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Aims: To determine the problems, expectations and objectives of resident physicians in Turkey and to provide a contribution to the development and amendment of the residency program.

Background: Residency varies considerably in accordance with factors like teaching staff, the institution and government policies. If characteristics, problems, expectations and objectives of resident physicians are stated and known, development and amendment of residency programs will be both easier and faster.

Materials and Methods: A 50-question survey was completed by a randomly selected 1069 resident physicians from 15 university and 12 teaching hospitals in 11 provinces (İstanbul-503, Ankara-116, İzmir-86, Erzurum-71, Sivas-60, Bolu-49, Bursa-49, Şanlıurfa-46, Trabzon-38, Kocaeli-32, Van-20). The male / female ratio of the participants was 1.53, their mean age was 28.37 years (range, 23-48 years) and mean duration of residency was 19.7 months (1-66 months).

Results: 83% of the participants were content with their current medical branch selection. The most common reason for preference of residency training was job satisfaction (80%). 84% of the participants had personal computers, 69% had personal internet connection and 90% had an e-mail address. 44% of them connected to the internet daily and 26% connected every other day. Knowledge of a foreign language was in English in 97%, and 5.6% of the assistants achieved competency in official examinations for their foreign language level. Regular departmental teaching meetings were reported by 78% of the participants, whereas 16% reported having no teaching meetings. The duration of the meetings was 1-2 hours per week in 53%, 3-4 hours per week in 34% and more than 4 hours in 13% of the hospitals. 67% of the resident physicians considered that the theoretical education level to be inadequate, whereas 33% considered the practical training inadequate. While 28% of the resident physicians were being evaluated by written examinations, 18% were evaluated orally, and 38% were never evaluated. 23% had no knowledge of Medline. 82% had no knowledge of Science Citation Index Expanded and 65% did not know how to prepare a specialty dissertation. 65% of them reviewed Medline at least once. 58% of them did not have any scientific publication, and only 3% had at least 10 scientific publications. 56% of them suggested that the duration of residency was adequate and 36% thought that it was long. 37% reported that the training during rotations in other sections was inadequate. 61% of junior residents reported having no communication problem with seniors and 65% of senior residents reported no communication problem with juniors. The most common complaints during training periods were excessive workload (56%), excessive number of on-duty shifts (45%), and economic problems (44%). When future objectives were considered, 30% wanted to work in private enterprise, 29% wanted an academic career, 22% wanted to work on their own and 19% wanted to work abroad.

Conclusions: The percentage of residents with technological accessibility and use was relatively high, but reserved training time was low. Evaluation of education was low as well. Rotations of sections were not effective. Moreover, there were additional complaints like workload, on-duty shifts and economic difficulties. In conclusion, theoretical and practical information, competency in foreign languages and the number of scientific publications were not adequate. To prolong the duration of residency might increase displeasure and decrease motivation. More effective use of time by trainers might constitute a better approach.

Key Words: Resident, doctor, physician, questionnaire, survey

Türkiye'de Asistan Hekimler. 11 İilde, 1069 Asistan Hekim Katılımlı Anketin Sonuçları

Amaç: Türkiye'deki asistan hekimlerin sorun, beklenti ve hedeflerini ortaya koymak ve tıpta uzmanlık eğitiminin gelişmesine, iyileştirilmesine katkı sağlamak.

Arka Plan: Tıpta uzmanlık eğitim süreci öğretim üye kadrosu, eğitim alınan kurum, hükümet politikaları, vs gibi faktörlere bağlı olarak belirgin farklılıklar gösterebilir. Türkiye'deki asistan hekimlerin özellikleri, sorunları, beklenti ve hedefleri öğrenilirse bu sürecin geliştirilmesi ve iyileştirilmesi daha doğru ve hızlı olarak gerçekleştirilebilir.

Yöntem ve Gereç: 50 soruluk anket formu hazırlanarak, 11 ilde, 15 üniversite ve 12 Sağlık Bakanlığı Eğitim ve Araştırma Hastanesinde görev yapan 1069 asistan hekime (İstanbul: 503, Ankara: 116, İzmir: 86, Erzurum: 71, Sivas: 60, Bolu: 49, Bursa: 49, Şanlıurfa: 46, Trabzon: 38, Kocaeli: 32, Van: 20) randomize

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olarak birebir ulaşılarak anket gerçekleştirildi. Katılımcıların erkek/kadın oranı; 1.53, yaş aralığı; 23-48, ortalama yaş; 28.37, kıdem aralığı; 1-66ay, ortalama kıdem; 19.7 aydır.

