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Problems in Infectious Diseases and Clinical Microbiology Residency Training

Enfeksiyon Hastalıkları ve Klinik Mikrobiyoloji Uzmanlık Eğitiminde Sorunlar

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Abstract

Introduction: In this study, it was aimed to determine the problems encountered by Infectious Diseases and Clinical Microbiology residents during residency training in order to identify solutions to these difficulties.

Materials and Methods: A survey was conducted between December 19 and 31, 2018 using a 46-item questionnaire. Participants were able to participate in the survey anonymously via the website of the Infectious Diseases and Clinical Microbiology Specialty Society of Turkey. Residents were informed via text message and e-mail to encourage participation. The survey included questions about current problems with the physical conditions, access to scientific information resources, the quality of residency education, examinations, night shifts, mobbing, rotations, and the possibility of following up special patient subgroups.

Results: A total of 134 residents completed the questionnaire, 73 of whom were in university educational hospitals and 61 were in training and research hospitals operating under the Ministry of Health. Around 68% of the participants stated that they were working in unsuitable physical conditions and 33% had no access to medical information resources outside of the hospital. Ninety-four participants (61%) declared that their clinic had a regular training program which was renewed annually, but only 36% of these asserted that it was adequate for their training. When asked about the frequency of coworking with faculty members for scientific data/study production, 46% of the respondents answered once a year or less. Fifty-nine participants (44%) had seven or more night shifts per month. Thirty-six percent of the participants reported that they were subject to workplace bullying, which they said was perpetrated most frequently by faculty members (36%). Only 22 participants (16%) considered the microbiology training was adequate and 15% rated the training received during rotations as adequate. Thirty-three of the residents had performed a liver biopsy or been trained in this procedure. Fifty-five participants (46%) had never worked at a vaccine outpatient clinic. According to the trainees, the most important problem was inadequate education (28%) and 55% declared that they would not choose the same specialty if they entered the national medical specialty exam again.

Conclusion: Residents describe many problems during their specialty training, such as inadequate education, excessive night shifts, increased workload, and workplace bullying. These problems should be presented more frequently with valid scientific data within the professional societies, and in light of this information, physician working groups should be formed to develop solutions.

Keywords: Medical specialty education, medical residency training, residents, specialist in medicine, Infectious Diseases and Clinical Microbiology

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Öz

Giriş: Çalışmamızda tıpta uzmanlık öğrencilerinin, tıpta uzmanlık eğitiminde yaşadığı zorluklara çözüm üretilebilmesi için branşımıza özgün sorunların belirlenmesi amaçlanmıştır.

Gereç ve Yöntem: Türkiye Enfeksiyon Hastalıkları ve Klinik Mikrobiyoloji Uzmanlık Derneği internet sitesi üzerinden, 19-31 Aralık 2018 tarihleri arasında isim ve kurum belirtilmeden katılımın sağlanabildiği 46 soruluk bir anket düzenlendi. Hekimler kısa mesaj ve elektronik posta yoluyla bilgilendirilerek katılımları teşvik edildi. Ankete güncel sorunlar gözetilerek hazırlanan ve fiziksel şartlar ve bilgi kaynaklarına erişim, verilen eğitimin niteliği, sınavlar, nöbetler, mobbing, rotasyonlar, özel hasta gruplarının izlemi imkanını değerlendirecek sorular dahil edildi.

Bulgular: Yetmiş üçü üniversite, 61'i ise eğitim ve araştırma hastanesinde görevli olmak üzere toplam 134 tıpta uzmanlık öğrencisi anketi doldurdu. Katılımcıların %68'i uygun olmayan fiziksel koşullarda çalıştıklarını, %33'ü hastane dışında tıbbi bilgi kaynaklarına ulaşım imkanlarının olmadığını belirtti. Doksan dört (%61) katılımcı kliniklerinde her yıl hazırlanan düzenli bir eğitim programı olduğunu belirtirken bunların sadece %36'sı bu programın eğitimleri için yeterli olduğunu belirtti. Öğretim üyeleri ile eğitim ve bilimsel çalışma amaçlı birlikte bulunma sıklığı açısından değerlendirildiğinde, katılımcıların %46'sı yılda "bir veya daha az" cevabını verdi. Yedi ve üzeri nöbet tutanların sayısı 59 (%44) idi. Katılımcıların %36'sı mobbinge maruz kaldığını belirtirken en sık öğretim üyeleri tarafından (%36) mobbing yapıldığı sonucuna varıldı. Sadece 22 hekim (%16) aldıkları mikrobiyoloji eğitimini yeterli bulduğunu belirtirken katılımcıların %15'i rotasyonlardan alınan eğitimi yeterli bulduğunu söyledi. Karaciğer biyopsisi yapan ya da eğitimini alan 33 hekim varken, aşı polikliniği yapmayanların sayısı 55'ti (%46). Hekimlere göre en önemli sorun %28 oranında eğitim eksikliği iken katılımcıların %55'i uzmanlık sınavına tekrar girse aynı bölümü tercih etmeyeceğini belirtti.

