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Orthopedics and Traumatology Residency – Working Conditions, Training, and Psychological Stress

Rezidentské místo v ortopedii a traumatologii – pracovní podmínky, výcvik a psychologický stres

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ABSTRACT

PURPOSE OF THE STUDY

The specialty of orthopedics and traumatology that is completed in the 5 years period in our country is a challenging educational process and our purpose in this study is to demonstrate through a survey training conditions of the orthopedic assistants in our country and the effects of this process on assistants.

MATERIAL AND METHODS

524 (70.05%) of 748 assistants who receive specialization training in Turkey were reached. There were 20 multiple choice questions (1 mark each) and 3 questions (more than 1 mark each) in the survey consisting of twenty-three questions. Our study group was formed by doctors who have still worked as assistant in our country and have accepted to participate in the study. The doctors who finished assistantship with any reason and did assistantship for time less than 6 months and did not exactly fill the questionnaire form were excluded from the study.

RESULTS

524 (71.97%) of 728 assistant who are in 40 (100%) of 40 provinces where assistant training given in Turkey were reached. 474 (90.45%) participants were satisfied to do orthopedic specialization. When considering working hours, it was observed that 337 (64.31%) participants had over 90 hours weekly including night shift and 521 (99.42%) participants had to work after night shift. The majority of participants (361 persons 68.89%) were receiving salaries between TL 4000-6000. When looking at the entire working group, the rate of participants who said that scientific training is weak or there is no scientific training was 427 (81.48%).

CONCLUSIONS

Our survey study is one of the first statistical study which investigating professional and social problems of orthopedic assistants. Some of important problems as training satisfaction, abuse by patients and/or manager, the average monthly income and psychological status assessment is emphasized. Orthopedics and Traumatology assistantship is a challenging process to cause physical and psychological problems with the hard working conditions in our Turkey.

Key words: residency training, orthopedic surgery, life quality, salary.

INTRODUCTION

An orthopedics and traumatology specialization involves a challenging training period. In Turkey, the training takes 5 years and serves in university and training and research hospitals (4). At present, there are over 4000 orthopedics and traumatology specialists and over 700 orthopedics residents still in training. Various institutions, such Turkish Orthopaedics and Traumatology Society (TOTBID) and Turkish Orthopaedics and Traumatology Education Society (TOTEK), oversee issues relating to personal grievances and working conditions of orthopedic specialists and residents in Turkey (6, 8).

There is a few study about working conditions of orthopedics and traumatology residents. Thus, the aim of this survey study was to describe the working conditions of orthopedics and traumatology residents in different types of hospitals and cities and the effects of these conditions on the residents.

MATERIAL AND METHODS

A questionnaire was sent by email to every resident doctor in Turkey. The email contained a link. On clicking the link, the residents were asked to provide their email address and contact details. Of 748 orthopedics and traumatology residents contacted, 524 (70.05%) were reached. The final study group consisted of residents working in Turkey who agreed to participate in the study. Doctors who had left their residency programs for any reason, those who had worked for less than 6 months, and those did not complete the questionnaire correctly were excluded from the study. The survey contained 23 multiple-choice questions, with 1 mark assigned to 20 questions and more than 1 mark assigned to the other three questions (Table 1).

All the participants were advised that their responses would remain confidential, and anonymity was assured. Informed consent forms were signed by all participants and the study was approved by the ethics committee of TOTEK.

Table 1. Survey questions

1. Which institution are you working at?
2. In which city are you working?
3. Number of years are you in? a) I b) II c) III d) IV e) V
4. Are you satisfied to do Orthopedics and Traumatology specialization? a) Yes b) No
5. Which number was orthopedics and traumatology in your choice at TUS exam? a) First b) Second c) Third d) Fourth or more below
6. If you reenter to TUS, would you still choose Orthopedics and Traumatology? a) Yes b) No
7. Do you have any hobbies outside of medicine and can you allow enough time for your hobby? a) Yes, I spend enough time b) Yes, I do not spend enough time c) No
8. How many hours do you work per week, including shifts? a) <50 b) 50-60 c) 60-70 d) 70-80 e) 80-90 f) >90
9. How many shifts do you keep per month? a) <3 b) 3-5 c) 6-10 d) 10-14 e) >15
10. Can you use permission after night shifts? a) Yes b) No
11. Do you suffer financially? a) Yes b) No
12. What is your annual income? a) TL 24.000-36.000 b) TL 36.000-48.000 c) TL 48000-60.000 d) TL 60.000-72.000 e) TL 72.000-84.000 f) TL 84.000-120.000 g) > TL 120.000 TL
13. Do you think that your training is enough scientifically? a) Yes, I think that it is enough b) No, I do not think that it is enough c) No, in there is no regulation on training in my clinic
14. How do you reach the most commonly information? (You can choose more than one) – Prelector (Professor, Associate Professor, Assistant Professor) – Senior Resident – Book – Journal – Computer, Internet – Scientific Seminars, Congresses
15. Can you get enough information from prelectors in your clinic? a) Yes b) No
16. How often do you participate in scientific conferences? a) I do not participate at all b) <2/year c) 2-5/year d) >5/year
17. What is the situation in your clinic about term internship training opportunities abroad for specialized students? a) It can be allowed with financial support b) It can be allowed without financial support c) There is no such a possibility
18. Can you see patient in a sufficient number and variety in your clinic? a) Yes, I can see a large number of patients belonging to all subgroups of orthopedics b) I can see the patient in sufficient number and variety c) I can not see the patient in sufficient number and variety
19. Are there enough training and research materials in your clinic? a) Yes b) No
20. Were you in any scientific study, are you in any scientific study? a) Yes b) No
21. Do you think that what is the biggest problem in your assistantship? (You can choose more than one) – Financial difficulties – Severe working conditions – Scientifically insufficiency – Not to do an adequate amount of surgery – Vision and ambition insufficiency – Future concerns for professional and branch
22. Have you suffered physical or verbal abuse at work? If yes, by whom? (You can choose more than one) – Yes, patients and relatives – Yes, my colleagues – Yes, hospital administrators – No, I have not
23. Have you had a psychiatric disorder after starting specialization? a) Yes b) No

A subgroup analysis of the results was performed with respect to the types of hospitals (university hospital or training and research) and city size (a population of more than 4 million and a population of less than 4 million). Three cities had populations of more than 4 million (10).

Statistical analysis

All the statistical analyses in the group comparisons were performed with (SPSS v.16). A Chi-square test was used to (assess what aspect of the data). A value of $p < 0.05$ was considered statistically significant.

RESULTS

The final study consisted of 524 (71.97%) of 728 residents working in 40 cities in Turkey. Among the study group, 310 (59%) participants were working as residents in a university hospital, and 214 (41%) were working as residents in training and research hospital (Fig. 1).

Three hundred seventy-two residents lived in cities with more than 4 million people, and 152 lived in cities with less than 4 million people.

With regard to the residency periods of the participants, 96 were first-year residents, 104 were second-year residents, 110 were third-year residents, 103 were fourth-year residents, and 111 were fifth-year residents (Fig. 2).

With regard to working hours, 337 (64.31%) participants worked more than 90 hours each week, including overtime, and 521 (99.42%) participants continued working after finishing their shifts. While 370 (99.46%) of 372 residents in the first three cities were working after their shift has finished, 151 (99.34%) of 152 residents in the other cities were working after their shift has finished.

According to numbers of night shifts, 14 (2.67%) participants had 15 or more night shifts, 129 (24.61%) had between 10 and 14 shifts, 313 (59.73%) had between 6 and 10 shifts, 46 (8.77%) had between 3 and 5 shifts, and 22 (4.19%) had less than 3 shifts (Fig. 3). According to distribution of night shifts in hospitals in three large cities, 8 participants had 15 or more shifts, 66 had between 10 and 14 shifts, 244 had between 6 and 10 shifts, 36 had between 3 and 5 shifts, and 18 had less than 3 shifts. In hospitals outside three large cities, 6 participants had 15 or more shifts, 63 had between 10 and 14 shifts, 69 had between 6 and 10 shifts, 10 had between 3 and 5 shifts, and 4 had less than 3 shifts.

With regard to the monthly incomes of the participants, 156 (29.77%) earned less than 700 $ (4000 Turkish lira [TL]), 361 (68.89%) earned 700–1050 $ (4000–6000 TL), and 7 (1.33%) earned more than 1050 $ (6000 TL). Three hundred sixty-one (68.89%) participants stated that they suffered financial hardship. When the subgroup analysis of the participants who stated that they suffered financially was performed according to the city size, 252 (67.74%) of 372 participants living in three large cities suffered financially, and 109 (71%) of 152 participants living in the other cities suffered financially. There was no statistically significant difference between the two groups ($p = 0.373$).

