

RESEARCH

Open Access



An analysis of periodontology theses in Türkiye: Ph.D. vs. specialization program

Fatih Karayürek^{1*}, Dicle Altındal², Erva Karayürek³ and Aydın Gülses⁴

Abstract

Background The cross-sectional study aimed to compare and evaluate the conversion rates of theses and dissertations of Ph.D. and specialization programs of the periodontology department in Türkiye.

Methods A total of 789 theses of dentists who successfully graduated from higher education institutions in Türkiye between 2001 and 2020 and qualified to become specialist dentists were analyzed. In these analyses, after descriptive information, the status of the theses converted into publications, the duration of publication, the number of citations, the indexes of the journals, and the employment status of dentists in the academy after graduation were evaluated. The Shapiro-Wilks test and Kolmogorov–Smirnov test were applied for the normality test. A chi-square test was used for categorical variables. Independent T-test, Mann–Whitney U test, Kruskal–Wallis test, and time series linear regression test were applied.

Results 336 Ph.D. (60.54%) and 110 (47%) dentists in specialty programs had their theses translated for publication ($p=0.001$). 242 Ph.D. dentists (72.02%) published their thesis in an SCI-Expanded journal, while only sixty-nine specialty dentists (62.7%) published in these journals ($p=0.001$). The publications of dentists with Ph.D. in SCI-Expanded indexed journals were mostly in journals ranked Q1 and Q2, while those of dentists with specialization were in journals ranked Q3 and Q4 ($p=0.012$). The publications of dentists with Ph.D. received an average of 24 citations on the Web of Science, while those of specialists received seven ($p=0.001$).

Conclusions The decline in the conversion of the theses of dentists graduating from the specialty program into publications may impact the field of periodontology in Türkiye. More comprehensive studies are needed to evaluate the effectiveness of the specialty program.

Keywords Ph.D., Publishing, Thesis, Health policy, Specialty program

Background

The Doctor of Philosophy (Ph.D.) degree represents the highest level of research and scientific knowledge in the academic world [1]. Researchers who hold this degree produce original and innovative theses in advanced areas of specialization. Post-Ph.D. thesis contributes significantly to the scientific community. These contributions include generating new knowledge, expanding existing knowledge, presenting innovative approaches, developing research methods, addressing current issues, providing solutions, communication, and knowledge sharing, and serving as valuable reference sources. The Ph.D. education in periodontology in Türkiye has been continuing

*Correspondence:

Fatih Karayürek

fatihkarayurek@karabuk.edu.tr

¹ Department of Periodontology, Faculty of Dentistry, Karabuk University, Karabuk 78100, Türkiye

² Department of Periodontology, Faculty of Dentistry, Van Yuzuncu Yıl University, Van, Türkiye

³ Metric Software and Consulting, Istanbul, Türkiye

⁴ Department of Oral and Maxillofacial Surgery, Christian Albrechts University, University Hospital of Schleswig-Holstein, Kiel, Germany



for many years. The rectorate announces traditional doctoral education in dental faculties in Türkiye at certain times of the year, according to specific quotas. Dentists who apply during that period are subjected to a science exam by the relevant department in dentistry on a particular date. After this exam, successful candidates complete their Ph.D. education at the end of an average of five or six years.

In 2011, the Council of Higher Education (CoHE), the most authorized institution for higher education in Türkiye, announced that specialty education in dentistry would be provided. Accordingly, dentists who have completed five years of dentistry education take a centrally administered exam. According to the results of this exam, candidates make preferences and settle in the dental faculties of various universities in Türkiye according to their exam scores. According to this specialization program, the duration of education in the department of restorative dentistry, endodontics, prosthodontics, pedodontics, periodontology, maxillofacial radiology, and oral pathology is three years, and this period is four years in the fields of Maxillofacial Surgery and Orthodontics [2]. Candidates must make their thesis defense within the period required to complete specialization education. Besides, before defending their thesis, they are subjected to an oral and written scientific examination under the supervision of four members of the periodontology department and one member of the periodontology department of another university. The aim of Ph.D. education is stated in one of the well-established universities educating dentists in the department of periodontology in Türkiye. According to this aim, the Ph.D. education mainly aims to train academicians and researchers who are theoretically and practically equipped, respect universal and ethical rules, and are qualified to work as researchers and educators in scientific research, health, and education [3]. In the core curriculum program announced by the medical specialty board established under the leadership of the Ministry of Health, the aim of periodontology specialty education is also stated as the training of competent specialist dentists who meet the needs of the country [4]. Apart from the main objectives stated between the Ph.D. program and the specialty program, there are also differences in the number of theoretical courses taken during the education. In the Ph.D. program, dentists take theoretical courses for the first two years, while this period is limited to one and a half years in specialty education. In addition, in the Ph.D. program, dentists are given at least two years for the preparation of the thesis, whereas this period is limited to one and a half years in the specialty program. In doctoral education, the thesis preparation period can be extended up to four years, but in specialty education, it can be extended for half a year.

It is noteworthy that the methodology employed in the preparation of theses that are incorporated into the curricula of Ph.D. and specialization programs appears to be consistent. In both programs, dentists can carry out all types of work in cooperation with their supervisors. The obvious difference is the time given for the preparation of the thesis.

The primary purpose of the specialization program introduced by CoHE, in addition to Ph.D. education, was to increase the number of specialist dentists per capita in Türkiye, which is in the category of developing countries. In one aspect, CoHE, working in coordination with the Ministry of Health of the Republic of Türkiye, has pioneered an increase in the number of specialized clinicians rather than dentists with Ph.D. titles to work in the academic field.

The European Federation of Periodontology (EFP), the umbrella organization for the department of periodontology on the European continent, has stated that harmonization of postgraduate and specialty training is necessary to ensure a high level of periodontal treatment for patients in all European countries [5]. The EFP sends letters to the secretariats of the member countries to ensure unity in postgraduate and specialty training and tries to ensure unity in all European countries and member countries in terms of curricula. The specialty program recommended by the EFP is commonly called a "Periodontal course" in its own words. The EFP has accredited twenty-four universities in postgraduate education. One of these universities is in Türkiye [6]. In 2006, Sanz et al. [7] reported that periodontology was recognized as a specialty in eleven out of twenty-five union countries, and in the study of Eaton et al. in 2022 [5], it was stated that the specialty was officially recognized in seventeen out of thirty-one EFP member institutions. This comprehensive study by Eaton et al. reported that examinations were conducted for evaluation after specialty training. However, no country reported that dentists published a thesis after specialty training. It is also stated that Ph.D. education is provided in fifty-two universities from seventeen EFP member countries participating in this study [5]. Similarly, in Canada, master's and Ph.D. programs in periodontology are used for specialization [8, 9].

Considering this information, the main problem statement of this study is, do the theses of dentists who graduated from the new program implemented in the last ten years contribute to world literature? This study's null hypothesis is that specialty education's contribution to the academy is increased compared to traditional PhD education. The current study aimed to compare and evaluate the conversion rates of thesis and dissertations of Ph.D. and specialization programs of the periodontology department in Türkiye into scientific articles in

international journals and their responses in the scientific environment.

Methods

After the necessary ethical approval (2022–1155) and by observing the STROBE checklist (Strengthening the Reporting of Observational Studies in Epidemiology) [10], this study analyzed the thesis of specialist dentists who completed their Ph.D. and specialty education in detail and comprehensively. In this respect, the graduation theses of dentists who successfully graduated from higher education institutions in Türkiye between 2001 and 2020 and qualified to become specialist dentists were analyzed from the open-source National Thesis Center (NTC) website of CoHE [11].

Data collection

To access information regarding dentists who completed their theses in 2001–2020, it was selected the 'Periodontology' and 'Theses' options, in addition to 'All universities' in the detailed search section of the NTC website. This process enabled the user to retrieve the relevant information for the specified years. These theses recorded the pieces of information of graduation times, gender, education type, thesis titles, keywords, study type, publication status, publication date, publication index, publication time after graduation, number of citations in Google Scholar (Google Inc., Menlo Park, CA, USA) and Web of Sciences™ (Clarivate Plc), journal scopes, quartile of the journal, and number of citations per year. Among the data indicated above, information such as graduation times, gender, education type, thesis titles, and keywords can be accessed through the NTC website [11]. After downloading the thesis file in PDF format, the abstract and material method sections of the thesis were carefully examined. In this way, the type of study was determined. Thereafter, the theses published on the NTC website were scanned using keywords, thesis titles, and out of consideration of materials and methods of the relevant theses through PubMed (United States National Library of Medicine, USA), Google Scholar, ResearchGate (ResearchGate GmbH, Berlin, Germany), Scopus (Elsevier, Netherlands), etc. After the publications of the theses of the individuals were identified, criteria such as publication date, index, and time after graduation were acquired from the journal in which the study was published. The total number of citations, the year-based number of citations, and the average number of citations were determined by utilizing both Google Scholar and Web of Science™. The extent of the journals in which the theses were published was also evaluated. The present study evaluated theses published in journals (as specified in the scope) specifically targeting periodontal and

implant studies. The evaluation was conducted according to the Ph.D. and specialty program.

Data on whether the dentists whose theses were analyzed preferred to work in the academy after graduation were obtained from YÖK AKADEMİK, the official website of CoHE. This website is an open page that allows access to data on all academics working in universities in Türkiye [12]. On this official website, by entering the name and surname of a dentist who has graduated from any educational program, pertinent information can be readily obtained. This includes details such as the current university (if the individual concerned is employed), and the individual's previous university (if applicable). Additionally, the name of the individual's bachelor's degree can also be accessed. Furthermore, dentists working in public institutions were identified from the open-source websites of the Ministry of Health, while some dentists' information was accessed through their websites.

In the course of the analysis of the theses emanating from the open sources, it was found that several dentists' theses were published in more than one publication, bearing different titles. In such cases, priority was given to publications in higher-indexed journals with more citations. In the study, the theses of dentists who had completed their education before 2001 and after 2020 were excluded from consideration. The rationale behind excluding studies published after 2020 is that the potential non-publication of theses in this timeframe may impact the study's results, given that the conversion of a thesis into a publication necessitates a specific duration. The unpublished thesis of two dentists was excluded from the analysis because it was ascertained that they had passed away. The screening process was concluded in January 2024, to prevent any potential impact on the study's results, particularly on values exhibiting active variability, such as citations.

Statistical analyses

Study data were analyzed using "Python" (an open-source programming language), SPSS 26.0, and R version 4.2.2. A chi-square test and Fischer's exact test were applied for categorical variables. The Pearson correlation coefficient was calculated to examine the relationship between scale variables. The Shapiro–Wilks test and Kolmogorov–Smirnov test were performed to assess the distribution of the parameters. The parametric and non-parametric methods were independent T-test, Mann–Whitney U test, and Kruskal–Wallis test for group differences and discrete parameters, respectively. A time series linear regression model was used for future prediction. The metrics of the time series linear regression model were r-square, the *p*-value of the model, and Durbin–Watson statistics. The level of significance was set at $p < 0.05$.

Results

According to the parameters specified in the material and method section, the theses of Ph.D. and specialized dentists were compared and evaluated. In the study, theses published by 789 dentists were analyzed. The study observed that 555 dentists whose theses were evaluated had a Ph.D., and 234 had a specialization. Four hundred forty-six dentists (56.8%) converted their theses into any publication. Besides, 336 of 555 dentists with Ph.D. converted their theses into publications (60.54%), and 110 of 234 dentists with specialization converted their theses into publications (47%). This difference was highly statistically significant ($p=0.001$). While 242 Ph.D. dentists published their theses in SCI-Expanded indexed journals, sixty-one were published in ULAKBIM (National Academic Network and Information Center), and thirty-three were published in international indexed journals other than SCI-Expanded. These numbers in the thesis of specialized dentists were 69, 25, and 16, respectively (Table 1). There was a correlation between completing a Ph.D. or specialization program and publishing their thesis after this program ($p=0.001$). While 311 of the studies seen as scientific articles were in the SCI-Expanded index, 86 were published in ULAKBIM. Fifty-one of them were published in journals with international indexes other than SCI-Expanded. Of the publications, 322 were clinical studies, 50 were animal studies, 26 were in vitro studies, and 48 were observational studies (Table 2).

Two hundred sixty-one female dentists (56.9%) and 185 male dentists (56.6%) converted their theses into any publication, and there was no significant difference

Table 1 According to the educational status of the dentists, the index of the journals in which the theses were published, the study types of the theses, gender, and quartile rankings

Education status		Ph.D.	Specialization
Publication status		336 (60.54%)	110 (47%)
Gender	Woman	193 (57.4%)	68 (61.8%)
	Man	143 (42.5%)	42 (38.1%)
Journal index	SCI-Expanded	242 (72.02%)	69 (62.7%)
	ULAKBIM	61 (18.15%)	25 (22.7%)
	Ext. SCI-Expanded	33 (9.82%)	16 (14.5%)
Study type	Clinical study	240 (71.42%)	82 (74.5%)
	Animal study	45 (13.39%)	5 (4.5%)
	In-vitro study	18 (5.35%)	8 (7.2%)
	Observational study	33 (9.82%)	15 (13.6%)
Quartile Ranking	Q1	89 (36.77%)	11 (15.94%)
	Q2	76 (31.4%)	30 (43.47%)
	Q3	44 (18.18%)	16 (23.18%)
	Q4	33 (13.63%)	12 (17.39%)

Table 2 Descriptive analyses of the examined theses and dentists

Education status		Ph.D	Specialization
Gender	Woman	315 (56.7%)	147 (62.8%)
	Man	240 (43.2%)	87 (37.1%)
Study Type	Clinical Study	405 (72.9%)	164 (70%)
	Animal study	58 (10.4%)	12 (5.1%)
	In-vitro study	27 (4.8%)	11 (4.7%)
	Observational study	65 (11.7%)	47 (20%)
Working place	Academy	195 (35.13%)	58 (24.78%)
	Non-academy	360 (64.87%)	176 (75.22%)

between the gender of dentists and the conversion of theses into publications. In addition, there was no relationship between gender and journal index (Table 1).

Dentists with Ph.D. converted their thesis into a publication in an average of 3.82 ± 2.83 years, while this period was 2.64 ± 1.61 years for dentists who completed the specialty program. This difference in the duration was statistically significant ($p=0.005$). While 242 dentists with Ph.D. (43.6%), 69 dentists who completed their specialty program (29.48%) published their thesis in a SCI-Expanded indexed journal. This difference between dentists with Ph.D. and specialized dentists was statistically significant ($p=0.001$). The publications of dentists with Ph.D. received an average of 24 citations on the Web of Science™, compared to 7 for specializations. This difference is statistically significant ($p=0.001$). The average citations of the publications of dentists with a Ph.D. on the Web of Science™ in the first five years were 2.18, while this number was 1.96 for dentists with a specialization. The number of citations in Google Scholar was 51 for dentists with a Ph.D. and 14 for dentists with a specialty, and this difference was statistically significant ($p=0.001$). The average citations of the publications of dentists with a Ph.D. on Google Scholar in the first five years were 3.52, while this number was 2.87 for dentists with a specialization. For both Web of Science and Google Scholar, there is no statistically significant difference between the citations received in the first five years for dentists with Ph.D. and dentists with specialization.

According to Clarivate [13], the quartile ranking of journals with SCI-Expanded index is published regularly every year. When the manuscripts published in the SCI-Expanded index of dentists with Ph.D. were examined, it was seen that they were primarily published in journals in the Q1 and Q2 quartiles; the manuscripts of dentists with specialization were almost equally distributed in each quartile. This result was statistically significant ($p=0.012$) (Table 1).

The aims and scopes of the journals in which the theses were published were also examined, regardless of the journal's index. The aim and scope were narrowed down to periodontology and implant fields, 129 Ph.D. dentists (38.39%) were published in these fields, while this number was 34 for specialized dentists (30.9%). No statistically significant differences were observed between these comparisons (Table 3).

Taking the year 2015 as a reference, weawhich is considered the end of the first specialty education, 123 Ph.D. dentists and 234 specialty dentists were compared in terms of converting their theses into publications, and it was seen that 70 Ph.D. dentists (56.91%) and 110 specialty dentists (47%) converted their theses into publications. Although there was no statistically significant difference, this rate was superior in dentist with Ph.D. (56.91%) in terms of converting their theses into publications.

In this study, a scenario in which there is no specialization program implemented in Turkey in 2015 was constructed and a time series regression model was applied to predict the number of publications between 2015 and 2020 regarding the conversion rates of the theses of dentists with Ph.D. between 2001 and 2014. The regression model was found to be statistically significant ($p=0.001$, R-square value=0.62, Durbin-Watson statistic=2.38).

The study investigated the field in which the people whose theses were evaluated were currently working. It was seen that 195 (35.13%) people who completed the Ph.D. program worked as academicians at the university, while 58 (24.78%) of the 234 dentists who completed the specialty program worked in the academy. This difference was statistically significant ($p=0.004$) (Table 2). While 163 (83.58%) of 195 dentists working in the academy

converted their thesis into a publication, 46 (79.31%) of 58 dentists who completed the specialty program and worked in the academy converted their thesis into a publication. There was no significant difference between this relationship ($p=0.45$) (Table 4). In addition, the relationship between those who did not work in the academy but converted their theses into publications according to their educational status was remarkable. In this situation, 174 out of 360 dentists with Ph.D. converted their theses into at least one publication, whereas 64 dentists out of 176 dentists with specialization. This situation was statistically significant ($p=0.001$) (Table 4).

Discussion

Conducting research, having research accepted by other scientists, and publishing publications to disseminate knowledge is part of working life in academia [14]. One of the main criteria that further perfects a researcher's work is publication in refereed journals [15]. The publication of a thesis in a peer-reviewed journal is widely regarded as the most significant indicator of an academic thesis's international recognition [16]. Publishing is crucial for its role in academic career development, increased accessibility to research funding, scientific contribution and dissemination of knowledge, recognition and reputation, and new collaborations [17]. The importance of converting a thesis into publications in the academic world can be understood from the motto: "Publish or perish" [15].

Until 2011, the specialization process in dentistry in Türkiye was conducted exclusively through Ph.D. programs. However, in 2011, the CoHE initiated a specialization program in dentistry [2]. This program aimed to eliminate some of the disadvantages associated with Ph.D. programs and to increase the number of specialist dentists per capita. This initiative also aimed to have a positive impact on public health. Meanwhile, it was observed that some universities continued to offer Ph.D. programs during this period. While dentists who started Ph.D. education before April 2011 had a specialty certificate, after the publication of the CoHE's decision in the official gazette, it was decided that dentists who started Ph.D. education could not receive the title of specialist, only dentists who took and passed the specialty program exam and completed this education could use this title

Table 3 The relationship between theses published in journals within the scope of periodontics, and educational status

		Periodontics scope	
		Yes	No
Education status	Ph.D	129 (38.39%)	207 (61.6%)
	Specialization	34 (30.9%)	76 (69.09%)
<i>p</i> value		0.157	

Table 4 Publication rates of theses of dentists working in the academy and outside the academy after completing their education

Publication Status		In academy		Out academy	
		Yes	No	Yes	No
Education Status	Ph.D.	163 (83.58%)	32 (16.41%)	174 (48.33%)	186 (51.67%)
	Specialization	46 (79.31%)	12 (20.68%)	64 (36.36%)	112 (63.63%)
<i>p</i> value		0.45		0.001*	

[18]. This decision also naturally reduced the interest in Ph.D. submissions. It can be considered that the decline in interest was also influenced by the fact that Ph.D. education was conducted without any financial compensation. In contrast, full monetary and social rights were provided in the specialization program. Financial support has been previously reported to directly affect students' continuation in doctoral education, persistence, and timely completion of their postgraduate studies [19–21]. The nature of the relationship between the supervisor and the student is of critical importance in the context of doctoral education, as well. A weak relationship between the supervisor and the student has been shown to have a detrimental effect on the student's progress through their doctoral education [22]. It is also a known fact that cooperation with the supervisor will increase the motivation and success of the student [23]. In support of the motives mentioned above, it has been reported that between 33 and 70% of the students who started their PhD could not complete their education, and one-third of the current students are considering leaving their education [24–26]. Consequently, the demand for the specialization program has increased, and many dentists prefer it. This study took the period between 2001–2020 as the reference period. Although this study was concluded in 2024, the year 2020 was selected for the theses evaluated in the study since the time required for a thesis to be published as a scientific article includes a certain amount of time. In the study of Çağlayan et al., it was demonstrated that this period could be 2.95 ± 2.49 years [27]. A similar finding was reported in the present study, with a period of 3.82 ± 2.83 years being recorded for dentists in possession of a Ph.D., and 2.64 ± 1.61 years for dentists enrolled in a specialty program. Two hundred thirty-four theses of dentists who completed the specialization program were evaluated. Robust data were obtained for comparison with the thesis of dentists who completed the doctoral program.

The present study revealed that, on the whole, dentists who expressed a preference for doctoral programs exhibited a considerably higher number of their theses translated into publications than those who favored specialty programs. Approximately 35% of the dentists who completed the Ph.D. program and one-fourth of the dentists who completed the specialty program were actively working in the academy. There was no statistically significant difference between the rates of converting their theses into publications among the dentists in this group. Nevertheless, a significant proportion of dentists in possession of a Ph.D. who were not engaged in academic research converted their theses into publications. In comparison, 36.36% of the dentists in the specialty program converted their theses

into publications, and statistically significant differences were observed ($p=0.001$). Among the reasons for this difference may be the effect of the limitation of the specialization program to 3 years. Additionally, the disparities in the conversion rate of theses between the Ph.D. and specialty programs may be attributable to several factors. These include a paucity of knowledge, an inadequate literature review; a lack of time for academic pursuits due to an intensive workload; fewer opportunities for scientific education; and an absence of foreign language skills [28]. In support of these statements, dentists in the specialty program choose the ones that are easier to complete and implement, such as observational studies. While 11.7% of the dentists with Ph.D. chose observational studies, this rate increased to 20% in specialty, and this difference was statistically significant ($p=0.002$).

The results of the study show that more than 75% of the graduates of the specialization program work outside the academy. This is around 64% for PhD graduates ($p=0.004$). After 2011, interest in the Ph.D. program decreased after the Ministry of Health did not grant the title of expertise to dentists who started the Ph.D. program. According to the Turkish Dental Association, the number of dental faculties in Türkiye is one hundred five [29]. While there is a high need for faculty members in universities in the current system, the fact that dentists graduating from specialty programs choose private clinics or public hospitals instead of academies can explain the lack of academicians in universities.

Following the implementation of specialty programs across universities, numerous institutions discontinued their Ph.D. programs. However, several universities maintained both educational programs. Following the Ministry of Health's decision to grant the title of specialist dentist exclusively to dentists who completed their specialty training after 2011, there has been a decline in demand for Ph.D. programs, with dentists increasingly opting to pursue the specialty program. As a result, it was possible to follow both programs simultaneously for comparative analysis. A comparison of dentists in possession of a Ph.D. with those who had completed the specialty program and graduated in 2015 revealed that 56.91% of Ph.D. dentists and 47% of specialty dentists had converted their theses into publications. However, this difference was not found to be statistically significant.

A search of the literature reveals no other study in the department of periodontology in which theses have been converted into publications. However, a study comparing specialization and Ph.D. programs of the Department of Orthodontics in Türkiye has been conducted, and the results of this study are consistent with those of the present study. While 26.17% of the doctoral theses examined

were published, this percentage was reduced to 17.5% in the specialty program [30].

Following the announcement of the specialization program under the auspices of the Ministry of Health, which came into effect in 2011, many dentists have completed the program and obtained the designation of 'specialist dentist'. The fundamental rationale underlying the establishment of this specialization program was to address the pressing need for specialist dentists. This goal can be achieved from the aim of the specialty program [4]. However, with the prioritization of the specialty program, the Ph.D. program was abolished in some universities in Türkiye. Integrating a more substantial array of scientific endeavors within the Ph.D. curriculum, coupled with the extended duration required for the completion of theses, may be identified as the primary factors contributing to the increased prevalence of theses being transformed into publications.

Suppose the current situation continues and no change in Türkiye's health policies is expected shortly. In that case, it can be predicted that the differences between Ph.D. and specialization programs in converting theses into publications will increase. In support of these statements, when the rates of converting the theses of the Ph.D. graduates into publications between 2001 and 2014 are taken as a reference (assuming that the specialization regulation was not applied), and a model is created with the time series regression model method, the predictions also show that the difference will increase according to the status of dentists with the Ph.D. program (Fig. 1).

The evaluation of two different types of education in dentistry in Türkiye for the first time and based on qualitative and quantitative data can be considered the strength of this study. A further noteworthy strength of

this study is the compilation of theses from all universities from a unified source, thereby facilitating convenient access. As demonstrated in another study, the fact that this access cannot be provided from a single portal makes it difficult to evaluate theses retrospectively [31]. The principal limitation of this study is that the authors did not graduate students in both types of education and had no experience in this field. To facilitate a meaningful comparison of the data collected in this study, it would be beneficial to solicit the opinions of academic staff who have graduated from both types of education in future research. Because the data in this study are based only on numerical data. Furthermore, to evaluate the differences and superiorities in both types of education, it may also be useful to re-evaluate the differences in both curricula in the future.

Conclusion

Considering the results obtained from the present study, the decrease in the rate of publication of the theses produced in international indexes such as SCI-Expanded may be worrying that Türkiye may have fewer publications in the field of periodontology in the future. To enhance the rate of conversion of theses completed by dentists enrolled in the specialty program into scientific publications, it is recommended that the coming years see an increase in literature and scientific activities within the specialty curriculum. Furthermore, dentists should be encouraged by supervisors in education. Long-term and comprehensive studies are needed to evaluate and compare the study results.

Acknowledgements

None.

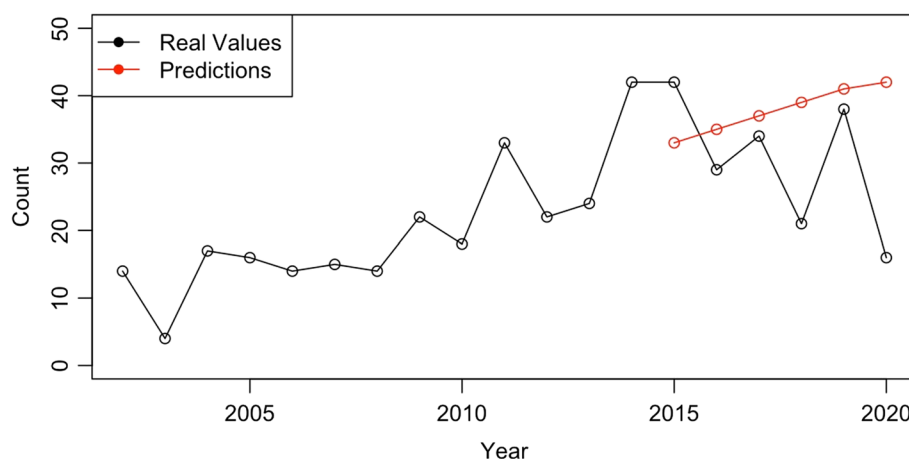


Fig. 1 According to years, the rate of conversion of theses into publications by dentists with Ph.D. and specialty and the prediction of conversion of theses into publications in case the specialty regulation does not enter into force

Authors' contributions

Fatih Karayürek contributed to conception and design of the study and Aydın Gülses drafted and critically revised the manuscript. Fatih Karayürek and Dicle Altındal contributed to data collection. Fatih Karayürek and Erva Karayürek performed all statistical analyses. Fatih Karayürek, Dicle Altındal and Aydın Gülses contributed to data acquisition and critically revised the manuscript. All authors gave their final approval and agreed to be accountable for all aspects of the work.

Funding

This research received no external funding.

Data availability

Data is provided within the manuscript or supplementary information files.

Declarations

Ethics approval and consent to participate

Before starting the study, the permissions of the Karabük University Non-Interventional Ethics Committee were approved (2022–1155). This study followed the Helsinki Declaration for ethical research standards.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

Received: 25 November 2024 Accepted: 12 March 2025

Published online: 22 March 2025

References

- Carr SM, Lhussier M, Chandler C. The supervision of professional doctorates: experiences of the processes and ways forward. *Nurse Educ Today*. 2010;30(4):279–84.
- Başbakanlık Mevzuatı Geliştirme ve Yayın Genel Müdürlüğü. Available from: <https://www.resmigazete.gov.tr/eskiler/2011/07/20110701-8.htm>. Cited 2024 May 18.
- Üniversitesi A. Periodontoloji (DR). Ankara Üniversitesi. Available from: <https://www.ankara.edu.tr/programlar/4/902/3454-718>. Cited 2024 Dec 29.
- Perio T. TUKMOS Periodontoloji çekirdek Müfredatı. *Türk Periodontoloji Derneği*. 2022. Available from: <https://turkperio.org/tukmos-periodontoloji-cekirdek-mufredati/>. Cited 2024 Dec 29.
- Eaton KA, West NX, Wilson NHF, Sanz M. European federation of periodontology survey of postgraduate and specialist training in Europe in 2020. *Eur J Dent Educ*. 2022;26(2):361–7.
- Profile and list of EFP-accredited programmes - European Federation of Periodontology. Available from: <https://www.efp.org/education/postgraduate-education/accredited-pg-programmes/>. Cited 2024 Jul 30.
- Sanz M, van der Velden U, van Steenberghe D, Baehni P. Periodontology as a recognized dental specialty in Europe. *J Clin Periodontol*. 2006;33(6):371–5.
- About the Combined PhD and Diploma in Periodontics Program. Available from: <https://www.dentistry.ubc.ca/combined-phd-and-diploma-in-periodontics/about-the-program/>. Cited 2024 Jul 30.
- Doctoral (PhD) Periodontology | School of Dentistry. Available from: <https://www.ualberta.ca/school-of-dentistry/programs-and-admissions/graduate-studies-phd-periodontology.html>. Cited 2024 Jul 30.
- Vandenbroucke JP, von Elm E, Altman DG, Gøtzsche PC, Mulrow CD, Pocock SJ, et al. Strengthening the Reporting of Observational Studies in Epidemiology (STROBE): explanation and elaboration. *Int J Surg Lond Engl*. 2014;12(12):1500–24.
- Ulusal Tez Merkezi | Anasayfa. Available from: <https://tez.yok.gov.tr/UlusalTezMerkezi/>. Cited 2024 May 18.
- Yükseköğretim Kurulu. Available from: <https://akademik.yok.gov.tr/AkademikArama/>. Cited 2024 Jul 18.
- Document search - web of science core collection. Available from: <https://www.webofscience.com/wos/woscc/basic-search>. Cited 2024 Jul 26.
- Wilkins S, Hazzam J, Lean J. Doctoral publishing as professional development for an academic career in higher education. *Int J Manag Educ*. 2021;19(1):100459.
- Bartkowski JP, Deem CS, Ellison CG. Publishing in Academic journals: Strategic advice for doctoral students and academic mentors. *Am Sociol*. 2015;46(1):99–115.
- Nieminen P, Sipilä K, Takkinen HM, Renko M, Risteli L. Medical theses as part of the scientific training in basic medical and dental education: experiences from Finland. *BMC Med Educ*. 2007;7(1):51.
- Horta H, Santos JM. The Impact of publishing during PhD studies on career research publication, visibility, and collaborations. *Res High Educ*. 2016;57(1):28–50.
- Başbakanlık Mevzuatı Geliştirme ve Yayın Genel Müdürlüğü. Available from: <https://www.resmigazete.gov.tr/eskiler/2011/04/20110426-1.htm>. Cited 2024 Jul 11.
- Pappa S, Elomaa M, Perälä-Littunen S. Sources of stress and scholarly identity: the case of international doctoral students of education in Finland. *High Educ*. 2020;80(1):173–92.
- Ehrenberg RG, Jakubson G, Groen J, So E, Price J. Inside the black box of doctoral education: what program characteristics influence doctoral students' attrition and graduation probabilities? National Bureau of Economic Research; 2006. (Working Paper Series). Available from: <https://www.nber.org/papers/w12065>. Cited 2024 Jul 12.
- Zhou E, Okahana H. The role of department supports on doctoral completion and time-to-degree. *J Coll Stud Retent Res Theory Pract*. 2019;20(4):511–29.
- Christensen MK, Lund O. Doctoral education in a successful ecological Niche: a qualitative exploratory case study of the relationship between the microclimate and doctoral students' learning to become a researcher. *Int J High Educ*. 2014;3(3):103.
- Bozkurt V, Yalçınkaya E, Karataş A, Talas M, Şahin A. Perceptions of doctoral students: satisfaction, difficulties, gained skills and performance in publishing in academic journals. *Ükseköğretim Derg*. 2021;11(2 Pt 1):263–75.
- Jones M. Issues in Doctoral Studies - Forty Years of Journal Discussion: Where have we been and where are we going? *Int J Dr Stud*. 2013;8:083–104.
- Castelló M, Pardo M, Sala-Bubarré A, Suñe-Soler N. Why do students consider dropping out of doctoral degrees? Institutional and personal factors. *High Educ*. 2017;74(6):1053–68.
- van Rooij E, Fokkens-Bruinsma M, Jansen E. Factors that influence PhD candidates' success: the importance of PhD project characteristics. *Stud Contin Educ*. 2021;43(1):48–67.
- Çağlayan D, Çelik C, Kaya A, