

# “Maternal Health and Family Planning Distance Education” experience among physicians: a three-phase study to determine the educational needs, develop education program, and evaluate efficacy of the education administered

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**Aim:** This study aims to assess the educational needs of family practitioners and evaluate the efficacy of the ongoing “Maternal Health and Family Planning Distance Education” program conducted by the General Directorate of Health Research (SAGEM) of the Turkish Ministry of Health.

**Methods:** This study consisted of three phases. In the first phase, an online survey on maternal health and family planning educational needs was sent to 20,611 physicians via e-mail. Of the 20,611 physicians, 4,729 completed the survey. In the second phase, of the 1,061 physicians registered to the education program, 632 physicians with active participation were included. In the third phase, the preeducation expectations of 287 physicians and posteducation satisfaction of 54 physicians were analyzed with a questionnaire.

**Results:** The majority of the physicians were employed in a family health center (97.4%) and practicing for 16–20 years (23.2%) without any prior in-service training (60.9%). High-to-very high educational need was expressed by 56.4% of physicians for pregnancy, delivery, and puerperality. Topics that the physicians, including both those with  $\geq 16$  years in practice and without prior in-service training, expressed need for more detailed content were pregnancy, delivery, and puerperality (37.5%); emergency obstetric approach in the primary care setting (33.1%); and gynecological infectious diseases and treatment approach (32.4%). Following the education program, the participants’ expectations were fulfilled in terms of refreshing their knowledge, particularly in the field of Maternal Health and Family Planning (87.1% and 75.9%) and the percentage of participants who expressed that they had sufficient high level knowledge increased from 55% to 68.5%.

**Conclusion:** The education on Maternal Health and Family Planning refreshed the knowledge of participants and highly met the preeducation expectations. Determining the educational needs and expectations of the target population prior to the education program seems to have an important role on determining its overall success.

**Keywords:** maternal health, family planning, physician education, education program, education level, expectations

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## Introduction

In the medical practice, distance education model has been considered to be an educational model that completes the face-to-face education, while enabling a more active and easier to internalize relationship of learners with the educational material.<sup>1,2</sup>



“Maternal Health and Family Planning” is a distance education program, which is conducted by the General Directorate of Health Research (SAGEM) of the Turkish Ministry of Health in order to assist the physicians’ personal and clinical competence.

Having a clear objective consistent with the content and structural setup and being implemented in a predefined specific environmental condition for selected target populations have been considered to be among the factors associated with increased efficiency as well as clinical implications of an educational program.<sup>3-5</sup> Therefore, establishing the educational needs and expectations of the target population has a significant role on both the physicians’ positive personal experiences during the education and reflection of the learned skills into their clinical compatibility.

This study aims at assessing the educational needs of family practitioners and evaluating the efficiency of ongoing “Maternal Health and Family Planning” distance educational program, which is conducted by the SAGEM of the Turkish Ministry of Health, with an unrestricted grant from Bayer Türk.

## Methods

### Study population

This study was conducted as a three-phase study, with the first phase being determination of the educational need and education content prior to the education, the second phase being application of the prepared program in accordance with the educational needs, and the third phase being assessment of the efficacy of the applied education, respectively. Written informed consent was obtained from each subject following a detailed explanation of the objectives and protocol of the study which was conducted in accordance with the ethical principles stated in the Declaration of Helsinki and approved by the Turkish Ministry of Health. In the first phase of the study conducted between January 15 and February 5, 2013; an e-mail included an explanation regarding the aim and content of the study along with a link providing access to “Determining Educational Needs Survey” was sent to 20,611 physicians registered to the SAGEM USES system. Of the physicians, 4,729 (73.1% were males) who accepted to participate to the study and completed the survey were included in the first phase (Table 1). In this phase, the sociodemographic and professional characteristics of the physicians were recorded along with their educational needs and expectations related to maternal health and family planning topics via the survey.

