) introduced a game entitled "Rights: Helter Skelter" for first year students that focuses on ethics and nursing. This game enables students to analyze moral difficulties and endure uncertainty in ethical issues. Some contradictions exist in the use of the game for student ethics, but the games are activities in which players compete on the basis of rules and to create new and innovative strategies for learning (15). Moreover, with developments in science and increasing ethical challenges facing healthcare centers, more and more modern methods such as games can be used to identify and deal with ethical challenges(16). Studies have shown that ethics education is focused on problems of a challenging nature; nonetheless, up to now no study have been conducted on problem-solving in ethical challenges. Therefore, the purpose of the current study was to determine the Impact of teaching ethics using games on Iranian nursing student’s moral sensitivity.

**Methods**

**Design and subjects**

This quasi-experimental study was carried out as one-group pretest–posttest. The participants in the study were students of Malayer nursing faculty in western Iran. After obtaining authorization from the Malayer Nursing Faculty, 30 nursing students in their fourth semester of nursing school were selected through Non-probability sampling to participate from January 2016 to May 2017. In Iran, Theacademic yearinclude2 semesters*.* Each semesterisseventeen weeksrunning from September to December and from January to May.

Based on the curriculum approved by the Ministry of Health, the duration of nursing course is four years in Iran, and the nursing students have the professional ethics lesson in their second year of study in the fourth semester. Therefore, at the time of the study, only students who were studying in the fourth semester and had a professional ethics course could participate in this study. In Iran, in the fourth semester, 1.5 units of professional ethics course are presented to nursing students theoretically and practically. Nursing students enter the clinical education in the second semester and the practical courses are taught alongside theoretical courses. Therefore, they have encountered ethical challenges in the clinic environment. For this purpose, they have to learn the necessary background for professional ethics. This study was conducted on nursing students in one semester of their university and its results could be used in future studies.

**Measurements**

**Moral sensitivity**

The sampling tools included Moral Sensitivity Questionnaire developed by Lutzen in Sweden in 1994 and amended in 1997 and 2003.

The Moral Sensitivity Questionnaire in Iran has been translated into Persian and adapted to Iranian culture. Its validity and reliability have been measured in Iranian studies by Abbas Zadeh et al.(17), Karimi Noghondar et al.(18) Cronbach's alpha coefficient of this questionnaire has been reported in Iranian studies as α = 0.7.

.The questionnaire consists of two parts. The first part is demographic information and the second part has 25 questions that measure the degree of moral sensitivity. The questionnaire uses a 5-point Likert scale from complete opposition (zero) to complete agreement (4) ). The highest score possible is 100 and the lowest possible score is zero. A total score of 0 to 50 denotes low moral sensitivity, 51 to 75 denotes moderate moral sensitivity and 76 to 100 denotes high moral sensitivity. The questionnaire has six dimensions for patient autonomy (questions 10, 12 and 13), awareness of how to communicate with the patient (questions 1, 2, 3, 4 and 17), professional knowledge (questions 16 and 24), experiencing problems and moral conflict (questions 9, 11 and 15), applying moral concepts to ethical decisions (questions 6, 8, 14, 20) and honesty (19)as well as goodwill (questions 5, 7, 19, 21, 22, 23, and 25) (19)

**Measurement of satisfaction students of ethics games**

Since teaching of professional ethics in the form of a games is a new concept, a checklist was provided on the teaching methods of the authors in order to receive feedback from the students. This consisted of 17 checklist questionnaires that can assess satisfaction with the 10 games played over the course of 16 sessions. The questions are scored using a 5-part Likert scale of very dissatisfied (1), dissatisfied (2), neither satisfied nor dissatisfied (3), satisfied (4) and very satisfied (5). A checklist was also developed to measure student satisfaction with the content taught in each session using a Likert score. The validity of it was confirmed by faculty members.

