Ortopedi ve Travmatoloji Uzmanlık Öğrencilerinin Tezleri ve Bilimsel Çalışmaları: İstanbul'da Anket Çalışması

Thesis and research education of Orthopedics and Traumatology Residents: A Questionnaire Study in Istanbul

Ferdi Dırvar[1] (ORCID: https://orcid.org/0000-0003-1789-3637)

Ömer Cengiz[2] (ORCID: https://orcid.org/0000-0003-1743-4828)

Sevda Uzun Dırvar[3] (ORCID: https://orcid.org/0000-0002-7943-7472)

Oytun Derya Tunç[4] (ORCID: https://orcid.org/0000-0003-8096-5034)

Timur Yıldırım[1] (ORCID: https://orcid.org/0000-0003-0291-7632)

[1]Metin.Sabancı Baltalimanı Kemik Hastalıkları Eğitim ve Araştırma Hastanesi, Ortopedi ve Travmatoloji Kliniği, İstanbul,

[2]Muş Devlet Hastanesi Ortopedi ve Travmatoloji Servisi, Muş

[3]Metin.Sabancı Baltalimanı Kemik Hastalıkları Eğitim ve Araştırma Hastanesi, İstanbul

[4]Pendik Eğitim ve Araştırma Hastanesi Ortopedi ve Travmatoloji Kliniği, İstanbul

Sorumlu yazar:

Op.Dr.Ferdi DIRVAR

M.S. Baltalimanı Kemik Hastalıkları Eğitim ve Araştırma Hastanesi, Ortopedi ve Travmatoloji Kliniği, Baltalimanı Mahallesi, Baltalimanı Hisar Cd. No:62, 34470 Sarıyer/İstanbul e-mail: ferdidirvar@hotmail.com tel: +902123237075

Anahtar Sözcükler:
Ortopedi, Uzmanlık Öğrencisi, Anket, Akademik eğitim

Keywords:
Orthopaedics, Resident, Survey, Academic Training

Gönderilme Tarihi
*Submitted:*09.05.2019
Kabul Tarihi
Accepted: 27.09.2019

ÖZET:

Amaç: Bu araştırma ile ortopedi ve travmatoloji uzmanlık öğrencilerinin tezleri ile katıldıkları bilimsel çalışmaların belirlenmesi, aldıkları araştırma eğitimleri ile ilgili görüşlerinin alınması ve öneri geliştirilmesi amaçlanmıştır.

Gereç ve Yöntem: İstanbul ilinde, 9 farklı kurumdaki uzmanlık eğitimi devam eden 131 ortopedi ve travmatoloji uzmanlık öğrencisine 23 sorudan oluşan anket yüz yüze uygulandı.

Bulgular: Uzmanlık öğrencilerinden 64'ünün (% 48.8) tez konusunun belirlenmediği, 67'sinin (% 51.2) tez konusunun belirlendiği tespit edildi. Tez konusu belirlenen 67 uzmanlık öğrencisinden; tez konusu uzmanlık eğitiminin ilk yarısında yani ilk 30 aylık döneminde belirlenen

Künye: Ferdi Dırvar F, Cengiz Ö, Uzun Dırvar S, Derya Tunç O, Yıldırım T. Ortopedi ve Travmatoloji Asistanlarının Tezleri ve Bilimsel Çalışmaları: İstanbul'da Anket Çalışması. Tıp Eğitimi Dünyası. 2019;18(56):45-55

uzmanlık öğrencisi sayısının 25 (% 37.3) olduğu tespit edilmiştir.

Tez konusu belirlenmeyen uzmanlık öğrencilerinden; 17'sinin (% 26.6) uzmanlık eğitiminin ikinci yarısında olduğu tespit edilmiştir. Retrospektif çalışma yapan uzmanlık öğrencisi sayısının 32 (% 47.8), prospektif çalışma yapan uzmanlık öğrencisi sayısının 19 (% 28.4), deneysel araştırma yapan uzmanlık öğrencisi sayısının 14 (% 20.9) olduğu görüldü. Uzmanlık öğrencilerinin 62'si (% 47.3) bilimsel araştırma yapmalarının önünde engeller olduğunu, kurumlarını 87 'si (% 66.4)'ü hizmet alanında, 26'sı (% 19.8) araştırma alanında yeterli bulduğunu ve 39'u (% 29.8) eğiticilerinin araştırmacı özelliğini yeterli bulduğunu belirtti. Uzmanlık öğrencilerin 94'ü (% 71.8) verilerin toplanması, 20'si (% 15.3) istatistiksel analizlerin yapılması, 24'ü (% 18.3) verilerin ve analizlerin yorumlanması, 31'i (% 23.7) makalenin yazımı aşamasında çeşitli bilimsel çalışmalara katkısı olduğunu belirtmiştir.

Sonuç: Bilimsel yönden daha kaliteli tezin hazırlanması için tez yazımında zaman çizelgesine dikkat edilmesi gereklidir. Eğiticiler / tez danışmanları bu konuda eğitilmeli ve isteklilerden tez danışmanı seçimine dikkat edilmelidir. Bilimsel araştırmaya ilgisi olan uzmanlık öğrencilerinin araştırma yapmalarını ve gelişimini kolaylaştırmak için uzmanlık eğitim programlarına 'Araştırma Eğitimi Rotasyonu'' seçmeli olarak eklenmesi uygun olacaktır.

ABSTRACT:

Background: *The aim of this study is to determine the orthopedics&traumatology residents' thesis and the research education that they have participated in, and to get their opinions about their specialty and research training and develop suggestions.*

Methods: *A face-to-face survey consisting of 23 questions was applied to 131 orthopedics&raumatology residents in 9 different institutions in Istanbul.*

Results: *Of the 131 residents, while the thesis of 67 (51.2%) were determined, 64 (48.8%) were not. Of the 67 residents whose thesis topic was determined; 25 (37.3%) had determined the topic of the thesis in the first half (within first 30 months) of their specialty training. Of those who have not determined the topic of their theses, 17 (26.6%) were in the second half of their specialty training . The number of residents who did retrospective studies was 32 (47.8%), prospective studies was 19 (28.4%) and animal experiments is 14 (20.9%). It was pointed out that 62 (47.3%) of the residents had barriers to do research education, 87 (66.4%) of them considered that their institutions sufficient in serving and 26 (19.8%) of them considered that their institution sufficient in the research area and 39 (29.8%) of them stated that the scientific characteristics of the trainers were adequate. The contribution of the residents to the research education as follows; 94 (71.8%) of them collecting data, 20 (15.3%) of them doing statistical analysis, 24(18.3%) of them interpreting of the data and the analysis, 31 (23.7%) of them drafting article.*

Conclusion: *In order to prepare a Scientifically better quality thesis, it is necessary to pay attention to the timetable in writing the thesis. Trainers/thesis advisors should be trained in this subject and attention should be paid to the selection of thesis advisors from the tenderers. In order to facilitate the research and development of residents interested in research education, it is appropriate to set ''Research Education Rotation '' as an elective in their resident education programs.*

INTRODUCTION

Residency training is a program that ensures a

safe and appropriate healthcare service for the patients while providing the professional and personal development of the resident to whom the program is offered under guidance and supervision (1).

The common advice given to residents over the years has been "If you do not publish it, it will be forgotten". As one of the requirements of orthopedic surgery, the importance of the residents' participation in academic studies has been emphasized (2). It is believed that a person who produces publications in peer-reviewed journals during his/her residency training will develop many skills in this subject. It is foreseen that a resident who produces a publication in this period will continue these publications in his/her future career (3).

In this research, we aimed to determine the research education that include the theses of the orthopedics and traumatology residents who are continuing with their residency, to receive their opinions about the residency training and to develop suggestions.

