



Promoting quality of teaching maternal and neonatal health in nursing students based on gender challenges: Action research

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General Note

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ABSTRACT

Background: The best way to improve the student's ability is effective teaching and its fitting with their cultural characteristics. This study was aimed to promote the quality of teaching the theoretical course of Maternal and Neonatal Health (MNH) for nursing students. **Methods:** This action research was conducted in the two cycles. Data gathering was done using semi-structured interviews and focus group discussion with 16 nursing students and professors. **Results:** The identified issues included inefficient course planning, inefficient teaching method, inappropriate evaluation and educational environment. The solutions included using concept maps, simulation teaching in Clinical Skills Laboratories (CSL) with sex segregation, and continuous evaluation. In the second cycle, the modifications were team learning teaching and preparation of educational handouts. **Conclusions:** The sex-segregated application of simulation teaching in CSL based on students' cultural beliefs along with active learning methods promotes the quality of MNH teaching.

Keywords: Action research, Mothers, Neonates, Nursing students, Quality improvement, Education

1. INTRODUCTION

As key members for providing effective health services, nurses require special skills. Superficial learning and inadequate knowledge of nurses affect their performance in dealing with patients (Campbell-Yeo et al., 2014; González-Chordá & Maciá-Soler, 2015; Hemmati & habibzadeh, 2013). The main mission of nursing education is to train capable and qualified nurses who have the necessary knowledge and skills for providing high-quality nursing services and, thus, maintain and promote the health of society (AlHaqwi & Taha, 2015; Aziz, 2011; Yousif, 2015; Mousavizadeh & Mohtashami, 2018).

However, evidence suggests that the educational system Bachelor of Science in nursing degree in nursing has some inadequacies (Ahanchian, Sharafi, Vafae & Hajjabadi, 2017; Kim et al., 2010; Phillips, Mathew, Aktan, & Catano, 2017). Research has shown that, from among nursing courses, the Maternal and Neonatal Health (MNH) course does not enjoy an appropriate level of quality, causing tension and stress among students, thereby hindering their effective learning of the topic (Anderson, 2014; Ashkenazi, Livshiz-Riven, Romem, & Grinstein-Cohen, 2017; Eswi & El Sayed, 2011; Tzeng, Chen, Tu & Tsai, 2009).

The review of the literature suggested that nursing students in Islamic culture, male-female interactions are limited to family members and, in educational settings where men and women are present, it is necessary to observe ethical considerations, face cultural and emotional challenges while passing this course (del Pino, 2017; Hassan, 2013).

Whereas, the neonatal period is a critical period due to the need for numerous adaptations for extra-uterine life and the vulnerability of neonates (Kalyan & Vatsa, 2014). Moreover, physiological changes in women during pregnancy as well as the commencement of the mothering role increase the need for care; mothers properly know that inadequate care has undesirable effects on their neonates (BOSTANI, Rafat, & Pakseresht, 2015; Tayebi, Zahrani, & Mohammadpour, 2013). Because the nurses are the first people in contact with neonates and their mothers (Campbell-Yeo et al., 2014).

Similar to the wards related to pregnant women, high-risk mothers, gynecological surgeries, and nursing management of hospitals, maternal and neonatal care in the wards of educational hospitals is performed by female nurses in the maternal and neonatal wards as well.

Although due to cultural, legal, and religious issues in Iran, male nurses are not involved in the above wards, in the case of referring of mothers and infants to the emergency wards, given the shortage of female nurses, they may often have to provide maternal and neonatal care. In such cases, there is no moral, cultural, and religious prohibition for male nurses to take care of female patients.

Despite, nurses role in providing care for mothers and neonate in various wards and the 20-year experience of the researcher in these wards and observation of the inadequate qualification of female and sometimes complete lack of qualification of male nurses, in terms of providing care for these vulnerable groups in emergency cases.

Since the best place for promoting the knowledge of nurses regarding maternal and neonatal care is the theoretical course of MNH and action research as a scientific-applied paradigm which is provided for the continuous improvement of teaching and learning techniques (Moch, Vandenbark, Pehler, & Stombaugh, 2016; Young, Rapp & Murphy, 2010). Thus, the present study aimed to improve the quality of teaching the theoretical course of MNH based on gender challenges with a participatory action research (PAR) approach.

