

## Research Paper

## Reasons for resident resignations from Orthopedic Residency Programs in Turkey: A cross-sectional survey from residents' perspectives

Lezgin Mert<sup>1</sup>, Mehmet Demirel<sup>1</sup>, Alper Şükrü Kendirci<sup>1</sup>, Turgut Akgül<sup>1</sup>, Önder İsmet Kılıçoğlu<sup>2</sup><sup>1</sup>Department of Orthopedics and Traumatology, İstanbul University, İstanbul School of Medicine, İstanbul, Turkey<sup>2</sup>Department of Orthopedics and Traumatology, Koç University, School of Medicine, İstanbul, Turkey

## ARTICLE INFO

## Article history:

Submitted December 7, 2021

Received in revised form

March 2, 2022

Accepted March 24, 2022

## Keywords:

Orthopedic residency

Turkish medical education

Orthopedics and Traumatology

Resignation

## ORCID iDs of the authors:

L.M. 0000-0003-3602-6694;

M.D. 0000-0003-1131-7719;

A.Ş.K. 0000-0001-6250-2469;

T.A. 0000-0002-0704-3797;

Ö.İ.K. 0000-0003-0023-7094.

## ABSTRACT

**Objective:** The aim of this study was to analyse the factors that led to resignations from Orthopaedics and Traumatology Residency programmes in Turkey, and to determine the overall rate of resignation among residents from Orthopaedics and Traumatology programmes.

**Methods:** In this cross-sectional survey, 120 residents who either resigned or transferred to other OT clinics between autumn of 2013 and spring of 2020 were included. They were asked to complete a questionnaire which was sent via Whatsapp application or e-mail. The questionnaire was comprised of 2 sections; Section A, which addressed resignation, consisted of 15 questions and Section B, which addressed transfer to another OT programme, consisted of 12 questions. Both sections had open ended and multiple choice questions.

**Results:** Of 120 residents, 96 (6.6%) resigned and then transferred to another specialty, and 24 (1.6%) transferred to another orthopedics and traumatology clinic based on our review. The overall resignation rate as per the total quotas for orthopedics and traumatology residency from 2013 to 2020 was 8.2%. Of the 120 orthopedics and traumatology residents who were eligible for the survey, 83 (70%) completed the questionnaire. Sixty-one (60 males, 1 female; median age = 26 years; age range = 25-35) of 96 residents who resigned from the orthopedics and traumatology residency completed section A (the response rate was 63.5%); 22 (22 males; median age = 27.6 years; age range = 25-34) out of 24 residents who transferred to another orthopedics and traumatology clinic completed section B (the response rate was 91.6%). In section A, 40 out of 61 individuals (65.5%) preferred orthopedics and traumatology specialty as the first choice in TUS, and 34 residents (55.7%) reported not to have had enough information regarding the residency program before starting their clinics. In section B, out of the 22 residents, 13 (59%) stated that orthopedics and traumatology residency was not their first choice in TUS, and 18 (81.8%) reported not to have had sufficient knowledge about the preferred clinic. The most common reason for resignation or transfer to another specialty was heavy workload (n = 46, 74.19%), followed by excessive hours of work (n = 45, 72.58%). The most common reason for transfer to another orthopedics and traumatology clinic was drudgery (n = 10, 45.5%), followed by problems with the hierarchy in orthopedics and traumatology residency (n = 9, 40.9%).

**Conclusion:** The results of this survey have shown us, with an overall resignation rate of 8.2% as per the total quotas for OT residency from 2013 to 2020, that resignation from OT residency represents an important problem in Turkey. Workload and excessive hours of work were the most common reasons for resignation from orthopaedic residency programmes. Furthermore, extra work that diverted residents from their actual job responsibilities, as well as academic and educational concerns, were the main factors leading to transfer to another OT residency programme.

