



Educational needs assessment of family health providers in Tabriz health care centers in 2015

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Abstract

Background: This study intends to determine the educational needs of family health staff employed in health care centers in Tabriz, the provincial capital of east Azerbaijan, Iran in 2015.

Methods: In this cross-sectional study 282 staff were enrolled, together with 22 managers, through census. The data collection tool was a researcher-designed questionnaire whose content validity were confirmed by 5 experts of health care and medical education centers. They self-evaluated their knowledge, skills and attitudes in 6 task processes including “integrated care for pregnant women”, “women’s general and reproductive health”, “child health care and breastfeeding”, “vaccination skills”, “teenagers’ and young adults’ health”, and “common diseases prevention and control”. Cronbach alpha coefficients were over 0.85. Data analysis was done using SPSS version 16 and descriptive statistics (mean and standard deviation) and one-sample *t* tests were calculated to compare the mean of scores with midpoint criteria (=3).

Results: Generally family health staff self-evaluated their knowledge, skills and attitudes in all task processes in higher than midpoint criteria level, which was consistent with the opinions of the managers, however, educational needs required by personnel in some processes or sub-process including “common diseases prevention and control” (knowledge on referring thalassemia couples for genetic testing, mental health counseling), “vaccination skills” (intradermal vaccination skills), “teenagers’ and young adults’ health” (Self-care training and parents education), “women’s general and reproductive health” (principles of family planning counseling) and less needs stated in “integrated care for pregnant mothers” (except for diagnosis and management of ectopic pregnancy, placenta previa and abruption) and “child health care” as compared to criteria (All *P* value <0.05). In contrast to self-assessment results, in inter-organization evaluations at the same period, staff performance were not desirable in some processes and/or sub-processes.

Conclusion: This study demonstrated the educational needs of family health providers in 6 task processes and prioritized them according to their views. Regular and comprehensive educational needs assessments are required to revise staff training programs, in order to give quality services to general population.

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Introduction

Human resources are important asset for any organization, and in this regard their improvement by regular education is considered a key strategy. The need to improve educational programs are commensurate with objectives of each organization.¹ Proper educational planning can be a major step in improving knowledge and play an important role in enhancing education quality.² Educational programmers are well aware of the importance of proper needs assessment as an effective, useful and successful

pre-requisite for educational courses design.³ In the field of medicine and health services, curriculum designing, in accordance with the real educational needs of target groups, has been one of the most important priorities in implementing the educational programs. Even systematic and comprehensive needs assessment is a necessity for proper planning of any continuing educational programs and paves way for implementation of successful and satisfying courses.⁴ Changes in lifestyles and emerging new conditions lead to changes in educational needs and re-

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quire revision in current educational courses content. Unfortunately this issue is widely being ignored. In a study conducted at Isfahan University of Medical Sciences many participants at educational courses mentioned that many topics were not related to their field of study and they only gained some general information, and only few attendants reported that 1 or 2 courses satisfied their interest. Others even reported that no single educational session has been held in the field of their task related studies that they really needed.⁵ In another study, by Hamdi et al on educational needs of environmental health graduates, they have emphasized the need for a revision of current curriculums based on the results gained from needs assessments of target groups.⁶ Moreover, a study on needs assessment of nurses in intensive care units in Semnan, showed that more than 50% of nurses under study believed that they needed training on specified educational topics, and that in-service continuous education programs were not designed on the basis of their tasks based needs.⁷ In a study in 2006, in Indonesia, Hennessy et al pointed out to the importance of assessment of educational needs of the midwives, based on their professional duties.⁸ Mirzaei Karzan et al in a similar work have concluded that in addition to holding courses and workshops in the field of specified requirements, a continuous need assessment system should be established.⁹ Based on a study on the educational needs of the personnel employed in Isfahan health centers, it was found that there was not much agreement among target population and authorities of educational courses. They believed that their view points and ideas were ignored, and that different organizer's groups had no joint and coordinated activities in this regard, and at the end program managers were not able to create a common sense.¹⁰ Based on a study carried out in 2011 on the educational needs assessments of nurses in psychiatric wards in Isfahan, authors emphasized that needs of nurses should seriously be taken into consideration.¹¹ Educational need assessment is an important tool for empowerment of human resources and can fill educational gaps and facilitate rapid and effective decision making.⁹ To our best knowledge there is no published and documented educational needs assessment conducted on family health care providers in Tabriz Medical Sciences University in 10 years.¹² By this study we can fill the gap, and improve the level of educational courses arranged for this group.

