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Evaluation of Training Family Health Center Practice in Family Medicine Residency Education

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ABSTRACT

Objective: Tertiary hospitals offer advanced health services, including chronic disease management, whereas primary health care centers focus on services such as pregnancy follow-up, child care, vaccination, and periodic health screenings. These differing roles highlight the need for Education Family Health Centers (EHC), which are increasingly important in family medicine education. This study assesses the perceived necessity of EFHCs among family medicine specialists and residents.

Methods: A descriptive cross-sectional survey was conducted among family physicians via Google Forms between February and April 2022. The survey collected sociodemographic data and assessed knowledge related to primary care. Participants' work status in EFHCs and their performance on knowledge questions were compared.

Results: The study included 263 physicians, 58.2% female and 41.8% male. Among them, 62% were married, 55.1% were full-time family medicine residents, 16.3% were contracted residents, and 28.5% were specialists. EFHC training was part of specialty education for 35% of the participants. Additionally, 18.6% had worked in EFHCs, and 15.6% had a responsible trainer. Those who had a responsible trainer in an EFHC scored significantly higher on knowledge questions (*P*=.049). However, no significant difference was observed in knowledge levels on the basis of the requirements of EFHC or its inclusion in specialty training.

Conclusion: This study highlights the necessity of EFHCs and the crucial role of trainers within these centers. The findings suggest that integrating EFHCs into specialty training could enhance educational outcomes and better prepare family medicine residents. These findings reveal that the EASM has an important role in family medicine speciality education and that training increases the quality of education.

Keywords: Family medicine residency training, Education family health center, Family medicine

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INTRODUCTION

Family medicine is a primary care specialty that provides services for all disease groups, regardless of age, sex, or acute-chronic disease status, without being tied to a specific period or individual.[1,2] Therefore, it is crucial in the education of this specialty to show family medicine residents both theoretically and practically how to manage the profiles of infants, children, adults, and elderly patients, as well as how to perform periodic health examinations, diagnoses, and follow-ups of diseases.[3]

There are certain differences between patient profiles presenting to tertiary hospitals and those encountered by family physicians at family health centers (FHCs). For example, tertiary hospitals primarily see patients for the management and treatment of chronic diseases and further investigations, whereas primary care centers handle pregnant women, healthy child follow-ups, vaccination services for children, periodic health screenings for various age groups, and patients with undiagnosed or undifferentiated conditions.[4-6] Owing to these differences, the necessity of Education Family Health Centers (EFHC) in residency training has emerged.

In Turkey, there are examples of EFHCs in various departments and clinics involved in family medicine residency training.[7,8] EFHCs are essential in family medicine residency training. Studies have shown that in places with EFHCs, both resident and faculty satisfaction regarding the quality and adequacy of training increases. Similarly, physicians with EFHCs have been found to assess important and necessary topics in family medicine, such as infant evaluation and prenatal care, more comfortably.[9-11]

The duration of family medicine residency training varies from 3--6 years in different countries. In Turkey, this period is limited to 3 years, with approximately 18 months spent on rotations. A portion of the remaining 18 months should be spent in EFHCs, although this is feasible only for a limited number of training research and university hospitals in Turkey.[5,6]

In this context, the purpose of this study is to evaluate the necessity of EFHCs from the perspectives of family medicine specialists and residents.

METHODS

The ethics committee approval of this study was obtained with the decision of Düzce University Non-Interventional Health Research Ethics Committee dated 21.02.2022 and numbered 2022/32. Informed consents were filled by participants.

This study is a descriptive cross-sectional survey. It was conducted by administering a survey to family medicine specialists and residents via Google Forms from February 23, 2022, to April 3, 2022.

A power analysis was performed by reviewing the literature. Considering a similar study, the sample size was calculated on the basis of a Type I error rate of 0.05 and a desired power of 0.80, resulting in a survey being conducted with 263 individuals.

In this study, family medicine residents and specialists working in training, research, and university hospitals in Turkey were reached via Google Forms. The survey comprises 45 multiple-choice questions divided into three sections. The first section included sociodemographic information. The second section consisted of 20 questions related to Education Family Health Centers (EHC) and the patients who received specialty training. The third section contained 25 knowledge questions related to family medicine practices. These questions were created by the study team by reviewing the literature and were finalized by piloting with 10 people from 10 fields. The items were not factor analyzed separately. Total scores were calculated on the basis of the correct answers to the knowledge questions in the third section, with 1 point awarded for correct answers and 0 points awarded for uncertain or incorrect answers.