## Introduction

In Turkish medical education, students graduate as medical doctors after 6 years of medical training, and a medical doctor interested in a specialty career could then choose a residency in one of clinical and non-clinical specialties according to their scores obtained from the national admission exam (Medical Specialty Exam/TUS).<sup>1</sup> Students who choose to pursue a residency in orthopedics and traumatology (OT) progressively bear clinical responsibility for management and care of patients over a 5-year period. The 5-year OT residency is a challenging process and requires thorough education and research training, along with learning about complex surgical techniques.<sup>2</sup>

Various surveys have documented that rates of psychiatric problems such as stress disorder, burnout syndrome, and suicidal ideation are particularly high among OT residents.<sup>3-5</sup> In a survey from the USA (2009), high levels of burnout were reported in 56% of 384 OT

residents.<sup>3</sup> In another survey from France (2018), burnout was observed at a rate of 40% among the orthopedic residents, with a 10% rate of experiencing suicidal ideation within the last 12 months.<sup>5</sup> Furthermore, a most recent survey from Canada (2020) showed that 40% of OT residents suffered from stress disorder (distress).<sup>4</sup> Based on the available literature, it seems that orthopedic residency universally brings a considerable social burden on the residents. This may have also led to resignation from the current OT training by either resigning from the current position or transferring to another orthopedic clinic over the last decade in the setting of Turkey's current specialty training legislation. However, to the best of our knowledge, no study to date has analyzed which factors influence the decisions of OT residents on their resignation.

The primary aim of this survey was to analyze the factors that lead to resignation from OT residency program from residents' perspective. The second aim was to determine the overall resignation rate of residents

## Corresponding author:

Mehmet Demirel  
dr88.mehmet.demirel@gmail.com

Content of this journal is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

from OT surgery training in Turkey. We consider that identifying such factors can, therefore, help clarify the preventable problems and contribute to developing new solutions to avoid loss of motivation and time of residents.

## Materials and Methods

### Participants

After approval from the institutional review board, we conducted a cross-sectional survey among OT residents in Turkey. A total of 79 clinics providing active OT residency in Turkey were contacted by the relevant resident representatives, and contact information of 120 residents who resigned from the OT residency program between the autumn of 2013 and the spring of 2020 were obtained. All names and contact information were obtained from the Turkish Society of Orthopaedics and Traumatology Residents and Young Orthopaedics Surgeons (TOTBİD-AGUH). All the OT residents were informed about the questionnaire via a phone call, then, verbal informed consents were obtained as a mandatory requirement prior to participation in the interview. The link to the questionnaire on the website <http://www.onlineanketler.com> was sent via WhatsApp™ application or e-mail.

In Turkey, TUS is regularly held twice a year, once in the spring and once in the autumn by means of the Student Selection and Placement Center (ÖSYM). Residents could resign from their residency program by either resigning from the OT residency program or transferring to another OT residency program. Accordingly, the resignation status was divided into two categories: resignation from the OT residency and transfer to another OT residency program (clinic), and the questionnaire was designed in line with the status of resignation.

### Survey instrument

The questionnaire comprised two sections, section A and section B, and a total of 27 multiple-choice and open-ended questions. Section A included 15 questions related to “resignation,” and section B included 12 questions related to “transfer to another OT residency program.” Each section further consisted of four sub-sections:

- (1) Demographic features;
- (2) Knowledge and awareness about OT specialty and residency program before starting at the preferred clinic;
- (3) Reasons for resignation or transfer to another clinic;
- (4) Satisfaction status after resignation or transfer to another clinic.

## Results

### Baseline characteristics

A total of 1438 quotas were assigned to OT residency training from Autumn 2013 TUS to Spring 2020 TUS by the Student Selection and Placement Center (ÖSYM) in Turkey based on the ÖSYM preference

and quotas guides.<sup>6</sup> Among residents placed in these OT residency quotas, 96 (6.6%) resigned and then transferred to another specialty, and 24 (1.6%) transferred to another OT clinic based on our review. That is, a total of 120 (8.2%) OT residents resigned from their residency program.