**Intervention**

It was initially explained to the students that how nursing ethics would be taught so that they could participate in the teaching process. Next, 30 nursing students participated in this study which was consisted of 14 (53.3%) women and 16 (46%) men which were divided into 7 groups (3 males and 4 females). The nursing ethics session were held once a week for 17 weeks, 90-minutes each. The ethics training program selected for each session was in line with the new curriculum of nursing approved by the Ministry of Health and Medical Education of Iran in 2013 (Table 1). This program earns educational credits. Using mobile technology, the contents of each session were prepared by the teacher in PowerPoint and sent to the students to be studied before the beginning of the classes.

If the students needed to review previously taught content during the game, they could refer to the educational content on their mobile device.

A combination of problem-solving and Gameplay was used to teach the contents of each session. The lessons were designed to focus on ethical scenarios and questions about health care by the use of games and competition between students when responding to scenarios. The guide adopted on how to organize games in accordance with the content of each session. It was published by the Chair of UNESCO (United Nations Educational, Scientific and Cultural Organization) on bioethics. To teach the ethical concepts, the games for each session were selected from Moral Games for Teaching Bioethics (20, 21). Twelve games from this book were selected in accordance with the educational content.

In so much as nursing education in Iran is taught in Persian, the 12 selected games from the Moral Games for Teaching Bioethics were translated into Persian. Then, in a panel with the members of the Ethics Committee of the Faculty of Nursing, the educational content of the games was scientifically examined and moderated according to the Iranian culture. These panels were held in three sessions of two hours.

Some lessons were held in two sessions due to the nature of the game including; teaching content, writing assignment, the need for lectures, and the opportunity for all students to present their assignment.

The educational content was taught by one of the ethics educators at the Faculty of Nursing, where the study was conducted. The educators were selected by the College's Ethics Committee who had a history of teaching in nursing ethics. The content was provided to the educators and their task was to teach nursing students throughout the study. The educators were not aware of the research purposes. The researchers did not affect the teaching process. The researchers provided questionnaires for nursing students before and after the training.

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| **Table 1: Contents of professional ethics for nursing students in the form of games** | | |
| Number of session | Main themes | Teaching method |
| 1 | Professional ethics in the health system  Definition of nursing ethics and its Importance | Familiarization with teaching. Divide students into small groups. Application of small group games. Buzz groups: Design moral questions from the text of this session. Give prize for top group. |
| 2 | Philosophy of ethics in medical sciences  History of nursing ethics and human relations | The Brainstorming Game: Development of moral questions from text of this session. Groups compete to answer questions. |
| 3 | Bioethics | Card sorting game: Design and present flashcards of bioethical principles and case studies by student groups. Give prize to top group. |
| 4 | Moral sensitivity in nursing education (clinical) | Health travel game: Encourage students to discuss in pairs about the gap in the treatment of patients have experienced during clinical training sessions. |
| 5 | Types of physician-nurse-patient communication models | Lecture and explanation of types of physician-nurse communication models. Writing scenario about physician-nurse-patient relationship by groups with instructor supervision. |
| 6 | Types of physician-nurse-patient communication models | Role-playing game: Implement a physician-nurse-patient model in form of role-playing by small student groups. Give prize to top group. |
| 7 | Ethical aspects of decision-making | Talk-in-pairs game: Complete Canadian Clinical Nurse Ethical Decision-making Guidelines form by two supervised instructors. Give prize to top group. |
| 8 | Ethical aspects of decision-making | Lecture, analysis of student assignments from previous session and provide feedback. |
| 9 | Professional nursing responsibilities based on ethical standards | Lecture and explanation of professional responsibilities of nurses, scenario writing for hot seat game |
| 10 | Professional nursing responsibilities based on ethical standards | Hot seat game: Design 4 moral questions having answers from text. Each group member is paired with a member from the other group. Opposing team sits in the hot seat and answers questions. |
| 11 | Moral and legal issues in nursing | Drawing or production art game: Each group draw 7 nursing standards on a balloon and draw basic ethics principles and themesinnursing ethics and present them. Give prize to top group. |
| 12 | Moral and legal issues in nursing | Socratic debate game: Teach ethical concepts and rules using films. Contest, discuss and analyze films between groups. Prize to top group. |
| 13 | Special professional offenses and penalties | Pass the parcel game: Wrap two gifts, one for each group, in layers of paper. Students must unwrap one piece of paper and answer the question on it related to specific professional offenses. |
| 14 | Special professional offenses and penalties | Pass the parcel game. |
| 15 | Understanding human rights and respecting the rights of the patient | Case study game: Instructor writes case scenarios from text of session and small groups compete to respond to scenarios. |
| 16 | Professional nursing ethics codes | Field visits/educational visits game: Introduce Code of Ethics for Nursing in Iran. Divide students into small groups and visit the bedside, creating the opportunity to review the code of ethics at the bedside. |
| 17 | Discussion of past sessions | Conclusion |

