

COMPARING THE EFFECTIVENESS OF WORKSHOP TRAINING AND TEAM-BASED LEARNING METHODS ON NURSES' KNOWLEDGE, ATTITUDE AND PRACTICE WITH REGARD TO THE CARE OF INFANTS SUFFERING FROM NEONATAL ABSTINENCE SYNDROME

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ABSTRACT

Learning in small group is one of the active learning methods which leads to an increase in; problem solving skills, the development of critical thinking, and the improvement of interpersonal communication skills. The aim of this study was to compare the effectiveness of workshop training and team-based learning methods with regard to the care of infants suffering from neonatal abstinence syndrome (NAS). This study was conducted on nursing staff working at the neonatal intensive care units in two different educational hospitals. One group was trained by the team-based learning method, and the other was trained with the workshop training method. There was a significant difference between the knowledge level ($T = -13.18$, $Df = 44$, $P < 0.001$), attitudes ($T = -16$, $Df = 44$, $P < 0.001$), and practice ($T = -19.42$, $Df = 44$, $P < 0.001$) of nurses in the two groups. These findings indicated that, team-based learning had more impact on the nurses' Knowledge, attitude, and practice than the workshop training method. This finding can be used as another piece of evidence for the necessity of learners' active participation in learning activities and the need for change in the conventional methods. The result of this study may also encourage the use of team-based learning method in the training process.

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Introduction

Training is a complicated process especially for the medical science graduates who are preparing to attend patients' bedside. During bedside training, accentuating communication is a basic priority that should be learned by students of the health care professions. The identification of numerous problems clinical settings and the increasing development of the medical knowledge have doubled the responsibility of educators for selecting the appropriate learning method [1]. Today, various training methods exist for implementing change in the individuals' knowledge, attitude, and practice. Among these types of training, one can points to the training in large groups and small groups. In some countries, the use of traditional education

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and training still forms the foundation for education in medical science. The choice of the educational method according to the topic and learners' characteristics is of utmost importance [2]. One of the most common methods of knowledge transfer at different levels is lecturing, in which a large amount of scientific contents are transferred from the professor to the student, but it usually does not lead to a meaningful and profound learning. In new training programs, the use of active learning methods has gained great popularity. One of these methods is learning in small groups that play an important role in the increase of problem solving skills, the development of critical thinking, and the improvement of interpersonal communication skills [3]. Unlike the traditional teaching method of lecturing, learning in small groups increases the participation of learners in learning process and their interaction with each other [4]. Collaborative learning is a type of active learning in which small groups of learners work together on a topic. This method creates opportunities for the development of social and communicational skills as well as group processing [5, 6]. Team-based learning (TBL) is a type of collaborative learning with a well specified structure which has been experienced in various learning environments since the 1970s. It has also been used in the teaching of health-related topics. This method was first designed by Michaelsen and used in the business school. Since then, the method was received with great interest in medical education [7]. This method creates an active and collaborative learning environment. It does not require a special space for dividing the class participants into small groups. It can be carried out with one instructor in a large classroom [8]. Workshop training which is based on problem solving is a student-centered method. It influences learning outcomes through the active participation of learners. Students research and contemplate the problem raised and achieve the required knowledge. They communicate their experiences and ideas with others. This method is a self-directed learning method that leads to learning to a desired extent. The development of communicational and social skills and interpersonal collaboration is a characteristic of the problem-based learning. Paying attention to learning in small groups and team projects have been emphasized in the analysis of educational problems and the implementation of that, has led to great changes in learners process. Interaction among learners in small groups turns them into active, meticulous, and more expert individuals. These methods have undeniable impacts on the promotion of social culture and improvement of communicational skills [9]. Like other medical sciences, the nature of the nursing profession and the improvement of its quality depend on teamwork. Thus, any educational method, able to assist the profession to achieve its goals, deserves a consideration. In the subfields of nursing, there are courses such as mothers and infants' health, in which teaching by the TBL method can effectively be used [10]. Women's addiction is a serious topic at scientific, national, and international level. The results of many studies demonstrated an increased in mothers' drug abuse [11]. The highest prevalence of drug abuse in women is observed during their reproductive age years old (15-44), and most addicted pregnant women do not want primary prenatal care. It has been suggested that, the fear of stigmatization and legal punishment is the main reason for addicted women's reluctance to receive prenatal care. Naturally, such women and their infants are more vulnerable to the complications of pregnancy and childbirth than other women [12].

