Original Article

Access this article online
Quick Response Code:

Website: www.jehp.net
DOI: 10.4103/jehp.jehp_521_19

# Comparing the effect of standardized patient-based education and feedback lecture on midwives' knowledge and practice in counseling screening for fetal malformations

**Maryam Javidi-Sarafan, Mahin Tafazoli[1], Talat Khadivzadeh[2], Seyed Reza Mazloum[3]**

*Department of Midwifery, School of Nursing and Midwifery, Mashhad University of Medical Sciences, [1]Department of Midwifery, Evidence-Based Care Research Center, School of Nursing and Midwifery, Mashhad University of Medical Sciences, [2]Department of Reproductive Health, Nursing and Midwifery Care Research Center, Mashhad University of Medical Sciences, [3]Nursing and Midwifery Care Research Center, Mashhad University of Medical Sciences, Mashhad, Iran*

**Address for correspondence:**
Dr. Mahin Tafazoli, Department of Midwifery, Evidence-Based Care Research Center, School of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran.
E-mail: tafazolim@mums.ac.ir

Received: 15-09-2019
Accepted: 15-02-2020
Published: 30-06-2020

**Abstract:**

**INTRODUCTION:** Midwifery screening is one of the duties of midwives according to national guidelines. It is possible to increase midwives' knowledge and practice through effective education. The aim of this study was to compare the effect of standardized patient-based education and feedback lecture on midwives' knowledge and practice in screening counseling for fetal malformations.

**METHODS:** This quasi-experimental, two-group study (standardized patient-based training and feedback lecture) was performed on 67 midwives (licensed by the office) in Mashhad in 2018. Midwives' knowledge and practice before and 2 weeks after training (a 4-h training program) were assessed by the Objective Structured Clinical Examination and a questionnaire. The data were analyzed by the SPSS software version 16 using Mann–Whitney, Chi-square, Wilcoxon and independent t-test while $P < 0.05$ considered as a significant level.

**RESULTS:** Before intervention, the total score of knowledge and practice showed no statistically significant difference between the two groups ($P > 0.05$). After intervention, knowledge score in feedback lecture group was statistically significantly higher than that of standard patient group ($P < 0.001$). In addition, there was no statistically significant difference in performance scores between the two groups after intervention ($P = 0.761$).

**CONCLUSION:** Both educational methods can increase midwives' knowledge and practice in fetal screening counseling. However, in raising midwives' awareness, feedback lecture group was more effective than standard patient group.

**Keywords:**

Feedback lecture, fetal malformations screening counseling, knowledge, practice, standardized patient-based education

## Introduction

Screening refers to ways in which apparently healthy individuals who are at higher risk for a particular disease can be identified than healthy individuals.[1] Screening to identify fetal malformations began in 1960.[2] Fetal malformations occur at 2%–3% at birth.[3,4] The birth defects and abnormalities of a baby with fetal malformations are profound and severe, imposing economic, social, and psychological burdens on the society and the family. The medical community is obliged to prevent the birth of this group of neonates and in this regard, screening pregnant women for fetal malformations is the most important protocol used in most countries of the world. Denmark was the first country to cover more than 90% of



**How to cite this article:** Javidi-Sarafan M, Tafazoli M, Khadivzadeh T, Mazloum SR. Comparing the effect of standardized patient-based education and feedback lecture on midwives' knowledge and practice in counseling screening for fetal malformations. J Edu Health Promot 2020;9:151.