Sonuç: Uzmanlık eğitimi süresince eğitimin yetersizliği, fazla nöbet sayısı ve artan iş yükü, mobbing başta olmak üzere tıpta uzmanlık öğrencilerinin tanımladığı pek çok problem bulunmaktadır. Karşılaşılan bu sorunlar mesleki değerler içerisinde bilimsel verilerle daha sık ortaya konulmalı ve bu bilgiler ışığında hekim kolları oluşturularak sorunlara yönelik çözümler üretilmelidir.

Anahtar Kelimeler: Tıpta uzmanlık eğitimi, asistan hekim, araştırma görevlisi, tıpta uzmanlık öğrencisi, Enfeksiyon Hastalıkları ve Klinik Mikrobiyoloji

Introduction

Residency training is defined as the training that should be provided to residents at the medical schools or Ministry of Health training and research hospitals to which they are admitted after taking the medical specialty exam to promote their professional and personal development and produce qualified medical specialists. In Turkey, the required competencies and content of residency training have been determined according to the standards of the Curriculum Development System of the Board of Medical Specialties, which was established by the Turkish Board of Medical Specialties to determine the curriculum and standards of medical specialties. The Core Curriculum for Infectious Diseases and Clinical Microbiology Residency Training, published in July 2015, defines the clinical and interventional competencies that residents must acquire and specifies the necessary learning and teaching objectives, rotations, and competencies expected to be acquired through rotations^[1,2].

The residency training period is critical for physicians to be able to manage the problems they will encounter in their future practice, and well-trained specialists enable the provision of quality healthcare service nationwide. However, studies have shown that residency trainees face numerous problems such as workplace bullying, violence, low quality education, having to work in inappropriate physical conditions, and most notably, burnout syndrome^[3-6]. The aim of this study was to identify problems specific to our branch in order to find solutions to the difficulties experienced by medical residents during residency training.

Materials and Methods

A questionnaire consisting of 46 questions was created to assess the problems encountered during Infectious Diseases and Clinical Microbiology residency training (Questionnaire 1). The Medical Residency Training Survey conducted in 2016 by the Residents and Junior Specialist Physicians Branch of the Turkish Medical Association was used as a reference when preparing the questionnaire^[6]. In light of current issues, the questionnaire also collected data about physical workplace conditions, access to information resources, the quality of the training provided, exams, night shifts, and workplace bullying. In addition, questions evaluating microbiology training, aspects of rotations, and opportunities to see special patient groups (e.g., those with HIV/AIDS, chronic viral hepatitis, and hematological malignancies) were added to address branch-specific problems. There were no open-ended questions; some of the items were two-option "yes/no" questions, while others were statements with options such as "No opinion, Agree, Strongly agree, Not sure, Disagree, and Strongly disagree". The questionnaire was made available on the website of the Infectious Diseases and Clinical Microbiology Specialty Society of Turkey (EKMUD) between December 19 and 31, 2018. Physicians were notified of the study via text messages and e-mail and informed that they would not provide their name or institution when completing the questionnaire in order to encourage participation. The same means were used to obtain the participants' informed consent. The study was approved by the Executive Board of EKMUD.

Statistical Analysis

The study data were recorded in Microsoft Office Excel and analyzed using descriptive statistical methods.

Results

The questionnaire was completed by a total of 134 medical residents, 73 of whom worked at universities and 61 of whom worked at training and research hospitals. The mean age of the respondents was 29 years; 100 were women and 34 were men. In addition, 104 of the respondents were members of EKMUD. The distribution of the respondents by year of education is shown in Figure 1.

According to the results of the survey, 68% (92/134) of the respondents stated that they worked in unsuitable physical conditions, while 33% stated that they were not able to access medical information resources outside of the hospital.