**Table 1** Sociodemographic and professional characteristics of the physicians

	n (%)
Sex	
Female	1,271 (26.9)
Male	3,458 (73.1)
Age group (years)	
≤30	600 (12.7)
31–35	714 (15.1)
36–40	922 (19.5)
41–45	1,215 (25.7)
46–50	900 (19.0)
51–60	353 (7.5)
≥61	25 (0.5)
Education status	
Undergraduate	4,426 (93.6)
Postgraduate	73 (1.5)
Doctorate	30 (0.6)
Residency	200 (4.3)
Title	
General practitioner	4,481 (94.8)
Family physician	227 (4.8)
Specialist	21 (0.4)
Institution	
Family health center	4,604 (97.4)
Integrated state hospital	125 (2.6)
Duration of practice (years)	
≤5	769 (16.3)
6–10	704 (14.9)
11–15	900 (19.0)
16–20	1,098 (23.2)
>20	296 (6.3)
Duration of practice at current institution (years)	
≤5	4,354 (92.1)
6–10	358 (7.6)
>10	17 (0.3)
In-service education regarding the topic within last 2 years	
Yes	1,869 (39.5)
No	2,860 (60.5)

The second phase was the implementation of the educational program, and of 1,061 physicians who were registered, 632 physicians who actively participated in the prepared education program were included in this phase.

In the third phase, the preeducation expectations (n=287) and posteducation satisfaction (n=54) of physicians were analyzed with a questionnaire responded based on a voluntary participation (Figure 1).

### Determining educational needs survey

The data collection tool “Determining Educational Needs Survey” has been administered online through the SAGEM USES. The first ten questions of the questionnaire collected data regarding the sociodemographic (age, sex, educational status) and professional (title, institution, prior in-service

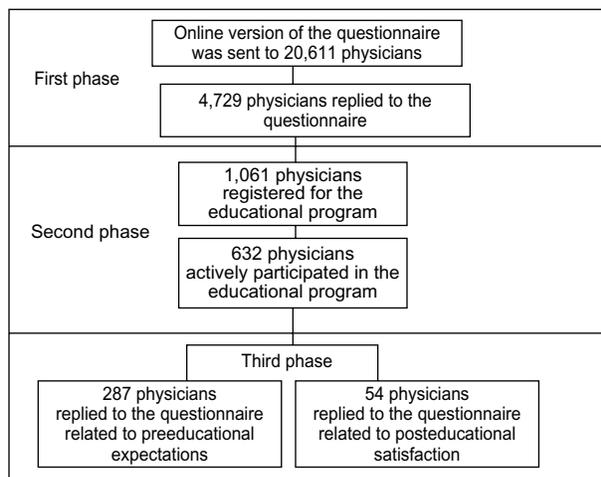


Figure 1 Flow chart.

training, years in practice, duration in the current institution) characteristics of the participants. The rest of the survey included ten education topics as follows:

1. Maternal and female health
2. Pregnancy, delivery, and puerperality
3. Contraception methods and consultancy
4. Maternal deaths in Turkey and their prevention
5. Diagnostic and treatment methods in gynecology
6. Gynecological infectious diseases and treatment approach
7. Menopause and climacterium
8. Emergency obstetric approach in the primary care setting
9. Infertility consulting services in the primary care setting
10. Violence against women and its impact on reproductive health.

The first three topics (maternal and female health; pregnancy, delivery, and puerperality; contraception methods and consultancy) were asked to determine the educational need of the physicians graded on a 5-item Likert scale (very low, low, medium, high, very high). The data have been analyzed with respect to sociodemographic and professional characteristics. The physicians were also requested to assign the required level of content (introduction level [general information], medium level [techniques and applications]) for all ten topics.

The factor analysis of the questionnaires was performed with Kaiser–Meyer–Olkin test, which was found to be highly significant ( $P < 0.000$ ) and reliable (0.891). The questions were found to explain 57.977% of the variance and to combine them into one house size factor. The reliability of the questionnaire (Cronbach’s alpha) was found to be very high (0.903), due to the high number of the participants.

## Application of the education program

The “Maternal Health and Family Planning” distance education program, initiated on July 2014 with an unrestricted support of Bayer Türk, ended with a final exam on March 2014. Of 1,061 family physicians registered to the education program, 632 actively participated (completing the content, updating the address and interacting with education administration at least once, etc). During the education, Maternal Health and Family Planning interactive educational material was provided in 12 live sessions for the most requested topics (menopause, gynecologic examination, pelvic pain-endometriosis-dysmenorrhea, gynecologic infections, maternal and female health, pregnancy and birth, maternal deaths in Turkey, contraception, oral contraceptives, infertility, primary care gynecology, drug use during pregnancy, and lactation).