mothers in 2004 with a national offer of free screening for all pregnant women.[5] In Iran, screening of fetal malformations during pregnancy began in 2001, which included about 1.3 pregnancies in the early years, but in recent years, more than half to two-thirds of pregnancies have been performed. However, precise statistics on the percentage of embryo-screening tests in Iran are not available.[6] In Iran, Down syndrome is of particular importance in screening guidelines for fetal malformations. Benefits of screening for Down syndrome include the detection of neural tube abnormalities of trisomy 13 and 18 (due to similar markers investigated). Therefore, a pregnant mother is screened for multiple trisomy simultaneously, which ultimately leads to reduced infant and child mortality, stillbirth, reduced disability and mental retardation, and problems associated with the cost of caring for these patients.[3] Screening for fetal malformations is a very important part of prenatal care. Today, screening of fetal malformations is recommended for all pregnant women.[7] As a result, the pregnant woman's prompt and timely consultation by the midwife on screening for fetal malformations, plays a powerful role in their acceptance and decision-making.[8] A 2013 UK study reported that screening for fetal abnormalities is directly related to the level of knowledge and attitude of pregnant women. The most important part of awareness about this issue, in addition to access to mass media such as the Internet and television educational programs, is the proper consultation of health professionals, physicians, and midwives.[9] Providing adequate information and awareness about screening is a powerful and effective part of accepting it by a pregnant mother. While most health workers ignore this,[10] a study by Rabiee *et al*. found that most mothers in their study were unaware of the risks and complications of a Down syndrome fetus. A blood or ultrasound examination is sufficient to screen for fetal malformations.[6] Conducting screening consultations for fetal malformations in Iran is one of the duties of midwives according to the national protocol.[11] Midwives must have the knowledge and practice to perform optimal services in this regard and to provide proper and timely counseling.[12] Farshbaf Khalili *et a*l. indicated that consultation of pregnant mothers with health-care providers and midwives about fetal screening tests is inadequate and more training is needed for health workers and midwives to improve the awareness and practice of quality consultation in pregnant women for screening tests.[13] One of the effective factors in improving knowledge and practice is the use of an efficient training system.[14] One of the active teaching methods is standardized patient-based education.[15] Standardized patient-based education enables communication techniques to be learned using standardized patients without harming real patients.[16] The benefits of using it include accessibility at any time, The same issues and problems of the disease for all learners, improved self-esteem, and general communication and emotional ability.[17] The disadvantages include the cost and time involved in preparing standardized patient scenarios and preparing the required human resources.[18,19] The result of Speeney *et al*.'s study showed that standardized patient use has the potential to enhance the knowledge and skills of nursing students in the diagnosis and care of schizophrenia.[20] Another lesser-known active learning method is feedback lecture provided by Ostrman. This is in fact a modification of the traditional lecture method. It leads to participatory learning and by activating the learner, it seeks to deepen learning, critical thinking, and problem-solving skills.[21] Afrasiabifar *et al*.'s study showed that students' learning and satisfaction in feedback lecture are better than those in traditional lecture teaching in nursing intensive care.[21]

According to the National Guidelines for the Evaluation of Fetal Abnormalities Revision 1397, fetal abnormalities' screening is a midwife's duty,[22] but this advice is not well received and midwives should be trained.[6] Screening of fetal malformations is one of the priorities of the health system and is very important. The main objective of training midwives in screening counseling is to increase midwives' knowledge and practice by improving the quality of care provided in the health system, making the right decision with the consent of the pregnant mother to perform fetal malformations' screening, and timely diagnosis of fetal malignancies, especially malnutrition. Infant and child mortality is associated with a decrease in retardation and mental disability and related problems.[23] The aim of this study was to compare the effect of standardized patient-based education and lecture with feedback on midwives' knowledge and practice in counseling screening for fetal malformations.

## Methods

This research is a quasi-experimental randomized interventional study with two groups of pretest and posttest, which was approved by the Ethics Committee with the code of ethics IR.MUMS.NURSE.REC.1397.058 and obtained relevant licenses. The participants were midwives (licensed by the office), and the meeting place was at the School of Nursing and Midwifery, Mashhad University of Medical Sciences, in 2018. After obtaining written informed consent, the research sample was selected randomly (via randomization site). Codes 70 to 1 were divided into two groups. Then, based on the number received by each research unit (after the inclusion criteria were confirmed), the participants were randomly divided into two standardized patient groups and feedback lecture. The sample size in the present study was estimated to be thirty individuals after a pilot study on ten individuals with 95% confidence level

and 80% test power. The total number of participants increased to 34 in each group, with 20% of the sample drop. Initially, 35 patients were enrolled in the study, but 2 were excluded from the standard patient-based training group (due to failure to attend training sessions) and one from the feedback lecture group (due to failure to attend posttest). The final analysis was performed on 67 patients (33 in the standard patient-based training group and 34 in the lecture group with feedback).