Ninety-four respondents (70%) stated that there was a regular training program renewed annually in their clinic. Of these, only 36% (34/94) were of the opinion that this program was sufficient for their training, while 32% (30/94) stated that they thought it was insufficient. Thirty respondents (32%) selected the "not sure" or "no opinion" options. When asked who they thought contributed most to their training, the most common answers were faculty members (n=72, 54%) and more senior residents (n=38, 29%). These were followed by fewer responses for specialists and head residents.

When asked how often they were with faculty members for educational and scientific research purposes, 20% (27/134) of the respondents said "several times a year", 25% (34/134) said

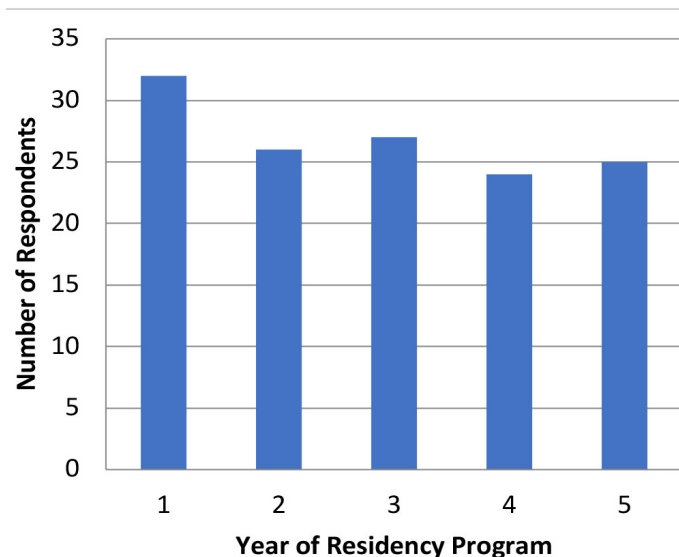


Figure 1. Distribution of the participants according to year of training

"once a year or less", and 9% (12/134) said "never". Forty-six percent (62/134) stated that they met with faculty members at frequencies ranging from several times a month to every weekday. According to the results, 46 (34%) of the respondents worked with faculty members once a year or less for the purpose of scientific article writing and publication (national or international), while 29 (21%) reported that they never met with faculty members for this purpose. Of the 119 respondents whose thesis topic was determined, only 40% (48/119) indicated that they were able to receive sufficient counseling for their thesis, while 23% (24/119) marked the "disagree" or "strongly disagree" options for this statement.

Only 65 (48%) respondents considered the teaching/training quality of the faculty members in their clinic to be sufficient for residency training. Forty-eight respondents (35%) did not believe the training provided at their clinic during residency was sufficient, while 52 (39%) stated that they considered it sufficient and 34 were not sure. Seventy-three respondents (54%) believed that they would graduate from their institution as a proficient specialist, whereas 40 (30%) were unsure or had no opinion. Twenty-one respondents (15%) disagreed or strongly disagreed with this statement.

Fifty-nine respondents (44%) reported working 7 or more night shifts per month, while only nine said they were able to use leave time after a night shift. Most of the residents (116, 86%) did not have problems reaching on-call faculty/specialists during night shifts.

Although 36% (49/134) of the respondents stated that they had been subjected to workplace bullying, 68 respondents answered the question about who they were bullied by most frequently. It was observed that workplace bullying was most often perpetrated by faculty (23/63, 36%), followed by the clinic chief (22%), senior residents (15%), specialists (12%), and nurses (12%).

Forty-four percent (59/134) of the respondents did not have access to a laboratory in their clinic where they could perform basic microbiological procedures, and 41% (55/134) did not have a microbiology rotation. Only 22 physicians (16%) expressed that the microbiology training they received was sufficient and 16% (21/134) stated that the training received from rotations to be sufficient. Only 33 physicians had performed or underwent training for liver biopsy, while 55 (45%) had not worked in a vaccination outpatient clinic.

It was learned that resident evaluation exams were not held in 24 of the respondents' clinics, while 34 respondents reported having an exam once a year or less and 76 respondents several times a year. Only 61 respondents (45%) believed that these exams contributed to their education/training process.

According to the respondents, the most important problem experienced during the course of their residency was inadequate training (28%), followed by menial tasks (26%) and excessive night shifts (15%). Fifty-one percent of the respondents affirmed that they had considered resigning, while 55% said they would not choose the same department if they took the medical specialty exam again. Other questions included in the questionnaire and their responses are given in Table 1.