The sessions were also archived and were accessible for family physicians that were not able to participate to the live sessions. During the entire education period, educational assistance was provided through registration system for participants ( $n=114$ ) who could not attend to the session or who were willing to have information regarding the topics. Since only a few participants (totally 58) participated to the first examination application of the education program on the assigned dates (February 10 and 15, 2014), secondary examination dates were established (July 3 and 7, 2014) and reminder e-mails for taking the exam were sent through the system. A total of 310 family physicians participated in the second exam application.

## Assessing the efficiency of the education from the point of meeting the expectations

The efficiency of the education was evaluated with recording the preeducation attitude, opinion, and expectations of the physicians ( $n=287$ ) along with their posteducation meeting the expectations status and satisfaction ( $n=54$ ). An online survey, which consisted of 21 questions, was administered to the volunteering physicians for assessing the efficiency of the education provided.

The questionnaire items included sufficient time spared for education, appropriate distribution of the session times, increase in motivation and work performance with education, increase in professional efficiency in the field of “Maternal Health and Family Planning”, improvement in personal and professional vision, acquisition of more profound and different information, improvement in patient satisfaction in the clinical practice with the learned “Maternal Health and

Family Planning” information, transfer of the information among colleagues and motivation for further research, and applications and assessments of information level regarding “Maternal Health and Family Planning”.

## Statistical analysis

Statistical analyses were performed with SPSS version 18.0 (SPSS Inc. Chicago, IL, USA) statistical software program. Descriptive statistical methods were used for the assessment of the data. Values were expressed as mean, standard deviation, variance, minimum–maximum, and percentage.

## Results

### Sociodemographic and professional characteristics of the physicians

The majority of the physicians were male (73.1%) and were between 36 and 50 years of age (19.5%, 25.7%, and 19.0% were between 36 and 40, 41 and 45, and 46 and 50 years of age, respectively). Of the physicians, 93.6% held a bachelor’s degree, and 94.8% were general practitioners. Most of the physicians (60.5%) did not participate to any in-service training in this field within the last 2 years. The majority of the physicians were employed in a family health center (97.4%) and practicing for 16–20 years (23.2%). Most of them (92.1%) had been working in their current center for the past 5 years (Table 1).

Most of the physicians who have participated to the survey were from Istanbul (11.9%, n=562), Ankara (6.1%, n=289), and Izmir (4%, n=188) whereas the least participation was from Bayburt (n=1), Hakkari (n=1), Ardahan (n=4), and Tunceli (n=6).

### Educational need and grade of the need

The participants mostly expressed medium-level educational need for all three topics (30.2%, 39.8%, and 32.3% for pregnancy, delivery, and puerperality; maternal and female health; and contraception methods and consultancy, respectively). Educational need was identified to be high-to-very high for pregnancy, delivery, and puerperality topic as reported by 56.4% of physicians, which is followed by maternal and female health (41.8%), and contraception methods and consultancy (40.0%) (Table 2).

### The level of content for the education

The physicians emphasized that education topics menopause and climacterium (46.6%), diagnostic and treatment methods in gynecology (45.5%), gynecological infectious diseases and treatment approach (45.5%), maternal and female health (45.4%), pregnancy, delivery, and puerperality (43.3%), maternal deaths in Turkey and their prevention (41.6%), and contraception methods and consultancy (40.3%) must have medium-level content (Table 2).