2. METHOD

The present PAR was conducted in two cycles of change and correction from June 2017 to June 2018.

Research Setting

The research setting was Khorramabad School of Nursing and Midwifery in Iran with 320 B.Sc. nursing students. At this school, B.Sc. nursing students received education in four years or eight semesters. In the MNH course, a theoretical course of MNH (2.5 credits) was presented which was equal to twelve 120-min sessions. Also, the maternal and neonatal disorders course (2 credits), equaling sixteen 90-min sessions, was provided. Out of these two courses, 1 credit (equal to eight 90-min sessions) was allocated to neonatal care and the rest to the maternal care.

These courses presented in the second year through two consecutive semesters by three faculty members of Department of Pediatric and Midwifery taught these courses using lecture method.

The clinical education of this course is only presented to female students as apprenticeship for 102 hours in the 5th semester and as internship for 102 hours in the 8th semester; the male students receive no clinical education in this regard based on cultural and religious issues.

Participants

Stakeholders who were a part of the learning and teaching of this course, including the faculty members and nursing students of semesters 3 to 8 who had passed this course and had a first-hand experience of the problems related to it, participated in the study through purposive sampling method.

The Action Research Cycles

The First Cycle

This cycle had four stages, identifying problems and solutions, planning, changing, and evaluating.

The observations and actions were used for reflection on the plan. After the directed reflection, the researchers revised and planned the primary plan based on data. Then, they proceeded through this spiral cycle of action, observation, and reflection. During the research process, the members of office group prepared the works, in which they observed or reflected the ongoing process of work. The reflection was carried out weekly by the group of participants, the main members of whom were the faculty members of Department of Pediatrics and the head of this group was the head of Department of Pediatrics.

The First Stage

This stage had two steps: The first step was conducted in a quantitative approach to identify the quality of teaching the theoretical course before making the changes based on the students' perspective. The participants in this stage were nursing students at semesters 3 to 8 who had passed this course and received a first-hand experience of the problems related to it; they participated in the study through purposive sampling method.

The data collection instrument was the theoretical teaching quality questionnaire, with the first part examining demographic information and the second part comprising 32 questions on factors affecting the quality of theoretical teaching, completed in a self-report manner by the students. The items were scored on a nominal scale of "Yes" (3), "Somewhat" (2), and "No" (1). Scores ranged from 32 to 96, divided into two levels of non-optimal (32-63), and Optimal (64-96) This questionnaire was applied by getting permission from its developer by Rakhsh Khosid et al. (Rakhsh Khosid & Izadpanah, 2014). Its validity and reliability have been confirmed using content validity and Cronbach's alpha ($\alpha=0.92$), in the present study a pilot study was conducted on 14 students and reliability was evaluated using the internal consistency method by calculating Cronbach's alpha as 0.99.

The aim of this quantitative study, which was a small part of a research, was to evaluate the teaching quality of MNH course before and after the change.

In the second step, a content analysis was conducted to elucidate the problems and solutions for promoting the quality of teaching MNH.

The participants in this stage were faculty members with at least one semester history of teaching this course and students at semesters 5 to 8 who had passed the theoretical course and had a first-hand experience of the problems related to it. They participated in the study through purposive sampling method with maximum diversity.

Data were collected through individual semi-structured face-to-face interviews and focus group discussions. The interview main question was "Describe your experiences regarding the teaching of the MNH course." The participants were asked to discuss the

problems and challenges related to the course and, based on their responses, probe questions would be asked in line with the main objective of the study. The interviews lasted for 45 to 90 min based on the cooperation of the participants.

Group discussions were also employed to obtain rich data through cooperation and brainstorming regarding issues related to the course. The number of the participants in each group was 8-10. The Head of Department of Pediatrics and Neonates as the secretary and the researcher as the facilitator participated in the sessions. Questions in the group discussions were based on the problems mentioned in individual interviews to examine the solutions and measures for change. In total, four 1.5 to 2 h sessions were held. The individual and group interviews and meetings were held in one of the school classes in accordance with the participants' agreement.

