

# Bibliometric Analysis of Dermatology and Venereology Residency Dissertations in Türkiye between 1968 and 2023: A Cross-Sectional Retrospective Study

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## Abstract

**Aim:** Bibliometric analysis is a useful technique that is used to analyze and categorize scientific data according to different parameters, such as years, main subjects and associated affiliations. Bibliometric analysis of residency dissertations and theses allows scholars to analyze pre-existing data and create innovative research topics and designs in specific fields. In the present study, we aimed to conduct a bibliometric analysis of dermatology residency dissertations and master theses in Türkiye from 1968 to 2023.

**Materials and Methods:** The current study was designed as a cross-sectional, descriptive study. Medical specialty theses in the field of dermatology and venereology, which were published between 1968 and 2023 and indexed in the Higher Education Council Thesis Center, were evaluated.

**Results:** One thousand six hundred forty theses related to dermatology and venereology were obtained. The majority of the theses (n = 90) were published in 2022, followed by 2009 (n = 89). The number of dissertations and theses showed a statistically significant rise over the 55 years. The most frequently mentioned topics were “papulosquamous and eczematous dermatoses” (n = 449) followed by “medical treatments” (n = 291), “diagnostic methods in dermatology” (n = 212), “adnexal diseases” (n = 197) and “skin neoplasms” (n = 174).

**Conclusion:** The present study summarizes the bibliometric analysis of residency and master theses produced in dermatology and venereology specialty. We believe that the findings will be an excellent guide for dermatologists to analyze prior studies and create novel research designs.

**Keywords:** Academic dissertation, bibliometrics, dermatology

## INTRODUCTION

Dermatology and venereology residency is one of the most competitive and challenging specialty programs in Türkiye. Specializing in dermatology requires robust clinical experience and knowledge to obtain the right diagnosis and manage treatment. Therefore, developing diagnostic skills and performing the appropriate auxiliary diagnostic tests are essential to cure specific skin diseases.

In Türkiye, completion of a residency dissertation is a prerequisite to graduate from a residency program. Selection of a novel and creative dissertation topic is substantial for

making a substantial contribution to the literature. Since scientific data and experience are transferred through scientific research publications worldwide, conducting an innovative investigation and generating a well-described, elucidatory report are crucial. A study that was conducted in 2019 and investigated scientific publications related to dermatology revealed that dermatology-related research output has increased in recent years.<sup>1</sup> At that time, psoriasis and Behçet’s disease were the two most common conditions on which dermatological research publications concentrated.<sup>1</sup>

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Bibliometric analysis is a quantitative technique that is used to analyze the scientific outcomes of variable scientific components (author, subjects, year etc.).<sup>2</sup> Bibliometric analysis is performed to evaluate and categorize scientific data focused on a specific area in relation to the topics, years, institutions.<sup>2</sup> By that way, it enables scientists to decipher patterns, trend subjects, impacts, and knowledge gaps within a particular field.<sup>3</sup> Accordingly, in this study, we aimed to perform a bibliometric analysis of residency dissertations in dermatology and venereology in Türkiye between 1968 and 2023.

## MATERIALS AND METHODS

### Study Design and Data Extent

This was a descriptive research study with a cross-sectional design. Medical specialty dissertations belonging to the department of dermatology, published between 1968-2023 and indexed in the Higher Education Council (YOK) Thesis Center, were examined (n = 1640). In the detailed search section, 1644 theses obtained by selecting dermatology department, were evaluated. Two theses belonging to the departments of deontology, ethics, and general surgery, which were uploaded under the dermatology category, and two theses uploaded repeatedly in the YOK Thesis system were excluded. Theses not included in the YOK Thesis Center were not evaluated. When evaluating page numbers, 11 extreme values such as 0, 930, and 1049, were excluded because relevant data could not be accessed directly.

The data in the YOK Thesis Center are open data and include title, abstract, number of pages, advisor, author, thesis type, university, and year of publication. Since these open data are evaluated, ethics committee approval is not required.