MATERIALS AND METHODS

A descriptive study was planned in Istanbul province and a questionnaire of 23 questions with 46 answer choices regarding the theses of the orthopedics and traumatology residents, the infrastructural sufficiency of the educational institutions for research education , the characteristics of the instructors, and the roles of the residents in research education was prepared for this purpose. Before starting the study, the approvals of the Hospital Ethics Committee and Medical Specialization Board were obtained. In 2017, when this study was conducted, there were 250 orthopedics and traumatology residents in Istanbul, and 856 residents in Turkey. The need for sample size was calculated as 89 for Istanbul and 117 for Turkey (margin of error %10, confidence level %98).

A total of 131 orthopedics and traumatology residents from 9 different institutions that accepted to participate in the study completed the questionnaire (1 university, 8 training and research hospitals). The questionnaire was answered during face-to-face interviews with the residents. All residents who completed the questionnaire were still continuing their specialty trainings. Percentage value and SPSS program were used for survey data statistical analysis. Descriptive statistical methods were used to evaluate the study data.

RESULTS

A total of 131 orthopedics and traumatology residents from 9 different institutions in Istanbul province, whose specialty trainings were ongoing participated in the study. All residents were male. Of them, 24 (18.3%) were in their first year, 19 (14.5%) were in the second year, 27 (20.6%) were in the third year, 36 (27.5%) were in the fourth year and 25 (19.1%) were in the fifth year of their training.

Fifty-five residents (41.9%) were in the first half (0-30 months) of their training and 76 (58.1%) were in the second half (31-60 months).

To the question, "For which of the following parameters do you find your institution competent? Education, service and/or research. You can make multiple selections.", 54 (41.2%) residents answered "training", 26 (19.8%) answered "service" and 87 (66.4%) answered "research".

To the question, "If you would evaluate the attributes of the instructors at your institution, which one would you mark/state as sufficient?", 39 (29.8%) residents answered "scientificness", 70 (53.4%) answered "relations with people", 42 (32.1%) answered "professional attitude and behaviors", 34 (26%) answered "training skills"

and 1 (0.8%) answered “other”.

Of the 131 residents in our study, 64 (48.8%) stated that the topic of their theses was not determined whereas 67 (51.2%) stated otherwise. Of the 67 residents whose thesis topic was determined; 25 (37.3%) had determined the topic of the thesis in the first half (within first 30 months) of their specialty training, 32 (47.8%) have conducted retrospective studies, 19 (28.4%) have conducted prospective studies and 14 (20.9%) have conducted experiments on animals. Of those who have not determined the topic of their theses, 17 (26.6%) were in the second half of their specialty training (Table 1).

DISCUSSION

According to the current Regulation on

Residents answers to the questions about the determination of thesis status

Thesis conditions (n)	Number	Percent (%)
Determination of thesis topics		
• Topic of theses not determined	64	48,9
• Topic of theses determined	67	51,2
Residents whose thesis topic was determined;		
• topic of the thesis determined in the first half (within first 30 months) of their specialty training	25	37,3
• topic of the thesis determined in the second half (after 30 months) of their specialty training	42	62,7
Residents whose thesis topic was determined;		
• Thesis topic received in the first year	4	6,0
• Thesis topic received in the second year	11	16,4
• Thesis topic received in the third year	34	50,8
• Thesis topic received in the fourth year	16	23,9
• Thesis topic received in the fifth year	2	2,9
Residents whose thesis topic was determined;		
• Retrospective studies	32	47,8
• Prospective studies	19	28,4
• Experiments on animals	14	20,9
• Other methods	2	2,9

The remarks of the residents regarding article writing, statistics, cadavers, animal experiments, tasks and trainings they have taken in biomechanics, and regarding the institution infrastructure are presented in Table 2.

