Multi-Method Approach of Teaching Professional Ethics to Improve Organizational Commitment and Job Involvement: A Quasi-Experimental Study

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❯ Abstract

Introduction: Learning professional ethics can enhance the effectiveness of medical graduates as future health care providers. Therefore, this study was conducted to examine the effectiveness of professional ethics education based on a multi-method approach in organizational commitment and job involvement of senior nurse anesthesia students of Ahvaz Jundishapur University of Medical Sciences (AJUMS), Ahvaz, Iran, in 2022.

Methods: This was a quasi-experimental study with a pre-test post-test design including 64 senior nurse anesthesia students of AJUMS who were selected using census method and randomly divided (using simple random method) into two groups of intervention and control (n=32 each). For the intervention group, two 5-hour training workshops were held in 2 consecutive weeks using different training methods offered in an integrated manner, while participants in the control group received no education. Finally, the data were collected and analyzed using SPSS version 16, based on Kolmogorov–Smirnov test, paired and independent t-tests, chi-square test, and analysis of covariance.

Results: Professional ethics education based on a multi-method approach had a positive effect on the organizational commitment and job involvement of senior nurse anesthesia students. There was a significant difference between the two groups in terms of their job involvement (P=0.005 and F=1.65) and organizational commitment scores (P=0.025 and F=35.56). These findings suggest that professional ethics education based on a multi-method approach can improve job involvement and organizational commitment and its dimensions (normative, continuance, and affective).

Conclusion: Teaching professional ethics by explaining the moral virtues of work, business affairs, and code of professional conduct promotes job involvement and organizational commitment of senior nurse anesthesia students.

Keywords: Ethics; Anesthesia; Education

Introduction

Professional ethics is a set of accepted moral actions and reactions that are laid down by authorized organizations for professional associations in order to provide the most favorable social relations possible for their members in the fulfillment of their professional duties. Although ethics is the *sine qua non* of any profession, when it comes to nursing, it becomes particularly necessary. The treatment staff's spirituality combined with their sense of responsibility when dealing with the patients has a decisive role in improving and restoring the patients' health. Therefore, ethics builds up the very foundation of the nursing profession (1, 2). Professional ethics helps health care providers to bring their conscience to work, which will affect their attitude towards the patient and healthcare organization. Inspired by professional ethics, the individual undertakes to fulfill his/her professional activities correctly, with care not to harm the client and to set the stage for a full recovery of the client (2).

One of the factors contributing to the efficiency of human resources in hospital is organizational commitment (3). As far as organizational commitment of nurses is concerned, there are some effective and relevant factors which include individual factors (age, gender, race, educational attainment, need for self-discovery, marital status, job experience in the organization, and experiences during work), occupational factors (job satisfaction), organizational factors (decision-making authority at operational level) and meta-organizational factors (4, 5). The results of systematic review studies conducted by Bahroodi et al. (2013-2014) which aimed at investigating the organizational commitment of nurses in Iran showed that the organizational commitment of 50% of nurses was at a moderate level, and only 12% of them had an optimal level of organizational commitment. The findings of the research conducted in Dubai, Turkey, Taiwan and the Philippines showed moderate organizational commitment of nurses, while in China and Slovenia, it was moderate to high, and this construct was at a desirable level in Indonesia. different statuses of organizational commitment of nurses in different countries indicate different working conditions and the impact of these conditions on organizational affiliations (6). Lack of organizational commitment leads to job burnout, absenteeism, and frequent lateness. Organizational commitment brings job satisfaction and a significant increase in job productivity and career promotion (7).

On the other hand, job involvement refers to the degree to which people psychologically identify with their current job. It is intricately associated with job satisfaction, ability, dedication and attachment. Job involvement has three dimensions: 1) Enthusiasm in work, 2) Devotion, and 3) Immersion (8). In recent years, special attention has been paid to job involvement, and most researchers believe that job involvement has a particular contribution to organizational success. A number of previous studies have reported that job involvement has a positive relationship with organizational commitment and a negative relationship with the intention to leave work, and it is also related to job performance and behavior beyond the employee's duty (9). High job involvement is a desirable feature. People with high job involvement are satisfied with their jobs, show a positive spirit at work, and express high commitment to their organization and colleagues; such people are expected to work for their respective organizations for many years. At the same time, some believe that most of the research on job involvement has been conducted in larger organizations and that this concept has received little attention in service sectors, especially hospitals (10).

Therefore, one of the vital requirements for today's organizations is organizational commitment and job involvement, which can be developed in the light of professional ethics. Some researchers have shown that professional ethics explains 29.3% of the variance of job involvement (8), and some have concluded that there is a positive causal relationship between professional ethics and job involvement and increasing effort (11). Also, a previous study provides evidence for a positive and significant relationship between professional ethics and organizational commitment of nurses. More specifically, a positive and significant relationship has been found between professional ethics and nurses' affective, normative, and continuance commitment (12). In another study, Torkaman et al. (2020) also found a direct and significant relationship between professional ethics and organizational commitment in nurses. It is clear that professional ethics, organizational commitment, and job involvement can have a significant impact on the quality of work life and the nursing care of health care providers. However, there is paucity of solid evidence on this important issue (13).

Besides, clinical students, like other employees working in the hospital, should be familiar with medical ethics and its principles from the very beginning and pay attention to it in relation to patients. This becomes particularly important

when it comes to patients who are unconscious in the operating room, are not in a good condition, and need more support. Nursing students should consider the patients as a member of their family and try to take good care of them since they are in a critically sensitive situation. By implementing training programs and familiarizing the students with how to make clinical decisions, clinical judgment, moral reasoning, and effective communication with patients, it will be possible to help the development of professional ethics and respect the rights and satisfaction of clients (14, 15). Therefore, this study aimed to investigate the effect of teaching professional ethics using a multi-method approach on organizational commitment and job involvement of senior nurse anesthesia students in Iran.

Methods

Study Design

This quasi-experimental study with a pre-test post-test design involving a control and an intervention groups was conducted in November 2022 to examine the effect of professional ethics training on organizational commitment and job involvement of senior nurse anesthesia students of Jundishapur University of Medical Sciences, Ahvaz.

Setting and sample

The statistical population of this research consisted of all fourth-year nurse anesthesia students (n=64) who were enrolled in the study using census method. Allocation of samples in the intervention and control groups was done using simple random method. To this aim, a list of final year nurse anesthetist students was prepared, and based on a table of random numbers, the participants were assigned to two groups (control and intervention groups of 32). For the homogeneity of the groups, random allocation was done in such a way, so that there were an equal number of students in both groups. Inclusion criteria of the study were not attending any previous courses on professional ethics and signing the consent forms to participate in the research. The exclusion criteria were unwillingness to continue participation and lack of attendance in the training sessions.

Instrument

The data collection tool in this study consisted of three sections: the demographic information questionnaire, the Meyer and Allen's organizational commitment questionnaire, and the job involvement scale developed by Lodahl and Kejner. In order to collect demographic information of the students (such as age, sex, marital status and experience in clinical settings), we provided the participants with a separate questionnaire . Meyer and Allen's organizational commitment has 24 items in three sub-scales (affective commitment, continuance commitment, and normative commitment). The items are scored based on a five-point Likert scale (completely agree to completely disagree). The minimum score is 25 and the maximum is 102. A score between 25 and 56 indicates low level of organizational commitment, a score between 56 and 102 represents a moderate level of organizational commitment, a score above 102 shows high level of organizational commitment (16, 17). The reliability coefficient of the organizational commitment questionnaire is 0.75, 0.89, and 0.73, for affective, continuance, and normative sub-scales, respectively. The validity of each sub-scale of organizational commitment is as follows: normative: 0.88, affective: 0.85, and continuance: 0.82. The content validity of the questionnaire was confirmed after translation and revision by 5 management and psychology experts. The reliability of the questionnaire was calculated, and a Cronbach's alpha coefficient of 0.70 was obtained (12). The job involvement questionnaire was developed by Lodahl and Kejner (1965). It consists of 20 items that are scored based on four-point Likert scale, where 1, 2, 3, and 4 scores are considered for the options "completely agree", "agree", "disagree", and "completely disagree", respectively (except for items 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 15, 17 and 20 which are reversely scored). A score between 40 and 80 means that the person's job involvement is high (16, 18). The reliability coefficient of this questionnaire in the nursing community has been reported to be 0.79. Its internal consistency was examined using test-retest method by analyzing the data of 50 subjects, and the obtained Cronbach's alpha was 0.80. Also, the reliability of the questionnaire using Cronbach's alpha method was reported to be 0.92 in another study (16).