The Second Stage (Planning)

In this stage, after identifying the problems and solutions, improvement in the quality of education was designed by the participants considering urgency, necessity, occasion, executive functioning, budget, preparation of research team, majority agreement, and solutions.

A committee change group was formed in the School, which included the Dean, Head of the Department, and faculty members of Department of Pediatrics and Mothers. Two sessions were held by this group. The first session was focused on the financial and human costs for implementing action research changes. The second session was held with the presence of the head and faculty members of Department of Pediatrics and Mothers as well as students in order to decide upon the method of teaching the course and developing course plans based on the program suggested by the participants (Table 1 and 2).

Table 1 Programs for promoting teaching of maternal and neonatal health (MNH)

Cycle	Changes in plans	Time
First	Holding the meeting of change committee for funding and making required coordination	Sep, 2017
	Preparing and developing the course plan based on suggestions and participation of stakeholders in order to change the teaching methods; determining the duties of students and professors, teaching aids, evaluation methods, and references.	
	Following up the purchase license of models for restoration and examination of infants	
	Collaboration of professors with clinical skills laboratory staff in preparing the delivery room, examination room, and restoration of infants	
	Coordinating the management of clinical skills laboratory in line with the dates of the classes in these centers	
	Teaching the students how to prepare a conceptual map by the relevant professor	
Second	Holding the meeting of change committee for funding and making required coordination to change the plan based on strengths and weaknesses of the first cycle programs	Nov, 2017
	Designing a training program for students in line with education in the small groups	
	Determining the representative of class to form a group in public messengers to load the contents of conceptual maps of learning small groups prior to class for other students	

Table 2 Operational plan for changing the course plan of the theoretical course of MNH

Cycle	Activities	Participants	Time of performing activities
First	Changing the teaching of the theoretical course	Department of Pediatrics and Midwifery and students	From Summer of 2017 and the first semester of academic year 2017-2018
	Holding educational workshops of the stages of labor and neonatal resuscitation	Department of Pediatrics and Clinical Setting of the school	First 8 weeks of the first semester of academic year 2017-2018
Second	Identifying weaknesses and strengths of the changed plan and applying corrections	Department of Pediatrics and Midwifery and students	Second 8 weeks of the first semester of academic year 2017-2018

The third stage (attempting to change)

Operational plans designed based on the opinions of stakeholders by Committee for Change were implemented in the first and second 8 weeks of the semester.

In this stage, the individuals were also participated as the representatives of stakeholders, including the group manager, and two representatives (male and female) were participated in the selection of students for the weekly observation of operational plans and receiving feedback from the stakeholders. Thus, these individuals attended the clinical skills laboratory and observed the teaching and learning process of professors and students during the restoration and delivery stages performed by at least four students.

The Fourth Stage (Evaluation)

In this stage, the process of teaching was evaluated in a formative manner and at the end of each cycle (8th week of the semester) using focus group discussions. The opinions of participants were sought regarding the problems and challenges of the applied changes via two group interviews with eight nursing students studying in the third semester (four females and four male) as well as four professors (three members of Department of Pediatrics and one member of Department of Midwifery). Then, the second phase for correcting the changes began.

The Second Cycle

This cycle included identification, planning, acting and evaluation. In the first stage, the strengths and weaknesses of changes in first cycle were identified in the 8th week of the semester using the focus group. In this stage, the students and professors who made the changes in the first cycle were purposefully included in the study. The change committee was formed for planning new changes; then, the changing plan of the second cycle was implemented and evaluated.

Rigor

The Guba and Lincoln criteria were used to determine the validity of the study. The study's validity was ensured by allocating sufficient time, the use of different data collection methods (individual and group interviews), ongoing engagement with the data and their confirmation by member check and peer check and also an external check by two non-members (Polit & Beck, 2009).

Data Analysis

Quantitative data analyzed using descriptive statistics (absolute and relative frequency, mean and standard deviation) .

Qualitative data were analyzed by Graneheim and Lundman's (2004) content analysis approach. Accordingly, and immediately after the interviews, the text was handwritten, typed, and read for several times. The preliminary code was extracted; then, the codes were merged and classified based on similarities and continuous comparison; finally, the concept and context contained within the data (problems and solutions) were extracted (Graneheim & Lundman, 2004).

