

# A quantitative evaluation of the academicians in anatomy departments of medical schools in Turkey

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## Abstract

**Objectives:** This study aimed to make a quantitative evaluation of the academicians working in anatomy education, investigate the relationship between the number of academicians and the anatomy course hours, and examine the relationship between the ages of the schools and the number of academicians in medical schools in Turkey.

**Methods:** The number of academicians (professor, associate professor, assistant professor, research assistant and lecturer) working at the department of anatomy were recorded by examining the official websites of 90 medical schools in Turkey between June 22–27, 2019. The number of anatomy course hours was examined in 58 medical schools accessed from their websites. The years of establishment of the medical schools were recorded.

**Results:** A total of 90 research assistants, 18 lecturers and 291 faculty members were determined to work in the anatomy departments of the 90 medical schools in Turkey. The mean numbers of research assistants, lecturers, faculty members and academicians per faculty were found as  $1 \pm 1.56$  (range: 0–9),  $0.20 \pm 0.45$  (range: 0–2),  $3.23 \pm 2.41$  (range: 0–11) and  $4.43 \pm 3.45$  (range: 0–17), respectively. The mean numbers of theoretical, practical and total hours of anatomy course were  $170.14 \pm 32.25$  (range: 100–245),  $104.47 \pm 34.78$  (range: 32–196), and  $274.6 \pm 51.92$  (range: 132–405), respectively.

**Conclusion:** There were differences between universities in terms of academicians and anatomy course hours. The course load of anatomy academicians was found rather high. It is concluded that this situation may have disadvantages for anatomy education and academic studies of academicians.

**Keywords:** academician; anatomy course hours; anatomy education; faculty member

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## Introduction

Anatomy, one of the oldest known medical sciences, is a branch of science that students start to learn at the beginning of their medical education. Anatomy education provides a background for medical terminology and clinical sciences and also is essential for being a qualified physician.<sup>[1]</sup> Anatomy not only constitutes the basis of medical education, but also it is one of the basic sciences with the most course hours.<sup>[2–4]</sup> Therefore, the number of academicians who work in the anatomy departments of medical schools is important. According to the Higher

Education Law no 2547, academicians are classified as faculty member, lecturer, and research assistant working at institutions of higher education. Faculty members are professors, associate professors and assistant professors working at higher education institutions. Lecturers are academicians who are responsible for teaching, applying or supervising the application of the course hours taught at higher education institutions. Research assistants are defined as the academicians who assist in research, investigation, and experiments conducted at higher education institutions and perform other related duties assigned by

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the competent bodies.<sup>[5]</sup> It is considered that there is a plethora of factors that affect the anatomy education such as the educational infrastructure of the schools, educational strategies as well as the quality and quantity of the academicians.

This study aimed to evaluate the academicians working in anatomy education quantitatively, investigate the relationship between the number of academicians and education hours and the relationship between the age of the faculty and the number of academicians in medical schools in Turkey.

## Materials and Methods

The number of faculty members, lecturers, and research assistants working at the anatomy departments were identified by examining the official websites of the 90 medical schools providing education in Turkey between June 22–27, 2019. The number of anatomy course hours of 58 medical schools, which can be accessed through the websites, was examined. The years of establishment of the medical schools were recorded. The relationship between the age of 90 medical schools and the number of academicians as well as the relationship between the number of anatomy course hours and the number of academicians of 58 medical schools were examined. The average number of course hours per academician in 58 medical schools was calculated. In the medical schools with both English and Turkish programs, the course hours per academician were calculated by taking the total course hours of both programs into consideration. Pearson correlation coefficient was used to test the relationship between numerical variables. Descriptive statistics are given as mean±standard deviation for numerical variables and number and percentage values for categorical variables. SPSS for Windows (version 22.0, Chicago, IL, USA) software was used for statistical analysis and  $p < 0.05$  was considered statistically significant.

## Results

The anatomy departments of the 90 medical schools were examined and the number of research assistants, lecturers, faculty members and the total number of academicians working at the anatomy departments were determined (Table 1). The average number of research assistants, lecturers, faculty members and academicians were identified as  $1 \pm 1.56$  (range: 0–9),  $0.20 \pm 0.45$  (range: 0–2),  $3.23 \pm 2.41$  (range: 0–11), and  $4.43 \pm 3.45$  (range: 0–17), respectively.

The highest numbers of faculty members in anatomy departments were in Ege and Istanbul Universities. The highest numbers of lecturers in the anatomy depart-

ment were in Istanbul Medipol and Necmettin Erbakan Universities, and the highest number of research assistants and academicians were in Çukurova University. There was no academician in three (3.3%), no faculty members in three (3.3%), no lecturer in seventy-four (82.2%), and no research assistants in fifty (55.6%) the anatomy departments.