Intervention

The professional ethics education program was offered in a 10-hour workshop (one 5-hour session per week held regularly for two consecutive weeks on certain days in the School of Allied Medical Sciences). In these sessions, two ethics professors who had experience in teaching and working in the field of medical ethics collaborated to present the content to the senior nurse anesthesia students, while considering the general principles of professional ethics. Before the training workshop, the professors were invited

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for a brainstorming meeting to be familiarized with their roles. The output of the meeting was as follows: a) preparation of a guideline to familiarize the course instructors with their roles, which was given to the instructors before commencement of the program; b) attendance in two more meetings before the start of the course and organizing the materials and teaching methods of the workshop; c) presence of the lead researcher in the class and giving the necessary feedback for the best implementation of the research. The brainstorming session with the professors was held, so that they could choose the relevant roles according to their capabilities and expertise and express their opinions on the implementation method, timing, and details of each step.

The teaching method was an integration of lectures, group discussions, gamification, scenario-based teaching, role-playing by forming small groups, flipped classroom, and interactive teaching. The workshop schedule and the teaching method are shown in full details in Table 1. In the intervention group, a pre-test was administered before the first session. The educational workshops included videos and images related to the current research. In addition, at the end of each session, the main researcher used the method of debriefing to record the training that took place that day and evaluate the students. Participants in the intervention group were instructed not to share what they had learned in the workshops with participants in the control group. After the end of the intervention, professional ethics training sessions with the same quality and form were held for the control group. In these workshops, the lead researcher acted primarily as a co-teacher and coordinator, and he played a role in presenting the content to the students. In the control group, a pre-test was administered at the beginning of the program (concurrent with the pre-test of the intervention group) and a post-test was administered the following week (concurrent with the last training session of the intervention group).

Ethical Considerations

Prior to commencement of the study, ethical approval was obtained from the Ethics Committee of Ahvaz Jundishapur University of Medical Sciences (Ref. ID: IR.AJUMS. REC.1401.263). The participants were fully informed about the objectives of the research, their duties in the professional ethics training sessions, confidentiality of personal information, voluntary nature of participation in the study, and the right to withdraw from the study at any stage

they wanted. In addition, written consent was obtained from the students who participated in the study. All notifications in this research were done through virtual space.

Data analysis

SPSS version 16 was used for data analysis. Descriptive statistics including mean, standard deviation, frequency, and frequency percentage were used to analyze the data. The normal distribution of the data was checked by the Kolmogorov-Smirnov test. To compare the data, we used paired and independent t-tests, chi-square, and analysis of covariance tests. The significance level was set at 0.05.

Results

In this research, 64 students, including 32 in each group were assessed. Most of the patients were equally females 28.0 (87.5%) in both groups. The Kolmogorov-Smirnov test was used to check the normality of the data distribution. According to the results, for organizational commitment, a mean of 72.09 and P=0.200, and for job involvement, a mean of 83.70 and P=0.400 were observed. Therefore, it can be concluded that the data followed a normal distribution.

Table 2 shows the demographic information of the participants in the intervention and control groups. As shown in this table, before the intervention, there was no significant relationship between the two groups in terms of gender, experience in clinical settings, and age. Therefore, the groups were homogeneous in terms of demographic information except for the variable of marital status which showed a significant difference (P=0.015).

In Table 3, the paired t-test was used to compare the mean scores of organizational commitment and its dimensions (affective, continuance, and normative) and job involvement before and after the intervention in the intervention group. The results showed that there was a significant difference between the mean scores of organizational commitment and its dimensions (affective, continuance, and normative) and job engagement before and after the intervention (significant level was P=0.0001 for organizational commitment and P=0.0001 for job involvement). On the other hand, in the control group, there was no significant difference between the mean scores of organizational commitment and its dimensions (affective, continuance, and normative) and job involvement before and after the intervention (significant level was P=0.776 for organizational commitment and P=0.713 for job involvement).