Chronic use of illegal drugs can have adverse effects on the infant. Among these effects is neonatal abstinence syndrome (NAS) [13]. Addiction crisis is a health challenge for Iran, and the invaluable role that nurses play in caring for infants born to the drug-abusing mothers is considerable [14]. Discriminatory behavior towards drug-abusing mothers coupled with a deficient knowledge and poor care may affect the delivery of a standard care. As a result, researchers sought to evaluate the effects of education on nurses' knowledge, attitude and practice in regard to the care of infants suffering from NAS. Although education is an old human activity, holding discussions about it as a scientific activity and ways of making it more effective, is still new and has gained even more significance. The aim of education is learning, and learning is effective only when it can cause a permanent or gradual change in the behavior. This depends on a change in attitudes. Effective education with the aim of increasing knowledge, improving skills and attitudes in professional disciplines, is of great necessity [15, 16].

Most studies have focused on the student's engagement in classes, and the learner's behavior change has been considered as an outcome [17, 18]. While in TBL instructor-led group-learning, it is the responsibility of the team to solve the problems through communication and teamwork skills [17]. Therefore, TBL could be useful for the education of healthcare professionals. Lifelong learning is a pivotal component of nurses' professional lives [19]. They can improve their knowledge and practice through self-directed learning while working in a team [7]. The preceding findings come from studies which have been conducted in developed countries. However, little foundational knowledge has been developed about using team-based learning in underdeveloped or developing countries like Iran. It is currently unknown if and how TBL would benefit clinical learning of Iranian nurses who are taking care of neonates with abstinence syndrome. Addressing this gap in understanding, is important as it may help to lay the foundation for future teaching methods across neonatal units in Iran and even some other similar contexts in other developing countries.

Therefore, this study was carried out with the aim of comparing the nursing staff's learning rate in the workshop training method and team-based learning with regard to the care of infants suffering from neonatal abstinence syndrome and its impact on changing nurses' knowledge, attitude and practice.

Highlights

- Implementing active learning methods lead to significant changes in learners' training
- Team-based learning as an active learning method, is suitable in nursing education
- In TBL method, learners participate more in discussions and group interactions

Methods

This is a quasi-experimental study on two groups with pre- and post-test comprising that conducted in the neonatal intensive care units with the aim of effectiveness of workshop training method and team-based learning method on nurses' knowledge, attitude, and practice in caring for infants suffering from neonatal abstinence syndrome. The study was done from February to August 2014 in the NICUs of two different teaching Hospitals that related to two Universities including Tehran University of Medical Sciences (TUMS) and Alborz University of Medical Sciences (Abzums). Both of these centers were educational and had rather similar environmental and social situations. Training Workshop and TBL methods were conducted in TUMS and Abzums Respectively. Because of all nurses could be participate in the educational program, both of methods were done

twice for each one of the setting. The participants in this survey were all nurses that working in NICU Ward and did not have any experience in educational course about Neonatal Abstinence Syndrome (NAS).

Using a finite population and benefiting from the Cochran formula, the size of the samples was calculated considering a 45% loss. The research population consisted of 90 nurses from the two mentioned centers who were assigned equally into two groups (the reason for choosing these two hospitals was that according to statistic, a larger number of infants born to drug-abusing mothers are hospitalized there). The choice of the training method for the samples was random. The research had three stages.

The study received ethical approval by the ethical committee of Tehran University of Medical Sciences. Prior to the commencement of the study, all the nurses were asked to signed an informed consent forms and were informed verbally and in writing that participation in the study would be voluntary and they could withdraw at any time and for any reason without facing any negative consequences.