Bulgular: % 83'ü şu anda eğitim aldığı uzmanlık dalını tercih etmekten memnundur. Uzmanlık eğitimine başlamanın en sık nedeni mesleki tatmindir (% 80). % 84'ünün kişisel bilgisayarını, % 69'unun kişisel internet bağlantısını, % 90'ının bir elektronik posta adresi vardır. % 44'ü interneti hergün, % 26'sı iki günde bir kullanmaktadır. % 97'sinin yabancı dili İngilizce olup, resmi yabancı dil seviye tespit sınavlarından herhangi birinden yeterlilik puanı alanların oranı % 5.6'dır. % 78'inde çalıştıkları bölümde düzenli olarak eğitim toplantıları yapılmaktadır, % 16'sında ise hiç yapılmamaktadır. Eğitim toplantısı yapılan hastanelerin % 53'ünde haftalık eğitim süresi 1-2 saat, % 34'ünde 3-4 saat, % 13'ünde 4 saatten fazladır. % 67'si yetersiz teorik, % 33'ü yetersiz pratik eğitim aldığını düşünmektedir. % 28'ine yazılı sınav, % 18'ine sözlü sınav yapılmakta olup, % 38'ine hiçbir sınav yapılmamaktadır. % 23'ü Medline'in, % 82'si Science Citation Index Expanded'in ne olduğunu, % 65'i ise uzmanlık tezinin nasıl hazırlanacağını bilmemektedir. % 65'i şimdiki kadar en az bir kez Medline üzerinden makale taraması yapmıştır. % 58'inin hiç bilimsel yayını yoktur. 10'dan fazla bilimsel yayına sahip olma oranı % 3'dür. % 56'sı Türkiye'de halen geçerli olan yasal uzmanlık eğitim süresini yeterli, % 36'sı ise uzun bulmaktadır. % 37'si rotasyonlar sırasında verilen eğitimi yetersiz bulmaktadır. Alt kıdem asistanların % 61'i üst kıdemlerle ve üst kıdem asistanların da % 65'i alt kıdemlerle olan iletişimde herhangi bir sorun yaşamamaktadır. Eğitim süresince en zorlanılan konular; % 56 iş yoğunluğu, % 45 nöbetlerin çokluğu, % 44 ekonomik sorunlardır. Eğitim tamamladıktan sonraki hedefler; % 30 özel hastanede çalışmak, % 29 akademik kariyer yapmak, % 22 özel muayenehane açmak, % 19 yurtdışında çalışmaktır.

Sonuç: Teknolojiye ulaşma ve kullanma oranları görece yüksektir ancak eğitime ayrılan süre düşüktür. Eğitimin değerlendirilmesi yetersizdir. Rotasyonlar efektif değildir. Bunlara bir de iş, nöbet yoğunluğu ve ekonomik sorunlar eklenmektedir. Sonuç olarak, teorik ve pratik bilgide, bilimsel yayın için gerekli temel bilgide, yabancı dil bilgisinde ve yayın sayısında eksikler ortaya çıkmaktadır. Sorunların çözümü için uzmanlık eğitim süresini uzatmak yoluna gidilmesi memnuniyetsizliği arttırabilir, motivasyonu azaltabilir. Sürenin eğitimciler tarafından iyi kullanılması, daha doğru bir yaklaşım olabilir.

Anahtar Sözcükler: Asistan, doktor, tıp, sorgulama, anket

Introduction

Medical doctors that are assigned to a medical department for specialization, to receive education and training, and to perform medical service, research and practice are nominated as resident physicians or residency students. Despite a great accumulation of and easy access to scientific data, it is impossible to be a master of a subject (1). Consequently, many physicians prefer to become a specialist in a given branch.

Medical residency is one of most expensive and longest periods among all postgraduate education programs. Moreover, the level of responsibility required is very high. It includes three main components: organization (laws and directives), procedure (education and training activities, public service, scientific research) and consequence (competency, certification) (2).

The residency process shows considerable differences according to factors like country, province, government policies, teaching staff, the institution and economics. The activities involved in this process should continue in each circumstance in a realistic and equal manner.

Of course, there are some problems in the residency process as in many other countries. However, their extent and the current status are not clear.

