



Research Article

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BIBLIOMETRIC ANALYSIS OF MEDICAL SPECIALITY DISSERTATION STUDIES IN FAMILY MEDICINE DEPARTMENTS AND CLINICS BETWEEN 2000-2020

 **Ayşe Karakullukçu¹**,  **Cüneyt Ardıç²**

¹Konaklar Family Health Center, Ortahisar, Trabzon

²Recep Tayyip Erdogan University Faculty of Medicine, Department of Family Medicine, Rize

Correspondence:

Ayşe Karakullukçu (e-mail: draysesahinn@gmail.com)

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Abstract

Objectives: This study aimed to conduct a bibliometric analysis of medical specialty dissertation studies conducted in Family Medicine departments and clinics between 2000 and 2020.

Materials and Methods: This descriptive study was conducted between 2000 and 2020 by examining 1628 dissertations in the field of family medicine specialization. In the first process, information regarding the dissertation was recorded. In the second process, the conversion of dissertations into articles was evaluated. The journal indexes, Q classification and citation numbers of the dissertations publications were determined.

Results: 1009 (61.98%) of the students were female. 977 (60.01%) of the dissertations belonged to university hospitals. The number of dissertations in which the title of advisor associate professor was 579 (35.56%). Preventive health services were the most frequently selected topic in the dissertations (8.66%). Descriptive/cross-sectional studies were the most preferred research type, with 1414 (86.85%) dissertations. Project support, laboratory, and radiological tests have decreased significantly over the years ($p<0.05$). 458 (28.13%) of the dissertations were published in any journal. Considering the databases of the publications, 92 (20.09%) were published in SCI/SCI-Expanded.

Conclusion: About a quarter of the theses have been published in any journal, and there has been a noticeable increase in publications in international indexes in recent years. Theses with research type of case-control, intervention, laboratory and radiologic test use were more likely to be published. Concordantly, it is advised to give precedence to studies situated higher on the evidence pyramid, allocate sufficient funds to finance research, and increase backing for projects.

Keywords: Family medicine, family medicine specialization education, family medicine dissertation, scientific publication.

Introduction

The clinical specialty of family practice combines clinical, biological, and behavioral sciences while providing multidimensional and uninterrupted health services to individuals, families, and society, which constitutes the first point of medical contact in the health system, dealing with all health problems regardless of age, gender or any other characteristics of the person seeking service.^{1,2}

In Turkey, family medicine has been a medical discipline and specialty for over 30 years. Specialty training began in 1985 at training and research hospitals in Ankara, Istanbul, and Izmir. Nowadays, more than 250 instructors and approximately 3750 research assistants continue their education in 86 family medicine training clinics approved by the Medical Specialization Board (TUK).³

In order to graduate, medical specialty students are required to identify a topic related to the specialty they are studying and write a dissertation.⁴ The dissertation production and writing process has many contributions to the research assistant. In addition to conducting a scientific study, it provides the opportunity to learn how to review the literature and read articles with a critical perspective. Therefore, the dissertation preparation process should be viewed as a theoretical and practical training opportunity.⁵ The process of writing a dissertation, which should be a process in which possibilities are turned into opportunities and training is received, has now begun to be seen as an obstacle and obligation only to take the specialization exam.⁶

Undoubtedly, producing an original study on the subject of interest and contributing to the literature that has never been conducted before is a challenging and demanding process for researchers. Quality scientific research requires using qualified information, avoiding plagiarism, and correctly utilizing academic language. This challenging process can be managed through a planned and balanced working approach.⁷

Several studies were identified when reviewing the literature on family medicine specialty dissertations. Yaman et al. comprehensively analyzed 140 specialty dissertations between 1981 and 2008. Similarly, Mengüllüoğlu and Ünlüoğlu conducted research involving 492 specialty dissertations from 2005 to 2015. The article by Üçer and Keten, published in 2016, investigated the publication status of 384 family medicine specialty dissertations as scientific articles.⁸⁻¹⁰ In our study, we aimed to conduct a bibliometric analysis of medical specialty dissertation studies prepared by family medicine specialty students between 2000-2020 and present them comprehensively and up to date.

Materials and Methods

Type of Study

This descriptive study retrospectively examines the bibliometric analysis of medical specialty dissertation studies conducted in Family Medicine Departments and Clinics between 2000-2020.

Data Collection Method

Within the scope of the study, all dissertations in the field of family medicine specialization between January 1, 2000, and January 1, 2020, which were included in the thesis archive page of the National Thesis Center (<https://tez.yok.gov.tr/UlusalTezMerkezi/>) database of the Council of Higher Education (YÖK) were examined. Theses that had "permitted" access to dissertation content were selected, and 1630 medical specialty dissertations were included in the study. The dissertations of 2020, 2021, and 2022 were not included in the study, considering the process of dissertations becoming publications might take time. Two dissertations were excluded from the study during data analysis because one was from the Department of Forensic Medicine, and the other was from the Department of Internal Medicine. A total of 1628 theses were included in the study. After the dissertations were accessed through the YÖK National Thesis Center, information about the thesis was recorded.