3. RESULTS

Quantitative findings

The students' mean age was 22.23 ± 1.65 years, the majority of whom were female (62.8%) and single (90.7%). Results indicated that there was a significant difference ($P \leq 0.02$) between the total quality of the theoretical course of MNH before and after changes (Figure 1).

Qualitative findings

Participants were 11 nursing students, the majority of whom were female (63.06%) and studying in the 8th semester (45.5%), as well as five professors, 60% of whom were assistant professors and 8% of whom belonged to Department of pediatrics nursing. Following the data analysis, 200 preliminary codes were extracted, which were merger into four categories (Table 3).

Inefficiency of teaching method

This category comprises the sub-categories of Students' passiveness in classes, limitations in using learning aids due to sex-related issues, little use of questions and answers due to the co-ed nature of classrooms, inadequate experience and expertise of professors, Intentional inadequate teaching of male students, Inadequate teaching in co-ed settings and use of the traditional method of teaching.

One of the professors said: *"I want to use learning aids, but since the classes are co-ed, I choose not to and only give lectures. After the classes based on the students' questions ask me in private, I realize that the topics are vague for them"* (Participant 13).

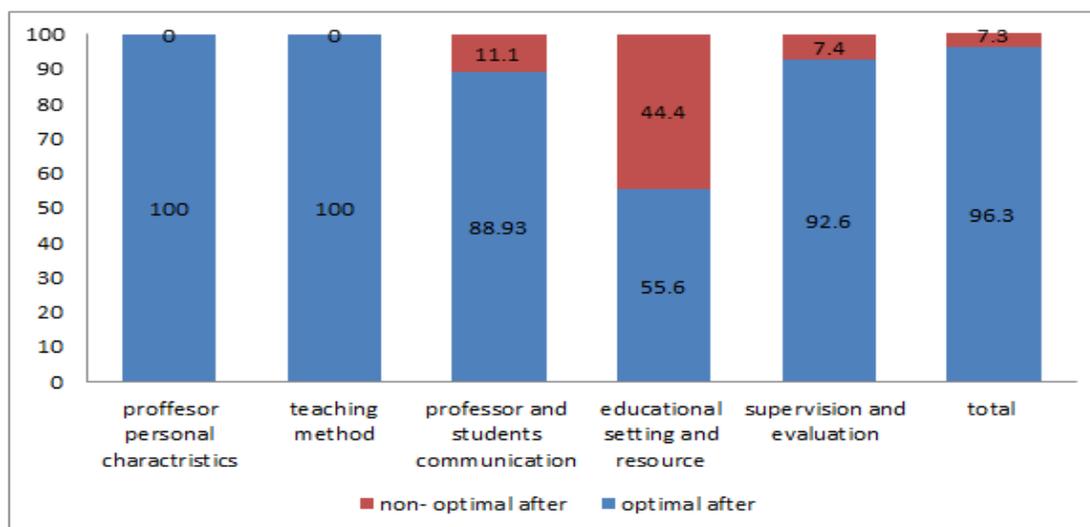
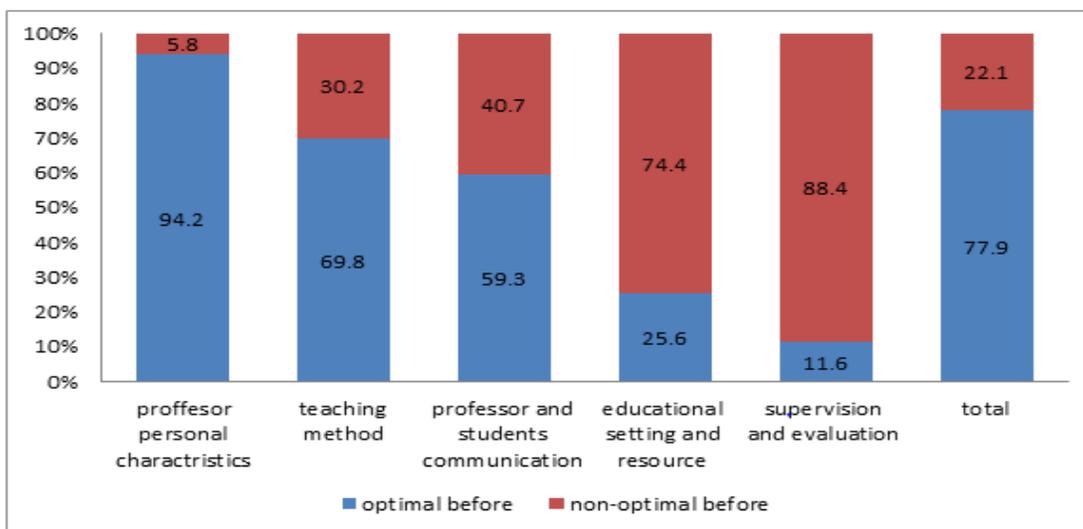