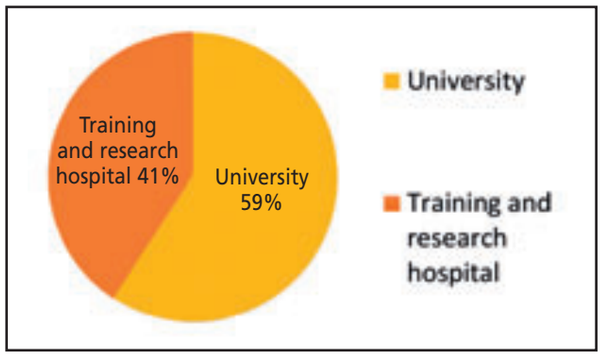

Fig. 1. Hospital distribution of participants.

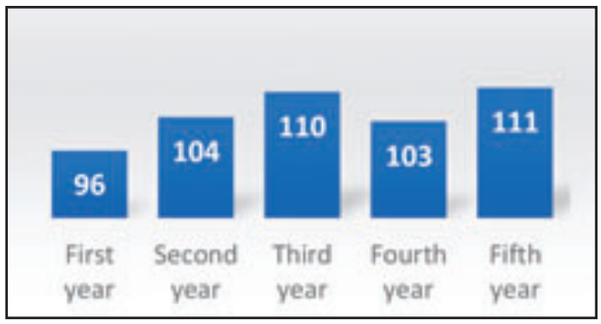

Fig. 2. Experience of residents in our surveillance.

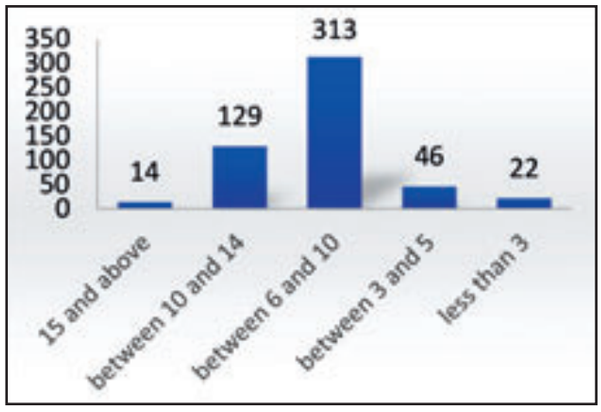

Fig. 3. Distribution by night duty periods.

With regard to the type of hospital, 220 (70.96%) residents working in university hospitals stated that they suffered financial hardship, and 141 (65.88%) residents working in training and research hospitals stated that they suffered financial hardship. There was no statistically significant difference between the two groups ($p = 0.217$). Of the 361 residents who stated that they suffered financial hardship, the monthly incomes of 128 (35.45%) residents were less than 700 $ (4000 TL), the monthly incomes of 230 (63.71%) residents were 700–1050 $ (4000–6000 TL), and the monthly incomes of 3 (0.83%) residents were more than 1050 $ (6000 TL). According

to the results of the statistical analysis, there was a statistically significant difference in the financial hardship of the participants who had salaries above and below 1050 $ (6000 TL) ($p < 0.001$).

In the entire group, 427 (81.48%) participants said that their medical training was inadequate or there was no training. In three large cities, 300 (80.64%) residents said that their medical training was inadequate or there was no training. In the other cities, 127 (83.55%) residents said that their medical training was inadequate or there was no training. With regard to the hospital type, and 258 (83.22%) participants working in university hospitals and 169 (78.97%) participants working in training and research hospitals said that their medical training was inadequate or there was no scientific training.

As shown by the results of the statistical analysis, there was no statistically significant difference in the level of training of those living in the three large cities and those living in the other cities. Similarly, there was no statistically significant difference in the level of training of the university hospitals vs. the training and research hospitals ($p = 0.437$) (Fig. 4).

In the study, 353 (67.36%) participants stated that their most common source of work-related information was Internet. One hundred fifty (28.62%) participants said they obtained information from a prelector. Among those 94 (30.32%) were working in university hospitals, and 56 (26.16%), were working in training and research hospitals. With respect to obtaining information from a prelector, there was no statistically significant difference according to the type of hospital ($p = 0.061$).

Four hundred twenty-seven (81.48%) participants did not participate in conferences or attended less than two per year. Two hundred ninety-six (56.48%) participants stated that they would not be permitted to undertake an internship abroad during their specialization. Four hundred thirty (82.06%) participants stated that they had seen large numbers of patients with a variety of diseases in their clinics. Two hundred ninety-nine (57.06%) participants said they had participated in a scientific study. With regard to training research materials in the clinics, 152 (29%) participants stated that they were sufficient, and 372 (71%) participants stated that they were insufficient.