The data of dissertation, number, year, name of the dissertation student; name, gender, institution, number of dissertation advisor, academic title of the dissertation advisor, subject of the dissertation, type of research, number of samples, place of the dissertation (hospital / field), number of centers where the dissertation was made (single center / multi-center), presence of questionnaire use, laboratory presence of test use, presence of radiological test use, presence of project support were recorded. In the second stage, the conversion status of the dissertation into articles was examined. In this context, the publication status of the dissertation, if it was published, the year of publication, if it was published, how long after the writing date of the dissertation it was published, the name of the publication journal, the databases in which the publication journal is included, the impact factor of the publication journal, the number of citations the publication received, the dissertation student's academic career status after the dissertation, and the dissertation student's continuation of research on the same subject as the dissertation were obtained. While investigating the publication status of the dissertation, Google (<https://www.google.com/>), Google Scholar (<http://scholar.google.com.tr/>), PubMed (<https://www.ncbi.nlm.nih.gov/pubmed/>), TR Index TÜBİTAK ULAKBİM (<https://trdizin.gov.tr/>) and Dergipark (<https://dergipark.org.tr/tr/>) search engines were searched by entering the name and surname information of the dissertation authors and advisors, the title of the dissertation in Turkish and English and keywords.

Categorization of the Data

The institution of the dissertation student was grouped as a university hospital, training, and research hospital. If there was more than one dissertation advisor, the title of the first advisor was recorded.

The subject of the dissertation was classified according to the topics in the Family Medicine book written by Robert R. Rakel and David P. Rakel.¹ The main topics were determined as Principles of Family Medicine and Family Medicine Practices. The topics outside the book were categorized according to the International Standard for Primary Care-3 (ICPC-3) classification. Topics other than the Family Medicine book and the ICPC-3 classification were categorized as "other". In case more than one topic was examined in the dissertations, the dominant topic was considered.

When categorizing the place where the thesis was conducted, it was classified into two categories: hospital and field settings. While family health centers were considered the field, studies conducted in medical faculties were recorded as hospitals. Faculties other than medical faculties were considered as fields. When evaluating the number of centers where the dissertation was conducted, dissertations conducted in a single building or institution were considered a single center.

Evaluation of Research Types

The research type of the dissertation was grouped as descriptive-cross-sectional, case-control, cohort, intervention, methodological, qualitative, quantitative-qualitative, ecological, systematic review and meta-analysis. Due to their low number, qualitative, quantitative-qualitative, ecological, systematic review and meta-analysis research types were included in the "other" group. In dissertations where more than one type of research was used, the research type that was higher in terms of evidence value in the evidence pyramid was recorded.

Evaluation of Publication Status of Dissertations

The publication status of the dissertations was grouped as publication / non-publication. In which group of databases, the publications were indexed was examined. Indexes were categorized as SCI / SCI Expanded, international, and national. If a journal is included in different indexes, the index in the higher academic category is taken as the basis.

Examination of Publication Journals

The impact factor of the publication journal of the publications in SCI / SCI Expanded indexes was recorded, and the journals were classified according to the Q index. While recording the Q index data of the publication journal, it was taken into consideration that it was the same year as the publication year.

Analyzing the Citations of Publications

The citations of the publications were recorded using Web of Science (<https://www.webofknowledge.com>), PubMed (<https://www.ncbi.nlm.nih.gov/pubmed/>), Google Scholar (<http://scholar.google.com.tr/>) websites.

Examination of the Academic Career Status of Dissertation Holders

Information on the dissertation author's academic career status after the dissertation was obtained by searching the websites of the Republic of Turkey Ministry of Health, Council of Higher Education (<https://akademik.yok.gov.tr/AkademikArama/>) and Google. Having an academic career was defined as working at least as an assistant professor.

Statistical analysis

The SPSS 22.0 software package was used for statistical analysis of the data obtained in the study. Descriptive statistics were given as number (n) and percentage (%) for categorical parameters and mean (mean), standard deviation (SD), median, minimum (min), and maximum (max) for numerical parameters. The chi-square test was used to analyze the percentage differences between two independent groups. A p-value <0.05 was considered significant in comparative analyses.

Results

The study included 1628 dissertations between 2000 and 2020 in the field of family medicine specialization accessed through the National Thesis Center. When the number of dissertations was distributed by year, it was observed that there was a significant increase in the number of dissertations since 2014. The highest number of dissertations was reached in 2019 (Figure 1).