Inclusion criteria were as follows: midwifery degree (bachelor, master's, and PhD), midwifery license, and consent to participate in the study. Exclusion criteria were as follows: history of attending classes and workshops related to counseling on screening fetal malformations for at least the last 6 months, having a major stressful event (serious illness in a pregnant or spouse or child, death of a loved one, divorce, accident, and severe financial problems) during the 6 months prior to the intervention, and not attending training sessions (standardized patient-based training or feedback lecture).

Data collection tools included Research Unit Selection Form, Demographic and Occupational Information Form, Knowledge Assessment Questionnaire, and Performance Measurement Checklist. The questionnaire was designed and developed by the researcher. It had twenty questions (5 options) rated with 1 or 0. The minimum score is 0 and the maximum is 20. Its validity was confirmed by content validity. Its reliability was confirmed by internal consistency with Cronbach's alpha coefficient of 0.92.

The Performance Measurement Checklist was developed by the researcher intended to evaluate midwives' performance (16 items) and by the OSCE test (with three test stations) (scoring mode: doing = 2, incomplete doing = 1, and not doing = 0). (OSCE (Objective Structured Clinical Examination): This test consists of several stations; at each station, the volunteer is asked to perform a specific task or action, such as taking a biography or a physical examination for a particular organ. At each station, a standardized scoring scheme is used). The total score of the checklist is between (0) and (32). Its validity was confirmed by content validity and its reliability was confirmed by Cronbach's alpha coefficient of 0.89.

At first, midwives' knowledge and practice were evaluated in two groups as pretest. Test Assessment Knowledge (20-item questionnaire, test) was used at the Mashhad School of Nursing and Midwifery. To assess performance, a clinical test (OSCE (Objective Structured Clinical Examination) with three test stations) was conducted at the Clinical Skills Center of Mashhad School of Nursing and Midwifery. The stages were as follows: first station (counseling before performing the first stage screening), second station (counseling after performing the first-stage screening), and third station (counseling after second-stage screening and scan anomaly ultrasound). The midwife's performance was recorded by the observer.

## Standardized patient-based group

The 45-min lecture was delivered by a specialized consultant for pre-natal and researcher (lecture content included importance, features, benefits, and types of first and second trimester screening tests, anomaly scan ultrasound, chromosomal abnormality diagnostic tests, and midwifery counseling based on the latest guidelines for screening fetal chromosomal abnormalities). Lectures on the principles and techniques of counseling were also given for 15 min by a specialist medical education consultant. The midwives were then divided into five small groups. In each group, there was one official, including a researcher and four faculty members. Each group interacted with five standardized patients for 100 min. Scenarios were implemented based on the screening stages. All groups were interviewed with all five standardized patients, respectively. The tasks of each group included obtaining a complete history and providing complete advice appropriate to the case. Then all groups were interviewed with all five standardized patients, respectively. Finally, the researcher provided explanations for each patient for 10 min and answered the participants' questions. In order to prevent fatigue, a rest period with a reception of 20 min was put in the intervals of the training program. (The five expatriate patients who participated in this study were university students and graduates who received the necessary training.)

## Lecture group with feedback

The 90-min speech was divided into two 60-min and 30-min lectures. The researcher and the specialized consultant for prenatologists lectured for 45 min (lecture content included importance, features, benefits, and types of first and second trimester screening tests and anomaly scan ultrasound and chromosomal abnormalities diagnostic tests and midwifery counseling based on the latest guidelines for screening fetal chromosomal abnormalities). Lectures on the principles and techniques of counseling were also given for 15 min by a specialist medical education consultant. The participants were then divided into five groups, and after receiving five scenarios and related questions, they discussed with each other for 50 min (10 min for each scenario). The written responses were expressed by the group representative and were answered correctly within 30 min. Then, the second part of the lecture was presented by the researcher with a slideshow for 30 min. After the second part of the lecture, the question was answered again for 30 min.

