

Bibliographic Analysis of Completed Theses in the Field of Anatomy in Turkey between 2021-2023

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Abstract

Purpose: *In this study, we aimed to systematically examine the theses in the field of anatomy published between 2021 and 2023.*

Method: *The study was conducted by screening 298 anatomy (medicine) theses published between 2021 and 2023 in the National Thesis Search Center. Theses were categorized as master's, doctoral and medical specialty. These categorized theses were also grouped according to their relevance to the locomotor system, circulatory system, respiratory system, digestive system, urogenital and endocrine system, and nervous system for systematic analysis. Experimental, anthropometric, radiologic, cadaveric and clinical subheadings were also used according to the method used.*

Results: *The findings of our study showed that the majority of anatomy theses were related to the locomotor system with a rate of up to 49%, while the least common theses were urogenital, endocrine and respiratory system theses with a rate of 3% each. It was observed that the theses related to the locomotor system were mostly performed using radiologic methods and the second most common theses related to the nervous system were performed using clinical and radiologic methods.*

Conclusion: *In conclusion, we believe that this bibliographic analysis will give an idea to anatomy graduate students, doctoral students and faculty members in anatomy education about the trends, frequently preferred methods and systems in anatomy theses.*

Key words: *Anatomy, Bibliometric analysis, Theses, Systematic review*

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Introduction

Universities are institutions of higher learning that fulfill needs in the areas of education, research, and human resources for states. Due to the development of higher education in recent years, both the number of public and private universities as well as the breadth of higher education have increased (1). The demand for academic staff is fueled by the expanding and diverse student body at colleges. Graduate education is essential for producing academic staff who are qualified in a variety of subjects. University institute units perform scientific research and activities as part of graduate education. These institutions award researchers master's and doctorate degrees. Additionally, these institutes provide a considerable contribution to the research outputs of universities through the publication of graduate theses. A thesis is a piece of writing that is the outcome of independent investigation. As a result, depending on the academic degree one wishes to obtain, its length, depth, and research quality may change (2). The process of writing a thesis has many advantages for the researcher in terms of developing their research abilities and capacity for lifetime learning (3).

The theses archived at the National Thesis Center of the Council of Higher Education (YK) have been the subject of numerous

bibliometric research in various domains (4). In bibliometric analysis, statistical techniques are used to profile publications in pertinent fields, identify trends within a discipline, and assess qualitative and quantitative changes connected to a particular scientific research topic (5). Bibliometric studies can be used to evaluate the growth and impact of a scientific topic or journal in the literature (6). Analyses that assess scientific trends and the influence of literature in respective research fields might be useful to researchers looking for information on a certain issue. It is possible to assess the state of graduate education programs in particular subjects by looking at the bibliometric characteristics of theses (4). The increasing use of bibliometric methods can also be effective in evaluating the quantity and quality of scientific research outputs in the field of anatomy (6).

In recent years, postgraduate education has become more widespread, and this has made a significant contribution to science. The first step in postgraduate education is usually the master's thesis, where students begin their thesis writing journey. Subsequently, there is the doctoral thesis. The most important indicator of the expected achievements from doctoral candidates is the doctoral thesis. The doctoral thesis is a report where candidates

combine their knowledge with their research and interpret the data, reflecting the culmination of their achievements (7, 8).

In Turkey, important steps have been taken in recent years regarding the bibliographic control, digitalization, and accessibility of academic theses. Consequently, studies related to the bibliometric characteristics of theses have started to appear in the literature (9). The use of bibliometric studies in the field of anatomy provides important information about existing publications (10). In the field of anatomy at the postgraduate level, theses have been conducted on various topics. These theses may be related to radiological, anthropometric, experimental, cadaveric, or clinical areas. In this study, our aim was to systematically examine the theses in the field of anatomy published between 2021 and 2023.

Materials and Methods

The study was conducted by screening 298 medical anatomy theses published in the Council of Higher Education (YÖK) National Thesis Search Center between 2021 and 2023. Theses were categorized into master's, doctoral, and medical specialization theses. For a systematic analysis of these categorized theses, they

were further divided into the following categories: locomotor system, circulatory system, respiratory system, digestive system, urogenital and endocrine system, nervous system, and others. The "others" category included multi-system theses, theses at the cellular level, surveys, and terminology studies. For a more detailed examination, the theses were further divided into five subheadings based on the study area for each system: experimental, anthropometric, radiological, cadaveric, and clinical.