Discussion

Residency training is an organized training program that is provided with guidance and supervision to promote the professional and personal development of the trainees, as well as ensure that patients are provided safe and appropriate healthcare service^[7]. However, problems and deficiencies experienced during this critical period impact the quality of training.

Workplace bullying (also called mobbing) refers to psychosocial conflict that occurs between managers and employees or between employees and can involve many actions such as psychological intimidation, psychological violence, oppression, besiegement, harassment, and causing discomfort or distress^[8]. The Turkish Language Institute uses the word 'bezdiri' as the equivalent of mobbing, and defines it as "targeting a certain person within groups such as workplaces, schools, etc. and intimidating, isolating, and discrediting them by systematically interfering with their work and causing them to feel uneasy"^[9]. According to the Psychological Harassment in the Workplace

Information Guide prepared by the Turkish Ministry of Labor and Social Security, workplace bullying is defined as all malevolent, deliberate, and negative attitudes and behaviors perpetrated in the workplace by one or more individuals toward another individual/other individuals, that are continued systematically for a certain period of time, are done with the intention of intimidating, hindering, and getting the victim fired, and which damage the self-worth, professional status, social relationships, or health of the victim(s)^[10]. Workplace bullying can be perpetrated by supervisors against those under their command, by subordinates against superiors, or between employees of the same status (lateral violence). In addition, it should involve a deliberate, systematic, and continuous pattern of behavior (lasting at least three months), and must have a negative impact on the victim's personality, professional status, or health. Because medical training is often a period involving sociological and professional stratification such as mentor-pupil relationships and seniority, work areas where ethically inappropriate relationships are established can become a breeding ground for workplace bullying. In a survey conducted by Maraolo et al.^[11] on 416 infectious diseases specialists and microbiologists working in European countries including Turkey, 21.9% of the participants stated that they had been subject to workplace bullying. We attribute the higher rate of respondents who reported having been subjected to workplace bullying in our study to the highly hierarchical organizational structure encountered during medical training in our country.

As in all other professional fields, the work environment, conditions, and workplace relationships in medical residency

Table 1. Evaluation of the problems encountered in medical residency training

	Yes (N, %)	No (N, %)
Do you have a break room?	97, 73	37, 27
Do you have a dedicated shower and restroom in your department for night shifts?	85, 63	49, 37
Do you have your own locker in the hospital?	127, 95	7, 5
Is there a library in your department that you can use?	48, 36	86, 64
Do you have access to medical information resources via the internet at the hospital?	101, 85	20, 15
When you began your medical residency training, did you receive orientation training about the core competencies, learning goals, and expectations of your department's discipline?	49, 39	85, 64
Do you experience any problems reaching the on-call instructors/specialists during night shifts?	18, 13	116, 87
Are you able to find someone to help you when you have a problem?	91, 67	43, 33
Do you have a laboratory in your clinic where you can perform basic microbiological procedures?	75, 56	59, 44
Do you have a medical microbiology rotation?	79, 58	55, 42
Do you follow HIV-infected patients during your residency training?	107, 88	14, 12
Do you have the opportunity to follow patients diagnosed with viral hepatitis or to attend at a hepatitis outpatient clinic during your residency training?	108, 89	13, 11
Do you have the opportunity to follow patients with hematological malignancies and/or a history of organ transplantation?	103, 85	18, 15
If exams are done in your clinic, do you think they contribute to your education/training?	61, 46	73, 54
Have you ever considered resigning?	69, 51	65, 49

training are associated with employees' job loyalty and productivity. It is certainly inevitable that medical residents, who are usually at the beginning of their professional careers, will experience problems and difficult working conditions in an error-intolerant field like medicine. For this reason, identifying the problems related to medical residency training and the resulting modifications that will be made are important in terms of public health, as they directly affect the delivery of healthcare service. In a cross-sectional survey study by Tan et al.^[12] evaluating residents' satisfaction with their choice of specialization and their life and training conditions, 73.4% of the respondents stated that their instructors were qualified and that the residency training in their medical specialty was satisfactory, while 53.5% reported that they worked under physically unsuitable conditions. In addition, 46.4% of the respondents believed that the knowledge gained from rotations was insufficient, 53.5% felt they were being used for non-medical menial or personal tasks, and 53.9% reported that the number of night shifts they had to work exceeded the number required for vocational training. Obviously, some of our results are inconsistent with literature encompassing all specialties because our respondents were all specializing in the same field. However, the fact that similar problems are coming to light highlights common flaws in residency training across Turkey.