**Data analysis**

Descriptive statistics were used to measure the mean and standard deviation. To compare the moral sensitivity scores before and after education, the paired t-test and chi-square test were used to correlate ethical sensitivity by gender. Repeated measures ANOVA and the Greenhouse-Geisser correction were used to measure satisfaction with the ethics game. The results were considered to be significant at p < 0.05. Data analysis was performed using SPSS16 software.

**Ethics of research**

A signed voluntary participation consent form was obtained from all students and the students were assured that their responses would not affect their grades and were completely confidential and anonymous. A coding system was used to keep the information confidential. If desired, the results of the study were communicated to the participants.

**Results**

**General characteristics of nursing student**

About 30 undergraduate nursing students participated in the study. The average age of participants were 21 years (22.17 ± 5.28). Of them, 93.3% had not attended an ethics workshop.

**Effects of teaching nursing ethics by game on moral sensitivity**

The results of the test of moral sensitivity are shown in Table 2. The mean score of gender sensitivity was 66.43 ± 5.85 for female students and 62.94 ± 7.5 for male students. There was no significant difference between gender and student moral sensitivity scores using the chi-square test (p = 0.06). For the different dimensions of moral sensitivity, the highest scores were knowing how to communicate with the patient, using ethical concepts in moral decision-making and expressing benevolence. Comparison of the total score of emotional sensitivity before and after intervention based on the paired t-test showed a significant statistical relationship (p = 0/02). Before intervention, the majority of students obtained average moral sensitivity scores and after the 17 sessions, the ethic sensitivity score of students increased to moderate or high levels (Table 3).

**Satisfaction of nursing students in ethics game**

At the end of the nursing ethics course, repeated measure ANOVA was used to measure student satisfaction with the games. The average level of student satisfaction score (total of 5) in each session was more than 4.4 (Table 3). .As seen, card sorting and drawing or art production earned the highest scores from students and role playing, Talk-in-pairs, hot seat, health travel and debates ranked next in that order. Because there was no Sphericity between meanings, the Greenhouse-Geisser correction was used and showed no significant trend between the means of the sessions (p = 0.66; Table 4).

**Discussion**

The purpose of this study was to determine the impact of using games on Iranian nursing student's moral sensitivity. The total score for moral sensitivity before and after intervention showed statistically significant changes. The range of moral sensitivity scores of nursing students fell into the medium and high ranges (93.3% to 96.7%), which indicates positive effects of the use of games during nursing ethics. Teaching professional ethics principles in terms of awareness of how to communicate with the patient and the use of ethical concepts in moral decisions had a positive effect.

In agreement with our findings, Etrug et al.(22) study in Turkey also showed that the moral sensitivity of nurses is influenced by ethical education and educational background. The results of Kang study in Korea also indicated that ethical education is necessary to create a desirable moral value system among nursing students. In order to enable them to do ethical behaviors in the clinical environment, their judgment and moral sensitivity should be improved through education.(23) Imanfar et al.(24) study in Iran demonstrated that finding the best method for nursing ethics education is still a challenge. Because ethical teaching methods have different effects on the moral development of learners. Although the lecture method is low-cost and convenient and offers a large amount of data in a short time to large numbers of people, if accompanied by other active teaching methods it can also yield to useful results. In the present study, the purpose of ethical education through the game was to prepare nursing students to deal with the ethical situations in the clinical environment. For this reason, we simulated real life situations using games for students to improve their awareness, and learn how to deal with moral difficulties in the context of nursing practice.