Statistical analysis:

For statistical analysis, descriptive statistics were used, where numerical data are reported as the means, standard deviations, minimums, and maximums, whereas categorical data are reported as frequencies and percentages. The distribution of the numerical data was examined via histogram charts. For comparing numerical data between two groups, the Mann–Whitney U test was used. To compare numerical data across more than two groups, the Kruskal–Wallis test was applied. Post hoc analyses for multiple comparisons were conducted via the Tamhane test. Categorical data comparisons were performed via the chi-square test and Fisher's exact test. Correlations among numerical data were assessed via the Pearson correlation test. A *P* value of <.05 was considered to indicate statistical significance. SPSS version 23.0 (IBM SPSS Corp., Armonk, NY, USA) was used for the analyses.

RESULTS

A total of 263 physicians participated in the study. Among the participants, 58.2% (n=153) were female, and 62% (n=163) were married. The majority of the physicians who participated in the study, 55.1% (n=145), were full-time family medicine assistants. A total of 35% (n=92) of the participating physicians worked in institutions with an Education Family Health Center (EFHC). However, only 18.6% (n=49) of the physicians had worked in an EFHC. Additionally, 15.6% (n=41) of the physicians who worked in an EFHC had a supervising trainer (Table 1).

Table 1: Sociodemographic characteristics of the physicians participating in the study and their employment status in the EFHC

		n	%
Gender	Woman	153	58.2
	Man	10	41.8
Marital Status	Married	163	62.0
	Single	100	38.0
Title	FMR	142	55.1
	CFMR	43	16.3
	FMS	75	28.5
Was EFHC in existence when you received your specialty training?	Yes	92	35.0
	No	171	65.0
Did you work at EFHC during your residency training?	Yes	49	18.6
	No	214	81.4
When you worked at EFHC during your residency training, did you have a responsible trainer?	Yes	41	15.6
	No	25	9.5

EFHC: Education Family Health Centre

The year of residency training for physicians was also investigated. The highest number of respondents, 38.80% (n=71),

were in their third year of residency. The average age of the physicians was 31.30±5.45 years. The duration of work experience in family medicine is presented in Table 2.

Table 2. Physicians' age, years in practice, years working in family medicine and years working in EFHC

	n	Minimum	Maximum	Mean	Standard Deviation
Age	263	24	53	31.30	5.45
Total years in the profession	263	1	31	6.56	5.21
Time worked in family medicine (Years)	263	1	26	4.27	3.56
Time worked at EFHC (Month)	46	1	24	6.33	4.31

EFHC: Education Family Health Centre

The participants were asked 15 questions regarding the Education Family Health Center (EFHC), with responses categorized as "Yes," "No," or "Not Sure." The responses are detailed in Table 3. When asked, "Do you think field training (EFHC) is necessary in family medicine residency training outside of hospital rotations?" A total of 93.5% (n=246) of the participants answered "yes." With respect to this question, "Do you find the content of residency training sufficient?" A total of 48.3% (n=127) of the participants answered "No." In questions about the adequacy of monitoring in commonly performed activities at Family Health Centers (FHCs), such as immunization, prenatal care, infant–child follow-up, and periodic health examinations, the majority of the physicians answered "No," indicating insufficient monitoring. However, for issues commonly encountered in tertiary health institutions such as hypertension, diabetes, and hyperlipidemia, the majority of participants answered "yes," indicating that they had seen a sufficient number of patients in these areas (Table 3).