Table 2
The remarks of the residents regarding article writing, statistics, cadavers, animal experiments, tasks and trainings they have taken in biomechanics, and regarding the institution infrastructure

Questions	Yes n (%)	No n (%)
• **Have you been trained in writing articles during your residency?**	33 (25,2%)	98 (%74,8)
• **Have you received statistical training during your residency?**	9 (6,9%)	122 (93,1%)
• **Have you received animal testing certificates during your residency?**	14 (10,7%)	117 (89,3%)
• **Have you worked in an animal experiment during your residency?**	16 (12,2%)	115 (87,8%)
• **Did you take part in a biomechanical study during your residency?**	11 (8,4%)	120 (91,6%)
• **Have you received cadaver training during your residency?**	26 (19,8%)	105 (80,2%)
• **Is your organization sufficient for thesis work?**	102 (77,9%)	29 (22,1%)
• **Do you think that the number of cases / patients / samples are sufficient?**	95 (72,5%)	36 (27,5%)
• **Is your organization's infrastructure (technical equipment) adequate?**	60 (45,8%)	71 (54,2%)
• **• Do you think that there are obstacles to doing scientific work during your residency?**	62 (47,3%)	69 (52,7%)

In the section where the residents evaluated the infrastructural adequacy of the training environment in their institutions, 74 residents stated that the number of computers with Internet access was insufficient (Table 3).

Table 3
The residents answers to the question "Please mark what you find adequate in the working environment specifications in your organization"

Options	Number (n)	Percent (%)
• **Computer with internet access**	57	43,5
• **Library / enough books**	33	25,2
• **Reading room**	28	21,4
• **Training hall**	44	33,6
• **Proper and accessible archive records**	25	19,1

In evaluating the contribution of the residents to research education, we found out that 71.8% of the residents contributed to the study with data collection, 15.3% with statistics, 18.3% with interpretation of the data and analyzes and 23.7% with writing the article, whereas 23.7% of the residents said they had no contribution (Table 4).

Table 4
The residents answers to the question "During your residency, which of the following would you express your contribution to the research education?"

Options	Number (n)	Percent (%)
• **Data collection**	94	71,8
• **Statistical analysis**	20	15,3
• **İnterpretation of the data and analyzes**	24	18,3
• **Writing the article**	31	23,7
• **I did not contribute any**	31	23,7

Table 5
Questions about the number of publications in journals and scientific meetings and resident answers according to seniority level.

Questions	1.year	2. year	3. year	4. year	5. year	Total
• Number of publications in journals scanned by SCI or SCI Expanded	0	1	2	11	13	27
• Number of publications in peer-reviewed journals scanned by international indexes other than SCI or SCI Expanded	0	1	2	6	5	14
• Number of publications in national journals scanned by the Turkish Medical Index	0	2	2	7	9	20
• National or international scientific congresses, symposiums etc. number of oral / poster presentations	1	18	29	64	96	208
• Total number of publication	1	22	35	88	123	269

Note: original research, review, case reports are included in the publication.

Residents stated that they work for an average of 94 hours per week and that they evaluate an average of 83 patients per day in the outpatient clinic (including emergency cases and consultations). % 96,2 of the residents stated that residency is exhausting and only %41 ,2 as educational (table 6).

Table 6
The residents answers to the question '**.How to evaluate your specialization process?' Multiple answers can be given/ added.**

Options	Number(n)	Percent (%)
• exhausting	126	96,2
• stressful	119	90,8
• educational	54	41,2
• Improving	60	45,8
• useful	46	35,1
• boring	25	19,1
• comfortable	2	1,5
• enjoyable	24	18,3
• Additional answers	2	1,5