Figure 1 Quality of the theoretical course of MNH before change based on viewpoints of students (A) and quality the of theoretical course of MNH after change based on viewpoints of students (B). Fisher's exact test shows significant differences between before and after in teaching method ($P < 0.001$), professor and students communication ($P < 0.003$), educational setting and resource ($P < 0.005$), supervision and evaluation ($P < 0.001$), and total ($P < 0.02$).

Inefficiency of course planning

Sub-categories of this category included: Lack of attention to sex in course planning, co-ed classrooms and embarrassment of students while asking questions, providing the course in the first semesters, lack of coherence in the content of the neonates' course, large amount of content and limited time of teaching.

A female student stated: "In lectures of labor and genital anatomy and physiology, I couldn't even raise my head, let alone ask a question, because the class is not sex-segregated" (Participant 19).

A male student stated: "The content of the neonates course is very condensed and provided during 7-8 sessions using lectures" (Participant 28).

Inappropriate Evaluation

The sub-categories of inappropriate evaluation were lack of continuous evaluation, not allocating scores to student activities, Lack of creativity in evaluation methods, and no use of evaluation as a factor contributing to learning.

A student stated: "The expectations of professors are higher than the topics discussed in classes. Sometimes, they give questions too difficult or easy for nursing students; even experts would not be able to answer them" (Participant 26).

One student about no use of evaluation as a learning method said: "Professors assigned some educational activities to raise our final score, like, translating an article or writing proposals. Then, we ask someone else to do it for us. The educational activity must aim to promote learning, not just to receive a score" (Participant 16).

Table 3 Stages of the First Cycle of the Action Research for Promoting the Quality of Teaching the MNH Course

Identification Problems	Implemented changes		Evaluation	
	Solutions	Activities	Strengths	Weaknesses
Inefficiency of teaching method	Changing the teaching method to active learning methods	Teaching labor and anatomy and physiology of pelvic and genital in groups of 12 by Midwifery professors in Clinical Skills Laboratory Teaching neonatal examinations and resuscitation in group of 12 by pediatrics nursing professors in Clinical Skills Laboratory preparing the concept map of topics by students to summarize the topics presenting concept maps by students in the class	Using workshop teaching by students in a sex-segregated manner and considering the culture, beliefs, and religion of stakeholders Reducing course content and making it attractive for students	Financial burden on the School due to the addition of 5 sessions Inadequate participation of all students in each session
Inefficiency of course planning	Changing and revising the course plan	Sex-segregated classes to teach the reproductive organ and labor topics Revising the course plan and provide the theoretical topics of neonatal care in the fourth semester in a coherent manner		
Inappropriate evaluation	Performing continuous evaluation and considering student activities in learning	Dividing evaluation into pre-determined items and clarifying evaluation criteria for students in the course plan Allocating only 30% of the score to the final evaluation and 70% to the continuous evaluation		

		Holding quizzes every two weeks
		Including student activities, (concept maps), in evaluation
Inappropriate educational setting and facilities	Preparing appropriate educational setting and resources	Using the educational space and facilities available in the University's CSL
		Introducing one valid textbook as the main source to students
		Introducing concept maps as an additional reference

Inappropriate Educational Setting and Facilities

The sub-categories were the excessive number of students, inappropriate classrooms, unavailability of educational facilities, and a large number of introduced textbooks.