It should be noted that the theses in the YÖK National Thesis Search Center are made available online with the individual's permission. In other words, the theses that do not have the individual's permission cannot be viewed in this center.

Results

Out of the completed 298 anatomy theses, it was found that 146 of them were related to the locomotor system, 33 were related to the circulatory system, 10 were related to the respiratory system, 13 were related to the digestive system, 10 were related to the urogenital and endocrine system, 63 were related to the nervous system, and 23 were categorized as "other" (Figure 1).

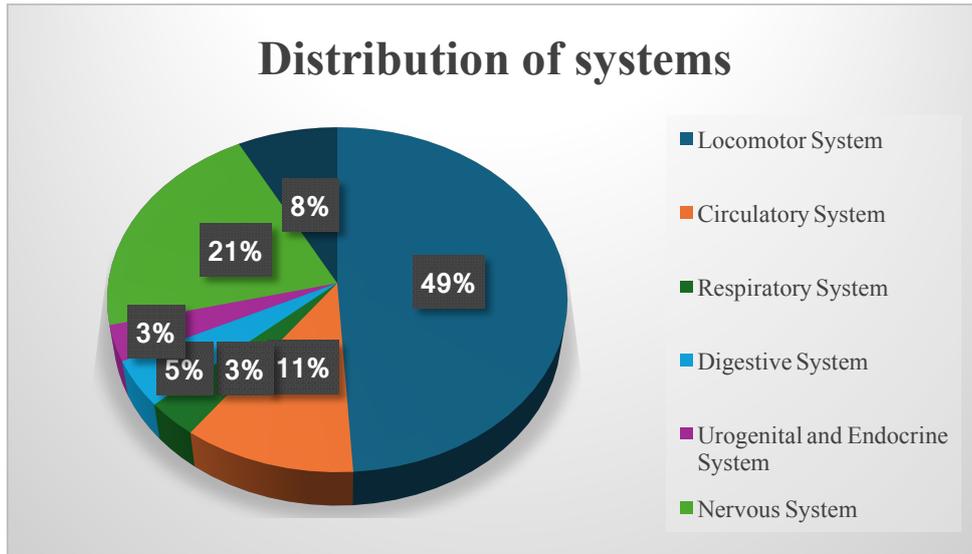


Figure 1. Distribution of theses in the field of anatomy by systems.

Of the 146 theses of the locomotor system, 34 belonged to 2023, 49 belonged to 2022, and 63 belonged to 2021. Of the 33 theses on the circulatory system, 5 belonged to 2023, 13 to 2022, and 15 to 2021. Of the 10 theses on the respiratory system, 1 belonged to 2023, 5 to 2022, and 4 to 2021. Of the 13 theses on the digestive system, 2 were for 2023, 10 for 2022, and 1 for 2021.

Of the 10 theses on the urogenital and endocrine system, 4 belonged to 2023, 3 to 2021, and 3 to 2021. Of the 63 theses on the nervous system, 19 were from 2023, 23 were from 2022, and 21 were from 2021. Of the 23 theses in the other department, 3 were from 2023, 14 were from 2022, and 6 were from 2021 (Figure 2).