Table 3. Participants' opinions on the adequate number of follow-ups in specialty training, the necessity of EFHC and the adequacy of specialty training

	Yes	No	Not sure
	n/%	n/%	n/%
Do you think field training (EFHC) other than hospital rotations is necessary in family medicine specialty training?	246/93.5	8/3	9/3.4
Do you find family medicine specialty training sufficient in terms of content?	74/28.1	127/48.3	62/23.6
Did you provide enough immunization services during your family medicine residency training?	73/27.8	162/61.6	28/10.6
Did you perform sufficient number of pregnancy follow-ups in your family medicine specialty training?	77/29.3	162/61.6	24/9.1
Have you performed sufficient number of infant-child follow-ups in your family medicine specialty training?	85/32.3	149/56.7	27/10.3
Did you follow up a sufficient number of geriatric patients in your family medicine specialty training?	68/25.9	151/57.4	44/16.7
Do you think you performed periodic health examinations sufficiently in your family medicine specialty training?	67/25.5	154/58.6	42/16
Do you think you have performed enough fecal occult blood evaluation within the scope of periodic health examinations in your family medicine specialty training?	56/21.3	167/63.5	40/15.2
Do you think you have performed enough mammography recommendations within the scope of periodic health examinations in your family medicine specialty training?	75/28.5	149/56.7	39/14.8
Do you think you have performed enough papsmear recommendations within the scope of periodic health examinations in your family medicine specialty training?	71/27.0	153/58.2	39/14.8
Do you think you provide enough premarital evaluation and counseling services in your family medicine residency training?	72/27.4	156/59.3	35/13.3
Do you think that you perform cancer screenings in sufficient number and quality in your family medicine specialty training?	51/19.4	166/63.1	46/17.5
Did you perform sufficient number of diabetes screenings in your family medicine specialty training?	121/46	107/40.7	35/13.3
Did you perform a sufficient number of hypertension patient evaluations in your family medicine specialty training?	128/48.7	102/38.8	33/12.5
Have you performed an adequate number of hyperlipidemia screenings in your family medicine residency training?	125/47.5	106/40.3	32/12.2
Have you performed adequate number of depression screenings in your family medicine residency training?	43/16.3	175/66.5	45/17.1

EFHC: Education Family Health Centre

The knowledge questions and responses regarding periodic health examinations and family medicine practices were evaluated. Among the total 25 questions asked, the majority of correct answers were given for 22 questions (Table 4).

Table 4. Knowledge questions and answers about periodic health examinations and family medicine

	Right	Wrong	No idea
	n/%	n/%	n/%
During pregnancy, 3 follow-ups are performed at the family health center.	72/27.4	**156/59.3**	35/13.3
According to Nagele formula, the estimated date of birth is SAT+3 months -7 days.	154/58.6	**90/34.2**	19/7.2
Iron prophylaxis of 40-60 mg/day is started at 16 weeks of gestation in pregnant women without signs of anemia.	**202/76.8**	32/12.2	29/11.0
Vitamin D prophylaxis in pregnant women starts from the 12th gestational week and continues until the 6th month after delivery.	**206/78.3**	32/12.2	25/9.5
People with a history of gestational diabetes should undergo OGTT between 6-12 weeks postpartum.	**139/52.9**	86/32.7	38/14.4
For the first 6 months, the baby should be breastfed at least 8 times a day whenever the baby asks for it, without limitation of the number of times.	**230/87.5**	20/7.6	13/4.9
Newborns without signs of anemia should be started on iron supplementation of 1 mg/kg/day after birth.	70/26.6	**169/64.3**	24/9.1
All cases of developmental hip dislocation other than type I should be referred to an orthopedic specialist.	**164/62.4**	43/16.3	56/21.3
Screening for arterial hypertension in children should be performed once a year after the age of 4 years.	77/29.3	**150/57.0**	36/13.7
According to the current vaccination schedule, the first dose of hepatitis A vaccine is given at 12 months and the second dose at 24 months.	100/38.0	**133/50.6**	30/11.4
Follow-up of women aged 5-49 years should be performed once a year.	142/54.0	**91/34.6**	30/11.4
Mastitis is a contraindication for breastfeeding.	26/9.9	**228/86.7**	9/3.4
Lifestyle change is recommended for patients with obesity.	**256/97.3**	4/1.5	3/1.1
Breastfeeding is contraindicated in the presence of active maternal tuberculosis, HIV and HSV infection in the nipple.	**234/89.0**	21/8.0	8/3.0
Patients who are advised to change their lifestyle should be referred for follow-up once a month.	**152/57.8**	72/27.4	39/14.8
Serum lipid profile screening should be performed every 5 years in adults over 35 years of age without other risk factors.	**201/76.4**	39/14.8	23/8.7
Prophylactic low-dose (81 mg) aspirin is recommended in women aged 40 years and older.	67/25.5	**153/58.2**	43/16.3
If fasting and postprandial blood sugars are normal in a 52-year-old woman without risk factors, they should be checked again every year.	137/52.1	**88/33.5**	38/14.4
TSH is requested for thyroid evaluation for screening purposes.	**218/82.9**	39/14.8	6/2.3
For colorectal cancer screening in adults without risk factors, colonoscopy is performed every 10 years over the age of 50.	**206/78.3**	49/18.6	8/3.0
PAP smear or HPV test screening for cervical cancer should be done every year between the ages of 30-65.	85/32.3	**160/60.8**	18/6.8
Hemogram control should be performed in infants at the 3rd month.	87/33.1	**147/55.9**	29/11.0
Beck depression scale is used for depression screening in primary care.	203/77.2	**17/6.5**	43/16.3
Rotavirus vaccine has no place in adult vaccination.	**219/83.3**	28/10.6	16/6.1
Tuberculosis screening should be performed in patients with chronic renal failure.	**108/41.1**	78/29.7	77/29.3