Specialty Training in Medicine and Dentistry, a resident is a person who receives specialty training and conducts research and practice. In order to take the final exam of specialty training, the residents must prepare a thesis on the field of specialization. For this purpose, a thesis topic and a thesis supervisor should be assigned to the resident in the first half of the specialization period (4). In addition to being a legal requirement, thesis preparation is a theoretical and practical education opportunity to learn the methodology of research. The resident should interpret the thesis preparation as gaining the ability to follow the current developments in order to provide a good clinical service during his / her specialty (5). A good planning and hard work shall be required for the thesis, which is expected to be of high and scientific research quality. Considering the thesis topic, literature research, data collection, analysis, writing and evaluation of thesis, the writing schedule and timing of the thesis are very important for the thesis to be original and high quality (6). One of the measures to be taken before the execution of the thesis is to determine the timeline. Periodic review of this schedule by the thesis supervisor will prevent any possible delays and prevent the thesis writing from being compressed for a very short time (5). According to the medical residency training report prepared in 2015; It was seen that 47.3% of the specialty residents thesis is determined in the 4th and 5th years of their residency (7). In our study, we found out that the thesis topic of 64 (48.9%) of the 131 residents were not determined yet and 17 (26.6%) of them had already passed the first half of their specialty training, which was the legal period for choosing a thesis topic. In addition, of the residents who had determined their thesis topics, 42 (62.7%) made this decision in the second half of their specialty training.

In a study evaluating the orthopedic studies based on theses, 71.7% of theses were found to be clinical studies, 25.6% of them were non-clinical experimental work and 2.7% were observational studies (8). In a study examining the publication rate of Ear-Nose Throat (ENT) residency theses; It was observed that 37.3% of prospective studies, 37.7% of animal experiments and 16% of retrospective studies were published(9). In our study, of the 67 residents who received their thesis topic, 14 (20.9%) were on experimental studies, 19 (28.4%) prospective studies, 32 (47.8%) retrospective studies and 2 (2.9%) were about studies in other fields. Our findings show that the thesis studies are mostly focused on retrospective studies. This situation reinforces the perception that we need to find answer to the question, "Whether the theses are considered a task that has to be completed simply and quickly due to the argument that suggests theses constitute a second work and a burden of effort and that it is generally considered to have no scientific importance, or due to the lack of time during the residency period, the infrastructural inadequacy of the institution and listlessness of the thesis consultants".

In the literature, the obstacles to doing scientific research, from the perspective of the residents were; lack of time, methodology of the article and lack of statistical training, lack of experience in writing articles, lack of institutional infrastructure and mentor requirement (10). In a study conducted on the specialty students of thoracic surgery and cardiovascular surgery; 16.8% of the specialty students found their educators 'sufficient bilimsel in terms of their scientific, educational and teaching skills, bilateral relations, communication with the patient, professional attitude and behavior, while 42.2% found them inadequate. In the same study, 33.2% of those who were found

to be inadequate were attributed to scientific inadequacy (11). In our study, 47.3% of the residents said they had barriers to doing research education, 19.8% of them found their institutions to be adequate in the field of research, 66.4% of them said the hospital worked as a service hospital and 29.8% of them found the scientific qualifications of their instructors sufficient. In another study, the common idea of both the trainees and the trainers about the training of trainers is mentioned that the trainers must be educated for the standardization of the trainers (12). In case the thesis advisors are selected from experienced and well-equipped trainers, it is suggested that the educational problem can be solved (13).

The presence of the state-of-the-art research infrastructure is critical to provide a nourishing and supportive environment for research education in the residentship phase of orthopedic surgery. Academic medical centers and medical schools focused on intensive research need to develop a research infrastructure that facilitates resident training and the progress of surgeon-scientists as well as orthopedic surgeons (14). 31.9% of the residents stated that the infrastructures of their institutions were not sufficient for the thesis. It was seen that 85.6% of the institutions with inadequate infrastructures for thesis were not directed to another institution(7). In our study, 45.8% of the a residents said they found the infrastructure (technical hardware) of the institution, 43.5% the computers with internet access, 25.2% the library, 33.6% the education hall and 19.1% the archive records sufficient.

As can be seen, multifactorial reasons such as infrastructural inadequacy of the institutions, lack of time due to the intensive workload of residents, and the listlessness of the instructors explain how the a residents are more easily and rapidly oriented towards retrospective studies than others.