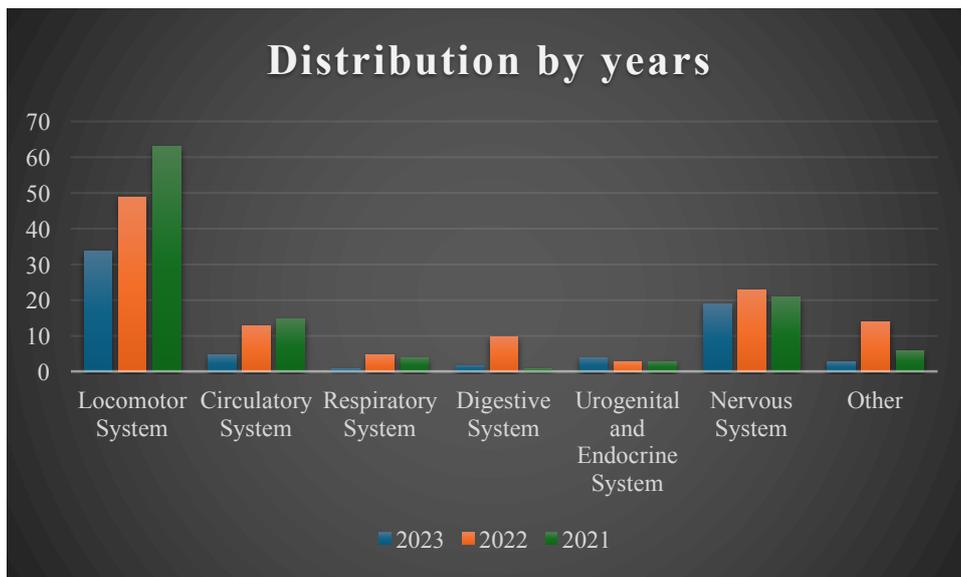


Figure 2. Distribution of theses written in the field of anatomy by years.

Of the 34 theses in the locomotor system for 2023, 19 of them are master's theses, 12 of them are doctoral theses, 3 of them are medical specialty theses, of the 49 theses of 2022, 35 are master's theses, 11 of them are doctoral theses, 3 of them are medical specialty theses, 63 of them are of 2021. 43 of the theses were master's theses, 15 were doctoral theses, and 5 were medical specialty theses. 5 of the 5 theses in 2023 in the circulation system are master's theses, 2 of the 13 theses in 2022 are master's theses, 8 of them are doctoral theses, 3 of them are medical specialty theses, 8 of the 15 theses in 2021 are master's theses, 4 of them are doctoral theses, and 3 of them are master's theses. One of them was a medical specialization thesis. In the respiratory system, 1 thesis of 2023 was a medical specialization thesis, 4 of the 5 theses of 2022 were master's thesis, 1 was a doctoral

thesis, 2 of the 4 theses in 2021 were master's thesis, 1 was a doctoral thesis, and 1 was a medical specialization thesis. In the digestive system, 2 of the 10 theses from 2023 were master's theses, 6 of the 10 theses from 2022 were master's theses, 4 were doctoral theses, and 1 thesis from 2021 was a doctoral thesis. Of the 4 theses in 2023 on the urogenital and endocrine systems, 1 was a master's degree, 2 of them were doctoral, 1 was a medical specialty thesis, 2 of the 3 theses in 2022 were master's thesis, 1 was a doctoral thesis, and all 3 theses in 2021 were medical specialty thesis. Of the 19 theses in the nervous system in 2023, 9 are master's theses, 10 are doctoral theses, of the 23 theses in 2022, 16 are master's thesis, 6 are doctoral, 1 is a medical specialty thesis, 11 of the 21 theses in 2021 are master's theses, 9 are doctoral theses, 1 of which was a medical specialization thesis (Figure 3).