The bolded parts are the correct answers.

OGTT: Oral glucose tolerance test, HIV: Human immunodeficiency virus, HSV: Herpes simplex virus, PAP: Papanicolaou test, HPV: Human papillomavirus

There was no significant difference in the number of correct answers given based on sex (P =.433). Compared with single physicians, married physicians provided a significantly greater number of correct answers (P <.001). Significant differences were observed in the number of correct answers among Family Medicine Specialists (FMS), Contracted Family Medicine Residents (CFMR), and Family Medicine Residents (FMR) (P <.001). FMRs provided the highest number of correct answers, followed by CFMRs and FMRs. As the year of residency increased, the number of correct answers also increased (Table 5). There were significant differences in the number of correct answers based on the institution where the physicians worked (P <.001). Compared with those who did not have a supervising trainer, those who had a supervising trainer while working in EFHCs provided significantly more correct answers (P =.049) (Table 5).

Table 5. Statistical analysis of correct answers according to various variables

		Number of correct answers to be given		
		Mean	**Standard Deviation**	***p***
Gender	Woman	15.86	3.63	.433
	Man	15.37	4.03	
Marital Status	Married	16.33	3.65	**<.001**
	Single	14.56	3.81	
Title	FMR	14.26	3.93	**<.001**
	CFMR	16.91	3.63	
	FMS	17.64	2.20	
Year in residency	1st year assistant	13.67	3.92	**.010**
	2nd year assistant	14.43	3.25	
	3rd year assistant	15.52	4.51	
	4th year assistant	15.00	.	
	5th year assistant	19.67	4.16	
	6th year assistant	20.00	.	
institutions	University hospital	14.46	3.77	**<.001**
	Education and research hospital	14.15	4.55	
	Family health center	17.46	2.39	
	Other	17.60	2.58	
Did EFHC exist at the time of your specialty training?	Yes	16.00	3.61	.299
	No	15.47	3.90	
Did you work at EFHC during your specialty training?	Yes	16.18	3.78	.127
	No	15.53	3.80	
When you worked in EFHC during your residency training, did you have a responsible trainer? (Only those who worked in EFHC will answer.)	Yes	16.63	3.61	.049
	No	15.08	3.52	
Do you think field training (EFHC) other than hospital rotations is necessary in family medicine specialty training?	Yes	15.75	3.83	.091
	No	14.38	4.41	
	Not sure	14.22	1.92	
Do you find family medicine specialty training adequate in terms of content?	Yes	16.26	3.61	.166
	No	15.56	3.99	
	Not sure	15.13	3.59	

EFHC: Education Family Health Centre

In the post hoc analyses, CFMR and FMS provided a significantly greater number of correct answers than did FMR (*P* <.001 for both comparisons). Compared with those working in universities and training research hospitals, physicians working in family health centers provided a significantly greater number of correct answers (*P* <.001 for both comparisons).

DISCUSSION

In our study, we evaluated the necessity of Education Family Health Centers (EHC) in family medicine residency training and their impact on the knowledge and opinions of current residents and specialists. Our findings indicate that EFHCs significantly contribute to residency training. The majority of the physicians in the study reported that they did not find the content of their residency training sufficient. This aligns with studies by Yıldırım and Sancaktar, who also reported that more than half of physicians felt that their residency training was inadequate.[9,10] This highlights the need for residency programs to be tailored to the needs of family medicine practitioners.