Overall, of the 120 OT residents in Turkey who were eligible for the survey, 83 (70%) completed the questionnaire. In the analysis of sections of the questionnaire, 61 of 96 OT residents who resigned from the OT residency completed section A (the response rate was 63.5%), and 22 out of 24 OT residents who transferred to another OT clinic completed section B (the response rate was 91.6%).

## Analysis of Questionnaire Sections

### Section A (questions related to resignation/transfer to another specialty)

**Demographic Features:** There were 60 males (98%) and 1 female (2%) with a median age of  $26 \pm 1.6$  years (range = 25-35). Of these residents, 16 (26.2%) started their residency training in 2018, 12 (19.7%) in 2019, 10 (19.6%) in 2016, 9 (14%) in 2017, 6 (9.8%) in 2014, 4 (6.5%) in 2013, 2 (3.2%) in 2015, and 2 (3.2%) in 2020. Twenty-two (36.1%) of these individuals left their residency training clinics in 2019, 12 (19.7%) in 2017, 10 (16.3%) in 2018, 6 (9.8%) in 2016, 4 (6.5%) in 2014, 4 (6.5%) in 2020, and 3 (4.9%) in 2015 (Figure 1). Thirty-six (59%) of the individuals who resigned or switched to another specialty in the first 6 months of their training, 12 (19.7%) between 6 and 12 months, and 9 (14.8%) between 12 and 24 months, 3 (4.9%) between 24 and 36 months. Also, one resident resigned before starting to the OT residency. It was observed that after 36 months of work, no individual resigned or switched to another specialty.

### Knowledge and Awareness About OT Specialty and Preferred Residency Training:

Forty out of 61 individuals (65.5%) preferred OT specialty as the first choice in TUS. The reasons for the preference of OT residency were to *desire to work in a surgical specialty* in 39 residents (63.9%) and to have *special interest in OT during the medical training* in 28 (45.9%) (Figure 2). Thirty-three residents (54.1%) were placed in their demanded OT clinics. While 32 (52.5%) residents reported to have had enough information about the orthopedic residency, 29 (47.5%) reported not to have had enough information. Also, 34 residents (55.7%) reported not to have had enough information regarding faculty members, working conditions, salary, and shift in relation to the residency program before starting to their clinics.

### Reasons for Resignation or Transfer to Another Specialty:

The most common reason was *heavy workload* ( $n=46$ , 74.19%), followed by *excessive hours of work* ( $n=45$ , 72.58%), *extra work that takes the residents away from their actual job responsibilities* (drudgery) ( $n=39$ , 62.9%), problems with the hierarchy in OT residency ( $n=30$ , 48.39%), dislike of their orthopedic clinics ( $n=24$ , 38.7%), and dislike of OT residency ( $n=17$ , 27.42%) (Figure 3).

Of the residents who disliked the OT residency, 8 (4.7%) preferred to start their residency training as they had enough TUS scores to be placed in their positions, while 11 preferred as they desired to work in any of the surgical branches.

Of the 24 individuals who mentioned disliking the clinic, 21 (91%) of the individuals stated that they had excess work given out of their duties, and 16 (66%) individuals were subjected to the pressure of senior residents.

## HIGHLIGHTS

- The resignation from the orthopedics and traumatology (OT) residency represents an important problem among OT residents in Turkey.
- The overall resignation rate as per the total quotas for OT residency from 2013 to 2020 in Turkey is 8.2%. The most common reason for resignation or transfer to another specialty is heavy workload, followed by excessive hours of work.
- Clinics, associations, and organizations in our country should take the necessary precautions and make inquiries not only in the field of orthopedics and traumatology but also in other areas of specialization.