**Table 2** Educational need and expected level of content (n=4,729)

Topics	Very low	Low	Medium	High	Very high
<b>Level of educational need, n (%)</b>					
Maternal and female health	287 (6.1)	578 (12.2)	1,884 (39.8)	1,118 (23.6)	862 (18.2)
Pregnancy, delivery, and puerperality	200 (4.2)	434 (9.2)	1,429 (30.2)	1,318 (27.9)	1,348 (28.5)
Contraceptive methods and consultancy	557 (11.8)	753 (15.9)	1,528 (32.3)	1,018 (21.5)	873 (18.5)
<b>Topics<sup>a</sup></b>	<b>Introduction</b>	<b>Medium</b>	<b>Advanced</b>		
<b>Expected level of content, n (%)</b>					
Menopause and climacterium	864 (18.3)	2,206 (46.6)	1,385 (29.3)		
Diagnostic and treatment methods in gynecology	896 (18.9)	2,159 (45.7)	1,361 (28.8)		
Gynecological infectious diseases and treatment approach	752 (15.9)	2,163 (45.7)	1,532 (32.4)		
Maternal and female health	1,031 (21.8)	2,147 (45.4)	1,077 (22.8)		
Pregnancy, delivery, and puerperality	643 (13.6)	2,048 (43.3)	1,774 (37.5)		
Maternal deaths in Turkey and their prevention	1,151 (24.3)	1,965 (41.6)	1,115 (24.4)		
Contraception methods and consultancy	957 (20.2)	1,906 (40.3)	1,289 (27.3)		
Violence against women and its impact on reproductive health	1,346 (28.5)	1,832 (38.7)	920 (19.5)		
Infertility consulting services in the primary care setting	1,346 (28.5)	1,772 (37.5)	1,046 (22.1)		
Emergency obstetric approach in the primary care setting	1,014 (21.4)	1,740 (36.8)	1,564 (33.1)		

**Note:** <sup>a</sup>Ordering has been made according to medium-level educational need content.

Moreover, physicians rated violence against women and its impact on reproductive health (28.5%), infertility consulting services in the primary care setting (28.5%), and maternal deaths in Turkey and their prevention (24.3%) as the first three topics which can be sufficiently covered by an education program with introduction level content (Table 2).

The first three topics, which required more detailed content according to the physicians, were pregnancy, delivery, and puerperality (37.5%); emergency obstetric approach in the primary care setting (33.1%); and gynecological infectious diseases and treatment approach (32.4%) (Table 2).

### Medium-level educational need according to sociodemographic and professional characteristics

Of the physicians who stated that they needed medium-level education regarding maternal and female health, 73.4% were male, 56% were  $\geq 41$  years of age, 94.5% held a bachelor's degree, 95.4% were general practitioners, 28.9% were working for  $>20$  years, and 60.9% had never taken in-service training before (Table 3).

Of the physicians who stated that they needed medium-level education regarding pregnancy, delivery, and puerperality, 73.9% were male, 57% were  $\geq 41$  years of age, 93.9% held a bachelor's degree, 95.0% were general practitioners, 30.4% were working for  $>20$  years, and 58.5% had never taken in-service training before (Table 3).

Of the physicians who stated that they needed medium-level education regarding contraception methods and consultancy, 75.8% were male, 54.5% were  $\geq 41$  years of age, 94.2% held a bachelor's degree, 95.4% were general practitioners, 29.0% were working for  $>20$  years, and 61.5% had never taken in-service training before (Table 3).

Both, the physician who were practicing  $\geq 16$  years and those who had not taken in-service training before reported higher educational need on each of these three topics (Table 3).

### Examination results after the education

According to the statistical analyses of the examination results, mean score obtained from the exam was 61.12 (standard deviation: 15.3; minimum: 6, maximum: 92; variance: 234.723; range: 86). An investigation was not carried on for the lowest score. It has been believed that the remaining part of the exam could not be saved due to the loss of Internet connection because of connecting through WiFi instead of using cable connection as stated in the instructions of the examination.