Materials and Methods

Design, setting and participants

This work is a cross-sectional, prospective, and applied study in the field of educational studies. The study population included all 330 employees, all female, in the urban family health units of Tabriz health centers, together with 22 managers and senior officials of the same centers. Inclusion criteria were: having a relevant diploma degree, official or contract employment, having a defined duty in a family health unit, and at least one year job experience. For senior managers at least 10 years job experience as the head of a center as was mandatory. Exclusion criteria

were: lack of interest to complete the questionnaire, hesitation to participate in the study, and employment in rural health care units.

Measures and data collection

A researcher-designed questionnaire was data collection tool. Questionnaire was designed through study of family health staff task description documents, as well as the current in-use check lists monitoring ongoing processes. The first questionnaire was a self-assessment of family health staff to evaluate 6 family health task processes. Data included demographic information such as their age, education, type of employment, and professional work experience. The second questionnaire was to determine the viewpoint of managers and authorities on current processes. The validity of the data collection tools was determined and confirmed by 5 experts from health care centers and Medical Education Department. The internal consistency reliability of scales was confirmed by Cronbach alpha coefficient (range between 0.90–0.96). The answers were valued based on a 5-item Likert scale, ranging from very low to very high with the following marks; very high = 5, high = 4, moderate = 3, low = 2 and very low = 1. The scores were calculated by taking averages over items scores, therefore the possible range of scores were 1-5 with a midpoint of 3. Knowledge and skill self-assessment questionnaire completed by family health staff was used for comparison with scores obtained from the annual regular monitoring of staff.

Statistical analyses

The data was analyzed using SPSS 16 and significance level was set at 0.05. Data were presented by mean (SD) for numeric variables and frequency (percent) for categorical variables. To assess the effect of educational needs and prioritization the need, we compare the scores obtained by each item with our criteria (midpoint = 3) by one-sample *t* test.

Results

Of 330 employees entered study, 282 (85.5%) completed the questionnaire in the second half of 2015. The average age and duration of job experience was 39.7 ± 7.28 and 14.3 ± 7.43 years respectively. Most of the officially employed staff had a bachelor's degree in midwifery (Table 1). Family health staff generally declared their knowledge state and self-assessed skills and attitude in 6 domains at an optimal level, with average mark more than the mean (3). T-score was also higher than the critical value. So according to family health staff their knowledge was satisfactory (Tables 2-7).

According to data on Table 8, the officials evaluated the family health staff status satisfactory in all the field under study. They evaluated the professional duties of the staff lower in "common diseases prevention and control" process compared to others, and stated that the staff needed more training in the above-mentioned process. In the attitude domain, the managers declared that the staff were

Table 1. Demographic information of population under study

Variables	Categories	No.	%
Employment Status	Project	12	4.40%
	Contractual	62	22.50%
	Specific work	29	10.50%
	Agreement employment	15	5.50%
	Official	157	57.10%
Level of education	MA/MS	9	3.20%
	BA/BS	206	74.40%
	AA/AS	54	19.50%
Field of study	HSDG	8	2.90%
	Midwifery	210	79.20%
	Family health	28	10.60%
	Public health	25	9.40%
	Technician	2	0.80%

not motivated enough to perform their duties properly. (2.59 ± 0.008) (Table 8).

According to an annual inter-organization monitoring reports on 2015, family health staff status was reported undesirable, especially in “integrated care for pregnant women”, “women’s general and reproductive health”, “common diseases prevention and control”, and “teenagers’ and young adults’ health” processes (Table 9).

The high priorities the staff reported in terms of their educational needs included “common diseases prevention and control”, “vaccination skills”, “teenagers’ and young adults’ health”, “women’s general and reproductive health”, “integrated care for pregnant women” and “child health care and breastfeeding” processes, respectively. These are also consistent with managers’ views. However, it was not fully compatible with the results of the inter-organization monitoring reports. Despite the staff and managers’ report that educational needs in the fields of “integrated care for pregnant women” and “women’s general and reproductive health” were the fourth and fifth priorities, but an inter-organization monitoring results showed that the staff obtained undesirable scores in the above-mentioned areas (Table 10).