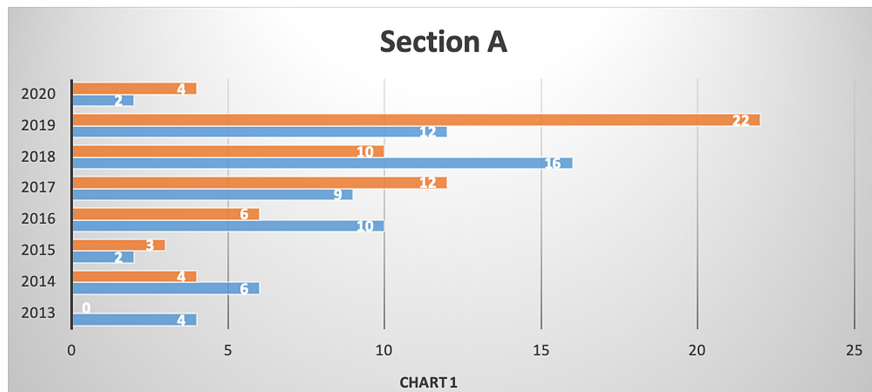


Figure 1. The horizontal bars show the starting (blue bars) and resignation (orange bars) times (year) of the OT residents. OT, orthopedics and traumatology.

Of the 30 residents who had problems with the hierarchy in OT residency, 22 (73.33%) stated pressure by the senior residents, and 12 (40%) stated pressure by faculty members as the reason for their resignation. It was detected that 40 of 61 residents (65.6%) who continued to work for a certain period due to legal procedures after the decision to resign or move to another department were exposed to pressure in the clinic during this period.

**Satisfaction Status After Resignation:** Fifty-seven (93.4%) residents answered “Yes” to the question “Are you happy that you resigned?” asked to assess satisfaction after resignation. Fifty-six residents (91.8%) responded “Yes” to the question “With your current thoughts, would you still resign or transfer if you had experienced the same situations again?”

#### Section B (questions related to “transfer to another orthopedic clinic”)

**Demographic Features:** All the residents were male (100%) with a median age of  $27.6 \pm 2.3$  (range=25-34) years. Of these residents, 8 (36.3%) started their residency training in 2014, 4 (18.1%) in 2018, 4 (18.1%) in 2016, and 3 (13.6%) in 2017. Seven (31.8%) of these individuals left their residency training clinics in 2018, 4 (18.1%) in 2015, 4 (18.1%) in 2019, 3 (13.6%) in 2017, 2 (9%) in 2020, and 1 (4.5%) in 2016 (Figure 4). Five residents (22.7%) transferred to another clinic in the first 6 months of their training, 6 (27.2%) between 6 and 12 months, 8 (36.3%) between 12 and 24 months, and 2 individuals (9%) between 24 and 36 months. Only one resident (4%) transferred to another clinic after working for more than 36 months.

**Knowledge and Awareness About OT Specialty and Preferred Residency Training:** Out of the 22 residents, 13 (59%) stated that OT residency was not their first choice in TUS, and 18 (81.8%) reported not to have had sufficient knowledge about the preferred clinic.

**Reasons for Transfer to Another OT Clinic:** The most common reason was drudgery ( $n=10$ , 45.5%), followed by problems with the hierarchy in OT residency ( $n=9$ , 40.9%), inadequate academic education ( $n=9$ , 40.9%), and inadequate surgical training ( $n=7$ , 31.8%) (Figure 5).

Of the 9 residents who sustained problems with the hierarchy in OT residency, 6 (66.6%) stated pressure by the senior residents, and 5 (55.5%) stated pressure by the faculty members as the reason for their transfers to another OT clinic.

**Satisfaction Status After Transfer to Another Clinic:** When asked “Are you happy that you quit your former clinic?” to evaluate satisfaction after the transition to another clinic, 15 residents (68.2%) answered “Yes,” 3 (13.6%) answered “No,” and 4 (18.2%) answered “I am neutral” to the question. Of 15 residents who answered “Yes,” 9 reported the reason for transition to another clinic as *drudgery*, and 9 as insufficient education in the OT residency.