**Table 3** Medium-level educational need according to socio-demographic and professional characteristics

	Educational need, n (%)		
	Maternal and female health (n=1,884)	Pregnancy, delivery, and puerperality (n=1,429)	Contraception methods and consultancy (n=1,528)
Sex			
Female	502 (26.6)	373 (26.1)	370 (24.2)
Male	1,382 (73.4)	1,056 (73.9)	1,158 (75.8)
Age (years)			
$\leq 40$	830 (44.0)	617 (43.0)	696 (45.5)
$\geq 41$	1,054 (56.0)	812 (57.0)	832 (54.5)
Education status			
Undergraduate (medical school)	1,780 (94.5)	1,342 (93.9)	1,439 (94.2)
Postgraduate	24 (1.3)	20 (1.4)	17 (1.1)
Doctorate	14 (0.7)	11 (0.8)	14 (0.9)
Residency	66 (3.5)	56 (3.9)	5 (3.8)
Title			
General practitioner	1,797 (95.4)	1,357 (95.0)	1,458 (95.4)
Family physician	83 (4.4)	66 (4.6)	65 (4.3)
Specialist	4 (0.2)	6 (0.4)	5 (0.3)
Institution			
Family health center	1,833 (97.3)	1,385 (96.9)	1,487 (97.3)
Integrated state hospital	51 (2.7)	44 (3.1)	41 (2.7)
Duration of practice (years)			
$\leq 5$	276 (14.7)	190 (13.3)	235 (15.4)
6–10	257 (13.6)	193 (13.5)	208 (13.6)
11–15	353 (18.7)	268 (18.8)	295 (19.3)
16–20	452 (24.0)	343 (24.0)	347 (22.7)
$>20$	546 (29.0)	435 (30.4)	443 (29.0)
Duration of practice at current institution (years)			
$\leq 5$	1,726 (91.6)	1,297 (90.8)	1,412 (92.4)
6–10	151 (8.0)	127 (8.9)	109 (7.1)
11–15	2 (0.1)	2 (0.1)	2 (0.1)
16–20	2 (0.1)	2 (0.1)	2 (0.1)
$>20$	3 (0.2)	1 (0.1)	3 (0.2)
In-service education			
Yes	736 (39.1)	593 (41.5)	589 (38.5)
No	1,148 (60.9)	836 (58.5)	939 (61.5)

### Evaluation of the efficiency of education from the participants' perspective before and after the education

Although 82.1% of the physicians thought that they could spare sufficient time for the education before the education program started, this percentage reduced to 66.7% after the education. Workload (51.9%) and health issues (25.9%) were the major reasons for not being able to spare sufficient time. The most appropriate time interval was reported to be between 9 pm and 12 am by the participants, before (55.1%) and after (53.7%) the education. Compared with the

preeducation expectations, posteducation satisfaction status was higher in the areas of increase in motivation and work performance with education (79.8% and 64.8%), increase in professional efficacy in the field of “Maternal Health and Family Planning” (86.8% and 68.6%), increase in the quality of the provided services (80.9% and 66.6%), improvement in personal and professional vision (82.6% and 68.6%), acquisition of more profound and different information (85.0% and 68.5%), and contribution of the information learned toward patient satisfaction (86.0% and 70.4%). The expectations were met in refreshing the information regarding “Maternal Health and Family Planning” (87.1% and 75.9%). In the preeducation period, the percentage of the participants who stated that they had sufficient high-level information in the area of “Maternal Health and Family Planning” was 55.0% whereas this percentage increased to 68.5% in the posteducation period. Compared with other topics, preeducation expectations were lower for transfer of the “Maternal Health and Family Planning” information among colleagues (72.4% and 64.8%) and motivation for further research and applications (64.8% and 53.7%). Similarly, posteducation percentages were parallel with preeducation expectations (Table 4).

## Discussion

Although participants mostly expressed medium-level educational need for the three topics, identification of a high-to-very high need for the pregnancy, delivery, and puerperality topic by almost 60% of physicians seems to emphasize that this topic must be prioritized while planning the education program. We believe that this observation plays an important role in increasing the efficiency of the education in respect to providing the advantage of conducting the education in an integrated way.

For all three topics, the percentage of educational need was higher among physicians who had not taken any in-service training before, compared with those who had taken. Since the majority of the physicians (60.5%) who participated to the first phase of the study, which was conducted to establish the educational priorities, had not participated to an education related to “Maternal Health and Family Planning” within the last 2 years, this may be a facilitator in application of the educational program. Similar estimations can be made for the physicians who participated in the education as 50.9% of them had not participated in an education related to “Maternal Health and Family Planning” within the last 2 years.