This study has some limitations. The questionnaire was prepared based on the Medical Residency Training Survey (unpublished data) conducted in 2016 by the Residents and Junior Specialist Physicians Branch of the Turkish Medical Association, and additions were made in consideration of our daily practice in order to identify problems specific to our branch (microbiology rotation, liver biopsy, following HIV-infected patients, etc.). However, the validity of this questionnaire has not been tested. In addition, the official number of Infectious Diseases and Clinical Microbiology residency trainees in our country could not be determined. Therefore, we are unable to comment on the representative nature of the study. Furthermore, although the respondents were asked if they had been subjected to workplace bullying and by whom, they were not provided a definition of workplace bullying, and what behavior(s) the respondents regarded as bullying was not scrutinized. More objective and descriptive questions should be used in future studies to investigate residents' experiences with workplace bullying. Another limitation is that the number of faculty members in the institutions was not questioned and there was no analysis of the faculty-to-trainee ratio.

One hundred and thirty four people participated in this study to examine the problems experienced in Clinical Microbiology and Infectious Diseases specialty training in Turkey. This is the first study investigating the problems experienced in Infectious Diseases and Clinical Microbiology residency training in our

country. Although the sample size was limited, we think that our descriptive research is important in terms of revealing problems specific to our branch.

Conclusion

Residents experience numerous problems during the course of residency training, including insufficient training, excessive night shifts, increasing workload, and, most notably, workplace bullying. These problems should be demonstrated with scientific data more frequently, and based on this information, working groups of physicians should be established to find ways to address these issues. In addition, although the issue of harassment from patients' families was not included in our questionnaire, this is another growing problem in Turkey that warrants investigation.

Ethics

Ethics Committee Approval: The study was approved by the executive board of EKMUD.

Informed Consent: Physicians were notified of the study via text messages and e-mail and informed that they would not provide their name or institution when completing the questionnaire in order to encourage participation.

Peer-review: Externally and internally peer-reviewed.

Authorship Contributions

Concept: D.A., H.A.E., M.I.T., C.A., Y.Ç., Design: D.A., H.A.E., M.I.T., Data Collection or Processing: D.A., Analysis or Interpretation: D.A., H.A.E., Literature Search: D.A., H.A.E., Writing: D.A., H.A.E.

Conflict of Interest: No conflict of interest was declared by the authors.

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Questionnaire 1. Questionnaire consisting of 46 questions

1. Your age:
2. Your gender:
 - a. Female
 - b. Male
3. Your institution:
 - a. Training and Research Hospital
 - b. University
4. What year of medical residency training are you in?
 - a. 1
 - b. 2
 - c. 3
 - d. 4
 - e. 5
5. Do you think you are forced to work in unhealthy/unsuitable physical conditions?
 - a. Yes
 - b. No
6. Is there a library in your department that you can use?
 - a. Yes
 - b. No
7. Are you able to access medical information resources via the internet at the hospital?
 - a. Yes
 - b. No
8. Are you also able to access medical information resources via the internet outside the hospital?
 - a. Yes
 - b. No
9. Do you have your own locker in the hospital?
 - a. Yes
 - b. No
10. Do you have a break room?
 - a. Yes
 - b. No
11. Do you have a dedicated shower and restroom in your department for night shifts?
 - a. Yes
 - b. No
12. When you began your medical residency training, did you receive orientation training about the core competencies, learning goals, and expectations of your department's discipline?
 - a. Yes
 - b. No
13. Does your training clinic have a residency training program prepared regularly each year?
 - a. Yes
 - b. No
14. If so, do you think it is sufficient for your training?
 - a. Yes
 - b. No
 - c. Not sure
 - d. No opinion
15. I consider the specialty education provided in residency training in our clinic sufficient.
 - a. No opinion
 - b. Strongly disagree
 - c. Disagree
 - d. Not sure
 - e. Agree
 - f. Strongly agree
16. When your residency is complete, do you think you will graduate from your current institution as a proficient specialist?
 - a. No opinion
 - b. Strongly disagree
 - c. Disagree
 - d. Not sure
 - e. Agree
 - f. Strongly agree
17. Who in your training clinic do you think contributes most to your education?
 - a. Faculty members
 - b. Head residents
 - c. Specialists
 - d. More senior residents
18. How many night shifts do you work per month?
 - a. 0-3
 - b. 3-6
 - c. 7-8
 - d. 9-10
 - e. Over 10