Discussion

The results of this study showed that generally family health staff evaluated the level of their knowledge, attitudes and skill self-assessment status in 6 studied processes at higher than midpoint criteria level (theoretical average 3). The educational needs stated in 6 studied processes were, in the order of priority, in the following domains; “common diseases prevention and control”, “vaccination skills”, “teenagers’ and young adults’ health”, “women’s general and reproductive health”, “integrated care for pregnant women” and “child health care and breastfeeding”.

In “common diseases prevention and control” domain, average scores obtained in the knowledge of thalassemia couples referral for a genetic counseling and prenatal di-

Table 2. Evaluation of family health staff status in the “integrated care for pregnant mothers” process from their own point of view^a

Professional task of family health staff	Mean \pm SD
Knowledge and skills self-assessment	
I am able to perform accurate pre-pregnancy care	4.21 \pm 0.805
Complete the form Care	4.31 \pm 0.766
Measuring blood pressure	4.44 \pm 0.666
Measurement of height, weight, body mass index	4.52 \pm 0.617
Charting weight gain	4.21 \pm 0.829
Measuring the height of the uterus and leopard manure	3.98 \pm 1.102
Hearing the sound of the fetal heart	4.30 \pm 0.914
Determination of gestational age	4.39 \pm 0.709
Interpreting before and during pregnancy tests	4.07 \pm 0.902
Diagnosis and management of high blood pressure	4.01 \pm 0.837
Diagnosis and management of gestational diabetes	3.78 \pm 0.913
Diagnosis and management of the most common pregnancy symptoms	3.99 \pm 0.874
Identify and management of bleeding	3.81 \pm 0.950
Diagnosis and management of urinary tract infections	3.74 \pm 0.977
Identify and management of fetal movements reduction	3.97 \pm 0.945
Diagnosis and management of ectopic pregnancy	3.42 \pm 1.111
Diagnosis and management of placenta previa and abruption	3.46 \pm 1.105
Identifying urgent referrals	3.94 \pm 0.938
Diagnosis and inappropriate weight gain	4.13 \pm 0.809
Training danger signs	4.29 \pm 0.754
Oral Health training	4.13 \pm 0.883
Safe Childbirth education	4.09 \pm 0.914
When and how to prescribe supplements	4.45 \pm 0.702
Special care	4.19 \pm 0.835
Fetal anomaly screening and advising	3.97 \pm 0.754
Nutrition counseling for pregnant women	4.19 \pm 0.970
I am able to do after giving care	4.21 \pm 0.803
I am able to properly use the chart booklet of integrated care for pregnant women	3.95 \pm 0.899
I am able to correctly extract indexes for mothers programs	3.64 \pm 1.051
Average knowledge and skills self-assessment	4.08 \pm 0.667
Attitude domain	
I am committed to form care file thoroughly in the first visit pregnant women	4.46 \pm 0.715
I feel responsible for the accuracy of maternal care process skills	4.44 \pm 0.734
I am committed to respecting the rights of pregnant women as recipients	4.26 \pm 0.798
I have a positive role in improving the quality of maternal health	4.26 \pm 0.798
Average of attitude domain	4.38 \pm 0.693
Average of whole "integrated care for pregnant women" process	4.23 \pm 0.68

Each item was compared with criteria = 3 by one sample *t* test.
^a $P < 0.001$.

Table 3. Evaluation of family health staff status in the “women’s general and reproductive health” process from their point of view^a

Professional task of family health staff	Mean ± SD
Knowledge and skills self-assessment	
Familiarity with principles of family planning counseling	3.63 ± 1.04
Familiar with relative and absolute prohibitions of prevention methods	3.98 ± 0.77
Familiar with examinations and necessary tests on family planning methods	4.07 ± 0.74
Familiar with Emergency Contraception	4.45 ± 0.708
Correct insertion of IUD	4 ± 1.29
Periodic control or removal of IUD	4.07 ± 1.30
Being able to treat IUD complications	3.78 ± 1.26
Familiar with principles of contraceptive security	4.15 ± 0.794
Training breast self-examination to qualified women	4.25 ± 0.437
Correct examination breast	4.11 ± 0.906
The proper interpretation of Pap smear	3.79 ± 1.04
Proper training menopause problems	3.83 ± 0.944
Training Kegel exercises	4.05 ± 1.02
Average knowledge and skills self-assessment	4.06 ± 0.686
Attitude domain	
Responsible performance in providing educational process of reproductive health and women's health	4.26 ± 0.734
Commitment to qualified women's rights as recipients of services	4.34 ± 0.676
Playing a positive role in improving the quality of reproductive health and women's health	4.26 ± 0.721
Average of attitude domain	4.28 ± 0.671
Total average of "women's general and reproductive health" process	4.17 ± 0.678