By using major reference textbooks and sources of dermatology<sup>4,5</sup>, the basic dermatological subjects (e.g. adnexal diseases, skin neoplasias, etc.) were determined. Using these subject headings, the subject area in which each thesis was conducted was evaluated. In the pilot application of the study, some theses were written on a single subject, while others were written on more than one subject. For this reason, 1640 theses were tagged by researchers with at least 1 and at most 4 topic tags. As a result, a total of 2382 topic tags were obtained.

### Statistical analysis

The total, average, minimum-maximum numbers, percentages, common topic analysis, frequency table, and interactive visualizations based on these tables were used in the data analysis; thus, dermatology residency dissertations conducted in Türkiye from 1968 to 2023 were mapped.

While determining the foundation dates of universities and faculties, declarations of the Council of Ministers were taken as the basis. When comparing the foundation dates of the universities and faculties with the date of the first thesis, the Ministry of Health was excluded because the foundation dates of the research and training hospitals were incompatible.

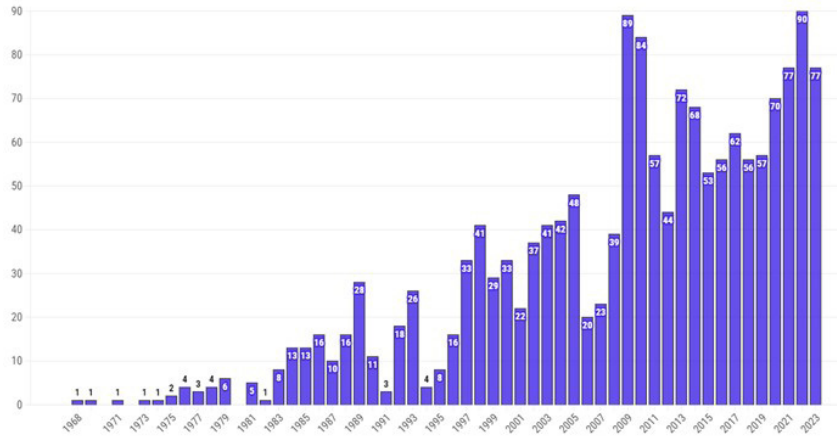
## RESULTS

Of the 1640 theses, 1639 were residency dissertations, and only 1 as a doctoral thesis titled as “Sources of Transmission and Status of Veneral Diseases Today”, conducted at İstanbul University, İstanbul Faculty of Medicine and published in 1985. One thousand four hundred eighty-five (90.5%) dissertations were from a state university, 22 (1.3%) from a foundation university, 91 (5.6%) from 15 research and training hospitals affiliated with the Ministry of Health, and 42 (2.6%) were conducted at Gülhane Military Medical Academy, which is not actively continuing education at present.

The universities with the highest number of these were as follows: University of Health Sciences Türkiye (n = 125), İstanbul University (n = 124), Ministry of Health (n = 91) (not university), Ankara University (n = 72), Atatürk University (n = 62) and Ege University (n = 62) (Supplementary File 1). When comparing the number of theses according to universities, all 15 research and training hospitals affiliated with the Ministry of Health were evaluated together, and there were 91 theses, and University of Health Sciences Türkiye, Şişli Hamidiye Etfal Training and Research Hospital had the highest number of theses (n = 24).

When the number of theses published by year was evaluated, it was found that most theses (n = 90) were published in 2022, followed by 2009 with 89 theses. It was observed that the number of theses increased over 55 years, and Spearman’s correlation test showed that there was a very strong positive relationship, and this increase was statistically significant ( $P < 0.001$ ,  $r = 0.933$ ) (Figure 1). When the distribution of the page counts of these was analyzed, it was found that the data did not follow a normal distribution, with a median value of 72 pages (interquartile range: 56-91). A moderate positive correlation was observed between page count and year of publication, with the increase being statistically significant ( $P < 0.001$ ,  $r = 0.525$ ).