Our study revealed that most participants were female and that the presence of EFHCs during training positively impacted residency education. Most participants agreed that field training (EFHC) is necessary, which is consistent with Yıldırım's study, where 74% of participants supported the inclusion of EFHCs in training.[9] Similarly, Adıyaman et al. emphasized the need for primary care services in residency training[11], a view supported by numerous studies in Turkey advocating the necessity of field training.[10,12-14]

In Turkey, the family medicine residency system is similar to that in many countries and comprises a three-year program. The training plan includes 18 months of rotation and 18 months in a primary care setting. However, because some institutions do not meet the necessary conditions for field training, there is no mandatory implementation. As a result, residency students in Turkey work more in hospital settings than in primary care settings and encounter patient populations different from those they face in primary care settings.[15] This is evident from our study, where most physicians lacked EFHC experience and did not follow up with patients in primary care settings.

The participants reported insufficient monitoring in areas commonly performed at family health centers (FHCs), such as immunization, prenatal care, and periodic health examinations. Conversely, they indicated sufficient patient exposure in tertiary

institutions for conditions such as hypertension, hyperlipidemia, and diabetes. This discrepancy highlights the difference in patient profiles between tertiary hospitals and FHCs. Maç's study also revealed significant differences in patient characteristics and diagnoses between EFHC centers and hospital settings.[16] This may be the main reason why physicians who receive speciality training only in tertiary hospitals do not consider themselves competent to work in primary care.

Egici et al. noted that involvement in EFHCs strengthened their clinical experience and provided opportunities to see primary care management.[17] In Turkey, residents spend less time in EFHCs than in hospital settings, resulting in exposure to different patient profiles. The lack of standardized field training across institutions also reflects a significant gap.[18] Similarly, European countries such as Greece, Austria, Switzerland, Moldova, and Romania face similar issues. Furthermore, having clinical training exclusively in hospital settings does not adequately address the quality of training for family medicine.[19]

Our study revealed that physicians with supervising trainers in EFHCs had significantly higher knowledge levels than those without such trainers. This underscores the importance of the educator factor in enhancing training quality. However, no significant impact of working in EFHCs alone on knowledge level was found, although the presence of a trainer was a key factor in improving knowledge.

However, Yişir's study also revealed that EFHCs positively contributed to residency training in terms of periodic monitoring, and a higher rate of correct answers was observed in the group working in EFHCs.[20] Similarly, a study by Yağız in Ankara revealed that most specialists believe that residents should receive training alongside specialists, supporting the need for EFHCs in field training.[21]

As Ünalan et al. noted, clinical practices in family medicine units differ from those in hospital settings, necessitating different knowledge and practices. Therefore, field training should be tailored to primary care rather than just replicating hospital-based practices.[22] Our study supports this finding by showing that participants felt insufficiently prepared in primary care areas.

In our study, when examining the number of correct answers given, FMS had the highest number of correct responses. This was followed by CFMR and then FMR. The reason that the FMSs were in the lead could be attributed to their completion of residency training, which provided them with more clinical experience and knowledge. The fact that CFMRs had more correct answers than FMRs can be explained by their involvement in patient follow-up in primary care clinics, working more frequently on topics relevant to family medicine, and therefore having greater knowledge in these areas.

In this study, because the questionnaire was not conducted face-to-face, the answers given to the questions may be cursory, and the fact that the questions were not verified by factor analysis can be considered limitations of our study.

CONCLUSION

In conclusion, our study highlights the significant role of EFHCs in family medicine residency training and highlights the importance of the educator factor in improving training quality. It is essential to ensure the availability of EFHCs and integrate both clinic- and hospital-based training into residency programs to increase overall training effectiveness. In addition, departments and clinics where family medicine education is given should be accredited, and EFHCs should be made widespread throughout the country or education should be provided with the condition of being an EFHC. There is a need for more studies on this subject at the national level with more participants.

Ethics Committee Approval: The ethics committee approval of this study was obtained with the decision of Düzce University Non-Interventional Health Research Ethics Committee dated 21.02.2022 and numbered 2022/32.
Informed Consent: All concent forms were filled by participants
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