Each item was compared with criteria = 3 by one sample *t* test.
^a *P* < 0.001.

agnosis (PND) testing, mental health counseling, care of thalassemia carrier couples based on available flowchart, and mental health awareness, were relatively low, hence indicating more emphasis on these topics in educational planning.

In “vaccination skills” domain; average scores obtained in knowledge on correct intra-dermal vaccine injection, management of vaccination side effects and prevention of vaccination complications were relatively low.

In “teenagers’ and young adults’ health”, self-care training and parent’s education got lower scores, and indicated priority for future education.

In “women’s general and reproductive health”, principles of family planning counseling, was in the focus of more attention.

In “integrated care for pregnant women” domain, average scores obtained in diagnosis and management of ectopic pregnancy, placenta previa, and placental abruption were relatively low, indicating more educational attention.

In “child health care and breastfeeding” knowledge on guidelines for formula feeding gained priority.

In our study, managers believed that need-assessment

Table 4. Evaluation of family health staff status in the “child health care and breastfeeding” process from their point of view^a

Professional task of family health staff	Mean ± SD
Knowledge and skills self-assessment	
Correct weight baby and child	4.57±0.578
The correct Measuring of child's height and head circumference	4.55±0.603
Drawing and correct interpretation of the child's growth curve	4.55±0.603
Proper evaluation of child growth and development by age	4.51±0.646
Correct evaluation of child nutrition by age	4.47±0.661
Correct evaluation of taking supplements	4.53±0.634
Use of the chart booklet for healthy child care	4.34±0.757
Solving breast-feeding problems and promoting breastfeeding	4.31±0.743
Knowing the guidelines for prescribing formula	4.23±0.885
Learning when and how to start an auxiliary power	4.52±0.668
Average of knowledge and self-assessment of skills	4.46±0.595
Attitude domain	
Committed to the skills of the Healthy Child Care and Breastfeeding process	4.45±0.656
Responsible performance for child care and breastfeeding process guidelines	4.44±0.687
Playing a positive role in improving the quality of child care and promote breastfeeding	4.40±0.719
Average of attitude domain	4.43 ± 0.658
Total average of "child health care and breastfeeding" process	4.44 ± 0.626

Each item was compared with criteria = 3 by one sample *t* test.
^a *P* < 0.001.

should be continuously done and they also agreed that “common diseases prevention and control” process was the most important domain for educational planning in terms of the number and diversity of disease assigned to this process.

In a review of training needs of midwifery graduates working in health care centers of Shahrekord University of Medical Sciences, Sereshti et al concluded that the most educational needs in pregnancy and childbirth were related to the fields of genetic counseling, postpartum bleeding and prenatal screening, which are in line with our findings. On the other hand, the least educational needs in their study were related to anatomy and physiology of the reproductive system, minor discomforts during pregnancy and risk factors in development of labor and non-natural delivery. The lowest educational needs of midwives were in the area of maternal and child health, including child routine examination and child growth monitoring,¹³ which is in agreement with our findings.

A study conducted by Lotfipour et al, assessing the educational inquiries of midwives in before, during and postpartum care in Rafsanjan, showed that history taking and

Table 5. Evaluation of family health staff status in the “vaccination skills” process from their point of view^a

Professional task of family health staff	Mean ± SD
Knowledge and skills self-assessment	
Maintaining the cold chain	3.81 ± 1.07
Preparing vaccines	3.89 ± 1.05
Knowledge of Injection instructions	3.82 ± 1.04
The proper conduct of vaccination	3.82 ± 1.13
The correct intra dermal injections of vaccine skill	3.61 ± 1.24
Correct subcutaneous injection skill	3.74 ± 1.20
Intramuscular injection skill Correct	4.03 ± 1.03
Familiar with vaccines complications	3.82 ± 1.07
Learn how to deal with vaccine complications	9.55
Information on how to prevent complications of vaccination	9.51
Information on referral of vaccination complications	10.002
Average of knowledge and skill self-assessment	3.80 ± 1.004
Attitude domain	
Committed to the vaccination process skill	4.09 ± 0.961
Responsible performance to observe the guidelines of vaccination process	4.13 ± 0.957
Sensitivity to observe sterilization during vaccination	4.30 ± 0.887
Average of attitude domain	4.17 ± 0.891
Total average of whole "vaccination Skills" process	3.98 ± 0.947

Each item was compared with criteria = 3 by one sample *t* test.
^a *P* < 0.001.