The aim of this study was to determine the problems, expectations and objectives of resident physicians in Turkey and to provide a contribution to the development and amendment of the residency process, in an effort to facilitate the training of specialists with more knowledge, who produce more information, and who are of more benefit to both patients and the society.

Materials and Methods

The study was designed at the General Surgery Department of Istanbul Teaching Hospital, and was approved by the Local Ethics Committee. This study was a cross-sectional study. There are 81 provinces in Turkey; residency training is possible in 33 universities in 38 provinces and 36 teaching hospitals in 6 provinces. Nineteen of the teaching hospitals are servicing in only one specific branch and 17 teaching hospitals offer residency training in more than three branches.

The population of this study included 5270 resident physicians working in 15 universities and 12 teaching hospitals in the largest 11 provinces of Turkey in January 2006. The sample size was calculated as 1044 by GraphPad instat V.3 software in order to achieve 90% power, 2% lapse and 5% type-I error. We contacted a randomly selected 1069 resident physicians from 15 university and 12 teaching hospitals in 11 provinces that were on duty between January 2006 and January 2007. Male/female ratio of the participants was 1.53 (647 males and 422 females), their mean age was 28.37 years (range, 23-48 years), and mean duration of the residency was 19.7 months (1-66 months).

Participation ratio was 20.2% among all resident physicians of the 27 hospitals that were included (16.5% in university hospitals and 23.9% in teaching hospitals). When departments were taken into consideration, participation ratios were 28.1% for surgery, 23.4% for internal medicine and 8.9% for basic medical sciences. The distribution of hospitals according to provinces and number of participants is summarized in Table 1.

The questionnaires were administered via face-to-face interviews. None of the questionnaires was sent to the participants or received via any other communication instrument (telephone, fax, mail or e-mail). The participants were asked to complete the forms in their own handwriting.

The identities of the participants were not recorded on the forms. Anonymity of the responses was stated in bold characters on the cover page of the forms and this was also explained to the participants before they completed the questionnaire.

The questions were determined by the authors in virtual meetings on the web. Eight questions were definitive, 16 had two possible responses (yes/no, present/absent), 20 were multiple choice and 6 were "fill in the blank" format. The questionnaires from Istanbul were collected at Istanbul Teaching Hospital. The questionnaires from other provinces were sent to Istanbul Teaching Hospital via regular post by the investigator in that province. All forms were transferred to Microsoft Office XP Excel version 2006 software and statistical analyses were performed.

The results were presented as percentages. The participants were not obliged to answer all questions. As a consequence, some summations in the "Results" section might not reach the level of 100.

Table 1. Participants, related to their departments.

Specialty	Participant (n)
General Surgery	134
Internal Medicine	126
Gynecology and Obstetric	115
Pediatry	87
Family Medicine	80
Neurology	56
Radiology	41
Ear Nose Throat Disease	38
Cardiology	35
Eye Disease	33
Thorax Disease	31
Urology	31
Ortopedia	25
Infection Disease	25
Microbiology	24
Cardiovascular Surgery	23
Emergency Medicine	22
Pysical Medicine	22
Physichiatry	21
Pathology	18
Plastic and Reconstructive Surgery	18
Dermatology	17
Biochemistry	16
Neurosurgery	16
Anesthesiology	15
Total	1069

Results

The participants were from 25 different departments: 494 (46%) were from surgical departments, 476 (44%) from internal medical departments and 99 (9%) from basic medical sciences (Table 2). Fifty-five percent of the participants were single and 40% were married; 79% did not have any children, 17% had 1 child, 0.4% had 2 children and 0.006% had 3 children.

Forty-five percent of the participants used their own cars to go to work, 26% preferred public transportation and 0.03% used hospital shuttles. Eighteen percent did not use any vehicle.

Table 2. The distribution of hospitals according to provinces and the numbers of participants.