Table 1 presents the core study areas in dermatology. Methodological topics, including medical treatments, diagnostic methods in dermatology, physical treatment modalities, cosmetic surgery, and surgery, were grouped accordingly. The remaining 21 topics were categorized as the main topics. Although no studies have been conducted on two of these topics, they were still included in the table because



**Figure 1.** Distribution of all dermatology thesis conducted in Türkiye approximately 1968-2023 according to year (n = 1640)

they represent fundamental areas of dermatology. Over the span of 55 years, the evaluation of all theses revealed that “papulosquamous and eczematous dermatoses” was the most frequently studied topic, with 449 theses. This was followed by “medical treatments” (n = 291), “diagnostic methods in

dermatology” (n = 212), “adnexal diseases” (n = 197), and “skin neoplasms” (n = 174), in descending order. When theses published in universities and the Ministry of Health hospitals were evaluated according to the frequency of the topics, the first five topics most frequently covered in theses from the universities were scaly diseases (n = 431, 19.1%), medical treatment (n = 282, 12.5%), diagnostic methods (n = 205, 9.1%), adnexal diseases (n = 184, 8.1%), and neoplasms (n = 169, 7.5%). On the other hand, the first five subjects most frequently examined in the Ministry of Health hospitals were scaly diseases (n = 18, 16.8%), hair and nail diseases (n = 16, 15%), adnexal diseases (n = 13, 12.1%), medical treatment (n = 9, 8.4%), and diagnostic methods (n = 7, 6.6%). Rankings of “medical treatment” and “diagnostic methods” subjects in the Ministry of Health hospitals have fallen behind, whereas “hair and nail diseases” has emerged. The frequencies of the topics in all institutions are detailed in Table 2, and the frequencies of all themes from 1968 to 2023 are shown in a competitive manner in Figure 2 (<https://public.flourish.studio/visualisation/18819398/>). The changes in the subjects of the dermatology residency dissertations over the years, along with detailed trends for each subject in 10-year intervals, are depicted in Figure 3 (<https://public.flourish.studio/visualisation/18820622/>). The frequencies of interactions between the methodologic topics and main topics are shown in Figure 4 (<https://public.flourish.studio/visualisation/19173546/>).

Table 1. Main topic categories used in reference works in the field of dermatology		
Group	Subject categories in dermatology	
Main	Papulosquamous and eczematous dermatoses	
	Adnexal diseases	
	Skin neoplasms	
	Hair, nail, and mucous membrane diseases	
	Infection, infestation, and bite	
	Rheumatologic dermatology	
	Urticaria, erythema, and purpura	
	Pigmentary disorders	
	Vesiculobullous diseases	
	Psychological effects of dermatological diseases	
	Dermatologic findings of metabolic and systemic diseases	
	Pruritus	
	Disorders caused by physical agents	
	Drug eruptions	
	Vascular disorders	
	Basic principles of dermatology	
	Psychocutaneous diseases	
	Subcutaneous tissue diseases	
	Genodermatoses	
	Atrophy and dermal connective tissue diseases	
	Langerhans cell and macrophage disorders	
	Methodologic	Medical treatments
		Diagnostic methods for dermatology
Physical treatment modalities		
Cosmetic surgery		
Surgery		

