



ORIGINAL ARTICLE

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An analysis on the evaluation of subjects of doctoral theses completed in anatomy department in Turkey

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Abstract

This study was carried out to examine the trends in subject of study in anatomy department doctoral theses registered in the Higher Education Council (YOK) National Thesis Centre from 1969 to present. This study was carried out by retrospectively scanning the anatomy department theses registered in the YOK National Thesis Centre. While 384 of the 1094 registered theses of anatomy department were doctoral theses, it was found that 353 of these were on human anatomy. These theses on anatomy were grouped in categories according to their subject of study. The year the doctoral thesis was conducted in, gender of the thesis author and the title of the thesis advisor were recorded. A total of 353 doctoral theses on human anatomy, 180 (51.0%) of which were completed in 2010 and before and 173 (49%) of which were completed after 2010, were found in YOK. 96 (27.2%) of the theses were on radiology studies, 84 (23.8%) were on cadaver studies, 84 (23.8%) were on experimental studies, 42 (11.9%) were on anthropometric studies, 35 (9.9%) were on clinical studies and 12 (3.4%) were on other studies. According to the Chi square analysis conducted, statistically significant difference was found in general thesis categories between 2010 and before and after 2010 ($p < 0.05$). While statistically significant increase was found in studies conducted in radiological, clinical, and experimental studies in theses conducted after 2010 when compared with theses conducted in and before 2010, statistically significant decrease was found in theses conducted on cadaver, anthropometric and other subjects of study. As a result of the other analyses conducted, it was concluded that the factors of gender and advisor did not have an effect on the subject of thesis ($p > 0.05$). It was concluded that science and technology that developed over time had a very high impact on the anatomy department and shaped current studies.

Keywords: Anatomy, advisor of thesis, doctoral thesis, subject of thesis, Turkey

Introduction

The word anatomy is a term formed by combining the ancient Greek words ana and tome. The word ana means inside, while the word tome means to cut. Although anatomy corresponds to the word dissection in Latin, today this word is used to mean to dissect the cadaver to parts and to examine the parts by cutting [1]. Anatomy, which has an important place in education programs in medical sciences, is a comprehensive science [2]. Since Vesalius, who lived in the 16th century and who is considered as the founder of anatomy, anatomy has continued to develop by increasing its importance. Technological developments have provided both diversity and advance in the fields and subjects of anatomy [3]. In Turkey, while the departments of anatomy and histology-embryology were together under the roof of morphology department until 1988, later on anatomy department was separated from the department of histology and embryology [4].

Factors such as the effects of developing technology on science, easier access to education and popularization of postgraduate education have led to postgraduate education becoming widespread and occupying an important place in formal education [5]. Doctoral programs, which express the highest degree in education on a world scale, constitute the transition to becoming an academic member. The most important indicator of the gains expected from doctoral candidates is the doctoral thesis. Doctoral thesis is the report in which candidates combine their knowledge with their research and interpret data and it is the mirror of candidates' attainments [6]. Anatomy doctoral theses in cadaver, anthropometric, experimental, clinical and radiological categories in Turkey from the past to the present have been a part of innovations and advances in the science of anatomy [7].

The aim of this study is to examine the doctoral theses of anatomy department registered to Higher Education Council (YOK) Thesis Centre since 1969 and to evaluate the changes from the past to the present under the sub-headings of gender of the author, title of the advisor and anatomy subjects of study.

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Materials and Methods

This study was conducted via retrospective review of anatomy department doctoral theses registered to YOK National Thesis Centre. All anatomy doctoral theses from 1969 to June 2021 were scanned. When searching the thesis search page, the full text of the theses that are open to access; the summary text of the theses that are closed to access were examined. 384 theses, which were registered as doctoral thesis in the anatomy department at National Thesis Centre from 1969 to 2021, were found. However, it was found that 353 were on human anatomy. The remaining 31 theses were excluded since they were found to be on animal or plant anatomy.

The theses were classified and recorded under the categories radiological, clinical, experimental, anthropometric and cadaver studies and under "other" category if conducted outside these subjects of study. In addition to this information, the year the doctoral thesis was conducted in, the gender of the author and the title of the thesis advisor were also added in the file.

Statistical Analysis

IBM SPSS Statistics 22.0 for Windows package program was used in statistical analyses. The data were analyzed descriptively. Numbers and percentage values were used for categorical variables in defining the data. Chi-square test was used in intergroup comparisons of categorical variables. $p < 0.05$ level was considered as statistically significant.

Results

It was found that 180 (52.0%) of the 353 theses added to YOK National Thesis Centre had been written in and before 2010, while 173 (49%) had been written after 2010.

142 (40.2%) of the 353 theses had been prepared by female, while 211 (59.8%) had been prepared by male. Advisors of 18 (5.1%) of the theses were assistant professors, while advisors of 76 (21.5%) were associate professors and advisors of 259 (73.4%) were professors.

When the theses were categorized according to their general subject, 96 (27.2%) were categorized as radiological, 84 (23.8%) were categorized as experimental, 84 (23.8%) were categorized as cadaver, 42 (11.9%) were categorized as anthropometric, 35 (9.9%) were categorized as clinical and 12 (3.4%) were categorized as other. 4 of the theses had been conducted by using electromyography and 2 had been conducted by using genetic techniques. It was found that the theses conducted with radiological images in general had been conducted by making anthropometric measurements, disease based measurements or images of cadavers. Of the theses in cadaver category, 3 had been conducted comparatively, while 3 had been conducted histologically. 1 of the theses in the other category was conducted on anatomy education, while 1 had been conducted on anatomy history, 1 had been conducted on ethics and 1 had been conducted on terminology.

According to the Chi-square analysis, statistically significant difference was found between 2010 and before and after 2010 in the subjects of study determined in general thesis categories ($p < 0.001$) (Table 1).

Table 1. Distribution of subject of study in anatomy doctoral theses before and after 2010.

	Thesis years		P-value
	2010 and before	After 2010	
Radiological	44	52	<0.001
Clinical	9	26	
Experimental	38	46	
Cadaver	57	27	
Anthropometric	23	19	
Other	9	3	
Total	180	173	

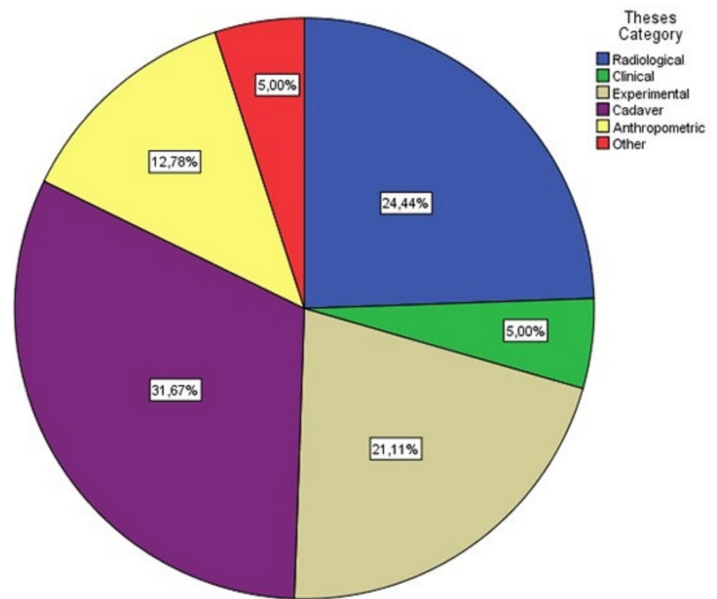


Figure 1. Theses category graphics for in and before 2010

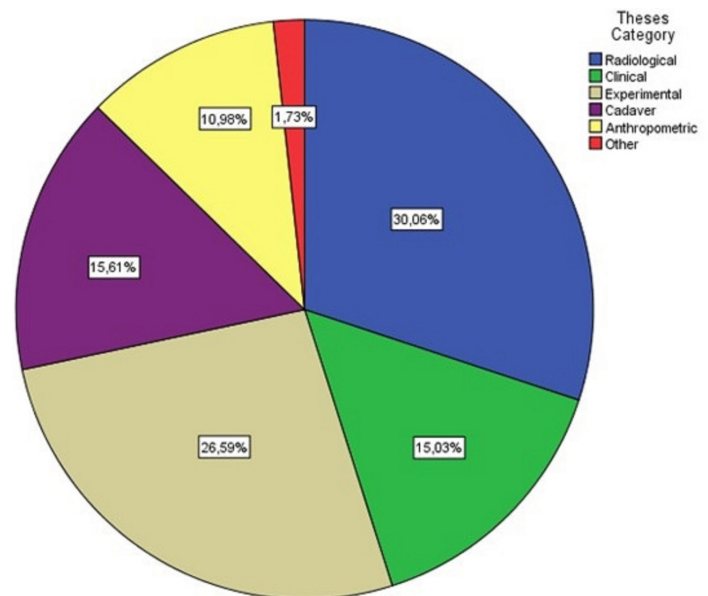


Figure 2. Theses category graphics for after 2010

According to the Chi-square analysis, no statistically significant

difference was found in terms of thesis category and advisor ($p=0.689$), (Table2).