#### Discussion

There is no doubt that many OT residents face several important challenges in their residency training. Some of these challenges may not

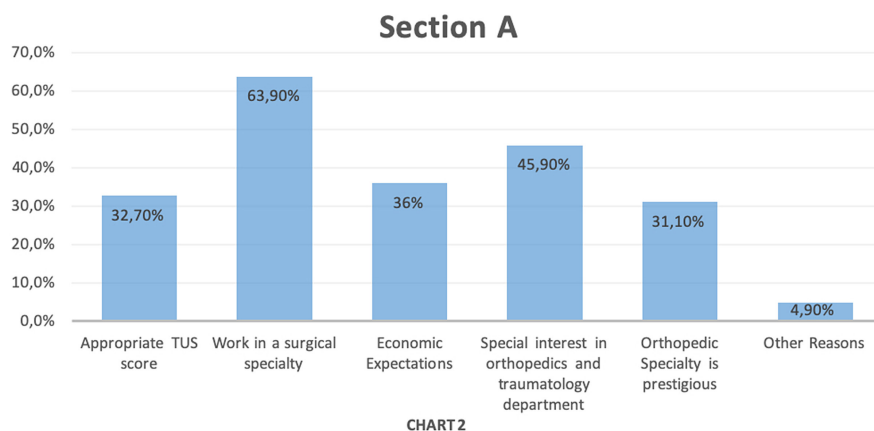


Figure 2. Vertical bars demonstrate the reasons for the preference of OT residency. OT, orthopedics and traumatology.

### Reasons for resignation from the OT residency

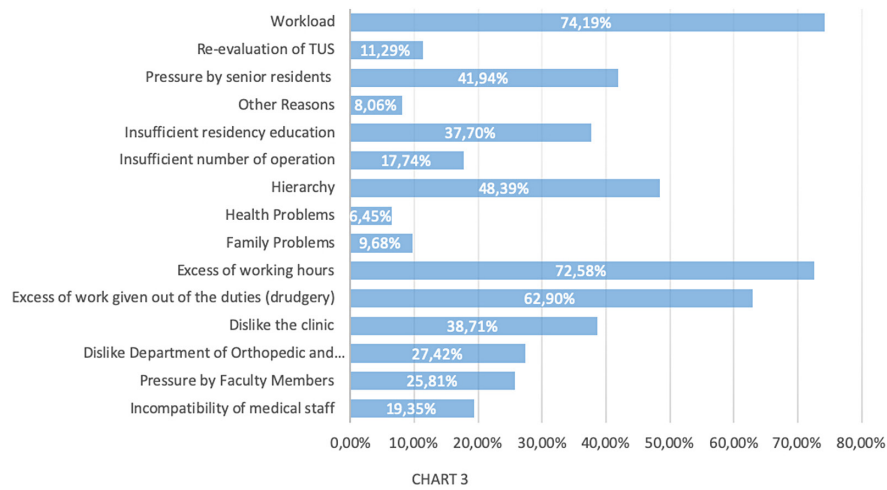


Figure 3. Horizontal bars showing the reasons for resignation from the OT residency. OT, orthopedics and traumatology.

be easy to overcome and thus impose some social and psychological burdens. As a result, unfortunately, OT residents can make the decision to resign from the orthopedic residency. Nonetheless, according to our review of the literature, no study to date has investigated which factors influence the decisions of OT residents on their resignation. In contrast to little data on who leaves the OT residency training, abundant literature is available on other specialties investigating the reasons for resignation, especially general surgery, reported as high as 20%.<sup>7-9</sup> Our survey has revealed that the “overall resignation rate” as per the total quotas for OT residency was 8.2% (120 individuals/1438 quotas) during the seven-year period in Turkey.

The present survey is the first national study in Turkey to examine factors related to resignation from the OT residency. The most common means of resigning among OT residents was the resignation from the residency (n=96, 80%). Moreover, with an acceptable response rate of 63.5% to our survey (61/96), *workload* (n=46, 74.19%) and *excessive hours of work* (n=45, 72.58%) were identified as the most important factors for the resignation. Previous studies from other countries have demonstrated that burnout caused by workload and excessive hours of work was an important factor for the resignation of many residents. In the United States, to address the problem with excessive working time in the whole surgical residency programs, the law

on the limitation of a maximum of 80 hours per week was imposed in 2003.<sup>10</sup> After the legislation of the 80-hour workweek, while some authors pointed out a difficulty in training OT specialists who would be knowledgeable, confident, and have good communication skills within the five-year program,<sup>11</sup> others observed no detrimental effect of the 80-hour workweek on OT resident education.<sup>12</sup> Furthermore, another study from the United States has shown that the 80-hour workweek increased the application to OT residency training by 21%.<sup>13</sup> As the arguments on this issue continue in the United States, the results of our study indicate that the issues of excessive working hours and workload in our country should be discussed.