The content of the scenarios was written based on the screening stages, which included screening counseling in early pregnancy (weeks 6–10), first screening, second screening, and anomaly scan ultrasound counseling. In order to prevent fatigue, a rest period with a reception of 20 min was put in the intervals of the training program.

Two weeks after the training, on separate days, the research units were invited to take the posttest with the same pretest conditions. Pretest and posttest results of knowledge and practice in two groups were analyzed using independent *t*-test, paired *t*-test, Mann–Whitney U-test, and Chi-square test with SPSS software version 16 (SPSS Inc. Released 2007. SPSS for Windows, Version 16.0, Chicago, IL, USA).

## Results

To decide on the appropriate test, the normality of the distribution of variables was examined by Kolmogorov–Smirnov and Shapiro–Wilk tests. Statistical significance level was considered 5%.

The two groups were homogeneous according to the results of independent *t*-test and Mann–Whitney U-test by age, elapsed time of obtaining a degree, and work experience [Table 1]. In addition, based on the results of the Chi-square test, the two groups were homogeneous in terms of variables of place of work and education [Table 2]. None of the midwives in the two groups had children with Down syndrome or congenital malformations in the two groups.

There was no statistically significant difference between the two groups in the mean score of knowledge before intervention ($P = 0.169$). However, after the intervention, the mean score of knowledge in the lecture group with feedback was statistically significantly high than that of the standard patient group ($P < 0.001$). In addition, on intragroup comparison, the knowledge score after the intervention increased in both groups ($P < 0.001$) [Table 3].

Before intervention, the mean score of performance in the two groups was not statistically significant ($P = 0.748$). Two weeks after the intervention, the mean score of performance was not statistically significantly different between the two groups ($P = 0.761$). However, on intragroup comparison, the mean score of postintervention compared to preintervention was statistically significant in both groups ($P < 0.001$) [Table 4].

## Discussion

The findings of the present study showed that before intervention, the mean and standard deviation of midwives' knowledge and practice score in standardized patient group and in lecture group with feedback did not show any significant difference. However, 2 weeks after the intervention, the knowledge score in the lecture group with feedback was significantly higher than that of the standard patient group. There was also a significant difference in the total score of performance after the intervention in both groups. However, the increase between the two groups was not significant.

**Table 1: Mean and standard deviation of age, duration of qualification, and midwives' experience in the two groups**

| Variables | Groups, mean±SD | | Test result |
|---|---|---|---|
| | Speech with feedback (34 people) | Standardized patient (33 people) | |
| Age (years) | 32.9±6.6 | 33.8±6.2 | *t*=0.5, df=65, *P*=0.590, independent *t*-test |
| Elapsed time of obtaining a degree | 7.7±5.4 | 8.4±5.7 | *Z*=−0.4, *P*=0.663, Mann-Whitney |
| Work experience | 5.4±4.2 | 5.7±3.8 | *Z*=−0.8, *P*=0.430, Mann-Whitney |

SD=Standard deviation

**Table 2: Frequency distribution of midwives participating in the study in terms of place of work and education in two groups**

| Variables | Groups, *n* (%) | | Test result |
|---|---|---|---|
| | Standardized patient (33 people) | Speech with feedback (34 people) | |
| Service location | | | |
| Personal office | 12 (36.4) | 11 (32.4) | $\chi^2$=0.8, df=3, *P*=0.886, Chi-square test |
| Government health centers | 5 (15.2) | 4 (11.8) | |
| Private clinic midwifery unit | 14 (42.4) | 15 (44.1) | |
| Others | 2 (6.1) | 4 (11.8) | |
| Total | 33 (100.0) | 34 (100.0) | |
| Employment status | | | |
| Governmental | 5 (15.2) | 4 (11.8) | $\chi^2$=0.8, df=2, *P*=0.830, Chi-square test |
| Private | 28 (84.8) | 30 (88.2) | |
| Total | 33 (100.0) | 34 (100.0) | |