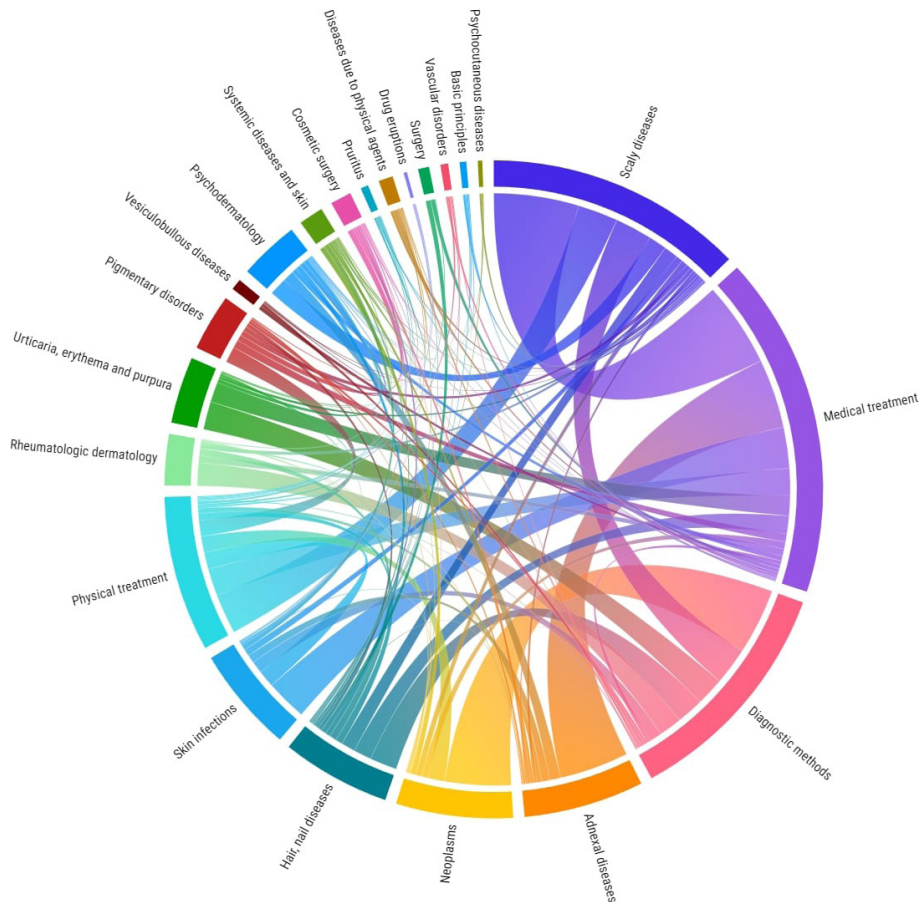
Table 2. Distribution of all dermatology theses conducted in Türkiye between 1968 and 2023 according to topic frequency	
Topics	Frequency
Papulosquamous and eczematous dermatoses	449
Medical treatments	291
Diagnostic methods for dermatology	212
Adnexal diseases	197
Skin neoplasms	174

Topics	Frequency
Hair, nail, and mucous membrane diseases	168
Infection, infestation, and bite	153
Physical treatment modalities	122
Rheumatologic dermatology	119
Urticaria, erythema, and purpura	119
Pigmentary disorders	97
Vesiculobullous diseases	53
Psychological effects of dermatological diseases	50
Dermatologic findings of metabolic and systemic diseases	45
Other	23
Cosmetic surgery	29
Pruritus	19
Disorders caused by physical agents	15
Drug eruptions	13
Surgery	11
Vascular disorders	10
Basic principles of dermatology	6
Psychocutaneous diseases	4
Subcutaneous tissue diseases	2
Genodermatoses	1

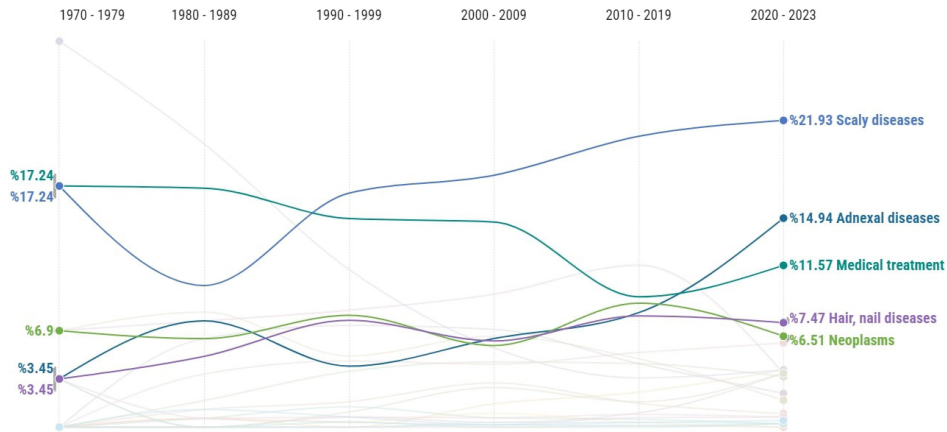
## DISCUSSION

Bibliometric analysis related to theses and dissertations in medical fields has rarely been performed in Türkiye; however, there are several reports in the literature that analyzed theses about public health, sports medicine, orthopedics, and medical parasitology.<sup>6-9</sup> To our knowledge, the present study is the first bibliometric analysis study of dermatology and venerology residency dissertations recorded between 1968 and 2023 in Türkiye. Our study's results show that the number of dermatology and venerology theses and dissertations has substantially increased over the last 55 years as the number of dermatology clinics offering dermatology specialization and quotas for dermatology residency training has also gradually escalated during this period.

