

**RESEARCH  
ARTICLE**

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## Evaluation of the Effectiveness of Otorhinolaryngology Examination and Hearing Evaluation Training for Family Physicians

### ABSTRACT

**Objective:** In our study, it is aimed to investigate the level of knowledge of family physicians working in primary health care organizations about Ear Nose and Throat (ENT) diseases, to examine how they manage frequently admitted ENT patients, to identify the problems they experience during examination and to examine the effect of the training given.

**Methods:** Participants were first administered a 30-question pre-test created by the researcher based on the literature. Then, a collective training lasting 2 days and 1.5 hours per day was given by an ENT specialist from the researchers and a post-test was applied. Afterwards, the topics in which the researchers made the most mistakes or remained uninterpreted were recorded and a training program including these topics was created and training was given.

**Results:** Of the 21 family physicians over 30 years of age, 2 (14,29%) were male and 18 (85,71%) were female. When the time of graduation from medical school of the family physicians in the study was analyzed, the number of family physicians with 5-10 years of medical school graduation was 4 (19,05%), 10 (47,62%) with 10-20 years of medical school graduation, and 7 (33,33%) with more than 20 years of medical school graduation. All of the family physicians who participated in the study think that ENT education is important for primary care medicine.

**Conclusions:** ENT diseases are common in primary care. In order for family physicians to manage their patients more comfortably, we believe that rotations in the field of ENT diseases in the postgraduate period would be appropriate.

**Keywords:** Family Physicians, ENT, Education.

## Aile Hekimlerine Yönelik Kulak Burun Boğaz Muayenesi ve İşitme Değerlendirme Eğitiminin Etkinliğinin Değerlendirilmesi

### ÖZET

**Amaç:** Biz çalışmamızda birinci basamak sağlık kuruluşlarında çalışan aile hekimlerinin Kulak Burun Boğaz (KBB) hastalıkları ile ilgili bilgi düzeylerini araştırmayı, sıklıkla başvuran KBB hastalarını nasıl yönettiklerini incelemeyi, muayene sırasında yaşadıkları sorunları tespit edip verilen eğitimin etkisini incelemeyi amaçladık.

**Yöntem:** Katılımcılara öncelikle araştırmacı tarafından literatür baz alınarak oluşturulmuş 30 soruluk bir ön test uygulandı. Ardından araştırmacılar tarafından KBB uzmanı tarafından 2 gün süren ve günlük 1.5 saatlik toplu bir eğitim verildi ve son test uygulandı. Daha sonra araştırmacıların en çok hata yaptıkları veya yorumsuz kaldıkları konular kaydedildi ve bu konuları içeren bir eğitim programı oluşturularak eğitim verildi.

**Bulgular:** Çalışmaya alınan 30 yaş üzeri 21 aile hekiminden 3 (%14,29)'si erkek 18 (%85,71)'i kadındır. Çalışmadaki aile hekimlerinin tıp fakültesinden mezun olma süresi incelendiğinde, 5-10 yıl aralığında olanların sayısı 4 (%19,05), 10-20 yıl aralığında olanların sayısı 10 (%47,62), 20 yıldan fazla bir zamana sahip olanların sayısı ise 7 (%33,33)'dir. Çalışmaya katılan aile hekimlerinin tamamı birinci basamak hekimliği için KBB eğitiminin önemli olduğunu düşünmektedir.

**Sonuç:** KBB hastalıkları birinci basamakta sık görülen hastalıklardandır. Aile hekimlerinin daha rahat hastalarını yönetebilmeleri için mezuniyet sonrası dönemde KBB hastalıkları alanında rotasyonlarının uygun olacağı kanaatindeyiz.

**Anahtar Kelimeler:** Aile Hekimi, KBB, Eğitim.

## INTRODUCTION

Family medicine is a medical discipline that provides comprehensive and continuous medical care to individuals of all ages, genders, and diseases. It offers services in the context of their own family, society, and culture while respecting patient autonomy. Specialist physicians trained in line with the principles of family medicine discipline are responsible for this care. To ensure quality and qualified family medicine specialty training, the curriculum must meet certain standards and adequately address the patient profile encountered in primary care. Although ENT diseases are prevalent in primary health care, they are not included in the core curriculum of family medicine. The aim of family medicine residency training is to provide suitable conditions for the development of a physician's clinical knowledge, skills, attitudes, and behaviors. Additionally, it aims to develop the ability to provide health education, conduct research, and possess management qualities in accordance with the basic principles of family medicine. To achieve this goal, a family medicine resident gains the necessary theoretical and practical knowledge and experience through rotations and practice in various areas of family medicine during their residency training (1).