Table 2. Relationship between the advisor and thesis category

	Consultant			Chi-square p-value
	Asst. Prof.	Assoc. Prof.	Prof.	
Radiological	4	17	75	0.689
Clinical	2	7	26	
Experimental	1	20	63	
Cadaver	7	21	56	
Anthropometric	3	9	30	
Other	1	2	9	
Total	18	76	259	

According to the Chi-square analysis, no statistically significant difference was found between gender and thesis categories ($p=0.078$) (Table 3).

Table 3. Relationship between gender and thesis category

	Sex		Chi-square p-value
	Female	Male	
Radiological	38	58	0.078
Clinical	20	15	
Experimental	37	47	
Cadaver	24	60	
Anthropometric	17	25	
Other	6	6	
Total	142	211	

According to the Chi-square analysis, statistically significant difference was found between gender and thesis year. While more male than female completed their anatomy doctorate in and before 2010, more female than male completed their doctorate after 2010 ($p<0.001$) (Table 4).

Table 4. Relationship between gender and thesis year

	Sex		Chi-square p-value
	Female	Male	
2010 and before	54	126	<0.001
After 2010	88	85	
Total	142	211	

Discussion

In this study, in which the trends in theses made in the anatomy department and registered to YOK National Thesis Centre from 1969 to 2021 were discussed in detail, statistically significant difference was found in the categories of anatomy doctoral theses conducted between the period in and before 2010 and the period after 2010. While statistically significant increase was found in theses conducted in radiological, clinical and experimental studies after 2010, statistically significant decrease was found in theses

conducted on cadaver, anthropometric and other subjects of study. As a result of other analyses we conducted, it was concluded that the factors of gender and advisor did not have an effect on the subject of thesis.

The development of the history of humanity occurred with researches conducted and the inventions obtained as a result. As a matter of fact, these developments have also affected the medical world and the information obtained in studies has become reference for new studies. These developments in turn fuel the scientific race. Experimental studies have also been affected positively by these developments and their numbers have begun to increase in time [8]. The aim of evaluations made by creating disease models in animals is to become fast and effective in diagnosis and treatment. With higher level of equipment in experimental animal centres as a result of technological developments, more advanced studies are conducted [9]. Experimental studies are also often used as guides in anatomy science. The results of this study show a statistically significant increase in experimental doctoral theses conducted in the field of anatomy after the year 2010.

As in many fields, computer aided learning process started in medical sciences with technological developments [10]. In addition to providing advantage in time and cost, using computer in anatomy education also provides the opportunity to monitor radiological images, which is the most important reflection of anatomy in clinic [11, 12]. Developing technologies in radiological devices have increased the number and quality of studies conducted in the field of radiological anatomy [3]. Due to their high reliability and low margin of error, radiological studies have opened a new era in qualitative measurements and begun to replace classical anthropometric methods [13-15]. The results of this study show that there has been an increase in theses conducted in the field of radiological anatomy after the year 2010, while there has been a decrease in doctoral theses conducted with anthropometric measurements.

Anatomy education, which has an important place in basic medicine, is also necessary for the diagnosis and correct treatment of disease in clinic [16]. The significance of anatomy comes to the fore especially in surgical branches [17]. Supporting classical anatomy knowledge in anatomy education with clinical information and radiological images enables a better understanding of anatomy and provides students who receive anatomy education skills in interpreting clinical problems (18). The results we obtained in this study showed that the interest in clinical anatomy increased after 2010 in anatomy doctoral theses.

With the embalming of cadavers in 1908 in Turkey, cadavers began to be used in medical education and became the basis of anatomy education [18]. A conducted study shows that cadavers have an important place in anatomy education [19]. Dissection based anatomy education has started to be abandoned today due to difficulties in obtaining cadavers, insufficient number and high cost [20]. Our study also showed a decrease in the number of theses on cadaver. Although this decrease occurred due to the difficulty of obtaining cadaver, how being a cadaver is considered in our country and the fact that it is more appealing to use developing technologies in studies, we believe that cadaver based studies should be an indispensable part of anatomy science.

Conclusion

This study reviewed doctoral theses on anatomy conducted between 1969 and 2021 in Turkey and evaluated the trends in subjects of study in time. Our results showed that the factors of gender and advisor did not have an effect on the subject of thesis. It was concluded that science and technology that developed in time had a very high effect on anatomy department and guided current studies. Since our study is the first one in which anatomy doctorate theses in Turkey are analyzed, it will create a basis for future studies to be conducted in the field.

Note: This study was presented at 1st International Dr. Safiye Ali Multidisciplinary Studies Congress in Health Sciences on August 6-7, 2021

Conflict of interests

The authors declare that they have no competing interests.

Financial Disclosure

All authors declare no financial support.

Ethical approval

Consent of Ethics is not required for this study.

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