Table 1: Schedule of the training workshop

The first week (First session) Length: 5 hours	1. Introduction to and explanation of the general routine of the workshop (5 minutes) to familiarize students with professional ethics and its implementation method and importance. 2. Pre-test (30 minutes): Three questionnaires were handed to the students (demographic information questionnaire, Meyer and Allen's organizational commitment questionnaire and the job involvement scale developed by Lodahl and Kejner) to determine the students' level of job involvement and organizational commitment and to obtain their demographic information. 3. Statement of goals and definitions by the lead researcher (20 minutes) to familiarize students with professional ethics, definitions, and its place in medical sciences, particularly in Anesthesia. 4. Group discussion and the students' expression of their experiences about professional ethics (30 minutes). 5. Instructors' analysis and summary of the topics raised by students (30 minutes) to determine the concern and sensitivity of students towards the issue of professional ethics in clinical settings. **Rest time 15 minutes** 6. Presentation of a 5-minute educational video about professional ethics to familiarize students with the importance of professional ethics. 7. Lectures given by professors on the following topic (60 minutes): Familiarization of students with the principles of professional ethics in clinical settings. **Rest time 15 minutes** 8. Gamification by creating a predetermined puzzle and awarding prizes to the best group (60 minutes) to familiarize students with informed consent and its types through a game. 9. Planning for a flipped classroom for the next session by choosing a 5-page pamphlet on euthanasia (15 minutes) to familiarize students with the subject of euthanasia and examine it from different perspectives. 10. Conducting a debriefing session about the workshop held on that day by the lead researcher (10 minutes) to provide a summary of the contents, to examine the suggestions and criticisms about the session held and the level of satisfaction, and to evaluate the students. 11. Closing the first workshop (thanks and gratitude to the respected professors and students for participating and cooperating in this workshop, informing them about the upcoming meeting and explaining the schedule of the next workshop (5 minutes)).
The second week (Second session) Length: 5 hours	1. Welcoming the students and reviewing the content of the previous session. Also, 40 items that must be observed in the operating room by an anesthesia expert are stated by the lead researcher to familiarize the students with anesthesia professional ethics. 2. Follow-up of the flipped class of the previous session (one student from each group as a representative expressed the opinion or the results of their group regarding the video or content specified during the previous session (30 minutes) to familiarize students with euthanasia and examine it from different perspectives. 3. Providing a summary of the flipped class by the instructors and expressing their opinions about it (30 minutes) to analyze the views and opinions of students. 4. Playing a video clip on professional ethics in anesthesia (5 minutes) to teach 9 patient safety solutions through an educational video. **Rest time 15 minutes** 5. Presenting a scenario to students by forming small groups and giving them the opportunity to think and discuss in groups (30 minutes) to familiarize students with cases of professional ethics presented in form of scenarios. 6. Student role-play (proposing an ethical solution for the scenario of the previous stage) (60 minutes) to familiarize students with issues in professional ethics and provide answers by role playing. 7. Discussion and presentation of opinions by the instructors with each group after the end of the student role-play (30 minutes) to analyze the students' views and their ethical solutions regarding the scenarios. **Rest time 15 minutes** 8. Playing a footage of the activities and what happened in these 2 sessions (5 minutes) to show the activities of professors, researchers, and students in these two sessions. 9. General and final debriefing session held by the lead researcher along with drawing conclusions, making suggestions, and articulating a critique of the content and presentation of these two sessions (20 minutes) to provide a summary of the contents, to examine the suggestions and criticisms about the session held and the level of satisfaction, and to perform final evaluation of the students. 10. Post-test (30-minutes) including the 2 questionnaires that had already been given to the students of both intervention and control groups in the first session were given to them again to determine the students' level of job involvement and organizational commitment. 11. Closing the professional ethics training sessions (thanks and gratitude to the respected instructors and the students of both intervention and control groups for their cooperation and active participation in this study (10 minutes).

Table 2: Demographic characteristics and comparison between the two groups before the intervention based on Chi-square test

Variable	Control group (N=32)	Intervention group (N=32)	Chi-square	P
Age group; n (%)			2.133	0.144
20-25	24.0 (75.0)	30.0 (93.8)		
25–30	8.0 (25.0)	2.0 (6.2)		
Sex; n (%)			0.001	1.00
Female	28.0 (87.5)	28.0 (87.5)		
Male	4.0 (12.5)	4.0 (12.5)		
Marriage status; n (%)			5.92	0.015
Single	22.0 (68.8)	32.0 (100.0)		
Married	10.0 (31.3)	0.0 (0.0)		
Experience in clinical settings; n (%)			0.50	0.48
Without experience	18.0 (43.7)	18.0 (56.3)		
One to six month	14.0 (56.3)	14.0 (43.7)		