A male student said: *"It's a course with difficult and vague topics. Therefore, moulage, models, and educational films must be used for better teaching"* (Participant 28).

A professor noted the following with regard to the educational resources: *"Professors introduce four Persian and three English books. No students would study these references"* (Participant 13).

Evaluation

With the cooperation of stakeholders and after elucidating the problems and solutions, and planning, evaluation was made to use the solutions and apply the changes (Table 4).

The Second Cycle

After evaluating the first cycle and determining the weaknesses and strengths of the changes, two focus groups of stakeholders were formed to provide corrective suggestions, based on which the changes were planned and implemented (Table 4). In evaluating the second cycle of the action research, the strengths included better and more memorable learning, participation of the majority of students and their desire for learning, and enhanced self-confidence. Weaknesses included exacerbated time limitation for full covering of course topics, inadequate preparation of concept maps, and standard questions by students. Suggestions for resolving these issues included delegating some course topics to students for self-study, holding workshops for familiarizing students with concept map programs, and holding workshops for designing standard questions.

4. DISCUSSION

Findings of the first cycle suggested lack of adequate attention to cultural and religious challenges, provision of teaching compatible with sex, especially in course planning and teaching methods. The participants believed that the co-ed nature of MNH classrooms prevents discussions and questions and answers regarding course topics, also students did not actively participate in classes. The reason may be that in the Islamic culture, male-female interactions are limited to family members and, in educational settings where men and women are present, it is necessary to observe ethical considerations (del Pino, 2017; Hassan, 2013). Also this course is provided during the first semesters when students are not ready to study along with the students of the opposite sex due to the sex segregation of students in educational classrooms in Iran before university (high school). Sex segregation in some topics was a strategy used to promote learning in the present PAR. In line with this finding, Heimlich and Neurland stated that beliefs, values, and

work philosophy affect the formation of learning styles in different situations (Heimlich & Norland, 2002). Having cultural knowledge, understanding and respecting people from different cultural groups, and culture-based planning are necessary (Foronda, 2008; Valizadeh, Zamanzadeh, Ghahramanian, & Aghajari, 2017). Therefore, based on the suggestions of the participants, anatomy, physiology, and stages of labor were taught in sex-segregated classes using simulations in CSL. This used strategy was in line with the one made by Abeer Eswi & El Sayed (2011) regarding the use of CSL for promoting the learning of maternal care courses (Eswi & El Sayed, 2011). Studies have shown that the application of simulation for teaching nursing students is a factor contributing to patient safety and a better, more memorable and stress-free learning of students (Eswi & El Sayed, 2011; Huston et al., 2018; MacLean, Geddes, Kelly, & Della, 2018).

Table 4 Stages of the second cycle of the action research for promoting the quality of teaching the MNH

Identification		Implemented change	Evaluation	
Positive points	Weaknesses	Corrections	Strengths	Weaknesses
Reducing course content and making it attractive for students	Inadequate participation of all students in each session Inadequately studying the topics of all sessions by all students	Forming small learning groups of 7 students and dividing topics between them to present in class Formation a groups in one the Telegram Uploading the summaries and concept maps in the Telegram group by each small learning group before the class for other students Studying the shared topics before the class and being prepared for discussion in upcoming sessions Preparing the topics of concept maps in the form of Microsoft Word files for using them as references of exams upon the approval of professors	Active participation of all students in class Preparation of students before the class summarized educational handouts for students Increasing the motivation and self-confidence of participants Learning and readiness for participation in group work	Little time of students due to the specialized nature and large volume of courses in the 3 rd semester
Continuous evaluation of students	Lack of student participation in question development	Preparing at least 8 to 10 questions from the topics presents by each small learning group for other students and incorporating them into developing evaluation questions by the professor Student participation in evaluation for better and more memorable learning		Preparing easy and non-standard questions by students
Use of workshop teaching for sex-segregated	Financial burden on the School due to the	Agreement of professors for using maximum class hours and including reproductive	Cooperation of professors and coordination among	Professors' Work burden due to increased class hours

classes	addition of sessions (5 sessions)	organ and labor anatomy and physiology workshop hours in the course plan	them	and workshops
	Limitations in educational budget	Transferring the examination, reflexes, and neonatal resuscitation workshop to the clinical education of the course		Teaching male students by a professor of opposite sex