In this study, we aimed to investigate the knowledge level of family physicians working in primary healthcare settings regarding ENT diseases, to examine how they manage frequently presenting ENT patients, and to observe whether their knowledge level and attitude towards patient management change after receiving ENT education.

## MATERIAL AND METHODS

**Study Design:** This study is an interventional study. It was conducted between 22.08.2022 and 22.05.2023. The population of the study consisted of 24 family physicians who accepted to participate among the contracted family medicine residents who were trained in our department. The main places of service of these residents are family medicine units in Malatya province and districts and they receive 6 years of training in our department. The design of our study was explained to the contracted family medicine residents who were actively practicing family medicine in the field and their voluntary consent was obtained. Exclusion criteria were not participating in the training, providing incomplete or incorrect information in any of the questionnaires, or voluntarily leaving the study.

**Method of Application of the Research and Collection of Data:** First, a pre-test of 30 questions, created by the researcher based on the literature, was administered to the participants. The first 10 questions of the pre-test survey consist of questions regarding sociodemographic data and educational status. The last 20-question section consists of knowledge level questions about ENT

diseases frequently encountered in primary care, prepared by an ENT specialist physician. Each question was determined as 5 points and the participants were evaluated out of 100 points. A total of 24 people were pre-tested via Google survey and their answers were recorded. Then, a 2-days, 1,5-hour daily collective training was given by the ENT specialist from the researchers. The training was interactive and in addition to theoretical information, practical information on otoscope use was given. After the two-days training period was completed, a post-test consisting of 30 questions was administered to the participants and the answers were recorded again. At this stage, 3 people were excluded from the study because they did not want to do the post-test. By comparing the results of both tests, it was compared whether the ENT training made any changes in the participants' knowledge levels and attitudes towards patient approach. Then, the topics where the researchers made the most mistakes or left no comment were recorded and a training program was created including these topics. Additional practices such as correct application of otoscope examination, normal ear examination with otoscope, and correct diagnosis of ear diseases are also included in the training program. It was found out whether the physicians felt competent after the training.

**Ethical Approval:** Ethical approval was received from İnönü University Health Sciences Non-invasive Clinical Research Ethics Committee on April 20, 2022, with decision number 2022/46.

## RESULTS

Among the 21 family physicians over 30 years of age, 3 (14,29%) were male and 18 (85,71%) were female. When the time of graduation from medical school of the family physicians in the study was analyzed, the number of family physicians who had graduated from medical school between 5-10 years was 4 (19.05%), between 10-20 years was 10 (47.62%), and more than 20 years was 7 (33.33%). Similarly, among the 21 family physicians, 6 (28.57%) had a tenure between 1-5 years, 7 (33.33%) between 5-10 years, and 8 (38.10%) more than 10 years. Among the family physicians included in the study, there were 2 (9.52%) who did ENT internship for less than 2 weeks, 18 (85.71%) who did ENT internship for 2-4 weeks and 1 (4.71%) who did not do any ENT internship. Among the family physicians who did ENT internship in their pre-graduate education, 3 (15%) followed up patients, while 17 (85%) did not follow up patients. After graduation, 10 (47.62%) family physicians received ENT training after in-service training or seminars, while 11 (52.38%) family physicians did not receive such training. In addition, there were 5 (20.81%) family physicians who had sufficient knowledge about the correct use of the otoscope and the diseases that could be

diagnosed by otoscopic examination, 14 (66.66%) family physicians who had partial knowledge, and

finally 2 (12.53%) family physicians who did not have this knowledge (Table 1).

**Table 1.** Sociodemographic data of the participants

		Count	Percent (%)
Gender	Male	3	14.29
	Female	18	85.71
How many years has it been since you graduated from medical school?	5-10 years	4	19.05
	10-20 years	10	47.62
	>20 years	7	33.33
How long was the ENT internship during your pre-graduation education?	No	1	4.76
	<2 week	2	9.52
	2-4 weeks	18	85.71
Did you follow up with patients during your ENT internship as an intern?	Yes	3	14.29
	No	18	85.71
Have you received ENT training after graduation, during in-service training or seminars?	Yes	10	47.62
	No	11	52.38
Do you have sufficient knowledge about the correct use of the otoscope and the diseases that can be diagnosed with otoscopic examination?	Yes	5	23.81
	Partially	14	66.67
	No	2	9.52

All of the family physicians who participated in the study thought that ENT education was important for primary care medicine. The accuracy rates of the answers given before and after the training to the 20 questions asked to 21 family physicians within the scope of the study are

given in Table 2. The p values for the results of the two ratio test performed with the basic function of the R programming language (prop.test) are given in Table 2. Translated with DeepL.com (free version).