Table 3: Between groups and within groups comparisons for the outcome measures

Outcome	Intervention	Control	MD (CI 95%)	t£	P
Job involvement					
Before intervention	44.56±4.77	45.18±10.69	0.625 (-2.41, 11.41)	0.214	0.832
After intervention	52.81±5.86	46.62±8.98	-6.18 (-11.66, -0.71)	-2.30	0.028
MD (CI 95%)	-8.25 (-11.78, -4.71)	-1.43 (-9.60, 6.72)			
t*	-4.97	-0.37			
P	0.0001	0.713			
Continuance commitment					
Before intervention	22.65±4.09	23.93±4.63	1.31 (-1.84, 4.47)	0.848	0.403
After intervention	29.12±5.90	24.43±4.81	-4.68 (-8.58, -0.78)	-2.46	0.020
MD (CI 95%)	-6.50 (-9.32, -3.67)	-0.50 (-2.96, 1.96)			
t	-4.90	-0.43			
P	0.001	0.672			
Affective commitment					
Before intervention	25.06±2.86	23.75±3.10	-1.31 (-3.47, 0.84)	-1.24	0.224
After intervention	27.37±3.93	23.50±2.63	-3.87 (-6.29, -1.45)	-3.27	0.003
MD (CI 95%)	-2.31 (-5.04, - 0.41)	0.25 (-1.88, 2.38)			
t	-2.21	0.249			
P	0.042	0.806			
Normative commitment					
Before intervention	21.75±5.43	20.87±3.70	-1.18 (-4.54, 2.17)	-0.72	0.476
After intervention	27.50±4.54	21.18±2.04	-6.31 (-8.85, -3.76)	-5.06	0.001
MD (CI 95%)	-5.75 (-8.37, -3.12)	-0.62 (-2.69, 1.44)			
t	-4.66	-0.64			
P	0.0003	0.529			
Organizational commitment					
Before intervention	69.43±9.37	73.25±9.94	3.81 (-3.16, 10.78)	1.11	0.273
After intervention	83.68±13.68	72.56±7.10	-11.12 (-18.99, -3.25)	-2.88	0.007
MD (CI 95%)	-14.25 (-20.18, -8.31)	0.68 (-4.38, 5.75)			
t	-5.12	0.289			
P	0.0001	0.776			

£Independent samples t-test. *Paired samples t-test. MD: Mean Difference; CI: Confidence Interval. In order to neutralize the effect of the confounding factor (i.e., marital status) on the intervention and the main variable, we used univariate covariance analysis (ANCOVA) (Table 4).

Then, to test the study hypothesis, we used independent t-test to compare the intervention and control groups in terms of their mean scores of organizational commitment and its dimensions (affective, normative, and continuance) and job involvement. The results showed that before the intervention, there was no significant difference between the two groups in terms of the mean scores of organizational commitment and its dimensions (affective, normative, and continuance) and job involvement (significant level was P=0.007 for organizational commitment and P=0.028 for job involvement). After the intervention, on the other hand, a significant difference was observed

between the two groups regarding the mean scores of organizational commitment and its dimensions (affective, normative, and continuance) and job involvement (significant level was P=0.273 for organizational commitment and P=0.832 for job involvement), which suggests the effectiveness of the intervention in improving the organizational commitment and its dimensions (affective, normative, and continuance) and the job involvement of senior nurse anesthesia students (Table 3).

In order to neutralize the effect of the confounding factor (i.e., marital status) on the intervention and the main variable, we used univariate covariance analysis. In Table 4, the results of one-way covariance analysis (univariate analysis of covariance or ANCOVA) showed that by controlling the effect of the auxiliary variable (pre-test) on the dependent variable, there was a significant difference between the two groups in terms of job involvement (P=0.005 and F=1.65) and organizational commitment (P=0.025 and F=35.56), which indicates the effectiveness of the intervention (the effectiveness of the intervention is also indicated in this table with Partial Eta-square, which is 0.75 for the variable of job involvement and 0.71 for organizational commitment). In other words, the intervention and control groups were significantly different in terms of job involvement and organizational commitment at an error rate of less than 5%. This indicates that professional ethics education based on a multi-method approach could improve job involvement and organizational commitment and its dimensions (affective, normative, and continuance).