The mean±standard deviation, minimum and maximum values of the number of professors, associate professors and assistant professors in the anatomy departments are shown in Table 2. It was observed that the Anatomy Departments of Ege University, and İstanbul Cerrahpaşa University had the highest number of professors. The anatomy departments of medical schools of Hacettepe University, Necmettin Erbakan University, Bursa Uludağ University, Sivas Cumhuriyet University, Pamukkale University, and Afyonkarahisar University of Health Sciences had the highest number of associate professors, and İnönü University, Kafkas University, and Yeditepe University had the highest number of assistant professors.

Table 3 shows the number of anatomy course hours including theoretical, practical and total, taught at 58 of 90 medical schools, the syllabuses of which could be accessed from their official web sites. According to this data, the average numbers of theoretical, practical and total course hours were  $170.14 \pm 32.25$  (range: 100–245),  $104.47 \pm 34.78$  (range: 32–196) and  $274.60 \pm 51.92$  (range: 132–405), respectively.

The highest number of theoretical, practical and total course hours were at Balıkesir University, Tekirdağ Namık Kemal University and Necmettin Erbakan University, respectively. Van Yüzüncü Yıl University had the lowest number of theoretical, practical and total course hours. The average number of total course hours per academician in the 58 medical schools was  $109.10 \pm 80.76$  (range: 16.05–434).

No statistically significant relationship was detected between the number of academicians working at the universities and the average number of anatomy course hours ( $p > 0.05$ ). A strong positive correlation was observed between the age of the medical schools and the number of the academicians in the anatomy departments ( $p = 0.001$  and  $r = 0.667$ ).

## Discussion

Anatomy is a branch of science that examines the structure and functions of the body and is regarded as one of the oldest of basic sciences.<sup>[6]</sup> It has a very important place in the practice of medicine as it forms part of the foundations of the basic and clinical sciences.<sup>[1]</sup> In order to understand

**Table 1**  
Number of academic staff working in anatomy departments.

University	Foundation date	Research assistants	Lecturers	Faculty members	Academicians
Acıbadem Mehmet Ali Aydınlar University	2009	0	1	1	2
Adıyaman University	2007	2	1	3	6
Afyonkarahisar University of Health Sciences	1998	2	1	3	6
Ahi Evran University	2007	0	0	1	1
Akdeniz University	1973	2	1	7	10
Aksaray University	2015	0	0	1	1
Alanya Alaaddin Keykubat University	2014	1	0	2	3
Amasya University	2011	0	0	0	0
Ankara University	1945	5	0	10	15
Ankara Yıldırım Beyazıt University	2010	0	1	3	4
Atatürk University	1962	0	0	3	3
Aydın Adnan Menderes University	1992	3	0	3	6
Bahçeşehir University	2013	0	0	3	3
Balıkesir University	2006	2	0	3	5
Başkent University	1994	3	1	4	8
Beykent University	2017	0	0	2	2
Bezm-i Alem Vakıf University	2011	0	0	3	3
Biruni University	2015	0	0	2	2
Bolu Abant İzzet Baysal University	1997	0	0	3	3
Bursa Uludağ University	1972	0	0	6	6
Çanakkale 18 Mart University	2000	0	1	1	2
Çukurova University	1970	9	1	7	17
Demiroğlu Bilim University	2006	0	0	2	2
Dicle University	1966	0	0	6	6
Dokuz Eylül University	1978	0	0	10	10
Düzce University	1992	1	0	1	2
Ege University	1955	0	0	11	11
Erciyes University	1964	0	0	6	6
Erzincan Binali Yıldırım University	2008	0	0	2	2
Eskişehir Osmangazi University	1975	6	0	6	12
Fırat University	1985	2	0	4	6
Gazi University	1979	0	0	6	6
Gaziantep University	1987	1	0	4	5
Giresun University	2007	0	0	1	1
Hacettepe University	1967	3	0	10	13
Haliç University	2017	0	0	4	4
Harran University	1995	1	0	2	3
Hatay Mustafa Kemal University	2002	0	1	1	2
Hitit University	2009	0	0	2	2
İnönü University	1988	0	0	5	5
İstanbul Aydın University	2016	0	1	2	3
İstanbul Medeniyet University	2013	2	0	2	4
İstanbul Medipol University	2010	5	2	3	10
İstanbul Okan University	2014	0	0	1	1
İstanbul University	1933	3	0	3	6