**Table 3: Mean and standard deviation of midwives' knowledge score before and after intervention in both groups**

| Midwives' knowledge score | Groups, mean±SD | | Test result between the two groups |
|---|---|---|---|
| | Speech with feedback (34 people) | Standardized patient (33 people) | |
| Before intervention | 11.6±2.5 | 12.4±2.3 | $t$=1.4, df=65, $P$=0.169, independent $t$-test |
| After intervention | 18.1±1.1 | 17.2±1.9 | $Z$=7.3, $P$<0.001, Mann-Whitney |
| Result of Intergroups test | $Z$=−5.1, $P$<0.001, Wilcoxon | $t$=−20.5, df=32, $P$<0.001, paired t-test | |

SD=Standard deviation

**Table 4: Mean and standard deviation of mean score of midwives' performance before and after intervention in both groups**

| Groups | Groups, mean±SD | | Test result between the two groups |
|---|---|---|---|
| | Speech with feedback (34 people) | Standardized patient (33 people) | |
| Before intervention | 31.2±8.4 | 30.6±7.5 | $t$=−0.3, df=65, $P$=0.748, independent $t$-test |
| After intervention | 72.0±10.9 | 72.2±9.3 | $t$=0.3, df=65, $P$=0.761, independent $t$-test |
| Result of Intergroups test | $t$=−31.5, df=33, $P$<0.001, paired $t$-test | $t$=34.6, df=32, $P$<0.001, paired $t$-test | |

SD=Standard deviation

In the study by Tabatabaeian *et al*. on ninety midwives to compare the effect of simulation-based, integrated, and lecture-based training on midwives' cognitive skills in preeclampsia and eclampsia, the results showed a significant increase in the mean scores of midwives' cognitive skills 2 weeks after training in all the three groups, but there was no significant difference in the mean scores of cognitive skills between the three groups,[24] which was consistent with our study.

Naderi *et al*.'s study aimed to "compare the effect of two competency-based and traditional teaching methods on active learning of cognitive and clinical skills of nursing students in intensive care unit ward." In their study, posttest scores of cognitive skills in the experimental group were significantly higher than that of the control group. As a result, using competency-based teaching method more commonly than the conventional method creates the opportunity to enhance and improve the learning of clinical and cognitive skills of nursing students.[25] This study was also consistent with our study.

Reynolds *et al*.'s study showed that simulation method increased midwifery students' knowledge score in the management of normal delivery and shoulder dystocia,[26] which is inconsistent with the results of our study. The reason may be the use of an active teaching method (simulation) as opposed to the conventional method (lecture). In other words, learning is better and more lasting when it comes to activation and more inclusive participation in learning. Therefore, in this study, simulation method is superior to traditional lecture (passive method of training) in knowledge score.

Overall, numerous studies have shown that standardized patient use is effective in creating interest and attraction, but it is less effective in learning the principles and mental skills than traditional methods. Standardized patient use is also more appropriate for practice skills than mental skills.[27]

Rashidi Fakari *et al*. (2015) conducted a study titled "Comparing the effect of traditional, web based and simulation training on midwifery students' clinical competence in postpartum hemorrhage management" on 54 midwifery students. Their study results showed a significant increase in the level of knowledge and clinical skills of postpartum hemorrhage management after 1 week and 1 month after training in all the three groups,[28] which is consistent with our study.

Ten Eyck *et al*. conducted a randomized study to evaluate the performance of 4$^{th}$-year medical students in emergency medicine training, in which the authors used simulation in one group and group discussion in the other group. The results of this study showed that simulation improved student performance more than group discussion,[29] whereas the results of our study showed that both standardized patient-based teaching and feedback lectures promoted midwifery performance in fetal malformation screening counseling. Perhaps, the most important reason for this discrepancy is the difference between the subjects taught and the research community.