Discussion

The present study investigated the effect of using a multi-method approach of professional ethics training on the organizational commitment and job involvement of senior nurse anesthesia students. The results showed that professional ethics training using a multi-method approach improved the organizational commitment and job involvement of the students, and there was a significant difference between the pre- and post-intervention scores of organizational commitment and job involvement in the intervention group. To the best of our review of literature, no interventional studies were found to investigate the effect of professional ethics training on organizational commitment and job involvement of anesthesia students or other health care workers. Therefore, in order to discuss and explain our results, we used other related studies which addressed the effect of professional ethics on organizational commitment and job involvement of nurses.

The results of the present study showed that professional ethics training improved the organizational commitment of senior nurse anesthesia students. It can be argued that after participating in the professional ethics training workshop in this study, students were more determined to stay in their field of study (i.e., the effect of professional ethics training on continuance commitment). They also learned to be committed to their job, and enjoyed talking about their field of study or working with others (i.e., the effect of professional ethics training on affective commitment). In addition, the students felt more responsible towards their organization, and even if there were more occupational benefits elsewhere, they would rather be devoted to their own organization (the effect of professional ethics training on normative commitment) (16). Therefore, in general, it can be said that professional ethics training has an effect on students' organizational commitment. Many studies have highlighted

Table 4: ANCOVA results for the outcome measures				
Outcome	**Sum of squares**	**F**	**p**	**Partial Eta-square**
Job involvement				
Pre-test	2.88	3.03	0.005	0.69
Group	156.46	1.65	0.005	0.75
Organizational commitment				
Pre-test	873.97	6.34	0.018	0.64
Group	767.00	35.56	0.025	0.71
Continuance commitment				
Pre-test	129.02	4.08	0.043	0.61
Group	143.00	4.53	0.042	0.69
Affective commitment				
Pre-test	14.91	1.07	0.308	0.29
Group	34.03	2.45	0.035	0.47
Normative commitment				
Pre-test	98.68	5.99	0.021	0.59
Group	71.43	4.34	0.046	0.65

the relationship between professional ethics and organizational commitment and stated that an ethical work environment could be an important factor contributing to the employees' efficient commitment to the organization (19, 20). Torkaman et al. (2020), for example, showed that there was a significant relationship between professional ethics and organizational commitment of nurses (13). Another study by Imani et al. (2017) reported a significant relationship between professional ethics and organizational commitment in medical university students (21). Bahmani et al. (2017), Sheikh Zakaryaie et al. (2015) and Mohammadi Mehr et al. (2016) also found that professional ethics had a positive and significant relationship with nurses' organizational commitment (12, 22, 23). Also, some studies confirmed the relationship between the nurses' professional and ethical empowerment and their organizational commitment (24, 25). These results are in line with those of the present study in that they have highlighted the importance of professional ethics in the organization and the critical role of training in this regard. These results also reveal that organizations need to promote professional ethics among their employees, which is possible through training and education. Unlike the results of the present study, Salehi et al.'s (2015) study on staff nurses of Imam Khomeini Hospital in Sari showed that there was no significant relationship between professional ethics and organizational commitment (26). These different results may also be attributed to the conditions governing the nurses in the two studies (level of support from managers, difficulty of work, salaries and benefits, social, economic and cultural conditions, etc.), which can, to a large extent, affect organizational commitment. Finally, their large sample size in relation to ours might have contributed to this discrepancy in results.

Another finding of the current study indicated that teaching professional ethics using several educational methods had a significant positive effect on students' job involvement. It can be argued that job involvement refers to the degree to which people psychologically identify with their current job. Job involvement is mainly about job satisfaction, dedication and attachment. Employees with high job involvement not only tend to have a better performance, but also are more motivated at work, and their job is a major life interest for them (8, 27). In the present study, after participating in the professional ethics training workshop, the students became familiar with the main topics in professional ethics as well as occupational and professional codes of conduct, which helped them observe