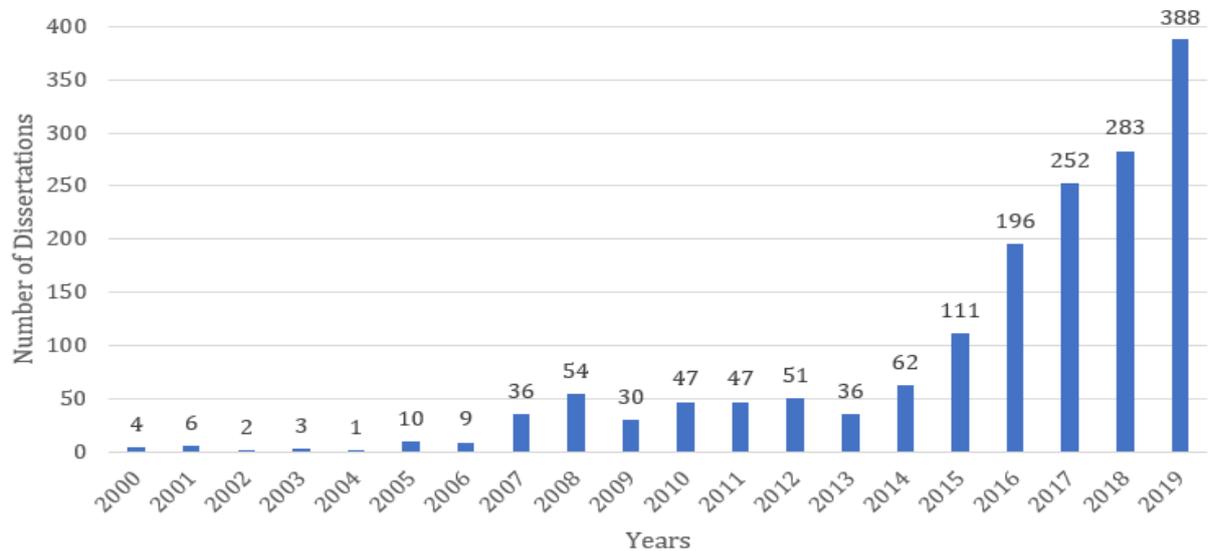


Figure 1. Distribution of the number of dissertations by years

Of the residency students, 1009 (61.98%) are women, and 977 (60.01%) dissertations belong to the university hospital. Dissertations were conducted with a supervisor at the highest rate (n=1538; 94.47%). It was determined that 579 (35.56%) were associate professors with a dissertation advisor (Table 1).

Table 1. Gender and institutional distribution of dissertation holders, number of supervisors and titles of dissertations

Variables	n	%
Gender		
Female	1009	61.98
Male	619	38.02
Institution		
University Hospital	977	60.01
Training and Research Hospital	651	39.9
Number of Advisors		
1	1538	94.47
2	87	5.34
3	3	0.19
Advisor Title*		
Professor	505	31.01
Associate Professor	579	35.56
Assistant Professor	353	21.68
Specialist Doctor	191	11.75

*The first advisor was considered for dissertations with more than one advisor.

When examining the dissertations, it was observed that a majority of 1047 (64.31%) placed greater emphasis on family medicine practices. Furthermore, an analysis of the research types employed in the dissertations revealed that descriptive/cross-sectional studies were the most commonly utilized, accounting for 1414 (86.85%) of the total (Table 2).

Table 2. Distribution of dissertation topics according to titles and research types of dissertations

Topic Titles	n	%
Principles of Family Medicine	484	29.72
Family Medicine Practices	1047	64.31
ICPC-3 Coded Topics Excluded from Raket Book	59	3.62
Other	38	2.35
Research Type		
Descriptive / Cross-Sectional Research	1414	86.85
Intervention Research	80	4.91
Case-Control	77	4.72
Methodological	26	1.59
Cohort	7	0.42
Other	24	1.51