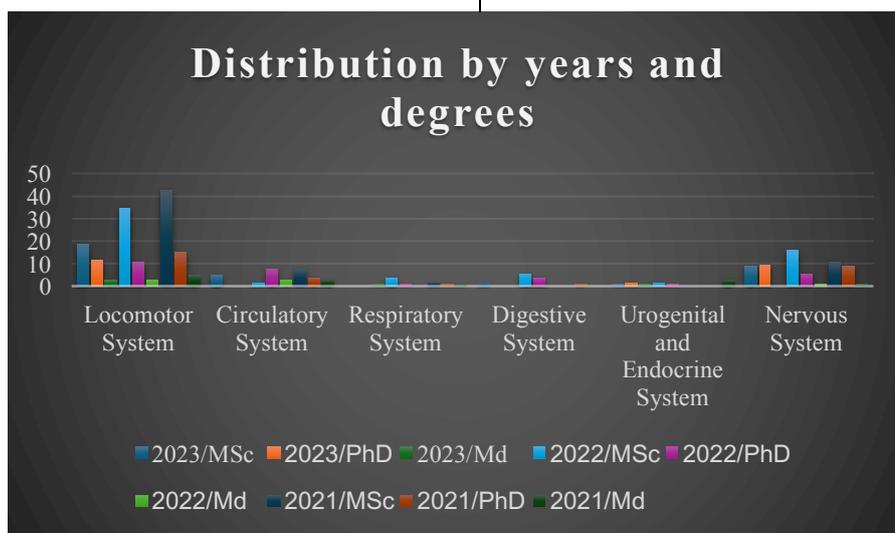


Figure 3. Distribution of theses separated by systems by years and graduate degrees (Distribution by years and degrees).

Of the 34 studies in the locomotor system of 2023, 2 are experimental, 5 are anthropometric, 14 are radiological, 5 are cadaver, 8 are clinical, 4 of 49 studies of 2022 are experimental, 5 are anthropometric, 28 are radiological, 8 are cadaver, 4 are Of the 63 studies in 2021, 2 were experimental, 8 were anthropometric, 32 were radiological, 12 were cadaveric, and 9 were clinical studies. Of the 5 studies in the circulatory system in 2023, 2 are radiological, 2 are cadaveric, 1 is clinical, 1 of the 13 studies in 2022 is anthropometric, 8 of them are radiological, 2 are cadaver, 2 are clinical, 15 studies in 2021 are 11 radiological, 3 are cadaveric. , 1 of which was a clinical study. In the respiratory system, 1 study in 2023 was radiological, 4 of 5 studies in 2022 were radiological, 1 was clinical, 1 of 4 studies in 2021 was experimental, 2 of which were

anthropometric, and 1 was radiological. In the digestive system, 2 studies of 2023 were 1 cadaveric, 1 was clinical, 7 of 10 studies of 2022 were experimental, 2 were radiological, 1 was clinical, and 1 study of 2021 was experimental. Of the 4 studies on the urogenital and endocrine systems in 2023, 2 were experimental, 1 was radiological, 1 was clinical, 2 of 3 studies of 2022 was radiological, 1 was clinical, 3 of 2021 was 2 experimental, 1 was radiological. Of the 19 studies on the nervous system in 2023, 9 are experimental, 7 are radiological, 2 are cadaveric, 1 is clinical, 2 of the 23 studies of 2022 are experimental, 4 are anthropometric, 10 are radiological, 6 are cadaver, 1 is clinical, and in 2021 Of the 21 studies, 5 were experimental, 8 were radiological, 6 were cadaveric, and 2 were clinical studies (Figures 4, 5, 6).

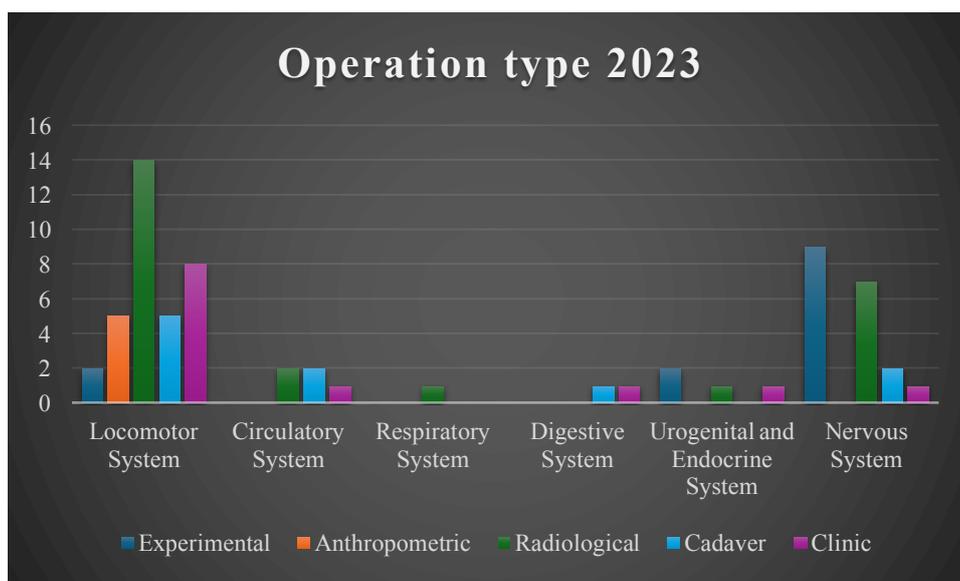


Figure 4. Distribution of theses written in 2023 according to method types in each system.