**Table 2.** Comparison of participants' correct guess rates before and after training

Questions	Number of Correct Answers		p-value
	Before Training	After Training	
1	8 (38.10%)	20 (95.24%)	<0.001
2	3 (14.29%)	14 (66.67%)	0.001
3	18 (8.71%)	21 (100.00%)	0.23
4	21 (100.00%)	21 (100.00%)	1.000
5	18 (85.71%)	21 (100.00%)	0.23
6	9 (42.86%)	17 (80.95%)	0.026
7	9 (42.86%)	20 (95.24%)	<0.001
8	11 (52.38%)	18 (85.71%)	0.045
9	7 (33.33%)	20 (95.24%)	<0.001
10	12 (57.14%)	21 (100.00%)	0.002
11	3 (14.29%)	13 (61.90%)	0.004
12	17 (80.95%)	21 (100.00%)	0.114
13	8 (38.10%)	19 (90.48%)	0.001
14	9 (42.86%)	21 (100.00%)	<0.001
15	7 (33.33%)	19 (90.48%)	<0.001
16	9 (42.86%)	19 (90.48%)	0.003
17	7 (33.33%)	17 (80.95%)	0.005
18	7 (33.33%)	18 (85.71%)	0.001
19	1 (4.76%)	15 (71.43%)	<0.001
20	6 (28.57%)	18 (85.71%)	<0.001

Looking at the results in Table 2, the questions with a statistically significant increase in the rate of correct answers:

Question 1. "Which of the following is wrong about otoscopic examination?"

Question 2. "Which of the following is incorrect about the structures that can be seen with an otoscope?"

Question 6. "Which of the following statements about a patient with long-standing discharge and itching in the right ear whose otoscopic examination is as shown in the figure is incorrect?"

Question 7. "A 4-year-old child was brought to the hospital by his family with suspicion of hearing loss because he remained unresponsive to his parents' calls and did not turn around, and got too close to the screen while watching television. The patient also has symptoms such as snoring at night and sleeping with his mouth open. Which of the following is incorrect about the patient whose otoscopic examination is as shown in the figure?"

Question 8. "Which of the following is an ENT emergency?"

Question 9. "A 22-year-old female patient applied with the complaint of bleeding in her left ear. The patient states that he had severe pain and a feeling of fullness in his ear two days ago, and the pain decreased with bleeding. "Which of the following is your preliminary diagnosis in the patient whose otoscopic examination is as shown in the figure?"

Question 10. "A 42-year-old male patient applied with the complaint of yellow, foul-smelling discharge in the ear that has been going on for about four months. "Since the patient's otoscopic examination is as shown in the figure, what should be your preliminary diagnosis for this patient?"

Question 11. "A 40-year-old female patient applied with complaints of decreased hearing and a disturbing ringing sensation in both ears, which increased over time. The patient states that he hears better in environments where there is a lot of noise, and that he occasionally experiences dizziness and balance disorders. "Since the patient's otoscopic examination is as shown in the figure, which of the following statements about this patient is incorrect?"

Question 13. "Which of the following is not recommended for treatment in a patient with suspected acute otitis externa?" Question 14. "Which of the following approaches to treatment is correct in a patient presenting with acute otitis media?"

Question 15. "Which of the following is true regarding the treatment approach in a patient who is considered to be diagnosed with otomycosis in primary care?"

Question 16. "Which of the following is your treatment approach for a patient with a preliminary diagnosis of serous otitis media?"

Question 17. "Which of the following is incorrect about sudden hearing loss?"

Question 18. "Which of the information given about bullous myringitis is incorrect?"

Question 19. "What should be the most appropriate treatment approach in primary care for a patient diagnosed with chronic otitis media?" and

Question 20. "Which of the following is incorrect about Bening Paroxysmal Positional Vertigo?" It was observed that the rate of correct answers to the questions increased statistically significantly with the ear, nose and throat diseases training given to family physicians within the scope of the project.

The questions for which there is no statistically significant increase are;

Question 3: "A 20-year-old male patient applied with complaints of itching, pain and sensitivity in the left ear and said that these complaints appeared after swimming. The patient's physical examination revealed tragus tenderness and otoscopic examination revealed edematous and tender external auditory canal. "What is your preliminary diagnosis of the patient?"

Question 4. "The otoscopic examination of the patient who applied with complaints of decreased hearing and fullness in the ear after getting out of the shower is as shown in the figure. "What is the preliminary diagnosis of the patient?"