Istanbul Hospitals	Istanbul Participants	Ankara Hospitals	Ankara Participants	Other Cities	Other Cities Participants
Istanbul University Istanbul Medical School	49	Ankara University, Medical School	92	Erzurum Ataturk University, Medical School	71
Istanbul University Cerrahpasa Medical School	26	Ankara Numune Teaching Hospital	24	Sivas Cumhuriyet University, Medical School	60
Marmara University, Medical School	24			Bolu Izzet Baysal University, Medical School	49
Istanbul Teaching Hospital	59			Bursa Uludag University, Medical School	49
Goztepe Teaching Hospital	56			Sanliurfa Harran University, Medical School	46
Bakirkoy Sadi Konuk Teaching Hospital	52			Trabzon Karadeniz Teknik University, Medical School	37
Sisli Etfal Teaching Hospital	47			Kocaeli University, Medical School	32
Haydarpasa Numune Teaching Hospital	41			Van Yuzuncu Yil University, Medical School	20
Okmeydani Teaching Hospital	37				
Kartal Teaching Hospital	35				
Haseki Teaching Hospital	34				
Vakif Gureba Teaching Hospital	24				
Fatih Sultan Mehmet Teaching Hospital	19				
Istanbul Total	503	Ankara Total	86	Other Cities Total	364

Forty-six percent of the participants worked as a general practitioner before and 52% did not. Nine percent of them passed the exam to attend a residency program in at least one department, but only 11% completed the specialty education program. Eighty-three percent were pleased to be in their current department. The departments preferred by the 14% who were not satisfied with their specialty are listed in Table 3.

In the section of the questionnaire in which more than one choice could be indicated, the reason for beginning residency was reported as job satisfaction (to be aware of

all information in a definite subject) in 80% of the patients, as gaining more respect in society in 41.6%, as earning more money in 31% and for other reasons in 6%.

The ratios of residents having a personal computer and internet connection are presented in Table 4. Ninety percent had an e-mail address. When the frequency of internet connection was questioned, 44% used it daily, 26% every other day, 29% once a week and 1% once a month or rarer. Ninety-one percent of residents knew what "Microsoft Power Point" software was, while 7% either did not know or responded incorrectly.

Table 3. Preferred specialties which by not satisfied with their own specialties.

Preferred Specialty	Participant
Eye Disease	235 (22%)
Dermatology	213 (20%)
Gynecology and Obstetric	139 (13%)
Radiology	128 (12%)
Cardiology	107 (10%)
Pediatry	96 (9%)
Internal Medicine and Phschiatry	64 (6%)
Pysical Medicine	32 (3%)
Plastic and Reconstructive Surgery	21 (2%)
General Surgery, Ortopedia,	
Ear Nose Throat Disease,	21 (2%)
General Practitioner, Urology	
Infection Dsease, Sport Medicine	10 (1%)

Table 4. The ratios for having personal computer and internet connection.

Time	Personnel Computer	Internet
No	171 (16%)	331 (31%)
<1 year	310 (29%)	256 (24%)
1-5 year	395 (37%)	352 (33%)
>5 year	192 (18%)	128 (12%)

The native language of all participants was Turkish; as foreign language, 97% knew English, 2% German, 0.6% French and 0.4% others. Eight percent of them knew foreign language at proficiency level, 29% at 'good' level, 44% at 'moderate' level and 19% at 'poor' level. However, only 11% of participants had attended any of the official foreign language proficiency examinations (foreign language examination for civil servants and inter university committee foreign language examination) conducted by the state and/or the Higher Education Council in Turkey. Of these, the rate of the participants who scored 60 points or higher on the examination was 52%. This rate was 5.6% for all participants. At the beginning of residency, 45% of the subjects were informed about the aim, program and rules of training while 51% did not receive any information. Forty-three percent were informed about which textbooks they should buy, but 52% were not.

While 78% of the participants reported that there were regular education meetings in their department, 6% reported that the meetings were irregular and 16% reported that they had no meetings. The duration of education was 1-2 hours per week in 53% of hospitals where education activities were present, 3-4 hours per week in 34% and more than 4 hours per week in 13%. The types of education were practicing on patient and/or model (11%), case discussion (44%), and mortality-morbidity discussion in 29%.

While 52% of participants felt able to ask questions to academic personnel or specialists who were present in the department, 5% expressed embarrassment to do so. When the behaviors of academic personnel/specialists were considered, 63% of participants reported that they were helpful/supportive, 19% reported they were careless/insensitive and 11% reported that they were overwhelming/humiliating.

Sixty-four percent of participants were completely and 22% were partially content with the head of the department, while 11% of them were definitely displeased.

Responses of the participants regarding the adequacy of the theoretical and practical training they received are presented in Table 5.