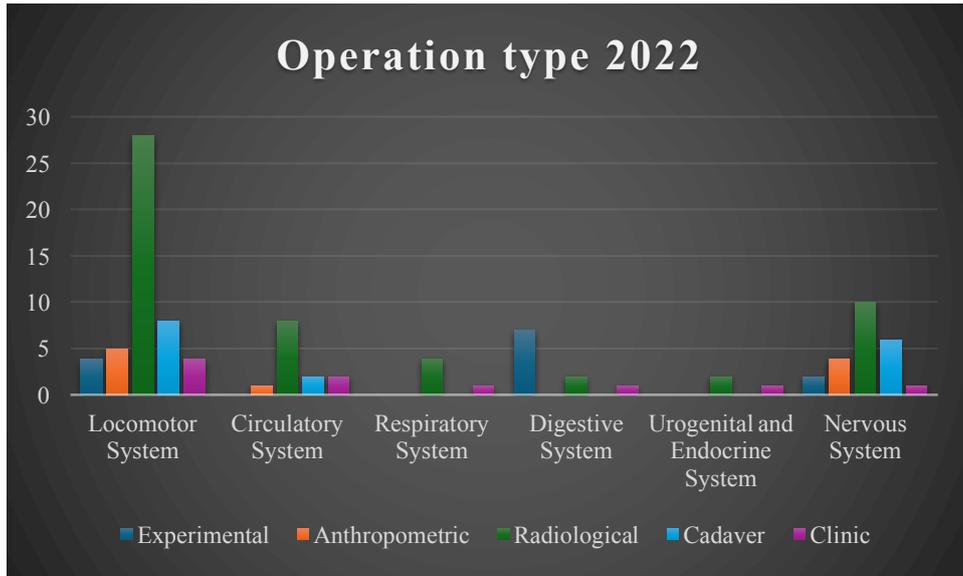


Figure 5. Distribution of theses in 2022 according to method types in each system (Operation type 2022).

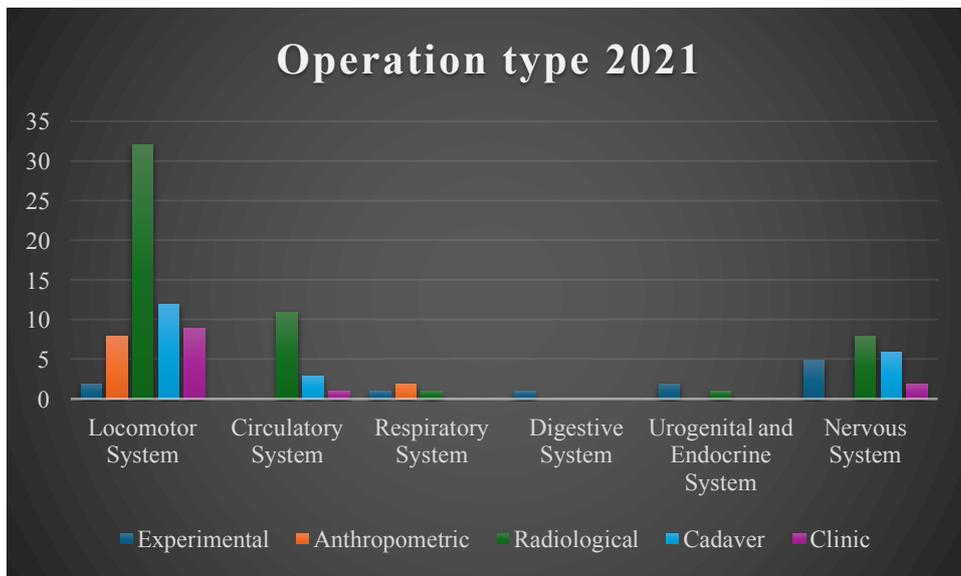


Figure 6. Distribution of theses made in 2021 by method types in each system (Operation type 2021).