## Research limitations

Receiving information from other sources can affect the learning of research units. In addition, differences in subjective ability and interest in attending training courses can influence participants' skill level, which is one of the limitations of the present study, which was partially controlled by random allocation of research units to the two groups.

## Conclusion

According to the national protocol of screening in Iran, all pregnant women should be advised to perform fetal screening for abnormalities during pregnancy. As a result, promoting midwives' knowledge and practice in screening for fetal malformations seems to be necessary to assist pregnant women in making a conscious choice of screening for fetal malformations by providing accurate information and proper counseling. The results of this study showed that both standardized patient-based teaching and feedback-based lectures can enhance midwives' knowledge and practice in screening for fetal malformations, depending on the environment and facilities available.

### Acknowledgments

The present study is part of a research thesis approved by the Vice-Chancellor for Research of Mashhad University of Medical Sciences (code IR.MUMS.NURSE.REC.1397.058). The authors would like to thank the Vice-Chancellor and Research Council of Mashhad University of Medical Sciences, the midwives who participated in the study, contributors to the research, and the staff of Mashhad School of Nursing and Midwifery.

### Financial support and sponsorship

This study was financially supported by Mashhad University of Medical Sciences, Mashhad, Iran.

### Conflicts of interest

There are no conflicts of interest.

## References

1. Soori H. Textbook of public health T, ministry of health and medical education for research and technology. Iran J Med Educ 2013;2:67-89.
2. Summers AM, Langlois S, Wyatt P, Wilson RD, Allen V, Blight C, *et al*. Prenatal screening for fetal aneuploidy. J Obstetr Gynaecol Canada 2007;29:146-61.
3. Styles Screening and Diagnosis of Fetal Abnormalities. Ministry of Health and Medical Education; 2011. Available from: http//www.googlecom/gws/rd/ss. [Last accessed on 2014 Oct 21].
4. Cunigham GF, Bloom SL, Hauth JC, Rouse DJ, Spong CY. Williams obstetrics 25thed. In: Golban Medical. Tehran: Ghazi Jahani Publisher; 2018.
5. Lou S, Petersen OB, Jørgensen FS, Lund ICB, Kjaergaard S; Danish Cytogenetic Central Registry Study Group, *et al*. National screening guidelines and developments in prenatal diagnoses and live births of Down syndrome in 1973-2016 in Denmark. Acta Obstet Gynecol Scand 2018;97:195-203.
6. Rabiee M, Jouhari Z, Pirasteh A. Knowledge of prenatal screening, down syndrome, amniocentesis, and related factors among Iranian pregnant women: A cross-sectional study. Int J Community Based Nurs Midwifery 2019;7:150-60.
7. Seven M, Akyüz A, Eroglu K, Daack-Hirsch S, Skirton H. Women's knowledge and use of prenatal screening tests. J Clin Nurs 2017;26:1869-77.
8. Kosec V, Zec I, Tislarić-Medenjak D, Kuna K, Simundić AM, Lajtman-Krizaić M, *et al*. Pregnant women's knowledge and attitudes to prenatal screening for fetal chromosomal abnormalities: Croatian multicentric survey. Coll Antropol 2013;37:483-9.
9. Spencer K. Screening for Down syndrome. Scand J Clin Lab Invest Suppl 2014;244:41-7.
10. Gourounti K, Sandall J. Do pregnant women in Greece make informed choices about antenatal screening for Down's syndrome? A questionnaire survey. Midwifery 2008;24:153-62.
11. Kordi M, Riyazi S, Lotfalizade M, Shakeri MT, Suny HJ. A comparison of face to face and group education on informed choice and decisional conflict of pregnant women about screening tests of fetal abnormalities. J Educ Health Promot 2018;7:6.