The assessments of the resident physicians were performed by written examinations in 28%, by oral examinations in 18%, and by both in 14%. Thirty-eight percent of the resident physicians reported having no kind of evaluation.

While 86% of the participants suggested that national or international scientific meetings would contribute to their training, 75% responded that there were no regulations for their attendance.

Table 5. The answers of the participants to the question, "what are you think about the adequacy of theoretical and practical training of your received".

	Theoretical training is inadequate	Practical training is inadequate
University Hospital	545 (51%)	342 (32%)
Teaching Hospital	887 (83%)	363 (34%)
Total	716 (67%)	352 (33%)

Twenty-three percent of them did not know what “Medline” was, 72% had no idea about “Science Citation Index Expanded” and 35% never performed an article review on Medline.

Seventy-eight percent of the participants were never educated on planning and conducting a scientific research and 52% stated that they were not being encouraged to perform a scientific research. Scientific publications of the participants (manuscripts, oral or poster presentations in scientific meetings) are shown in Table 6.

Forty-one percent of the participants suggested that the names of directors, academic personnel or specialists should be written on the paper among the investigators whether or not they made any contribution to the study, but 44% of the participants did not consider this approach ethical.

Sixty-five percent of the subjects did not know how to prepare a specialty dissertation. Thirty-five percent reported the dissertation subject was determined by others. Of these subjects who knew their thesis subjects, 69% were content and 31% were not content with the subject.

Fifty-six percent of participants reported that the current duration of their residency was adequate, 5% believed it was short and should be increased, and 36% claimed that it was long and should be shortened. Twenty percent of the participants reported that the training during rotations in other sections was completely adequate and 30% believed it was partially adequate, but 37% considered it inadequate.

While 61% of junior residents did not have any problems in hierarchic relations, 32% had mild and 5%

had serious problems. On the other hand, 65% of senior residents did not have any problems with juniors, 25% had mild and 1% had serious problems. The questions with more than one possible response revealed that the most common complaints during training periods were excessive workload (56%), excessive number of on-duty shifts (45%), economic problems (44%), and inadequate interpersonal communication (22%). When future objectives were considered, 30% preferred to work in private enterprise, 29% preferred an academic career, 22% preferred to work on their own, and 19% preferred to work abroad.

Discussion

Studies performed in order to obtain information about many people via a written form or interview were known as questionnaires. It is difficult to provide the contribution of subjects in many occupational or ethnic groups. It is also not easy to obtain serious and realistic answers from the participants. Many questionnaires in the medical field could only be performed via classical or electronic post. Feedback ratios in studies that are performed via post are generally low; there are studies with feedback ratios as low as 30.1% (1-4). In this study, all participants were interviewed face-to-face at their workplaces by one of the investigators, who were all physicians themselves.

A review of Medline revealed a lack of any questionnaire that dealt with resident physicians in any country, and the same was valid in Turkey. There has not been any study from Turkey as a whole about the training and working conditions of residents. Only one local study

Table 6. Scientific publications numbers.

Scientific Publications Types	Scientific Publications Numbers				
	0	1	2-5	6-10	>10
International Scientific Journal	897 (84%)	64 (6%)	42 (4%)	6 (0.6%)	5 (0.5%)
National and International Scientific Journal	759 (71%)	117 (11%)	128 (12%)	10 (1%)	6 (0.6%)
International Scientific Congress Presentations	983 (92%)	32 (3%)	10 (1%)	0 (0%)	0 (0%)
National and International Scientific Congress Presentations	481 (45%)	138 (13%)	299 (28%)	57 (5.4%)	58 (5.5%)
Total	620 (58%)	128 (12%)	213 (20%)	32 (3%)	32 (3%)

was performed by Turkish Medical Association in Izmir (2). Although our study did not involve all medical institutions in our country with specialty training programs, all of the largest provinces, all provinces in which there is at least one teaching hospital, and more than half of the teaching institutions (other than reference hospitals) were included (27/50). Hence, it was expected to improve the understanding of the residency concept both in our country and the world.

It was very important that many of the residents were pleased to be in their current sections (83%). As a consequence, they would be highly motivated in becoming educated, producing scientific information and providing qualified public service. This would lead to the well being of the residents, which is important for the quality of their education (4,5). Those residents not content with their current sections were interested mostly in Ophthalmology (22%) and Dermatology (20%). These two departments require the highest scores in residency qualifications. A relatively fewer number of on-duty shifts, lighter public service intensity and higher income expectations as a specialist might explain this preference.