**Table 1 [Continued]**  
Number of academic staff working in anatomy departments.

University	Foundation date	Research assistants	Lecturers	Faculty members	Academics
Istanbul University-Cerrahpaşa	1933	2	0	11	13
Istanbul Yeni Yüzyıl University	2012	1	0	1	2
Istinye University	2016	2	0	4	6
Izmir Demokrasi University	2018	0	0	0	0
Izmir Ekonomi University	2017	0	0	2	2
Izmir Kâtip Çelebi University	2011	3	0	3	6
Kafkas University	2003	1	1	3	5
Kahramanmaraş Sütçü İmam University	1996	0	0	2	2
Karabük University	2010	2	0	2	4
Karadeniz Technical University	1976	2	0	4	6
Kastamonu University	2007	0	0	0	0
Kırıkkale University	1997	0	0	1	1
Kocaeli University	1995	0	0	3	3
Koç University	2010	0	0	2	2
KTO Karatay University	2015	1	0	2	3
Kütahya Health Science University	2009	0	0	1	1
Lokman Hekim University	2018	2	0	2	4
Maltepe University	1997	1	0	2	3
Manisa Celal Bayar University	1995	0	0	2	2
Marmara University	1933	3	1	3	7
Mersin University	1998	2	1	6	9
Muğla Sıtkı Koçman University	2009	0	0	3	3
Necmettin Erbakan University	1982	1	2	6	9
Niğde Ömer Halis Demir University	2017	0	0	1	1
Ondokuz Mayıs University	1975	0	0	7	7
Ordu University	2006	0	0	1	1
Pamukkale University	1987	0	0	5	5
Recep Tayyip Erdoğan University	2008	1	0	2	3
University of Health Science	2016	0	0	3	3
Sakarya University	2008	1	0	3	4
SANKO University	2014	0	0	2	2
Selçuk University	2002	1	0	3	4
Sivas Cumhuriyet University	1973	2	0	5	7
Süleyman Demirel University	1993	2	0	3	5
Tekirdağ Namık Kemal University	2008	1	0	1	2
TOBB Ekonomi ve Teknoloji University	2012	0	0	2	2
Tokat Gaziosmanpaşa University	2002	0	0	2	2
Trakya University	1974	4	0	6	10
Ufuk University	2003	0	0	2	2
Uşak University	2006	0	0	2	2
Van Yüzüncü Yıl University	1995	0	0	2	2
Yeditepe University	1996	0	0	3	3
Yüksek İhtisas University	2015	1	1	2	4
Yozgat Bozok University	2006	1	0	2	3
Zonguldak Bülent Ecevit University	2000	0	0	2	2

how diseases affect the structure and function of organs, it is essential to understand the human body from the visible structures to the cellular level.<sup>[7]</sup> This is possible with a good anatomy education. In Turkey, anatomy education is taught to students as theoretical and practical courses mostly in the first two years of medical schools.<sup>[2-4]</sup>

Özer<sup>[8]</sup> reported an increase in the quotas and the number of universities in Turkey in order to meet the demand for higher education and increase the schooling rate in higher education. In line with this finding, the rapidly increasing number of medical schools and quotas in Turkey has led to an increase in the number of medical students.<sup>[9-11]</sup> However, the number of academicians in anatomy departments has not increased proportionately with those numbers, and that some schools are lacking in academician in the anatomy departments (Table 1). Özoğlu<sup>[12]</sup> stated that the ratio of students per faculty member in medical schools was 4.2 in the 2009–2010 academic year. Although the number of students per faculty member is important, the ratio of course hours per academician in

**Table 2**

Number of professors, associate professors and assistant professors working in anatomy departments.

Academicians	Mean±SD	Min-Max
Professor	1.86±2.27	0–10
Associate professor	0.4±0.61	0–2
Assistant professor	0.98±0.86	0–3

the anatomy departments of medical schools should also be not neglected. Accordingly, it was noticed that the course load of the academicians in anatomy departments is quite high, especially in the medical schools that provide both English and Turkish programs with a low number of academicians. It is considered that this situation may adversely affect anatomy education.

In anatomy education, practical courses are crucial for long lasting knowledge and the reinforcement of theoretical knowledge. As a matter of fact, in a survey study that

**Table 3**

Number of anatomy course hours.