professional ethics well at workplace. This, in turn, increased their interest in their field of study and their work. Therefore, it can be expected that their job involvement will increase significantly. Our review of previous studies found no study to investigate the relationship between professional ethics and job involvement among students or health care workers. However, we used the results of recent studies that have investigated the consequences of job involvement, including job satisfaction and job performance, to confirm this part of our results. For example, the findings of Abadiga et al. (2019) in Ethiopia and Hassani et al. (2016) in Iran (Urmia) showed that moral climate has a positive effect on nurses' job satisfaction and maintaining it is the key to increasing the nurses' job satisfaction (28, 29). In another study, a significant relationship was observed between the moral climate of the workplace and the level of job satisfaction in nurses working in teaching hospitals in Tehran. According to their findings, a favorable moral environment is associated with higher job satisfaction of the nursing staff (30). According to these results, the work atmosphere affects the nurses' desire to continue their career. Therefore, the existence of a moral climate leads to the nurses' satisfaction with their jobs, and as a result, affects the decisions of nurses to stay their career and not. These results are consistent with those of the present study. Abou Hashish (2017) also cited the strategies of strengthening and promoting an ethical work environment as an important factor in increasing the commitment and satisfaction of nurses and reducing their intention to leave their career (31). Teaching professional ethics and including it in the curriculum of students can be an effective strategy to promote ethics in healthcare organizations, as the findings of the present study showed.

The present study is significant in that it is the first to investigate the effect of professional ethics training on organizational commitment and job involvement among anesthesia students. The results of this study can provide a clear perspective to managers and officials of the health system. Alternatively, by holding educational workshops focusing on professional ethics, it is possible to improve their level of knowledge and awareness in this respect. The result of such measures will be employment of the personnel who are devoted to their organization and profession and who strive to provide better services to patients with pleasure and compassion and not simply out of compulsion and necessity (32, 33). It should be noted that any teaching method has its own characteristics and efficiency, and it is the nature of the educational content that determines which

teaching method should be used by the teacher. In fact, in a teaching session, instead of using only one teaching method, a combination of teaching models and methods should be used according to the teaching situation as well as the needs and abilities of the learners. To this aim, the teacher must have notable knowledge, ability, and skill in using various teaching models. In order to achieve educational goals and activate learning, the lecture method can be combined with other methods and aided with the use of educational aids and materials (34). Another strength of the present study is the use of both male and female students in this study, unlike studies such as Hye-A Yeom et al. (2017) which only used females in their study and no male participants were recruited (35). Also, similar to studies by Gocmen Baykara et al. (2014), Hye-A Yeom et al. (2017), Sadia Ahsin et al. (2013), Davoudi et al. (2019) and Hasanpoor et al., this study used a pre-test post-test design (32, 33, 35-37); the pre-test-post-test design used in the present research included a control group, unlike studies such as Chiafery et al. (2018), Yeom et al. (2017) and Ahsin et al. (2013) (16, 21, 23, 24) which did not have a control group (35, 37, 38).

Despite its strengths, this research has some limitations. First, the research population was limited to the senior nurse anesthesia students of Ahvaz Jundishapur University of Medical Sciences. Therefore, caution should be exercised in generalizing the results to other students of medical sciences. The data used in this study were obtained based on self-report, which may be a point of potential bias on the part of the participants. Another limitation of this study was the lack of long-term follow-up of the results. The social, economic and cultural conditions of the students cannot be assumed to be completely identical, despite the fact that the educational location of the research area is similar. Also, the previous interactions between the facilitator and some participants may have led to bias in some participants. Finally, this study was conducted on senior nurse anesthesia students, which itself is a limiting factor in terms of long-term effects on students with regard to behavior change. Therefore, it is recommended that ethics education in undergraduate programs for students should be a gradual process involving different study years. Also, discussion fora for ethical issues that may arise in the clinical environment should be formed. Professional ethics training should be extended to in-service training programs after graduation, and it should be designated as one of the evaluation criteria for employment and promotion.

Conclusion

The results of the present study showed that professional ethics education based on a multi-method approach had a positive effect on the students' organizational commitment and job involvement. Given that anesthesia students will assume important and vital responsibilities after graduation, they should pay particular attention to the importance of professional ethics and its role in saving human lives and receive the necessary training on professional ethics. By offering educational programs and familiarizing the students with the principles of professional ethics and the obstacles associated with it, it is possible to enhance their competence of professional ethics.

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Authors' Contribution

All authors contributed to the discussion, read and approved the manuscript and agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated resolved.

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