Instrument

The questionnaire of this research is named "Attitude About Drug Abuse in Pregnancy" (AADAP) that developed by Coles et al. (1992)[20] with psychometric assessments by Selleck CS et al. (1997)[21]. It is a 34-item questionnaire that knowledge and Attitude were rated by 20 and 14 items respectively on Likert Scale.

The second questionnaire was developed by researchers to evaluate nurses' practice about NAS. The first part was demographic questions and second part contains 20 questions about self-assessment of practice. Content validity of the questionnaire was judged by 10 experts (8 faculty members and 2 practitioner nurses) in NAS who were involved in neonatal care. Reliability was carried out by test re-test. Cronbach's alpha calculated 0.85 that was used to examine the internal consistency of the questionnaire.

Phase I: In this part, an initial evaluation of NICU nurses' knowledge, attitude, and practice about; addiction, addicted women, neonatal abstinence syndrome in infants born to addicted mothers, and also the plan of care for them in order to reduce the physical and neurodevelopmental complications was carried out using a standard questionnaire. The Persian-language translation of the questionnaire was authorized by its developer, and its reliability and validity were confirmed. This information was kept privately by the researcher.

Phase II: At the beginning of the study, through a random selection, workshop training method was used at one of the centers, and the team-based learning method was used in the other center on two occasions during two working days (to enable all nurses to take part). The educational content consisted of: definitions and epidemiology of drug abuse in Iran and around the world, classification of drugs, maternal-fetal and neonatal complications of drug abuse; clinical and laboratory symptoms, using the Finnegan scoring table, drug and non-drug treatment, breastfeeding in mothers taking drugs, and nursing care and practice. Modified Finnegan Scoring Tools was used to score Neonatal Abstinence Syndrome. This method has 21 items including; neurologic, autonomic, gastrointestinal, respiratory and miscellaneous symptoms, which should be scored every 4 hours. Individual NAS symptoms are weighed according to the presence and severity of the symptoms exhibited[22]. Each workshop consisted of mainly three parts: 1, lecture (which included one sixths of the workshop time) 2, group discussion and work in small groups (which included two thirds of the workshop time) and 3, sessions for presenting the groups' work and collective participation (which included one sixths of the workshop time). In the team-based learning method, the learners were divided into several groups of 3 to 4 people. They were informed about the class regulations and were given the education topics and booklets on workshop education with the same contents. The next phase was the implementation of TBL which itself included four parts:

1. Forming groups and managing them
2. Making learners responsible for their individual and group work
3. Designing a learning assignment so that, it leads to the improvement of learning and team work (designing proper assignments is a basic and important factor in its successful implementation)
4. Providing the learners with feedback

Individual test: in this stage, nurses should answer to the questions related to the research topic individually.

Group test: after the individual test, the same test was carried out collectively.

Appeal: at this stage, the group members could refer to the content they had studied before and present reasons for their answers.

Feedback: in the form of lectures and short discussions

Eventually, they were given a group assignment. At the end of the course, a peer evaluation checklist was given to each individual. In this evaluation, each member of the team evaluated another person from the same group. In this phase we have a change in the role of teacher, so she must be to facilitator of learning, not the deliverer of content. She has to elicit information from the students and facilitate discussion in the class.

Phase III: it was the final stage of the study in which nurses were once more evaluated in terms of knowledge, attitude, and practice after one month (using the same questionnaire). Also, practice evaluation was conducted in the form of self-evaluation. The one-month timeout after the classes was considered to assess the effect of the training provided on nurses' knowledge, attitude, and practice with regard to the caring of infants suffering from neonatal abstinence syndrome. Then, the relevant information from the workshop training group and the team-based learning group was collected and the data were registered. In order to analyze the data, was used the SPSS (version 16). Paired t-test was used to analyze the effect of training workshop and TBL Methods in each group of participants. Also independent t-test was used to comparison two methods.

Results

The findings related to the age and marital status of the nurses in the two groups, have been shown in [Table 1].