Other problems regarding the inefficiency of course planning were inadequate coherence and scattered presentation of the content related to neonatal care which is done in various semesters. As midwifery is taught separately from nursing in Iran, topics related to mothers and neonates have lost their significance for nurses and lack the required cohesion and adequacy. Meanwhile, 90% of midwifery graduates in Khorramabad are working in urban and rural maternity hospitals and healthcare centers, and less than 10% are working in gynecology and high-risk mother wards. Midwifery personnel do not usually work in neonatal wards which are covered by nurses. To resolve this issue and improve the curriculum, the course plan was revised. Planning and coordination were made to hold the neonatal care course in a coherent manner and provide all the topics in one semester. Schonwetter et al. noted factors affecting teaching from the perspective of students to be the organization and coherence of topics (Schönwetter, Lavigne, Mazurat, & Nazarko, 2006).

Other problems mentioned by the participants regarding inefficiency course plans were the high volume of contents based on course topics and the limited hours allocated to this course. They suggested brief presentation of topics and discussing necessary and practical points in classes. This finding was in line with that reported by Najafikolyaee et al. (2011), based on the large volume of contents of nursing courses, the participants suggested that professors should emphasize on necessary and applied points and avoid offering a large amount of content in one session to maintain the interest of students. Dalley et al. (2008) mentioned that the professors' emphasis on all the course topics limited the available time for teaching, preventing the opportunity for critical thinking and problem solving by the students (Dalley, Candela, & Benzel-Lindley, 2008).

Another challenge noted by participants was the inadequate use of novel teaching methods, use of teacher-centered methods, and students' passiveness due to the limited time of teaching. However, an important factor contributing to learning is the active participation of students, which improves the quality of courses and facilitates learning (Chiang, Chapman, & Elder, 2010; Mooneghi, Dabbaghi, Oskouei, & Julkunen, 2009). The use of active teaching method increases deep and critical thinking methods among nursing students as they will work in a complex and unpredictable setting and is, therefore, an educational necessity (Adib-Hajbaghery & Rafiee, 2016; Sh, SAH, & SMR, 2017).

Deep learning ensures the capabilities of nursing students in maternal and neonatal wards because, in the research setting of the present study (i.e. x), they were not only present in the maternity wards of hospitals, but also covered all the maternal and neonatal wards and nursing management of maternity hospitals. As supervisors of these hospitals, nurses must master all the wards, so that they can efficiently and actively cooperate in necessary cases, such as patient problems and life-threatening situations.

So, in this study to significantly improve learning outcomes teaching with the help of concept maps was used. In this method, students learn new materials while emphasizing the previously-learned ones and connect each concept to others through words. Various studies on students of nursing and medicine suggest that the use of concept maps improves the knowledge and understanding of these students (Daley & Torre, 2010; Dong et al., 2015; Sadeghi, Shahbazi, Naseri Borujeni, & Pooiesh, 2016). Research has indicated that concept maps facilitate learning and application of creating solutions and thinking (ABDI, ALIYARI, PISHGOOIE, SEYED, & NAZARI, 2017; Dong et al., 2015; Masoumi M., Ebadi A., Daneshmandi M., & Raesifar A., 2011). This active teaching method helps nursing professors prepare graduates with a critical thinking ability in the complex health setting (Masoumy, Ebadi, Daneshmandi, & Raisifar, 2011).

Another issue was inappropriate evaluation. Ensuring the qualification of students of medical sciences as they work in sensitive settings, a precise evaluation is of utmost importance (Baghaei, Shams, Feizi, & Rasouli, 2016). So, based on the solutions proposed by the participants, the total score of the evaluation was not allocated to the final exam and almost two-third of the evaluation score of students was allocated to the continuing evaluation such as quizzes and educational activity.