In the study, 444 (84.73%) participants said that they had been abused (verbal or physical) at work. Among those, 253 (81.61%) worked in university hospitals, and 191 (89.25%) worked in training and research hospitals. There was a statistically significant difference between the two groups ($p = 0.017$). As regards the perpetrators of the abuse, 408 (77.86%) participants stated that they had been abused by patients' relatives, 158 participants stated that they had been abused by a colleague, and 74 participants stated that they had been abused by a hospital administrator.

One hundred eight (20.61%) participants stated that they had suffered stress since starting their specialization. Of those, 65 (20.96%) participants lived in the three large cities, and 43 (20.09%) participants lived in the other cities. Seventy-one (22.90%) of the participants who had suffered psychiatric stress worked in university hospitals, and 37 (24.34%) worked in training and research hospitals.

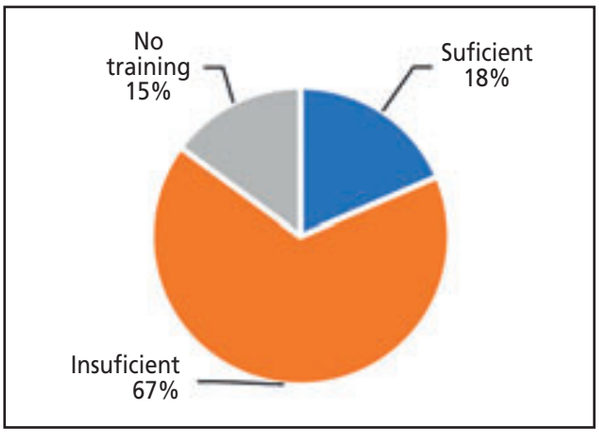

Fig. 4. Distribution of scientific training sufficiency.

DISCUSSION

The aim of this 23 multiple-choice questions contained survey of 524 orthopedics and traumatology residents in Turkey was to describe their working conditions, training, and mental status. This survey is statistical study to describe professional and social problems experienced by orthopedic residents in Turkey. The study participation rate was 70.05%.

Although there is no documentation in the literature on the average weekly working time of orthopedics residents, studies have shown that long working hours has negative effects on residents. Studies in various countries have investigated effects of restricting residents' working hours (2, 5, 11). In a study of orthopedics, although 71% of residents worked an 80-hour week, only 38% of program managers felt that this was excessive (2). In Turkey, by law, residents are permitted to work only 40 hours per week (9). Moreover, residents are not permitted to be on call for more than 3 days in a row (1). In the present study, including on calls, the number of weekly working hours of the majority of the participants (64.31%) exceeded 90 hours, and almost all the participants (99.42%) had to work after their shifts had ended. This ratio would likely have been higher had this study included the number of residents who failed to complete their first 6 months of training.

Although there are no published studies in the literature on residents' salaries across the world, Medscape publishes average resident salaries annually (7). According to a 2015 report in the U.S., the salary of an orthopedic resident was 57 000 dollars per year. There is no published information on the salaries of residents in Turkey. However, in the present study, 29.77% of participants had an annual income of less than 17 700 US dollars (101 000 TL). At the same time, 68.89% of the participants stated that they had suffered financial hardship.

We could not find any study on occupational violence (verbal and physical abuse) in a hospital setting in Turkey. In a study performed in Canada, 55% of residents were exposed to violence by a patient (11). Similarly, in another study, 59.4% of medical residents were exposed to violence (3). In the current study, the rate of exposure to violence (i.e., verbal or physical abuse by a colleague or patient) in a hospital setting was 84.73%.

There is no published information in the literature on the orthopedic medical training of resident doctors in this region. In the present study, 81.48% of residents stated that their medical training was inadequate or that there was no training.

This study has several limitations. It included only residents from Turkey, which restricts the ability to expand the findings to large populations worldwide. Furthermore, only 70% of residents in Turkey took part in the study. Furthermore, no objective criteria were used in the participants' evaluations of their medical training.

CONCLUSIONS

An orthopedics and traumatology residency is challenging and can give rise to physical and psychological problems, given the difficult working conditions experienced in Turkey. It seems that ortopaedic residents are required to have substantial knowledge themselves, in the absence of structured training. Despite this, the residents seemed satisfied with the specialization they had chosen.

Level of Evidence: *Level II*

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