In line with our results, another study conducted by Baykara et al.(26) and DeSimone (4) also reported that by changing the curriculum of nursing students and expressing examples of moral defects and correcting them, we can increase awareness and ability of nursing students and prepare them for clinical environments to distinguish ethical defects and make ethical decisions. In the game of ‟types of physician-nurse-patient communication models” through the role play of communication with patients, other nurses and physicians have taught the nursing students to enable them to speak and defend their decisions ethically dilemma situations. In addition, nursing students enter the clinical environment from their second semester and encounter ethical dilemmas in situations and are always looking for answers to these ethical dilemmas. The strength point of this study was to use the experiences of the students from their clinical environment to think about the ethical dilemmas. The study Johnson etal.(30) revealed that the game should be based on participants ' knowledge and experience. Therefore, it is better to use syllabus to determine the content of the game as well as the level of nursing students' kills. In this study, card sorting game made high satisfaction among students and benefited from the experiences of students. In this game, the students wrote the ethical dilemmas that they have encountered in the clinical environment as a case study on the cards. They also wrote the trained moral principles that should be followed in dealing with those cases on the other side of the cards, and they discussed about the correctness of these principles in their small groups and practiced the correct principles under guidance from the educators. In line with our findings, Chang et al. study also showed that the card game can simulate clinical-based scenarios and teach various skills such as communication, teamwork and technical skills. Playing the card game encourages participants to unite and try to respond to scenarios. These cards are not limited to the simulated scenario and can be used for each group of participants. (31) In this research, the experiences of students in their clinical environment was used in other games, such as Talk-in-pairs, Health travel game and Brain Storming game to enable them to discuss on the ethical difficulties that they have likely encountered. Drawing or production art game was another game that created a lot of satisfaction among students. In this game, the students painted the basic principles of ethics and nursing standards. Each group of students also created a flag for their group and wrote a moral slogan that reflects ethical rules. Macer reported that in this type of game, everyone has a different talent, and the students considered painting ridiculed, but creative thinking and artistic talents of the students can grow in groups and achieve new experiences.(20) In agreement with our study, Metcalf and Yankou's research suggested that the game is the foundation of a culture and is popular in education, and it can enhance creative thinking and make learning more attractive for both students and educators(25). Theory with practical work was used as another method to teach ethical issues for engaging nursing students in ethical challenges. Field visits/educational visits game was also used to teach ethical codes in nursing in which the theatrical teaching was mixed with practical teaching.

In this game, the nursing students along with their instructor were referred to the clinical environment and the application of ethical codes was taught to them at the bedside of patients at real environment. Previous studies showed that one of the most important nursing syllabus is the issue of ethical codes in the nursing field. Moral codes are a common method for implementing professional ethics in nursing. Nursing ethics codes that should be implemented by nurses in Iran are approved by the Ministry of Health in 2012. These codes are written based on the international codes of ethics, including the Canadian Nurse Association (CAN) and the American Nurses Association (ANA), which has been modified according to the Iranian culture. Ethical codes have been developed as a practical guide of nursing care and they are the reference of decisions, which are taken by the nurses in the nursing care process. (32-34)

In line with our findings, many studies recommended that clinical education is the most valuable educational method for nursing students. The human aspect of nursing care is included in clinical education, and professional nursing education is achieved during the clinical education. Learning the fundamentals of ethics, such as autonomy, justice, beneficence, and non-mal-efficiency, are needed to practice in the clinical environment. (35) Shapira-Lishchinsky study in Israel showed that nurses in dealing with ethical dilemmas had a wide extent of uncertainty. Because the implementation of ethical codes has some limitations that limits the nurse’s ability to have enough tools in dealing with the moral challenges. Therefore, this study indicated that it is better to teach nursing students how to use ethical codes in the real clinical environment. This goal can be achieved by educating and empowering nursing students. The nursing students should be encouraged to learn ethical codes to feel more responsible for dealing with complex ethical discussions and medical conditions .(36) Stanley and Latimer study showed that although the game is one of the new educational methods and a useful tool for learning, a number of nursing educators have doubts about its usefulness or value in nursing education. Therefore, gaining insight about the tangible benefits of playing games is valuable in education. Providing educational catalogs can be used for introducing these methods. In these catalogs, we can provide sources of empirical evidence of how games are used in the care of patients and in the clinical environment, and the students can achieve clinical competencies, providing care with high quality and participation in group work .(37)

**Limitation:**

The main limitation of this study was the use of one intervention group and the lack of a control group. This prevented accurate comment on a possible cause-effect relationship. The small number of samples using only one university was another limitation of this study, which limits the possibility of guessing the results. One of the main points of this study was teaching satisfaction. This study was able to create a cheerful environment for problem-solving by students and teach ethical challenges in a warm and friendly environment.