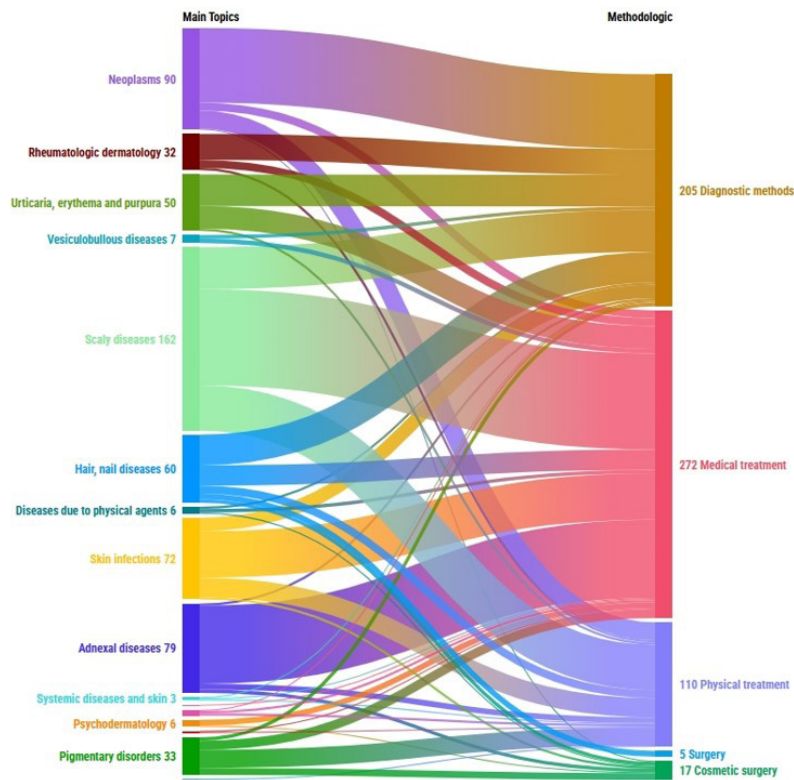
Chronic dermatological diseases such as eczema, psoriasis, and hidradenitis suppurativa generally have a great impact on the physical and psychological well-being of patients. Therefore, early and correct diagnosis of skin disorders, along with convenient management, is important. To acquire the required knowledge and skills, a rigorous, well-disciplined theoretical and practical education is necessary. In Türkiye, the dermatology residency program encompasses



**Figure 2.** The number of dissertation subjects from 1968 to 2023 is competitively represented



**Figure 3.** Fluctuations in the themes of dermatology residency theses over the years, along with detailed trends for each topic at 10-year intervals



**Figure 4.** Distribution of interactions between methodological topics and main topics

four years, during which candidates are assigned to dermatology outpatient clinics, inpatient care units, and interventional procedures such as skin biopsy, surgery, and electrodesiccation. During the fourth year of residency training, research assistants are required to complete their dissertations. Residency dissertations enable individuals to develop research skills and contribute new knowledge to the pre-existing literature.

In a bibliometric analysis study that investigated global productivity for dermatologic literature between 1985 and 2014, the articles were the most frequent document type

among other types (letters, reviews, notes, editorials etc.).<sup>10</sup> In the same study, it was found that the USA, UK, Germany, and France were the top four countries when ranked according to the H-index over three decades.<sup>10</sup> Unfortunately, Türkiye was not on the top 20 countries' lists when ranked according to the H-index.<sup>10</sup>