Table 6. Evaluation of family health staff status in the “teenagers’ and young adults’ health” process from their point of view^a

Professional task of family health staff	Mean ± SD
Knowledge and skills self-assessment	
Students health care based on booklet and health record	3.95±0.977
Diagnosis and treatment of hair Lice	4± 0.983
Self-care training of teenagers and young adults health staff and students' parents	3.90± 0.933
Knowledge and skills self-assessment	3.95±0.912
Attitude domain	
Committed to the teenagers and young adults health examinations skills	4.17± 0.91
Playing a positive role in improving the quality of health of students	4.06±0.944
Attitude domain	4.11±0.900
Total average of “Teenagers' and Young adults' Health” process	4.03 ± 0.906

Each item was compared with criteria = 3 by one sample *t* test.
^a *P* < 0.001.

physical examinations during pregnancy, proper care during labor for abnormal or at risk cases in labor, and feeding after delivery in the postpartum care were the top educational needs stated.¹⁴ This is in contrast with our findings in that our staff had less educational needs in

Table 7. Evaluation of family health staff status in the “common diseases prevention and control” process from their point of view^a

Professional task of family health staff	Mean ± SD
Knowledge and skills self-assessment	
Familiarity with beta-thalassemia disease	3.53±0.919
Familiarity with thalassemia minor	3.57±0.881
Knowing the prevention ways of thalassemia Major	3.50±0.963
Knowledge of how thalassemia couples referred for genetic tests	3.11± 1.09
Intensive care of carrier couples based on the related flowchart	3.31±1.02
Familiarity with hepatitis	3.73±0.819
Familiarity with types of hepatitis	3.68±0.849
Knowing the preventive ways of hepatitis	3.82± 0.854
Familiar with diabetes	3.85±0. 824
Familiar with different types of diabetes	3.83±0.823
Knowing the prevention ways of diabetes	3.85±0.835
Familiarity with hypertension	3.97±0.782
Knowing the prevention ways of hypertension	3.95±0.802
Familiarity with thyroid disease	3.72±0.886
Knowing the prevention ways of thyroid	3.63±0.935
Familiarity with cholera disease	3.57±1.002
Knowing the prevention ways of cholera	3.59±1.003
Familiarity with the influenza	3.72±0.862
Knowing the prevention ways of the influenza	3.71±0.893
Awareness about mental health	3. 39±1.01
Being able to mental health counseling	3. 23± 1.09
Average knowledge and skills self-assessment	3. 67±0.761
Attitude domain	
Committed to performing disease processes skill	3. 89±0.948
Playing a positive role in the prevention of diseases	3.93± 0. 895
Average of attitude domain	3. 91±0.890
Total average of “common diseases prevention and control” process	3.79±0.825

Each item was compared with criteria = 3 by one sample *t* test.
^a *P* < 0.001.

prepartum cares, but sharing in more educational requirements in high risk pregnancies.

In another study by Behrouzifar et al, comparing of continuing medical education priorities of midwives employed at health facilities and treatment centers of Kashan, the top 5 educational needs were abnormal genital tract bleeding, diabetes mellitus during pregnancy, breast cancer, anemias and preventing the birth of a premature infants.¹⁵ This again shows some similarities with our finding, except that diabetes mellitus and oncologic diseases screening did not come to our staff’s consideration for more education.

In an article by Mokhtary Zanjani et al, they concluded that new medications and modern techniques together with updates in obstetrics and gynecology emergencies were at the top of the list mentioned by participants.¹⁶ In our study pharmacologic issues and medications were not detailed in our staff’s tasks list.