Based on group interviews with the participants, this evaluation method made students actively participate in classes, passive students were distinguished from active ones, and tension and anxiety of final exams were reduced, which could together promote the quality of teaching. This finding was in line with the study by Hemmati Maslak et al. (2013) who introduced inappropriate

evaluation by professors and incompatibility of evaluation and final examination with teaching during the course as factors affecting educational problems.

They reported that, to have an effective evaluation and successful students, appropriate formative and summative evaluations must be considered by professors because an effective teaching without an appropriate evaluation does not lead to student success and causes dissatisfaction in them.

In the second cycle of this action research and based on the suggestions of the participants with regard to the weak points of the first cycle which were the inadequate participation of students in discussions, small groups consisting of 7 students were formed in classes to make all the students participate in learning. Discussions were held in and between groups regarding topics. The participants were satisfied with this method because it made all the students participate. Studies show that this teaching method increases the performance and preparedness of students, reduces their stress, which led to their activity, satisfaction and self-confidence (Adib-Hajbagheri & Rafiee, 2016; Cheng, Liou, Tsai, & Chang, 2014; Chiang et al., 2010; Dalley et al., 2008; Feizi, 2015).

Also, based on the quantitative results from this study, changes in MNH course have contributed to improving the quality of teaching this lesson. Which this is the achievement of the nature of action research studies (Moch et al., 2016; Young et al., 2010).

The executive limitations of this project were the resistance of some students to the implementation of concept maps in the first sessions, which was alleviated as time passed and they became familiar with this method. There were also some organizational and managerial limitations such as financial and human force problems in the School for holding educational workshops. It was attempted to impose minimum financial burden on the School by repeated follow-up and meetings with the Dean of the School, Official of Department of Pediatrics, and Director for Clinical Affairs, and regulating theoretical programs.

Recommendation for research

Performing collaborative action research (CAR) is proposed in various courses to promote education in medical sciences by stakeholders in various communities. It is also recommended that the effectiveness of new educational methods be done in removing the cultural, belief and religious challenges of stakeholder development in medical education.

Studies conducted to follow the impact of this educational program on the professional performance and clinical skills of graduate students are recommended.

Implications for practice

The goal of nursing education is to train qualified nurses who have the necessary knowledge and skills for providing quality nursing care as well as preserving and promoting community health. The capabilities of nursing students as future nurses play an important role in realizing the mission of the health system. Any deficiency in training this group affects the quality and quantity of health services, especially in vulnerable communities such as mothers and neonates.

Since applying theoretical content in practice is the main factor in the acquisition of professional skills of students, superficial learning and incomplete information affect their clinical practice in the fields of mothers and neonates care.

Based on this collaborative action research (CAR), attracting the stakeholders' involvement and planning to address the cultural features and gender challenges of nursing students are effective in promoting the cognitive ability of nursing students in the theoretical lessons of mothers and infants. This provides the opportunity of developing nursing skills as well as proper care and promoting their professional competence.

5. CONCLUSION

Given the cultural characteristics of Islamic communities, with serious limitations to the education of sex-related issues, the needs of service providers are not met during education, having serious educational impairments in this area. Therefore, it is necessary to use the indirect teaching methods in these cases, so that students can achieve the maximum possible capability with indirect exposure in the desired situations. Therefore, it is necessary to revise the educational curriculum based on gender challenges, cultural issues, and religious beliefs of students.

Moreover, the workshop education of delivery stages and examination and restoration of infants is recommended in the sex-segregated clinical skills laboratories on the moulage and models to improve the learning and preparation of students in the clinical care of mothers and infants in the emergency wards and unplanned conditions.

Summarizing the contents via maps and charts, learning in small groups, and preparation of students prior to the class via public media messages are suggested for further learning in the students and improved quality of education, because improving the quality of nursing education will be accompanied by an increase in the graduation of qualified nurses.

Ethical Considerations

The present study was approved by the Ethics Committee of Tehran and Lorestan Universities of Medical Sciences under the code IR.TUMS.FNM.REC1396.2212. The researchers began the study in full compliance with the ethical protocols of these two universities. The ethical considerations included obtaining informed consent from the participants to enter the study and reserving the right for them to continue their participation and ensuring them of their anonymity and the confidentiality of their data.

Competing interests

The authors declare that they have no competing interests.

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