In 2019, Gülkesen<sup>1</sup> published a report related to the analysis of scientific publications in dermatology field; 3319 articles were found from 1998 to 2017, when Science Citation Index-Expanded journals were selected from Web of Science (WoS) under “dermatology” classification. In this study,

an increasing percentage of articles published under the “dermatology” class of WoS was observed until 2006, after which the percentage of dermatology publications seemed to become stable.<sup>1</sup> The publications focused mainly on psoriasis and Behçet’s disease.<sup>1</sup> In our study, we also found that residency dissertations concentrated on papulosquamous and eczematous skin disorders (fundamentally psoriasis). In another study by Salman<sup>11</sup>, which evaluated scientific publications from Türkiye between 2012 and 2016, 1602 scientific publications (746 original research; 856 letter to editor, case report and review) were examined. Original research articles mainly focused on psoriasis, followed by acne vulgaris, Behçet’s disease, infectious skin disorders, hair diseases, and isotretinoin treatment.<sup>11</sup> In the same study, it was revealed that the total number of research publications related to dermatology and venerology in Türkiye seemed to escalate between 2012 and 2016, even though the count of publications which were published in high impact journals did not show an increase.<sup>11</sup> Our results showed that the number of residency dissertations has statistically increased significantly since 1968, even though there have been fluctuations over the years. The highest number of dissertations was observed in 2022 (90 dissertations), followed by 2009 (89 dissertations) and 2010 (84 dissertations). In parallel, an important rise has recently been observed in the number of dermatology residency quotas when dermatology residency quotas are compared between 2016 September “Examination for Specialty in Medicine” (n = 35)<sup>12</sup> and 2023 September “Examination for Specialty in Medicine” (n = 355).<sup>13</sup> We believe that the gradual rise in the determined quotas for dermatology research assistants in universities and training and research hospitals in Türkiye might account for the increase in the number of dermatology theses within the last decades.

We believe that because psoriasis is a relatively common skin disease which affects 1-3% of the general population and has a significant impact on quality of life,<sup>14</sup> most dissertations were related to this chronic inflammatory skin disorder. In a recent study from Romania, in which trend research topics related to psoriasis is investigated, it was revealed that etiopathogenesis, epidemiology, and immune mechanisms were the most outstanding and popular topics according to WoS database.<sup>15</sup> Additionally, in the last decade, publications mainly concentrated on biologic agent treatment for psoriasis.<sup>15</sup> Similarly, another study from China which analyzed publications indexed within the Medical Subject Headings word “psoriasis” from PubMed showed that disease severity, therapy outcome, dermatologic treatment modalities, clinical trials and molecular etiopathogenesis were the most frequent topics between the years 2003-2022.<sup>16</sup> In the present bibliometrics analysis, “papulosquamous and eczematous

diseases” subject category, mainly psoriasis, was the most frequently addressed topic, whereas there seemed to be a decreasing trend in the number of dissertations related to “infectious skin diseases” category. The high prevalence of psoriasis in the Turkish population,<sup>17</sup> along with longer follow-up periods and regular data recording/preservation related to clinical features, associated comorbidities, and clinical response to treatment for this chronic inflammatory disorder, may account for the popularity of “papulosquamous and eczematous diseases” and “medical treatment” subject categories.

Our study sheds light on the 55 years of the dermatology specialty in Türkiye by analyzing the topics that have been studied the most and the least, the rates at which these topics were covered in 10-year decades, the trends and tendencies that have changed over the years, and the relationships between the individual topics and the methodological research subjects that were most frequently studied together. By highlighting the less studied, orphan subjects of dermatology; we have aimed to emphasize that these areas should not be neglected.

### Study limitations

Our study has some limitations. We were not able to investigate the increase in the number of clinics offering dermatology specialization and the number of dermatologists who graduated annually. Our study is based on only open data related to residency dissertations from “YOK Thesis Center”, and we were not able to find any other reliable open data, or another prior investigation which includes the present investigation’s study period and is related to the number of centers offering dermatology specialization and the number of dermatologists graduated per year.

### CONCLUSION

We believe that the interactive visuals we have presented will guide researchers who are conducting new studies in the field of dermatology, similar to navigation. We believe that by presenting the general framework of all years, this will help close the scientific gaps in the field of dermatology.

Original research publications derived from residency dissertations, along with their acceptance rates and types of journals in which the articles are published, remain another significant issue to be scrutinized.