Discussion

This study aimed to systematically examine the theses in the field of anatomy published between 2020 and 2023. As a result of this study, it was found that out of the 298 theses, 146 were related to the locomotor system, followed by 63 theses related to the nervous system. When examined by years,

it was observed that anatomy theses related to the locomotor system were most frequently published in 2021, and it was also noted that a significant majority of the theses on the locomotor system in all three years were radiological in nature.

The areas of anatomy that see the most publications in Turkey include surgical

anatomy, morphology, neuroscience, clinical neurology, radiology, and nuclear medicine (1, 11). Additionally, it was noted that animal experiments (29.9%), radiological investigations (22.7%), and clinical research (13.4%) made up the majority of the original articles published in the Turkish Journal of Anatomy and Clinical Anatomy between 2007 and 2018 (6).

In a bibliographic study, it was reported that radiological studies were the most common type of research conducted in anatomy theses, followed by experimental animal research, anthropometric studies, and clinical studies (1). The bibliographic analysis conducted in this study aligns with the literature, revealing that especially radiological studies were conducted in the three-year period, with a strong focus on the locomotor system. This may be attributed to the frequent use of computerized tomography and magnetic resonance imaging techniques in clinical practice, which play a crucial role in the diagnosis, monitoring, and treatment planning of diseases. The recent advancements in radiological technology may have made it easier to conduct such research.

Advancements in the medical field are indeed fueling a race in scientific research. Experimental studies have benefited positively from these developments, and

their numbers have gradually increased over time. Creating disease models in animals and conducting assessments aim to achieve rapid and effective diagnosis and treatment. As a result of technological advancements, as the level of equipment in animal research centers has increased, more advanced studies are being conducted. Experimental studies are frequently used as guiding tools in the field of anatomy (12). In this study, it was observed that the theses related to experimental studies on animals in the last three years lagged behind radiological and cadaver studies in all systems. This could be attributed to challenges in procuring cadavers and the financial resources required for experimental studies, which may lead researchers to prefer other types of research.

In a study examining publications in the field of anatomy, it was reported that experimental animal studies were the most common, followed by radiological studies (6). In this study, when examining the theses in the field of anatomy, it was found that radiological studies were the most common. The discrepancy between this study and the literature could be attributed to the examination of different time intervals.

Anatomy education holds a significant place in basic medicine, and it is also essential for the diagnosis and proper treatment of diseases in clinical practice

(13). The importance of anatomy is particularly emphasized in surgical specialties (14). Enhancing classical anatomical knowledge with clinical information and radiological images in anatomy education improves the understanding of anatomy and equips students with the ability to interpret clinical problems (15). The results obtained in this study, showing an increase in theses related to clinical anatomy over the years, support the literature in this regard.

Anatomy theses based on anthropometric measurements have been on the rise (16, 17). In this study, when examining the anatomy theses conducted in the last three years, it was found that anthropometric measurements were most frequently conducted in the locomotor system, followed by the nervous system. In this study, it was found that cadaver studies were most frequently conducted in the locomotor system in the last three years, followed by the nervous system.

Limitations:

This study can provide dynamic, objective, and valuable information about the trends in the increasing number of theses in the Department of Basic Medical Sciences, Anatomy, for researchers interested in the subject. However, it still has some limitations. Although the information from the theses accessible online is easily

accessible during the research process, there may still be theses that are not publicly available and do not fully specify their subject matter in the thesis introduction. This bibliographic study involves systematic categorization but lacks topographic examination. For example, upper extremity studies could not be analyzed separately for the arm, forearm, and hand.

Conclusions

As a result of the study, it was determined that in the anatomy theses conducted in the last three years, the locomotor system was the most frequently examined, and radiological studies were the most commonly employed method. The current findings of the theses evaluated in this study related to the field of anatomy can provide insights into the categories of future research and publications when added to the data of bibliometric studies in the literature. It is expected that the research results will shed light on anatomy graduate students, doctoral students, clinicians, and researchers involved in various academic studies.

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Ethical Approval: The study does not require ethical clearance as it is a bibliographic review.

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