**Conclusion**

This study benefited from the combination of theoretical and practical teaching simultaneously and increased the moral and satisfaction of nursing students and made it easy for them to learn complex and tedious issues. The game is a useful approach to develop moral sensitivity among nursing students and make them sensitive toward ethical issues in their professional field, and then prepare them to deal with moral problems and make ethical decisions in the clinical environment. In this study, we created entertaining games for students to educate more content, motivate, and encourage them to gain knowledge. We used the clinical experiences of the nursing students and practical work at the clinic values to teach them ethical values in real situations. The researchers suggest that another study to follow the present study should be conducted. In this regard, in the production of the game, we can provide educational catalogs for the use of clinical principles, especially the clinical scenarios, and we can also use the 'ready-to-use' guide leaflet to enforce ethical principles in patient care.

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| **Table 2: Comparison of moral sensitivity of nursing students and its dimensions before and after training in professional ethics in nursing ethics** | | | |
| **Components** | **Before training**  **(M±SD)** | **After Training**  **M±SD))**  7/33±1/37 | **P value** |
| Autonomy | 7/6±1/61 | 0/45 |
| Relational orientation | 14/10±2/02 | 16/33±2/64 | 0/000 |
| Professional knowledge | 3/73±1/98 | 3/23±1/79 | 0/19 |
| Experiencing moral conflict | 7/53±2/01 | 7/80±2/01 | 0/59 |
| Ethical meaning | 11/53±2/79 | 13/03±1/87 | 0/003 |
| Expressing benevolence | 16/17±3/49 | 16/83±3/14 | 0/46 |
| Total Moral  sensitivity | 60/67±7/5 | 64/57±6/9 | 02/0 |

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| **Table 3**: **Comparison of range of moral sensitivity scores of nursing students before and after training in professional ethics in nursing ethics** | | |
| **Moral sensitivity scores** | **Before training** | **After training** |
| (0-50)Low Moral Sensitivity | 6/7 % | 3/3% |
| Moderate Moral Sensitivity (51-75) | 93/3% | 86/7% |
| High Moral Sensitivity (75-100) | 0% | 10% |

|  |  |  |
| --- | --- | --- |
| **Table 4: Student satisfaction score for ethical game sessions after course in professional ethics in nursing ethics** | | |
| **Types of games** | **sessions** | **satisfaction score )M±SD)** |
| Small group : "buzz" groups game | 1 | 4/6±0/49 |
| Brainstorming game | 2 | 4/7±0/65 |
| Card sorting game | 3 | 4/9±0/18 |
| Health Journey game | 4 | 4/7±0/65 |
| Instructor's lecture, Writing scenario about Role playing game | 5 | 4/5±0/85 |
| Role playing game | 6 | 4/7±0/52 |
| Talk in pairs game | 7 | 4/7±0/70 |
| Instructor's lecture, analyzing student assignments from the previous session | 8 | 4/5±0/86 |
| Instructor's lecture, scenario writing for hot seat game | 9 | 4/5±0/81 |
| game Hot seat | 10 | 4/7±0/44 |
| Drawing or producing Art game | 11 | 4/8±0/37 |
| Socratic debate game | 12 | 4/7±0/52 |
| game Pass the parcel | 13 | 4/6±0/72 |
| game Pass the parcel | 14 | 4/6±0/89 |
| game Case Study | 15 | 4/4±0/81 |
| Field Visits/Educational Visits game | 16 | 4/6±0/81 |
| Talk about past sessions | 17 | 4/4±0/93 |
| **Total satisfaction score** | - | ±7/7206/79 |