The finding that the physicians who were practicing  $\geq 16$  years reported higher educational need on each of the

three topics compared with those who were practicing less is important because it points out that the education program must be designed to meet the senior physicians’ need for up-to-date information. In a study about the consultation-based education of the general practitioners in the field of endocrinology, it has been demonstrated that the amount of years in-service have an impact on the preference of the type of recent information required as physicians practicing longer than 10 years more likely required “general” recent information whereas physicians practicing lesser required “patient-specific” recent information.<sup>6</sup> However, considering the positive association between the ability of using computer technologies and favorable attitude toward distance education,<sup>7</sup> physicians who were practicing  $\geq 16$  years may have disadvantages compared with their younger peers and they may develop a negative attitude toward the education. Therefore, our findings emphasize the importance of designing the content and application type of the education program in a way which meets expectations of these two groups with different motivations for information acquisition based on years in practice. From this perspective, the higher success rate of the applied education program in meeting the preeducation expectations for refreshing the information regarding “Maternal Health and Family Planning” (87.1% and 75.9%) compared with acquisition of more profound and different information (85.0% and 68.5%) seems notable. Besides, given that the target population consisted of adult individuals who have the ability to determine their educational needs, conducting the attendance on voluntary basis seems also important.

The first three topics that the educational content was expected to be high level by the physicians were pregnancy, delivery, and puerperality; gynecological infectious diseases and treatment approach; and emergency obstetric approach in the primary care setting. Therefore, this observation regarding the physicians’ expectations about the contents was considered while planning the program and during live lesson application, and the contents were expanded in these topics.

Since the majority of the participants were medical school graduate general practitioners who were working at family health centers for the last 5 years, the differences detected in the percentage of educational need among different education status, titles, institutions, and durations of work seemed to be associated with representation rate of the related groups in the study population.

In the first phase of the study, which has been designed to determine the educational priorities, 29.7% of the phy-

**Table 4** Assessment of efficacy of education before and after the education

	Preeducation opinion/ expectation (n=287) n (%)	Posteducation opinion/ satisfaction (n=54) n (%)
Spare sufficient time for education		
Yes	270 (94.1)	18 (33.3)
No	17 (5.9)	36 (66.7)
Workload		28 (51.9)
Health issues		14 (25.9)
Limitations in using the education program		9 (16.7)
Limitations in using computer		3 (5.6)
Distribution of the appropriate lesson times		
7 am–9 am	3 (1.0)	2 (3.7)
9 am–12 pm	3 (1.0)	1 (1.9)
12 pm–3 pm	16 (5.6)	2 (3.7)
3 pm–6 pm	32 (11.1)	5 (9.3)
6 pm–9 pm	63 (22.0)	14 (25.9)
9 pm–12 am	158 (55.1)	29 (53.7)
12 am–2 am	12 (4.2)	1 (1.9)
Increase in motivation and work performance with education		
None/little	10 (3.4)	5 (9.3)
Medium	48 (16.7)	14 (25.9)
Many/totally	229 (79.8)	35 (64.8)
Increase in professional efficiency in “Maternal Health and Family Planning” field with education		
None/little	10 (3.5)	5 (9.3)
Medium	28 (9.8)	12 (22.2)
Many/totally	249 (86.8)	37 (68.6)
Increase in quality of service efficiency in “Maternal Health and Family Planning” field with education		
None/little	10 (3.5)	5 (9.3)
Medium	45 (15.7)	13 (24.1)
Many/totally	232 (80.9)	36 (66.6)
Refreshment of the knowledge in “Maternal Health and Family Planning” field with education		
None/little	5 (1.7)	6 (11.1)
Medium	32 (11.1)	7 (13.0)
Many/totally	250 (87.1)	41 (75.9)
Improve in personal and professional vision regarding “Maternal Health and Family Planning”		
None/little	10 (3.5)	6 (11.2)
Medium	40 (13.9)	11 (20.4)
Many/totally	237 (82.6)	37 (68.6)
Acquisition of more profound and different information regarding “Maternal Health and Family Planning”		
None/little	7 (2.4)	5 (9.3)
Medium	36 (12.5)	12 (22.2)
Many/totally	244 (85.0)	37 (68.5)
Improve in patient satisfaction in the clinical practice with “Maternal Health and Family Planning” information with education		
None/little	6 (2.0)	5 (9.3)
Medium	34 (11.8)	11 (20.4)
Many/totally	247 (86.0)	38 (70.4)

(Continued)