12. Foster J, Heath A. Midwifery and the development of nursing capacity in the Dominican Republic: Caring, clinical competence, and case management. J Midwifery Womens Health 2007;52:499-504.
13. Farshbaf Khalili A, Shahnazi M, Hajizadeh K, Shekari Khaniani M. Down syndrome screening methods in Iranian pregnant women. J Caring Sci 2012;1:145-51.
14. Mohamadirizi S, Kohan S, Shafei F, Mohamadirizi S. The relationship between clinical competence and clinical self-efficacy among nursing and Midwifery students. Int J Pediatr 2015;2:1117-23.
15. Saif A. Modern Educational Psychology: Psychology of Learning and Instruction Book. Tehran, Iran: Doran Pub; 2015. p. 728.
16. Rutherford-Hemming T, Alfes CM, Breymier TL. A systematic review of the use of standardized patients as a simulation modality in nursing education. Nurs Educ Perspect 2019;40:84-90.
17. Reyhan F, Mete A, Celik N. Evaluating the views of midwifery students about simulation education. Int J Caring Sci 2018;11:239-45.
18. Jeffries PR, Swoboda S, Akintade B. Teaching and learning using simulations. In: Teaching in Nursing: A Guide for Faculty. St Louis (MO):Elsevier2016. p. 304-23.
19. Zhang S, Soreide KK, Kelling SE, Bostwick JR. Quality assurance processes for standardized patient programs. Curr Pharm Teach Learn 2018;10:523-8.
20. Speeney N, Kameg KM, Cline T, Szpak JL, Bagwell B. Impact of a standardized patient simulation on undergraduate nursing student knowledge and perceived competency of the care of a patient diagnosed with schizophrenia. Arch Psychiatr Nurs 2018;32:845-9.
21. Afrasiabifar A, Najafi Doulatabad S, Mosavi A. Comparing the effect of feedback lecture and conventional lecture on the students' learning and satisfaction to teach intensive nursing cares. J Nurs Educ 2014;3:69-78.
22. Styles Screening and Diagnosis of Fetal Abnormalities. Ministry of Health and Medical Education. Available from: http//www.googlecom/gws/rd/ss. [Last accessed on Oct21 2018.
23. Martin L, Hutton EK, Spelten ER, Gitsels-van der Wal JT, van Dulmen S. Midwives' views on appropriate antenatal counselling for congenital anomaly tests: do they match clients' preferences? Midwifery 2014;30:600-9.
24. Tabatabaeian MK, Dadgar S, Esmaily H, Khadivzadeh T. Comparison of the effects of simulation-based training, compilation training, and lectures on the cognitive skills of midwives in the management of preeclampsia and eclampsia. Iran J Obstetr Gynecol Infertil 2018;21:30-9.
25. Naderi AB, Alirezaee N, Ghorbanzade K. Comparison of the Effect of two Competency-based and Traditional Teaching Methods on Active Learning of Cognitive and Clinical Skills of Nursing Students in ICU Ward; 2012.
26. Reynolds AA, Pereira-Cavaleiro A, Ferreira-Bastos L. Simulation for teaching normal delivery and shoulder dystocia to midwives in training. Educr Health 2010;23:405.

27. Ranjbar SF, Mousavi Nasab M. Comparison of the effect of two traditional and integrated teaching methods on the level of learning of drug ability by the first year students of Fatemeh Nursing School of Shiraz University of medical sciences. Iran J Med Educ 2003;3(1):35-43
28. Rashidi Fakari FK, Mazloom SR, Khadivzadeh T, Tara M, Akhlaghi F. Comparing the effect of traditional, web based and simulation training on midwifery students' clinical competence in postpartum hemorrhage management. J Mazandaran Univer Med Sci 2015;25:65-77.
29. Ten Eyck RP, Tews M, Ballester JM. Improved medical student satisfaction and test performance with a simulation-based emergency medicine curriculum: A randomized controlled trial. Ann Emerg Med 2009;54:684-91.