Question 5. "A 12-year-old male patient applied with complaints of pain in the right ear, decreased hearing, fever, and loss of appetite for the last four or five days. "Since the patient's otoscopic examination appearance is as shown in the figure, what is your preliminary diagnosis?" and

Question 12. "Which of the following is not a disease caused by vestibular system disorders?" Although the number of correct answers given before and after the training increased relatively, it was not found to be statistically significant.

## DISCUSSION

Family physicians, who are at the central point of primary health care services, gain knowledge and equipment regarding the diagnosis and treatment of ENT diseases during ENT internships during their medical school education. When the patient profiles coming to family medicine are examined, it is seen that individuals mostly apply due to complaints related to ENT diseases (2,3).

Many studies show that ENT diseases have an important place in primary care medicine. However, it appears that the training provided on ENT diseases during medical school and family medicine specialty training is insufficient. In a study, more than 20% of the patients applying to primary health care institutions were found to be people with complaints about ENT diseases; Despite this, it has been claimed that adequate ENT training is not received during the medical faculty

and family medicine specialty education process (4). In another study, 7-25% of the patients coming to family medicine were found to be ENT patients (5). In a multi-center study conducted in Turkey, it is observed that the most common reason for applications to family medicine is ENT diseases, and when the consultations requested from other branches are examined, ENT diseases are again in the first place (2).

In our study, we investigated the current knowledge and attitudes of family physicians regarding ENT diseases. It was aimed to observe and reveal whether their knowledge and attitudes change when they receive adequate training on ENT diseases. First of all, a survey consisting of questions about ENT diseases and otoscopic examination, which are frequently encountered in family medicine, was created and this survey was applied to 21 family physicians working in the field before the training. Then, the participants were given two-day theoretical and practical training by an ENT specialist. After the training, the same survey was applied to the physicians again and it was seen that the training was effective.

The majority of our participants have practiced medicine for an average of 10 to 20 years, and the majority of them have been serving in family medicine for more than 10 years. The majority of our physicians stated that their knowledge of ENT diseases and otoscopic examination was partially sufficient, and all our participants stated that ENT diseases have an indisputable importance in primary health care.

When the data obtained from our study was evaluated, it was observed that the correct answer rate of the questions in the pre-training survey was lower, while this rate increased significantly in the post-training survey. It was also seen that the participants mostly answered the four questions asked about the diagnosis and treatment of otosclerosis, bullous myringitis, and serous otitis media correctly before the training. This shows that the physicians had sufficient knowledge and experience in these areas. In the other 16 questions, it was determined that the participants' correct answer rates increased significantly after the training. Additionally, it was observed in the individual post-training feedbacks that their knowledge levels had increased considerably.

In a similar study conducted by Kucheria et al., a survey was applied to family physicians working in primary care regarding their attitudes towards ENT diseases. Afterwards, a 10-days ENT training was given and their post-training status was evaluated again with a survey. As a result, it was observed that the participants' confidence in managing patients with ENT complaints increased significantly after the training. This study showed that adding ENT diseases to the family medicine residency curriculum will enable family physicians

to examine their patients more confidently and reduce the workload of ENT clinics in secondary and tertiary care (6). In our study, we also emphasized the importance of ENT disease education in line with the literature.

The primary objective of rotations is to enable family physicians to gain the skills to see and manage patients that they are responsible for managing in primary care settings, but which they encounter less frequently in their own practice areas. In this context, one of the key factors in determining the curriculum of the training program is the primary care patient profile. To this end, many studies have been conducted in our country and around the world. Studies conducted in our country have examined patients who apply to family medicine and found that the most common reasons for application are cough, fever, headache, and sore throat; the most common diseases seen in patients are upper respiratory tract infection, musculoskeletal system diseases, hypertension, headache, and gastrointestinal system diseases (7-9). The most common diagnoses made in primary care are upper respiratory tract infections (viral-bacterial tonsillitis, otitis, influenza infections). For this reason, it is observed that family physicians frequently request consultation for ear, nose and throat diseases.

In other studies conducted around the world, a significant proportion of patients who apply to primary care health institutions are patients with complaints related to ENT diseases. However, the training in ENT diseases is inadequate both in pre-graduation medical school education and in family medicine specialization training (4,10).

## CONCLUSION

In conclusion, when we look at the data obtained from many studies and our own study, ENT diseases have an undeniable importance for primary care health services. Despite this, ENT diseases are not given sufficient attention in both undergraduate medical school education and family medicine specialization training, which can put our physicians in a difficult position. The fact that family physicians feel inadequate in managing ENT patients also causes unnecessary workload and increase in workforce in secondary and tertiary care services.

For all these reasons, we believe that giving more importance to ENT diseases in the medical school education process and making ENT diseases a compulsory rotation in the family medicine specialization training process can eliminate the mentioned problems.

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