Taking an important role in the concept or design of the study, taking part in the evaluation, analysis or interpretation of the data, writing the draft or making revisions in scientifically important points, approving the final version of the paper before publication, reviewing and analyzing the study from all aspects that may cause a problem with its accuracy and integrity are the criteria sought in the authorship of researches. Data collection or general supervision of the research group alone does not constitute the criteria for authorship (15). In evaluating the contribution of the residents to research study, we found out that 71.8% of the residents contributed to the study with data collection, 15.3% with statistics, 18.3% with interpretation of the data and analyzes and 23.7% with writing the article, whereas 23.7% of the residents said they had no contribution. As it is seen, 71.8% of the residents contributed to scientific studies in the data collection stage, which is not considered as a criterion of authorship.

In spite of the late start of thesis writing, lack of infrastructure, lack of trainers and time constraints, it is seen that the residents participated in research education such as articles and papers outside the thesis. It was seen that the residents were included in the study by the responsible researcher (1st author) with contributions such as data collection and statistics. The fact that the specialists in the clinic involve the residents in the study during the preparation of publications (articles, papers etc.) for the purpose of academic promotion may explain this situation.

We also observed that as the seniority of the residents increased, the number of their publications also increased.

At Hospital for Special Surgery in USA It is

described the administrative infrastructure, the curriculum, and the block schedule for protected time that they developed to support residents research activities. Given the work hour restrictions, residents had little time to go through this lengthy process, perform the research, and produce the subsequent scholarly papers without a formal structure. The rotation schedule for all residents includes a dedicated research block and an elective block that can also be used for research, which range from 6 to 7 weeks each (ie, 12 to 14 weeks, or at least 960 hours every year)

The mentors ensure that the research can be complete during an approximate 24-month time frame (16).

However, completion of a formal research rotation is not mandated in the United States and Canada. Some residency programs in the United States and Canada mandate a dedicated research rotation for all residents, typically for a period of three months. Several other programs offer the option to prospectively elect an extra year or two of research during residency as part of clinician–scientist training(17). In our practice, there was no separate rotation or elective program to conduct research, and residents reported that they worked for 94 hours per week on average and evaluated 83 patients in the outpatient clinic, including daily emergencies and consultations. 96.2% of the specialty students evaluated the specialty education process as 'exhausting' and 41.2% considered 'educational'.

At Singapore study However, the actual voluntary participation rate in research training remains low, A new finding from the study was that differing beliefs about research are associated with variances in the likelihood of choosing research as a career path, 24.4% of respondents who rejected it to consider research as a career choice. However, the effect of such efforts on the 41.5% who were undecided is likely to be small. those who chose research was the strength of their belief in the intrinsic value of research. For this group of residents, creative methods that show the gratification involved in doing research may have a greater impact (18). Orthopedic residents that publish in a peer-reviewed journal during training have been shown to be more likely to publish as future practicing orthopedic surgeons (19).

As a result , In order to prepare a Scientifically better quality thesis, it is necessary to pay attention to the timetable in writing the thesis.

Trainers / thesis advisors should be trained in this subject and attention should be paid to the selection of thesis advisors from the tenderers.

In order to facilitate the research and development of residents interested in scientific research, it is appropriate to set '' Research Education Rotation '' as an elective in their resident education programs.

Study limitations: Although the number of participants was statistically sufficient to represent the community of orthopedic residents, the study was conducted only in Istanbul, and no distinction was made between educational institutions as universities and training and research hospitals.

REFERENCES:

1. Çiçek C., & Terzi C. (2006). Tıpta Uzmanlık Eğitimi (İzmir Ölçekli İki Araştırma ve Karşılaştırmalı Sonuçları). Ankara: Türk Tabipleri Birliği Yayınları, 11.

2. Hurwitz SR. (2016). Rules and Procedures For Residency Education Part I and Part II Examinations. Chapel Hill: American Board of Orthopedic Surgery Inc.