**Table 4** (Continued)

	Preeducation opinion/ expectation (n=287) n (%)	Posteducation opinion/ satisfaction (n=54) n (%)
Transfer of the information regarding “Maternal Health and Family Planning” among colleagues with education		
None/little	19 (6.6)	6 (11.1)
Medium	60 (20.9)	13 (24.1)
Many/totally	208 (72.4)	35 (64.8)
Motivation for further research and information regarding “Maternal Health and Family Planning” with education		
None/little	37 (12.9)	4 (7.4)
Medium	64 (22.3)	21 (38.9)
Many/totally	186 (64.8)	29 (53.7)
Level of knowledge about “Maternal Health and Family Planning”		
Very insufficient	9 (3.1)	0 (0.0)
Insufficient	23 (8.0)	0 (0.0)
Average	97 (33.8)	17 (31.5)
Sufficient	145 (50.5)	31 (57.4)
Very sufficient	13 (4.5)	6 (11.1)

sicians stated that they preferred a face-to-face hands-on training education method, which included practical information and conducted in a place physically close to their working environment. However, 35.9% of the participants preferred distance education. Since 238 of 287 (82.9%) physicians who participated in both the education and questionnaire study related to preeducation expectations reported no prior distance education on any topic, having the experience of distance education seems to be associated with the affinity to the technology and the increase in the efficiency of education.

The low expectations, preeducation, of the physicians who participated to the education in transfer of the information about “Maternal Health and Family Planning” and motivation for further research and applications seems to be associated with the institution that they were working and having low motivation for designing and conducting scientific studies due to their academic titles.

The preeducation expectations could be met mostly in refreshing the information in the field of “Maternal Health and Family Planning.” This is in accordance with the finding that the percentage of participants who reported sufficient high-level information regarding “Maternal Health and Family Planning” increased from 55.0% at the preeducation period to 68.5% at the posteducation period. These findings indicate that the education program reached its target from this perspective.

A meta-analysis of studies on internet-based instruction, no intervention and with non-Internet interventions for

health profession learners revealed superiority of internet-based interventions to both no intervention and non-Internet formats in terms of knowledge outcomes, skills and learner behaviors, and patient effects.<sup>8</sup>

In a randomized controlled trial conducted in primary care physicians, internet-based continuing medical education (CME) intervention in multiple sessions was reported to be comparable or superior to a single, live, small-group, interactive CME workshop in terms of objectively measured changes in behavior as well as sustained gains in knowledge.<sup>9</sup> Also, interactivity, practice exercises, repetition, and feedback were reported among the elements of instructional design leading improved learning outcomes in internet-based learning for health professions education.<sup>10</sup>

Our findings support the success of internet-based education among health care learners and emphasize the role of identification of educational needs and expected educational content of participants prior to educational program to allow for increased level of success of the program as well as the increased adherence and thereby higher satisfaction of participant's expectations.

Being a specific education program for the family physicians, including rewards motivating the adult education and having live lesson applications in needed topics before are the advantages of this education program. Within the scope of the "Health Care Restructuring Project", physicians who would like to work in primary care as family physicians without specialized training in this field were required to complete the "Transition Period Training" organized by the Ministry of Health. Physicians working as general practitioners in the Family Medicine system in Turkey are obliged to attend adaptation training. Hence ongoing concomitant obligatory adaptation training of physician during their participation to the present voluntary education program seems to be the major disadvantage of the present educational program. Hence increased workload of physicians may be associated with low participation rate by limiting their expectations regarding participation to the present program as required.

In conclusion, in our target population, which consisted of general practitioners, the majority of whom were working as family physicians, the provided education regarding maternal health and family planning highly met the preeducation expectations in terms of refreshing their knowledge in this field and increased the level of information. In accordance with our findings, we recommend identification of the level

of educational need and content before implementation of an educational program which seems to be associated with increased level of success of the program as well as the increased adherence and thereby higher satisfaction of participant's expectations. Focusing on measures to enable improved access to distance education via an integrated institutionalized and flexible adult education programming seems to facilitate and coordinate better quality educational process.

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M Onur Ozel and Cetin Deger are Bayer Türk employees. The authors report no other conflicts of interest in this work.

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