Table 2: mean age and marital status percentage of the two groups

	Group	Team-based Learning (Percentage)	Workshop Training (Percentage)
Years of Nursing Service	Less than 5 Years	42.2	24.4
	5 to 10 Years	33.3	37.8
	10 to 15 Years	11.1	13.3
	15 Years and More	13.3	24.4
Work at NICU	Less than 5 Years	68.9	57.7
	5 to 10 Years	28.9	31.1
	10 to 15 Years	2.2	6.7
	15 Years and More	0	4.4

The two groups of nurses were homogeneous in terms of interest in nursing and NICU nursing and the number of children ($p>0.05$). Also, the information about the nurses' years of service has been presented in [Table 2].

Table 3: nurses' years of service generally and at the NICU

Training Method	Number	Mean Age (Years)	Marital Status	
			Single	Married
Team-based Learning	45	32.38±5.7	37.8	62.8
Workshop Training	45	34.11±7.4	42.2	57.8

Table 3: mean scores of nurses' knowledge, attitude, and practice before the intervention in two groups

	Team-based Learning (SD± mean)	Workshop Training (SD± mean)	Independent t-test
Knowledge	11±3.38	11.96±2.78	T= -1.46 P= 0.14
Attitude	32.96±8.1	33.7±7.63	T= -0.443 p= 0.66
Practice	26.7±8.6	27.4±6.47	T= -0.222 p= 0.8

Table 4: mean scores of nurses' knowledge, attitude, and practice before and after the intervention

	Team-based Learning (SD± mean)		Paired t-test	Workshop Training (SD± mean)		test	Independent t-test Mean difference between two groups before & after
	Before	After		Before	After		
Knowledge	11±3.38	16.73±1.64	T=-3.18 P<0.001	11.96±2.78	14.84±1.9	T=-4.51 P<0.001	T=-5.94 P<0.001
Attitude	32.96±8.07	55.9 ±3.8	T=-16 P<.001	33.7±7.63	49.64±13.4	T=-8.5 P<0.001	T=2.95 P=0.004
Practice	26.7±8.6	52.67±4.8	T=-9.42 P<0.001	27.4±6.47	31.87±5.6	T=-3.39 P=0.002	T=10.77 P<0.001

The mean score of nurses' knowledge, attitude, and practice was homogeneous before the intervention [Table 3]. As shown in the [Table 4], according to the result of the paired t-test there was a significant statistical difference in each group between the scores of nurses' knowledge, attitude, and practice before and after the intervention ($p<0.05$).

On the other hand, the results of the independent t-test showed that, the rate of the change in the score of knowledge, attitude, and practice has been significantly higher for the team-based learning group compared with that of the workshop training group.

Discussion

In the present study, the test groups did not differ significantly in terms of demographic variables such as; age, marital status, having children, years of service, years of work at the NICU, interest in the discipline of nursing, interest in serving at the NICU, having passed neonatal care courses, participating in the neonatal abstinence syndrome educational courses, and other situations. Considering all these factors, we can ascribe the results to the effect of the intervention more confidently and the results will possess more generalizability. The results of the comparison of NICU nurses' knowledge of caring for infants suffering from neonatal abstinence syndrome before (57.8% relatively favorable) and after training with the team-based learning method shows that most team-based learning group participants' knowledge of neonatal abstinence syndrome have been favorable (82.2%).

This finding is similar to Chisolm et al., (2010) research which was conducted on the level of knowledge, attitude, and practice of nurses about smoking cigarettes by parents. In that study they concluded that, parents and nurses do not have adequate and useful information about smoking and its side-effects for the fetus and the infant. Since nurses do not have a good attitude towards smokers, it is very probable that, this attitude coupled with a deficient knowledge and a poor care can influence the delivery of a standard care. Consequently, the researchers asserted that an effective education aimed at the increase of learning in the areas of knowledge, practice, and attitude in the discipline of nursing is extremely necessary [23].

The comparison of NICU nurses attitudes towards caring for the infants suffering from neonatal abstinence syndrome before and after the team-based learning shows that, there is a significant statistical relationship between the mean scores of attitude before and after the training with the workshop training method and team-based learning method. Given the mean difference, it was observed that, the impact of the team-based learning is higher.