University	Theoretical	Practical	Total
Afyonkarahisar University of Health Sciences	192	120	312
Ahi Evran University	201	94	295
Akdeniz University	182	174	356
Ankara University*	170	114	284
Ankara Yıldırım Beyazıt University*	128	100	228
Atatürk University*	166	80	246
Aydın Adnan Menderes University	173	111	284
Balıkesir University	245	118	363
Beykent University	161	94	255
Bezm-i Alem Vakıf University	168	111	279
Biruni University*	136	115	251
Bolu Abant İzzet Baysal University	146	108	254
Bozok University	157	68	225
Bülent Ecevit University	190	66	256
Çanakkale 18 Mart University	184	76	260
Çukurova University	147	120	267
Demiroğlu Bilim University	129	68	197
Dicle University	177	80	257
Düzce University	190	112	302
Ege University	176	50	226
Erciyes University	170	92	262
Erzincan Binali Yıldırım University	193	141	334
Eskişehir Osmangazi University	151	123	274
Fırat University	150	122	272

**Table 3 [Continued]**  
Number of anatomy course hours.

University	Theoretical	Practical	Total
Gazi University*	173	76	249
Gaziantep University*	180	133	313
Giresun University	146	95	241
Harran University	204	144	348
Hatay Mustafa Kemal University	220	62	282
Hitit University	120	72	192
İnönü University*	160	172	332
Istanbul Medeniyet University	171	112	283
Istanbul Okan University*	129	88	217
Istanbul Yeni Yüzyıl University	149	107	256
Izmir Kâtip Çelebi University	172	100	272
Kafkas University	230	82	312
Kahramanmaraş Sütçü İmam University	157	136	293
Karabük University	116	160	276
Karadeniz Technical University	232	112	344
Kocaeli University	186	106	292
KTO Karatay University	224	110	334
Kütahya Health Science University	163	102	265
Manisa Celal Bayar University	155	52	207
Marmara University	142	62	204
Mersin University	143	94	237
Muğla Sıtkı Koçman University*	187	182	369
Necmettin Erbakan University	241	164	405
Niğde Ömer Halis Demir University	171	110	281
Recep Tayyip Erdoğan University	202	124	326
Sakarya University	179	71	250
SANKO University	107	90	197
Selçuk University	202	134	336
Sivas Cumhuriyet University	175	68	243
Süleyman Demirel University	176	114	290
Tekirdağ Namık Kemal University	164	196	360
Ufuk University	121	100	221
Van Yüzüncü Yıl University	100	32	132
Yüksek İhtisas University	189	41	230

\*Medical schools with both Turkish and English programs.

evaluated students' opinions on anatomy education, it was found that the students liked to study practical courses more than theoretical lectures.<sup>[13]</sup> In a previous study, Başı et al.<sup>[14]</sup> reported that the students paid more attention to practical courses rather than theoretical lectures in terms of attendance. Similarly, Uygur et al.<sup>[13]</sup> also reported that the students paid more attention to practical courses than theoretical lectures in terms of attendance and they demanded that the number of practical courses to be increased, similar with the findings of Öğütürk et al.<sup>[15]</sup>

According to 2004–2005 data, Gözil et al.<sup>[16]</sup> reported that the average number of theoretical and practical anatomy course hours were 181 (range: 110–282) and 111 (range: 74–224). In the present study, the average numbers of theoretical and practical anatomy course hours were found 170.14 (range: 132–245) and 104.47 (range: 32–196), respectively. Gözil et al.<sup>[16]</sup> reported that total anatomy course hours ranged from 184 to 408. On the other hand, Benli et al.<sup>[17]</sup> found the average number of anatomy course hours as 87 (range: 47–183) in the forty-one medical

schools they investigated in 2018. However, based on the examination of the syllabuses of the 2018–2019 academic year,<sup>[2–4]</sup> it is considered that this data may be incorrect. In the present study conducted according to 2018–2019 data, the total number of anatomy course hours was found 274.6 (range: 132–405).

One of the limitations of this study is that some of the websites were not updated. Also, the academicians who were originally affiliated with vocational schools or institutes, but were assigned to the anatomy departments of medical schools, were not evaluated. The course loads of academicians who were included in the medical faculty staff, but teaching at vocational schools, were not also evaluated. Additionally, the curriculum of 58 of 90 medical schools could be reached online, so the number of anatomy course hours of the 32 schools could not be surveyed.

## Conclusion

Differences were identified between universities in terms of number of academicians and course hours. The number of academicians was higher in the medical schools that were established at an earlier date. In addition, no relationship was found between the number of academicians and course hours. When the course hours in institutes, vocational schools and schools other than medical schools were taken into account, the course load of the academicians in the anatomy department was found quite high. It is concluded that this situation may adversely affect anatomy education and academic studies of academicians working in anatomy departments.

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