### Footnote

**Ethics Committee Approval:** Since these open data are evaluated, ethics committee approval is not required.

**Informed Consent:** Retrospective study.

### Authorship Contributions

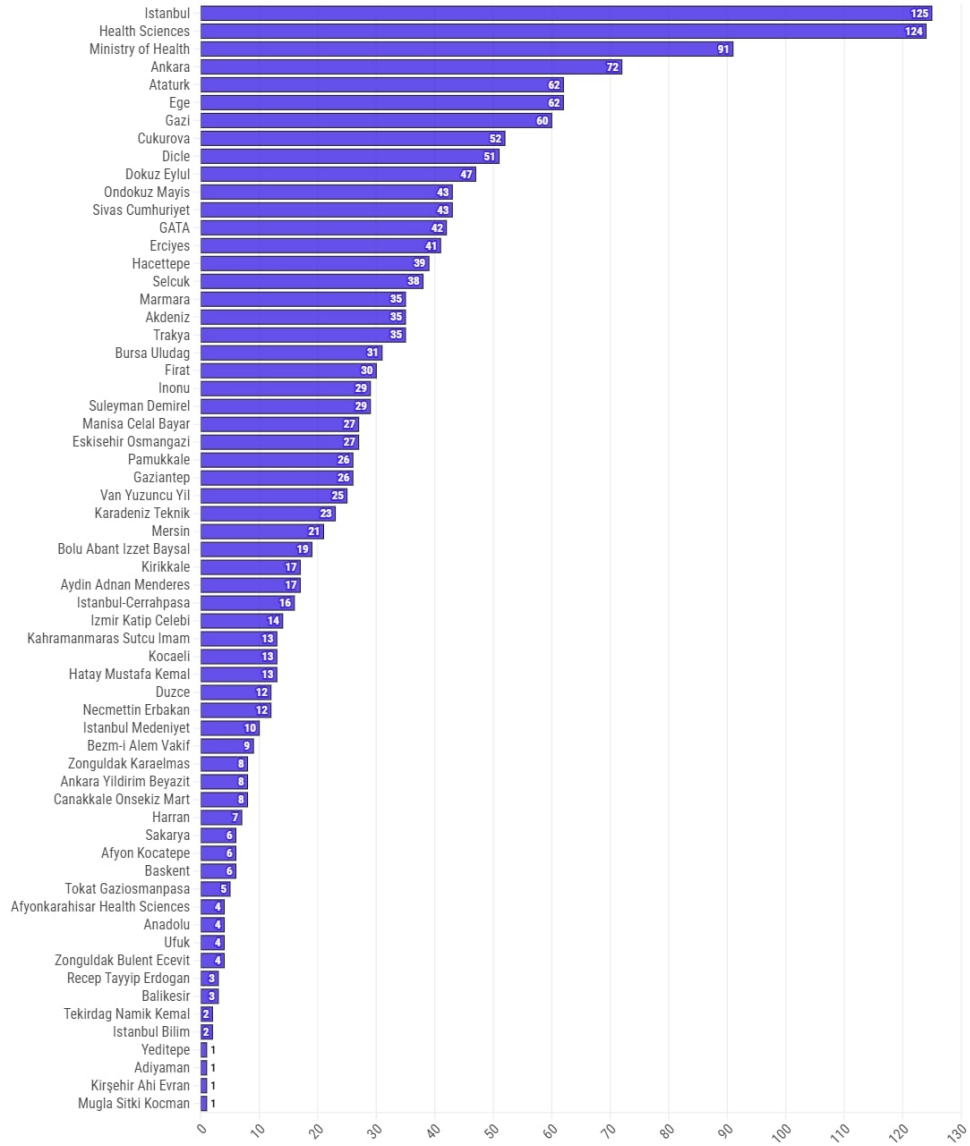
Concept: E.B., M.T.U., M.Y.T., Design: E.B., M.T.U., M.Y.T., Data Collection or Processing: E.B., M.T.U., M.Y.T., Analysis or Interpretation: E.B., M.T.U., Literature Search: E.B., Writing: E.B., M.T.U.

**Conflict of Interest:** The authors declared that they have no conflict of interest.

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**Supplementary File 1.** Distribution of dermatology procedures conducted in Türkiye between 1968 and 2023 according to university (n = 1640)