In a study by Fathima Rawat et al., (2012), conducted on nurses and other health provider's attitude about the drug abuse, they concluded that, practice and education form the required basis for the improvement of nurses' knowledge and attitude about drug abuse. This also emphasizes on the importance of education and providing a ground for nurses' practice [24].

The comparison of NICU nurses' performance in caring for an infant suffering from neonatal abstinence syndrome before and after education with the team-based learning method using the paired t-test showed that, in the team-based learning method, half of the participants had a relatively favorable practice (55.6%), whereas after the intervention all units' practice was favorable (100%). These findings are in line with Vason et al., study in which, it was made evident that students who were trained using the team-based method perform better in the national medical board exam [25]. The study of Koles et al., confirms these findings. In a study, Koles et al., found out that, students with a poor knowledge have a better practice in the final exams of courses benefiting from team-based learning method. They concluded that, team-based learning leads to students' profound learning and better results in final exams[26].

The comparison of the knowledge and practice of NICU nurses' responsible for caring for the infants suffering from neonatal abstinence syndrome shows that, there is a statistically significant difference between the mean scores before and after the intervention in the workshop training method and the team-based learning method. Also, considering the mean difference, it was observed that the impact of training using the team-based method is more considerable

There are other studies that confirm the results of this research. For example, in a study by Hassan zadeh ., (2012) it was concluded that, team-based learning led to a profound and facilitated learning in more than half of the students.

It has also led to a greater participation of students in the classroom, and perhaps, due to the interactions it created among students, it increased students' communicational skills[27].

Another study by Jafari in 2012 which was conducted with the aim of measuring the learning of rehabilitation students in the lecturing method and the team-based learning method, the findings pointed to the better success of the TBL method compared with the lecturing method. There was a positive significant relationship between interest in the presentation of courses with the TBL method and the group score ($r=0/374$, $P=0/001$). This finding points to the effect of the educational technique in motivating the students to learn and improve their academic achievement [28].

In total, it can be claimed that, team-based learning is an educational method that leads to acquiring higher and deeper knowledge which consequently leads to a better practice and attitude. In observations of the training program in the team-based learning group, it was found that nurses actively take part in group discussions. When learners are activated as much as possible and their participation in learning is as high as possible, learning is better and its effects are longer lasting. Thus, experts emphasize the use of modern and student-centered methods. In this study, learners in TBL group attended the training session with prior knowledge in order to gain better scores in individual and group exams. On the other hand, the learner can take part in group discussions if s/he has knowledge about the content being discussed.

However, there were some limitations in this study. In this study, hospitals and the methods of training were selected randomly. Both selected hospitals had similar contexts and were university hospitals with the same regulations and rules. However, the non-random allocation of participants into the groups may be considered as one of the limitations of the study. The small size of the sample and because of self-assessment is not suitable method for evaluation of practice; it was another limitation of the present study.

Conclusion

The results of the study showed that designing educational interventions for nurses leads to a significant change in their knowledge, attitude, and practice regarding their care for the infants suffering from neonatal abstinence syndrome.

Having compared the team-based learning method with the workshop training method, this study concluded that, in the team-based method, learners are more active and participate more in discussions and group interactions and attend classes while they have previously studied relevant materials. The reason for studying the educational booklet before attending the class may be ascribed to the fact that forming groups and receiving good scores are usually strong motivational factors for studying educational topics. Additionally, every individual's study led to the improvement of the group score and could create a stronger motivation for study.

The team-based learning method led to an increase in profound learning and the facilitation of learning in more than half of the learners. Also, this method increased learners' participation in the class. It might be possible to benefit from one of the

student-centered teaching methods like the team-based learning method besides the regular methods in various groups in order to fuel profound and facilitated learning. It is suggested that the team-based learning method to be used in the teaching of medical sciences and in-service trainings together with other teaching methods.

The experience of these two training methods in peer groups with identical educational topics gave the researcher the opportunity of controlling the situations better and having a more realistic comparison. In total, the present study led to more evidence for the confirmation of the role and necessity of learners' active participation in the learning process and can serve as an incentive for the use of this method in the teaching of courses at different education/training levels.

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Conflict of interest disclosure

The author declares that there is no conflict of interest.

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