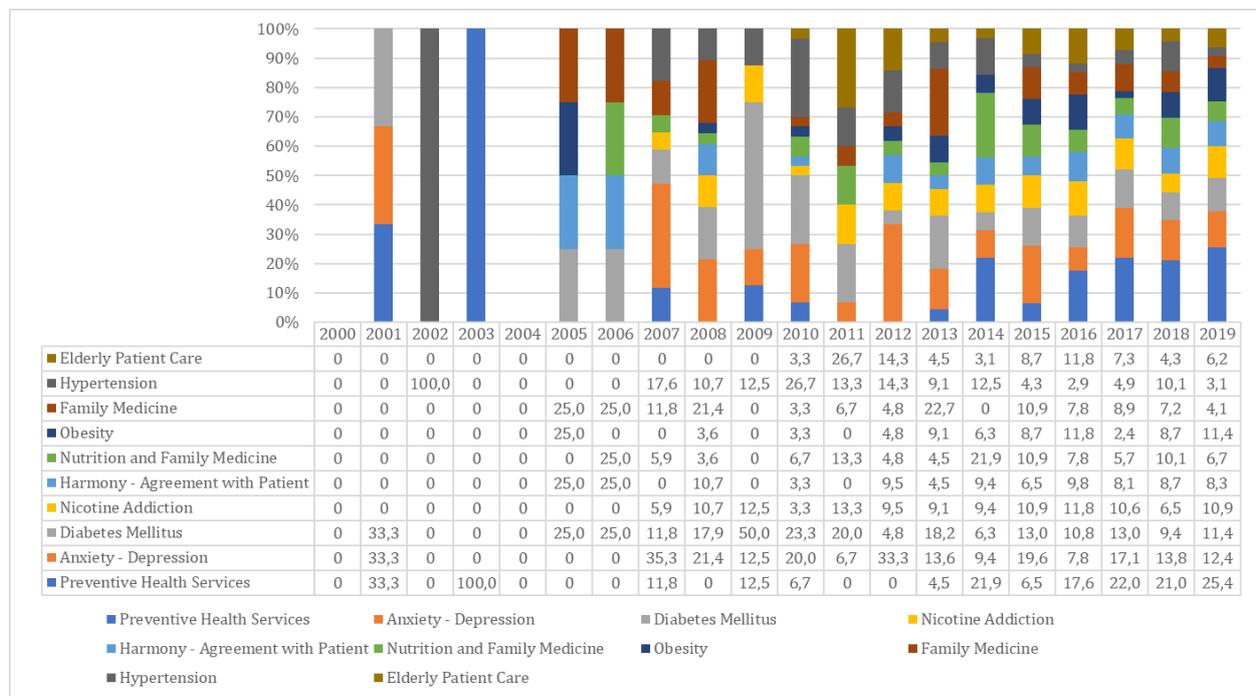


Figure 2. Distribution of the most used subjects in dissertations by years (top 10 subjects)

The distribution of the most preferred subjects in dissertations according to years is shown in Figure 2. In recent years, preventive health services, anxiety-depression and diabetes mellitus have been particularly emphasized, whereas hypertension, care of the elderly patient and nicotine addiction have consistently found their place in the last ten years.

When the information on the materials and methods used in the dissertations was examined, we saw that most dissertations were conducted in a single center. Questionnaires were used in 1319 (81.01%) of the dissertations. Regarding the type of research, it was found in 1193 (73.28%) of the dissertations. As the years progressed, there was a statistically significant decrease ($p < 0.001$) in the frequency of field studies, the use of laboratory and radiologic tests in studies and the receipt of project support, and a statistically significant increase ($p < 0.001$) in the use of questionnaires and the type of research (Table 3).

Table 3. Information on materials and methods used in dissertations by years

Variables	Total	2000-2004 n (%)	2005-2009 n (%)	2010-2014 n (%)	2015-2019 n (%)	p*
Hospital / Field Study						
Hospital	1232 (75.67)	13 (81.25) ^{a,b}	90 (64.74) ^b	157 (64.60) ^b	972 (78.0) ^a	<0.001
Field	396 (24.32)	3 (18.75) ^{a,b}	49 (35.26) ^b	86 (35.40) ^b	258 (21.0) ^a	
Single Center / Multi-Center						
Single Center	1611 (98.95)	16 (100.00)	138 (99.28)	238 (97.94)	1219 (99.10)	0.341
Multi-Center	17 (1.05)	0 (0.00)	1 (0.72)	5 (2.06)	11 (0.90)	
Project Support Received	161 (9.88)	1 (6.25) ^{a,b}	24 (17.26) ^b	43 (17.69) ^b	93 (7.56) ^a	<0.001
Survey Usage	1319 (81.01)	10 (62.50) ^{a,b}	93 (66.90) ^b	184 (75.72) ^b	1032 (83.90) ^a	<0.001
Laboratory Usage	234 (14.37)	9 (56.3) ^a	45 (32.4) ^{a,b}	61 (25.1) ^b	119 (9.7) ^c	<0.001
Use of Radiological Testing	96 (5.89)	1 (6.25) ^{a,b}	15 (10.79) ^b	25 (10.28) ^b	55 (4.47) ^a	<0.001
Research Type Indication Status	1193 (73.28)	4 (25.00) ^{a,b}	41 (29.49) ^b	142 (58.43) ^a	1006 (81.78) ^c	<0.001

The publication status of the dissertations is shown in Figure 3. 458 (28.13%) of the dissertations were published in any journal. Reviewing the publications' databases, 92 (20.09%) were published in SCI / SCI Expanded, 190 (41.49%) in international, and 176 (38.42%) dissertations in national databases. The Q categorization of publications in SCI / SCI Expanded journals is shown in Figure 4. The average publication

period of 458 dissertations that turned into articles was 2.8 ± 2.2 years. The latest time to become an article was found to be 17 years.