Table 8. Viewpoint of managers, senior officials and experts on the educational needs of the staff^a

Professional task of family health staff	Mean ± SD
Knowledge and skills self-assessment	
Is the "integrated care for pregnant women "process done correctly?"	3.64±0.790
Is the "women's general and reproductive" process done correctly?	3.73±0.703
Is the "child health care and breastfeeding" process done correctly?	3.91±0.750
Is the "vaccination skills "process done correctly?"	3.45±0.596
Are your "teenagers' and young adults' health" examinations done correctly?	3.59±0.1.41
Are the "common diseases prevention and control" process done correctly?	3.14±1.8
Average of knowledge and skill domain	3.57
Attitude domain	
The staff feel responsible inaccurate doing the mentioned processes	3.59±0.854
The staff are committed to respect the rights of family health clients	3.82±0.795
The staff feel responsible to adhere to the instructions of the mentioned processes	3.77±0.813
The staff are motivated enough to carry out the processes	3.59±0.008
The average of attitude domain	3.44
Total average	3.50 ± 0.662

Each item was compared with criteria = 3 by one sample t test.
^aP < 0.001.

A similar assessment in east of Gilan province, conducted by Yaghoobi and Najafi, disclosed that complications of cesarean section procedures, and ways to facilitate normal vaginal delivery were the main concern of midwives and nurses employed in 5 hospitals in that region.¹⁷ They were not mentioned by our staff as top educational priority. Regarding "teenagers' and young adults' health", Asadi Malek Abadi and Abolghasemi found that besides life skills education, sex education and common infectious diseases in this age group, drug abuse and its prevention were main priorities mentioned by their target population.¹⁸ In our study in this domain, substance abuses were not appreciated, so this topic needs more attention. Findings of this study showed that knowledge, skill self-assessment and attitude of family health staff in 6 studied processes were in line with managers' views. Sereshti et al also showed that there was no statistically significant difference in the mean scores of the educational needs from the viewpoints of managers and midwives in specialized and non-specialized areas.¹³ In this study, the results of an inter-organization monitoring at the same period showed that in some processes ("integrated care for pregnant women", "women's general and reproductive health", "teenagers' and young adults' health" and "common diseases prevention and control") were not in as a desirable level as mentioned by staff and managers. This is in sharp contrast with some parts of our results.

Limitations

We acknowledge some limitations in this study; first all the participants were females and this limits the external validity and generalizability of the results to the male pop-

Table 9. Results obtained by family health staff, based on inter-organization monitoring

Row	Professional duties of family health staff	Desirable	Undesirable
1	"Integrated Care for Pregnant women"		*
2	"Women's general and reproductive health"		*
3	"Child health care and breastfeeding"	*	
4	"Vaccination Skills"	*	
5	Processes of "teenagers' and young adults' health" Examinations Education	*	*
6	"Common diseases prevention and control"		*

Table 10. Comparison of the educational needs in accordance with the results of the staff self-assessment and the viewpoint of health care centers staff and the scores obtained from inter-organization monitoring by family health workers

	Educational needs prioritization of family health staff in six of the studied processes					
	"Integrated care for pregnant women"	"Women's general and reproductive health"	"Child health care and breastfeeding"	"Vaccination skills"	"Teenagers' and young adults' health"	"Common diseases prevention and control"
Staff self-assessment	5	4	6	2	3	1
Viewpoint of the health centers	4	5	6	2	3	1
Within the organization monitoring	Undesirable	Undesirable	Desirable	Desirable	Undesirable in education field	Undesirable

ulation, hence a study comprising both males and females in assessing the educational needs. Second, the needs were assessed by self-descriptive methods may induce bias in the responses, however this is the nature of such evaluations in this area of study. The cross sectional design of the study is another limitation of the study that limits our judgment about the relationship and can be improved by longitudinal study to assess the relationship.

Conclusion

It can be concluded that training program of family health staff requires a revision in some areas. Regular and comprehensive educational needs assessments are required to revise staff training programs, in order to give quality services to general population. Needs assessment detects educational priorities and could be utilized for improvements of education level.

Ethical approval

The data was collected after coordinating with Tabriz Health Center Headquarters directors, and the authorities of Family Health Section after obtaining a written permission. Informed consent was obtained from the study population. This work was approved by the ethical committee of Tabriz University of Medical Sciences with the code no. TBZMED.REC.1394.403.

Competing interests

The authors declare that there is no conflict of interest.

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