All stages of residency training (decision, process and aims after expertise) are closely related with economic issues (6-8). Wheatley and colleagues (8) performed a study with 92 residents in cardiothoracic surgery and found that 87.2% of the participants preferred to work on their own and only 12.8% were planning an academic career.

Approximately one-third of our study group began residency to earn more money, and the same tendency continued in their future plans (52%). Moreover, 44% of residents had economic problems during their training. This close relation with economic issues may have negative effects on the quality and quantity of education. Socially, this process can be accepted, if it is regarded as learning a profession and maintaining one's life in this way (6,7). However, it should also be taken into consideration that the main cause of beginning residency is to obtain all information in a specific department. It is important to obtain a balance between training and economical issues.

Most of the residents (84%) had personal computers and enough information to employ them for educational purposes. The ratio of those familiar with "Microsoft Power Point", one of the most widely used software

programs in medicine, was 91%. Sixty-nine percent of them had personal internet access and were connected to the internet quite frequently (70% at least every other day, 44% every day). These data suggested that the prevalence of knowing, accessing and using technology was high.

Regarding foreign languages, 97% of the participants knew English and this is very favorable since English is considered the official language of science. However, the proficiency level in English was considerably low; only 11% had participated in official examinations for foreign language proficiency level determination and only 5.6% of all participants scored 60 points or higher on the examination. This is an important problem for scientific training in countries like ours in which English is not the native language.

In this study, training of the residents was evaluated under two main components:

Presentation of scientific information (theoretical and practical), and presentation of producing scientific information (knowledge of basic scientific publication). Approximately two-thirds of the residents believed that the level of theoretical education was inadequate, whereas one-third also believed the same was true for practical training. When university and education and teaching hospitals were compared, they were similar in presentation of practical knowledge (32% vs. 34%), but education in theoretical knowledge was significantly lower in teaching hospitals (51% vs. 83%). According to the questionnaire, possible reasons for the problems present in education included:

The residents were not informed and steered adequately in the beginning: 51% of them did not receive any information and 52% were not informed about which textbooks they should buy.

The duration and number of educational meetings were inadequate: the duration of meetings was less than 2 hours per week in 53% of departments that had regular training programs and 44% of these meetings were performed on a case study basis.

There were communication problems between educators and residents: 43% of participants did not respond to the question "Can you easily ask questions to your seniors?" and 5% answered "No". When the behaviors of academic personnel/specialists were taken into consideration, 19% reported that they were

careless/insensitive and 11% of residents reported that they were overwhelming/humiliating.

The evaluation of the training was unsatisfactory: 38% of the residents were not evaluated by oral and/or written examinations.

The level of training during rotations in other sections was not adequate (80%).

Regulations about attendance at scientific meetings were inadequate (75%).

The intensity of public service was high (56%) as were the number of on-duty shifts (45%).

In this study, we evaluated the scientific contribution of the residents according to the number of their publications. This could also be performed by ascertaining international citations of the residents, but the number of scientific publications was very few. The most frequent scientific publications were oral or poster presentations in national congresses. Fifty-four percent of the residents did not have any scientific publications; 71% had no manuscript and 84% had no manuscript in an international journal (Table 6). Certainly the main reason for this finding was educational shortcomings. Specifically, inadequacy in training about planning and employing a scientific research (78%), inadequacy in motivation (52%) and inadequacy in training in the

preparation of a specialty dissertation (65%) could be contributing factors.

No country can claim that its residency training program is excellent. There are some deficiencies and problems in Turkey as well. There is no doubt that legal regulations that will be passed by the Ministry of Health and senates of universities will play an important role. However, education of the trainers has an indispensable role as well (3,9). Effective transfer of scientific information and the knowledge of how to present scientific information to a relatively younger population of physicians (28 years of age in this study) can only be achieved by well-trained educators.

The benefits of prolonging the duration of residency training are controversial. In one study, it was presumed that the best way to prevent burnout among residents and increase the level of their well-being was to shorten working hours (6,10). Moreover, Hutter and colleagues (11) showed that shortening the working hours of residents did not impair the quality of their patient care.

In our study, nearly half of the participants reported that the duration of residency training was adequate and one-third of them suggested that it might be shorter. In conclusion, the increase in productivity afforded by well-trained educators may be more effective than increasing the duration of residency.

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