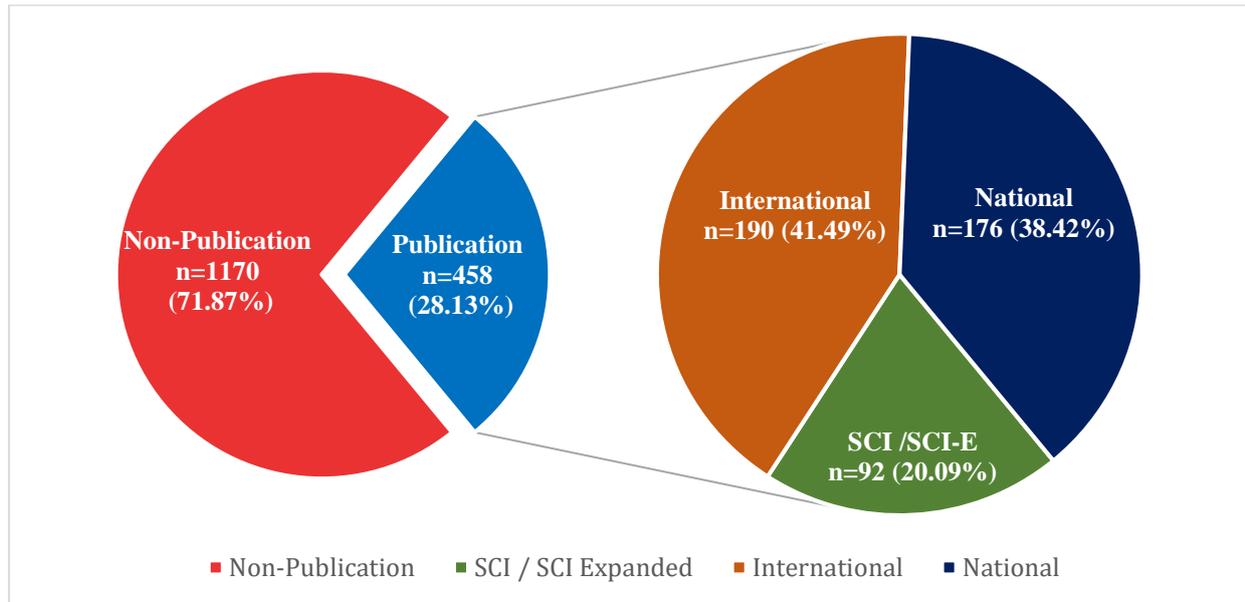


Figure 3. Publication status of dissertations

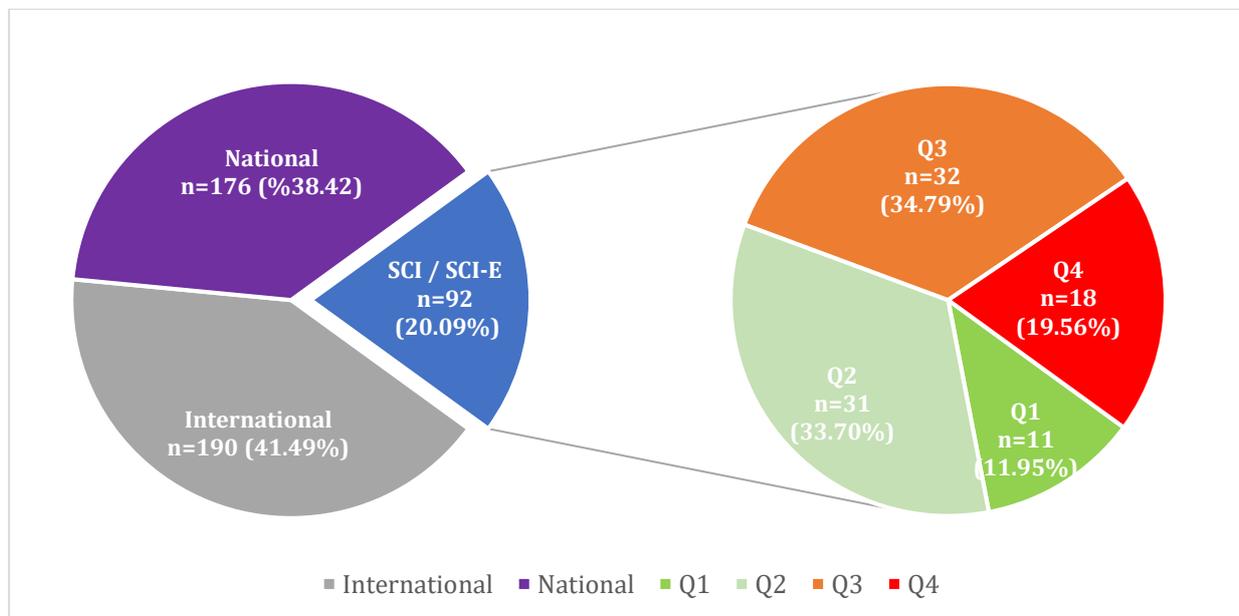


Figure 4. Indexes and Q classifications of publication journals

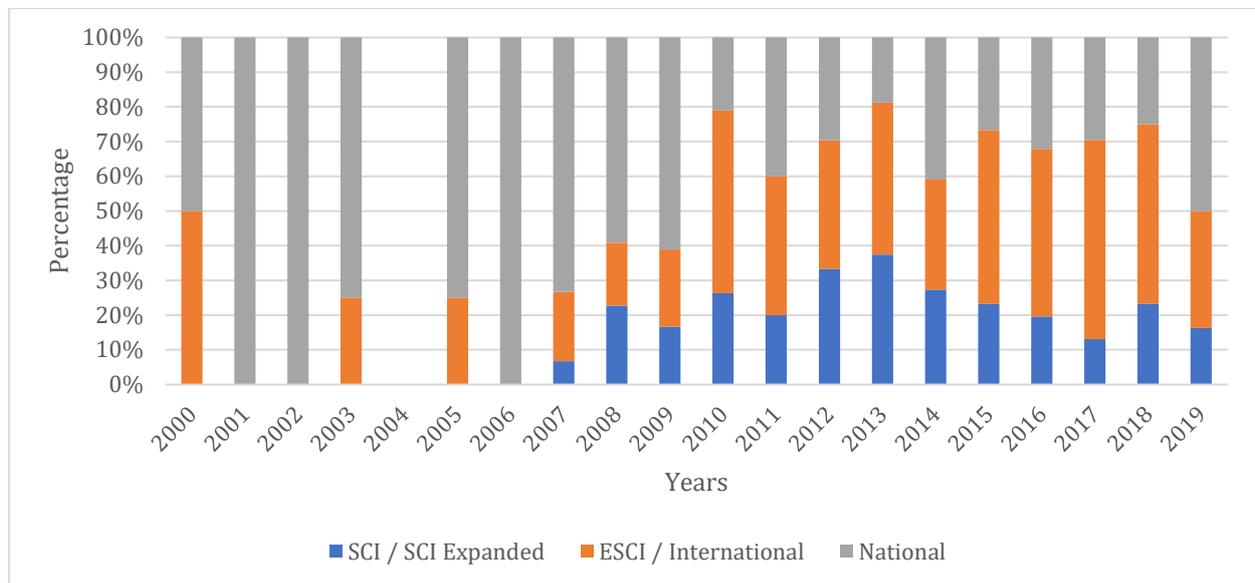


Figure 5. Journal index distribution of published dissertations

Journal index distribution of published dissertations according to years is shown in Figure 5. In recent years, there has been an increase in the percentage of publications in international journals.

The average impact factor of the publication journals was 1.5 ± 1.3 ; the average number of citations was 6.0 ± 13.2 ; and the citations per year was 1.2 ± 2.3 . The post-dissertation academic career of the dissertation students and the continuation of their research on the same subject as the dissertation were examined. Of the thesis holders, 110 (6.75%) had an academic career, and 128 (7.86%) continued their research on the same subject as the dissertation.

The highest publication rate was 35.07% for dissertations with a case-control research type, 34.49% for ICPC-3 coded subjects other than Raket's book, and 34.79% for those with anxiety and depression as the research subject. The index evaluation of the publication journals according to the research type of the dissertations, the topic of the research and the subject of the research is shown in Table 4.

The publication status of the dissertations according to the information regarding the materials and methods used in the dissertations is shown in Table 5. A statistically significant higher publication rate was found in dissertations that used laboratory and radiologic tests than in dissertations that did not ($p < 0.001$; $p = 0.019$, respectively).

Table 4. Evaluation of the Distribution of Dissertations According to the Type of Research, Topic of the Research and Subject of the Research with the Publication Status of the Dissertations

	Index			
	SCI / SCI-Expanded n (%)	International n (%)	National n (%)	Non- Publication n (%)
Research Type				
Descriptive / Cross-Sectional Research	71 (17.92)	164 (41.41)	161 (40.67)	1018 (71.99)
Intervention Research	8 (34.78)	8 (34.78)	7 (30.44)	57 (71.25)
Case-Control	9 (33.33)	12 (44.44)	6 (22.23)	50 (64.93)
Methodological	2 (33.33)	3 (50.0)	1 (16.67)	20 (76.92)
Cohort	-	1 (100.00)	-	6 (85.71)
Other	2 (40.00)	2 (40.00)	1 (20.00)	19 (79.16)
Research Topic				
Principles of Family Medicine	21 (15.78)	60 (45.11)	52 (39.11)	365 (73.29)
Family Medicine Practices	68 (22.83)	119 (39.93)	111 (37.24)	736 (71.17)
ICPC-3 Coded Topics Excluded from Raket Book	1 (5.00)	9 (45.00)	10 (50.00)	38 (65.51)
Other	2 (28.57)	2 (28.57)	3 (42.86)	31 (81.57)
Research Subject (n=788)				
Preventive Health Services	4 (10.27)	14 (35.89)	21 (53.84)	102 (72.34)
Anxiety - Depression	9 (22.50)	11 (27.50)	20 (50.00)	75 (65.21)
Diabetes Mellitus	4 (13.80)	15 (51.72)	10 (34.48)	70 (70.70)
Nicotine Addiction	6 (31.59)	9 (47.36)	4 (21.05)	56 (74.66)
Harmony - Agreement with the Patient	4 (40.00)	4 (40.00)	2 (20.0)	53 (84.12)
Nutrition and Family Medicine	2 (14.29)	7 (50.00)	5 (35.71)	49 (77.77)
Obesity	6 (28.58)	11 (52.38)	4 (19.04)	40 (65.57)
Family Medicine	-	8 (47.06)	9 (52.94)	43 (71.66)
Hypertension	4 (22.22)	4 (22.22)	10 (55.56)	40 (68.96)
Elderly Patient Care	6 (33.36)	8 (44.44)	4 (22.22)	35 (66.03)

Table 5. Publication status of dissertations according to the information on materials and methods used in the dissertations

Variables	Publication Status		p*
	Yes n (%)	No n (%)	
Hospital / Field Study			
Hospital	352 (28.58)	880 (71.42)	0.487
Field	106 (26.77)	290 (73.23)	
Single Center / Multi-Center			
Single Center	456 (28.31)	1155 (71.69)	0.177
Multi-Center	2 (11.77)	15 (88.23)	
Project Support Received			
Yes	48 (29.82)	113 (70.18)	0.617
No	410 (27.98)	1057 (72.05)	
Questionnaire Usage			
Yes	360 (27.30)	959 (72.70)	0.120
No	98 (31.72)	211 (68.28)	
Laboratory Usage			
Yes	93 (39.75)	141 (60.25)	<0.001
No	365 (26.19)	1029 (73.81)	
Use of Radiological Testing			
Yes	37 (38.55)	59 (61.45)	0.019
No	421 (27.49)	1111 (72.51)	

*Chi-square test, (Row percentage was used.)

When analyzing the dissertations based on the academic career of the students and whether they continued research on the same subject as their dissertation, it was found that the publication status of the dissertations was statistically significantly higher among students who had an academic career and those who continued research on the same subject ($p < 0.001$) (Table 6).

Table 6. Publication status of dissertations according to dissertation students' academic career and continuation of research on the same subject as the dissertation

Variables	Publication Status		p*
	Yes n (%)	No n (%)	
Academic Career			
Yes	86 (78.18)	24 (21.82)	<0.001
No	372 (24.51)	1146 (75.49)	
Continuation of Research on the Same Subject as the Dissertation			
Yes	94 (73.43)	34 (26.67)	<0.001
No	364 (24.27)	1136 (75.73)	

*Chi-square test, (Row percentage was used.)

Discussion

Specialization dissertations mirror the studies conducted in the health field and should have high-quality scientific research. Scientific research should be published in a peer-reviewed journal in order to reach its real value. Publishing in reputable journals with a high impact factor enables reaching a wide audience and is also the best way to evaluate quality.¹¹ In this way, the study's results can easily reach researchers and scientists worldwide while contributing academically and professionally to the researcher and the institution.

Bibliometric analysis of medical specialty dissertations in the field of family medicine in our country is a very important way to determine scientific field trends.

Using bibliometrics, a method used to obtain evaluation indicators of scientific literature, we analyzed 1628 dissertations in the field of family medicine from the past 20 years in our study. A gradual increase in dissertations was observed, especially after 2014. It is thought that our Ministry of Health has increased the number of family medicine quotas with the project of increasing the number of family medicine specialists, and this situation is reflected in the number of family medicine specialty dissertations.

In the study by Yaman et al. on the qualitative evaluation of specialty dissertations in the field of family medicine in Turkey, it was emphasized that most of the dissertations were related to other specialties and approximately 20% were related to the clinical practice of family medicine and principles of family medicine.⁸ In the dissertations study, in which Mengüllüoğlu examined 492 specialization dissertations in the field of family medicine in Turkey in 2015, it was stated that titles such as medicine/family medicine discipline/patient-physician relationship were mentioned at a rate of 4.7%.⁹ In our study, family medicine practices were the most common topic. Although the proportion of dissertations focusing on the principles of family medicine has increased over time, it is seen that there is very little emphasis on medicine and social issues in the studies, and the topics are mostly selected from topics related to family medicine practice areas. Family medicine has a clinical basis focused primarily on the medical care of the sick individual.¹ This clinical basis is also valid for family medicine residents. In addition, the fact that family medicine residents work in clinics during rotations increases their clinical observational power, which is reflected in the dissertation topics.

In our study, it was seen that 28.1% of the analyzed dissertations were published in any journal. In Kaya's study in the field of public health, it was reported that 30.3% of specialty theses were publications.¹² Akpınar Mayır et al.'s study, which evaluated the publication rates and number of citations of dissertation research conducted in gynecology and obstetrics clinics in university hospitals, reported that 39.1% of the dissertations turned into publications in total.¹³ It was reported that 37.7% of dissertations in the field of psychiatry, 35.6% of

dissertations in the field of ear-nose-throat, and 32.6% in the field of forensic medicine were turned into publications.¹⁴⁻¹⁶ In a study conducted by Yaman et al. in 2011, the publication rate in the field of family medicine was 10.7%, and in the study conducted by Üçer and Keten in 2016, it was reported as 11.5%.^{8,10} Although it is seen that family medicine specialty dissertations have fewer publications compared to other branch dissertations, the fact that the publication rate increased to 28.2% with the examination of theses until 2020 in our study showed that the theses conducted in recent years are more valuable in terms of publication.

Regarding research types, the publication rate of case-control dissertations in our study was found to be 35.1%, whereas the rate was 28.7% in intervention studies and 28% in descriptive/cross-sectional studies. In Mustu's dissertation study analyzing publications in the family medicine field, the publication rate of studies with cohort, intervention, case-control, and experimental research methods in SCI-indexed journals was higher than descriptive and cross-sectional studies.¹⁷ These data we obtained show us that studies at a higher level in the evidence pyramid are more valuable in publication.

When the publication status of the dissertations was examined according to the information on the equipment methods used in the theses, it was found that those who used laboratory and radiologic tests in their research had a higher publication rate. In addition, the publication rate in an SCI/SCI-Expanded indexed journal for dissertations with laboratory use was higher than those without laboratory use. It is thought that the use of laboratory and/or radiologic tests increases the scientific quality of the studies, which may contribute to the potential of the study to be published.

The difficulties of turning dissertations into articles also affect the publication time. Factors such as the writing of the dissertation article, the evaluation (positive or negative) of the article by the journal, and the resulting publication in the journal involve a significant amount of time. The average publication time of dissertations as articles varies among branches. Some examples are 2.8 years for urology and psychiatry, three years for medical ecology and hydroclimatology, 3.14 years for public health, 3.46 years for anesthesia, and 5.2 years for physiology.^{12,14,18-21} In our study, the average time to turn dissertations into articles was 2.8 years, similar to most branches. This result is consistent with the literature.

Our study is the most comprehensive and up-to-date study that examines 20 years of specialty dissertations in the field of family medicine in Turkey, including 1628 dissertations. In addition to the qualitative evaluation of the dissertations, the conversion of dissertations into publications and the index and Q classification of publications were analyzed. The bibliometric analysis of the dissertations revealed the orientation of specialty theses in the discipline of family medicine. Furthermore, our study offers valuable insights to new researchers regarding under-explored topics in specialty dissertations.

Limitations

Dissertations with "permitted" access from the National Thesis Center were used in the study. The study did not include the 65 dissertations whose access was not "permitted" and those conducted in the Training and Research Hospital but not registered in the National Thesis Center.

This study used bibliometric analysis to conduct a comprehensive and up-to-date analysis of 20 years of dissertation data in Family Medicine, a critical tool for identifying trends and new research ideas in scientific studies. Dissertations have increased over the years, thus providing valuable scientific contributions, especially for primary health care services. About a quarter of the dissertations were published in a journal and the rate and process of publication of dissertations were found to be similar to other branches but higher than the studies in the literature in the field of Family Medicine. Although the discipline of Family Medicine is seen to be growing in strength, the process of the conversion of theses into articles should be further encouraged. Dissertations with a research type of case-control, intervention, laboratory and radiologic test use were published more frequently. Concordantly, it is advised to give precedence to studies situated higher on the evidence pyramid, allocate sufficient funds to finance research, and increase backing for projects.

Ethical Considerations: Ethics committee approval of the study was approved scientifically and ethically by Recep Tayyip Erdoğan University Non-Interventional Clinical Research Ethics Committee on 18.04.2022 with decision number E-40465587-050.01.04-407 and decision number 2022/95.

Conflict of Interest: The authors declare no conflict of interest.

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