19. Do you use leave after a night shift?
 - a. Yes
 - b. No
20. Do you experience any problems reaching the on-call instructors/specialists during night shifts?
 - a. Yes
 - b. No
21. Are you subjected to workplace bullying?
 - a. Yes
 - b. No
22. By whom are you most subjected to workplace bullying?
 - a. Senior resident
 - b. Specialist
 - c. Faculty member
 - d. Clinic chief
 - e. Nurse
 - f. I have not experienced workplace bullying
23. Are you able to find someone to help you when you have a problem?
 - a. Yes
 - b. No
24. Have you ever considered resigning?
 - a. Yes
 - b. No
25. Which of the following do you think should be prioritized during medical residency training?
 - a. Qualified residency training
 - b. Conducting scientific research
 - c. Patient care and provision of service
 - d. Preferences of the teachers/trainers
 - e. Closing the service gap in hospital
 - f. Other
26. If you answered "Other", please explain:
27. How often do you meet with faculty members for the purpose of writing and publishing scientific articles (in national or international journals)?
 - a. Never
 - b. Once a year or less
 - c. Several times a year
 - d. Several times a month
 - e. At least once a week
 - f. Every weekday
28. Indicate how often you meet with the faculty members for educational and scientific study.
 - a. Never
 - b. Once a year or less
 - c. Several times a year
 - d. Several times a month
 - e. At least once a week
 - f. Every weekday
29. Do you have a laboratory in your clinic where you can perform basic microbiological procedures?
 - a. Yes
 - b. No
30. Do you have a medical microbiology rotation?
 - a. Yes
 - b. No
31. I consider the microbiology training I received during my residency sufficient.
 - a. No opinion
 - b. Strongly disagree
 - c. Disagree
 - d. Not sure
 - e. Agree
 - f. Strongly agree
32. I consider the training received in rotations generally sufficient.
 - a. No opinion
 - b. Strongly disagree
 - c. Disagree
 - d. Not sure
 - e. Agree
 - f. Strongly agree
33. Which rotation do you think contributed the most to your training?
 - a. Medical microbiology
 - b. Internal medicine
 - c. Pulmonology
 - d. Radiology
 - e. Pediatrics
34. The faculty members in our clinic have adequate education/training qualifications for medical residency training.
 - a. No opinion
 - b. Strongly disagree
 - c. Disagree
 - d. Not sure
 - e. Agree
 - f. Strongly agree
35. I have received/am receiving sufficient training in reading and presenting scientific articles.
 - a. No opinion
 - b. Strongly disagree
 - c. Disagree
 - d. Not sure
 - e. Agree
 - f. Strongly agree
36. I can/did get sufficient counseling regarding my thesis.
 - a. No opinion
 - b. Strongly disagree

- c. Disagree
 - d. Not sure
 - e. Agree
 - f. Strongly agree
 - g. My thesis topic is undetermined
37. Do you have the opportunity to follow HIV-infected patients during your residency training?
- a. Yes
 - b. No
38. Do you have the opportunity to follow patients diagnosed with viral hepatitis or to attend at a hepatitis outpatient clinic during your residency training?
- a. Yes
 - b. No
39. Have you ever performed or been trained to perform liver biopsy?
- a. Yes
 - b. No
40. Do you have the opportunity to follow patients with hematological malignancies and/or a history of organ transplantation?
- a. Yes
 - b. No
41. Have you worked in a vaccination outpatient clinic?
- a. Yes
 - b. No
42. Is there a resident evaluation exam in your clinic? If so, please indicate how often.
- a. None
 - b. Once a year or less
 - c. Several times a year
43. If exams are done in your clinic, do you think they contribute to your education/training?
- a. Yes
 - b. No
44. What do you think is the most important problem during residency training?
- a. Inadequate training
 - b. Workplace bullying
 - c. Menial labor
 - d. The number of night shifts
 - e. Physical conditions
 - f. Violence
 - g. Low pay
45. Would you choose the same branch if you took the medical specialty examination again?
- a. Yes
 - b. No
 - c. Not sure
46. Are you a member of the Infectious Diseases and Clinical Microbiology Specialty Society of Turkey?
- a. Yes
 - b. No