3. Macknin, J., Brown, A., & Marcus, R. (2013). Does Research Participation Make a Difference in Residency Training?. Clinical Orthopaedics And Related Research®, 472(1), 370-376.

4. Tıpta ve Diş Hekimliğinde Uzmanlık Eğitimi Yönetmeliği, Tıpta Uzmanlık Kurulu, http://www.resmigazete.gov.tr/eskiler/2014/04/20140426-11.htm (accessed 1 March 2019).

5. Yilmaz, O., & Yuksel, H. (2013). Thesis In Medical Specialty Education At A Glance: Problems And Solution Proposals. Plevra Bulteni, 7(2), 33-36.

6. Azboy İ. (2016). Ortopedi ve Travmatoloji Asistan Kılavuzu. 1. Baskı. Ankara: TOTBID, 71-6.

7. Sayek, İ., Aktan, A.Ö., Demir, T., Özyurt, A. (2015). Tıpta Uzmanlık Eğitimi Raporu. Birinci Baskı:Ankara, Türk Tabipleri Birliği Yayınları

8. Koca, K., Ekinci, S., Akpancar, S., Gemci, M., Erşen, Ö., & Akyıldız, F. (2016). An analysis of orthopaedic theses in Turkey: Evidence levels and publication rates. Acta Orthopaedica Et Traumatologica Turcica, 50(5), 562-566.

9. Çakır Çetin, A., Boran, C., & Erdağ, T. (2017). Do the otorhinolaryngology specialization theses turn into publications?. The Turkish Journal Of Ear Nose And Throat, 27(4), 185-193.

10. Chan, J., Narasimhalu, K., Goh, O., Xin, X., Wong, T., Thumboo, J., & Phua, G. (2017). Resident research: why some do and others don't. Singapore Medical Journal, 58(4), 212-217.

11. Çıtak, N. (2012). The perspective of thoracic surgery and cardiovascular surgery residents in Turkey on situation of medical training programs and institutions. Turkish Journal Of Thoracic And Cardiovascular Surgery, 20(4), 826-834.

12. Kara, C , Daloğlu, M . (2018). KBB Asistan Eğitiminde Standardizasyon Paneli: Uzmanlık Öğrencileri ve Eğiticilerin Görüşleri. Tıp Eğitimi Dünyası, 17 (51), 72-75.

13. Asistan Hekimlerin Sorunları ve Çözüm Önerileri | klinikiletişim. (2019). Retrieved 21 July 2019, from https://www.klinikiletisim.com/asistan-hekimlerin-sorunlari-ve-cozum-onerileri/

14. Atesok, K., Hurwitz, S., Egol, K., Ahn, J., Owens, B., Crosby, L., & Pellegrini, V. (2012). Perspective. Academic Medicine, 87(5), 592-597.

15. Uniform Requirements for Manuscripts Submitted to Biomedical Journals: Writing and Editing for Biomedical Publication: Updated April 2010. (2011). Academic Forensic Pathology, 1(3), xiv-xxxiii.

16. Robbins, L., Bostrom, M., Marx, R., Roberts, T., & Sculco, T. (2013). Restructuring the Orthopedic Resident Research Curriculum to Increase Scholarly Activity. Journal Of Graduate Medical Education, 5(4), 646-651.

17. Atesok, K., Hurwitz, S., Egol, K., Ahn, J., Owens, B., Crosby, L., & Pellegrini, V. (2012). Perspective. Academic Medicine, 87(5), 592-597.

18. Chan, J., Narasimhalu, K., Goh, O., Xin, X., Wong, T., Thumboo, J., & Phua, G. (2017). Resident research: why some do and others don't. Singapore Medical Journal, 58(4), 212-217.

19. Bernstein, J. (2013). CORR Insights®: Does Research Participation Make a Difference in Residency Training?. Clinical Orthopaedics And Related Research®, 472(1), 377-378.