One of the important reasons found to be associated with the resignation in our study was *extra work that takes the residents away from their actual job responsibilities* (n=39, 62.9%). We identified that important factors increasing the workload and thus contributing to the resignation process are electronic patient registration systems, charts, and documentation tasks assigned to residents, which do not contribute to training. Accordingly, OT residency programs in Turkey should be rearranged in order to reduce the excessive workload to an appropriate level and to increase the time allocated to training. Also, in our survey, pressure by senior residents and faculty members in the setting of hierarchy in OT residency (n=30, 48.39%) was

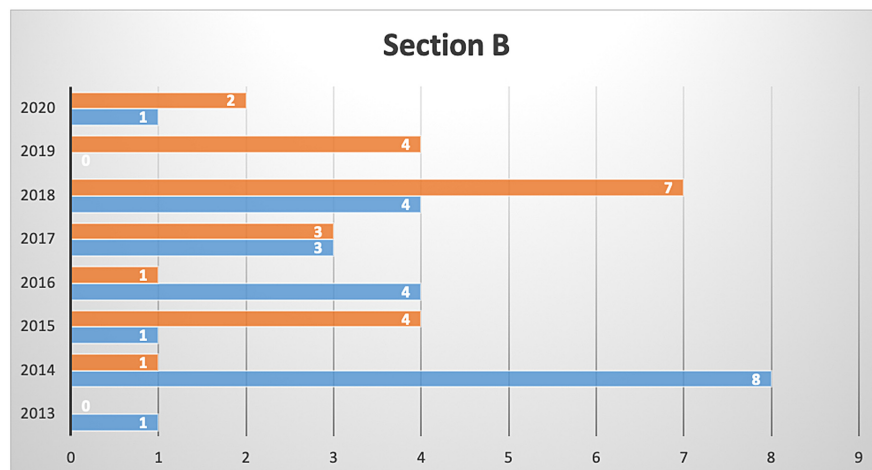


Figure 4. The horizontal bars show the starting (blue bars) and transferring to another OT clinic (orange bars) times (year) of the OT residents. OT, orthopedics and traumatology.



## Reasons for Transferring to Another OT Clinic

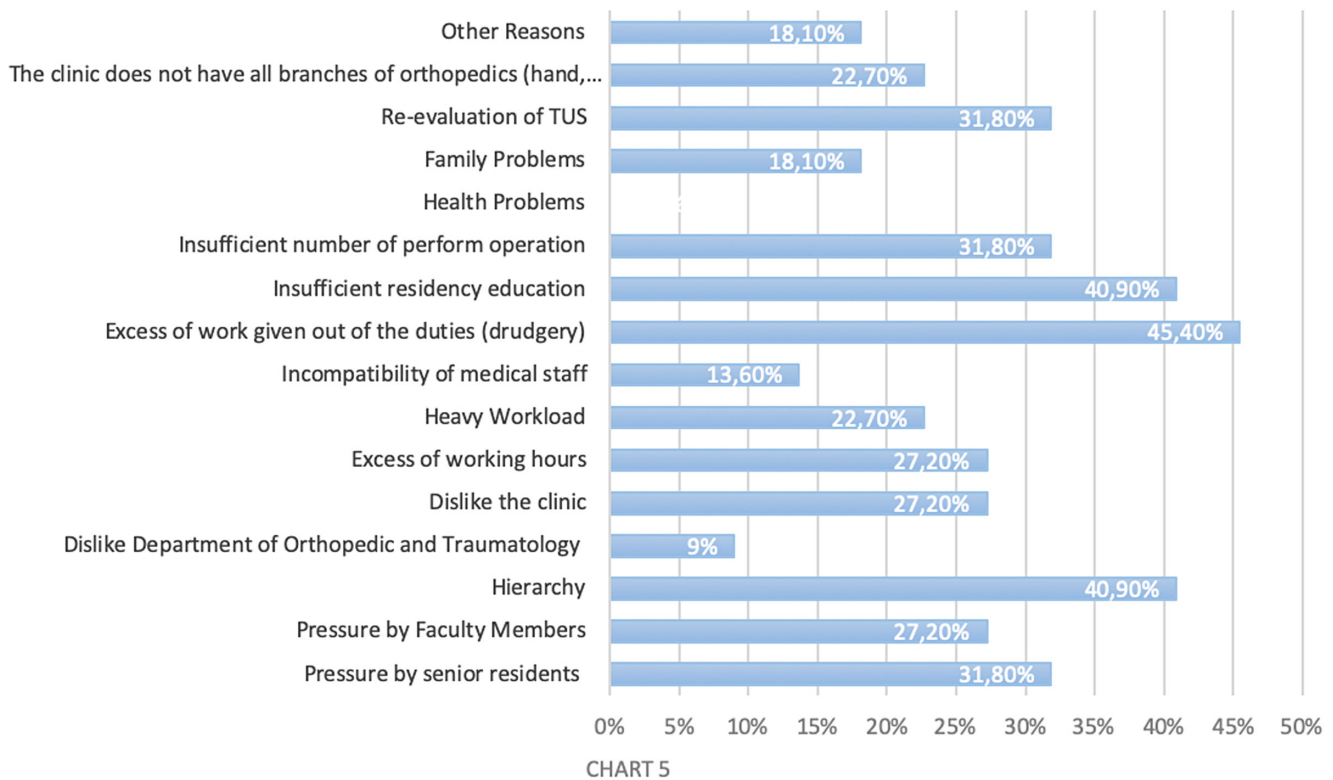


Figure 5. Horizontal bars showing the reasons for transferring to another OT clinic. OT, orthopedics and traumatology.

determined as another reason for resignation. This issue should be addressed by competent faculty members and inspected by OT associations and organizations.

It should be noted that another means of resigning from the OT residency in our country is by transferring to another OT residency program. Of 120 residents participated in our survey, 24 (1.6%) transferred to another OT clinic due to some problems. Remarkably, in contrast to the resigned residents, neither workload nor excessive hours of work were a reason for transferring. The most common factors were extra work ( $n=10$ , 45.5%), inadequate academic education ( $n=9$ , 40.9%), and inadequate surgical training ( $n=7$ , 31.8%) differently from the resigned residents. These results can be interpreted to mean that if a resident likes orthopedic surgery, they can handle such challenges. Although this decision seems to be taken for personal reasons, a self-critique of the faculty members can help improve academic performance and achievement for OT residents. Moreover, the issues of extra work and pressure from the surgical hierarchy should be handled with care by faculty members to avoid OT residents from resigning or transferring.

It is also worth noting that most residents had to continue to work a while longer after they resigned. During this period, the residents reported having been exposed to the pressure in the clinic. The legal resignation procedures should be accelerated by the relevant units to resolve such uncomfortable issues.

Our study had some limitations that need to be considered. The major limitation is that the actual number of residents who resigned or

transferred may have been underestimated, as the number of participants and their contact information were obtained from the resident representatives working in clinics. Furthermore, of the 120 residents who resigned from their residency, 37 (30.8%) did not fill the questionnaire or could not be reached. This may have created a bias in the results of our study. Another important limitation is that our results reflect the opinions of the residents. Future studies should be designed to analyze the opinions of lecturers on orthopedic surgery about the reasons for resignation from the OT residency. Finally, as the survey included only one female resident, it is not possible to interpret the impact of gender on the resignation from the OT residency.

In conclusion, with the overall rate of 8.2% as per the total quotas for OT residency from 2013 to 2020, the resignation from the OT residency seems to represent an important problem among OT residents in Turkey. While workload and excessive hours of work are the most common reasons for resignation from the orthopedic residency programs, extra work that takes the residents away from their actual job responsibilities, as well as academic and educational concerns, are the main factors leading to transfer to another OT residency program. Clinics, associations, and organizations in our country should take the necessary precautions and make inquiries not only in the field of orthopedics and traumatology but also in other areas of specialization.

**Ethics Committee Approval:** Institutional review board approval was received from the Orthopaedics and Traumatology Department of İstanbul Faculty of Medicine, İstanbul University.

**Informed Consent:** Verbal and written informed consent was obtained from all participants who participated in this study.

**Author Contributions:** Concept - L.M.; Design - L.M., A.Ş.K.; Materials - L.M.; Data Collection and/or Processing - L.M., A.Ş.K.; Analysis and/or Interpretation - T.A.; Literature Review - L.M.; Writing - L.M., M.D.; Critical Review - L.M., M.D., Ö.İ.K.

**Declaration of Interests:** The authors have no conflicts of interest to declare.

**Funding:** The authors declared that this study has received no financial support.

## References

- Öztek Z, Burgut R, Gökçe G, et al. Tıpta Uzmanlık Sınavına Hazırlanan Tıp Öğrencileri ve Doktorlarda Depresyon ve İlaç Kullanımı. *Maltepe Tıp Derg.* 2018;10:54-57.
- Strauss EJ, Markus DH, Kingery MT, Zuckerman J, Egol KA. Orthopaedic resident burnout is associated with poor in-training examination performance. *J Bone Joint Surg Am.* 2019;101(19):e102. [CrossRef]
- Sargent MC, Sotile W, Sotile MO, Rubash H, Barrack RL. Quality of life during orthopaedic training and academic practice: part 1: orthopaedic surgery residents and faculty. *J Bone Joint Surg Am.* 2009;91(10):2395-2405. [CrossRef]
- Kollias CM, Okoro T, Tufescu TV, Wade V. Distress in orthopedic trainees and attending surgeons: a Canadian national survey. *Can J Surg.* 2020;63(3):E190-E195. [CrossRef]
- Faivre G, Kielwasser H, Bourgeois M, Panouilleres M, Loisel F, Obert L. Burn-out syndrome in orthopaedic and trauma surgery residents in france: A nationwide survey. *Orthop Traumatol Surg Res.* 2018;104(8):1291-1295. [CrossRef]
- Available at: <https://www.osym.gov.tr/TR,8854/hakkinda.html>.
- Dodson TF, Webb AL. Why do residents leave general surgery? The hidden problem in today's programs. *Curr Surg.* 2005;62(1):128-131. [CrossRef]
- Burkhart RA, Tholey RM, Guinto D, Yeo CJ, Chojnacki KA. Grit: A marker of residents at risk for attrition? *Surgery.* 2014;155(6):1014-1022. [CrossRef]
- Everett CB, Helmer SD, Osland JS, Smith RS. General surgery resident attrition and the 80-hour workweek. *Am J Surg.* 2007;194(6):751-6. [CrossRef]
- Gelfand DV, Podnos YD, Carmichael JC, Saltzman DJ, Wilson SE, Williams RA. Effect of the 80-hour workweek on resident burnout. *Arch Surg.* 2004;139(9):933-8. [CrossRef]
- Pellegrini Jr VD. A perspective on the effect of the 80-hour work week: has it changed the graduating orthopaedic resident? *J Am Acad Orthop Surg.* 2017;25(6):416-420. [CrossRef]
- Froelich J, Milbrandt JC, Allan DG. Impact of the 80-hour workweek on surgical exposure and national in-training examination scores in an orthopedic residency program. *J Surg Educ.* 2009;66(2):85-88. [CrossRef]
- Anakwenze OA, Kancherla V, Baldwin K, Levine WN, Mehta S. Orthopaedic residency applications increase after implementation of 80-hour workweek. *Clin Orthop Relat Res.* 2013;471(5):1720-1724. [CrossRef]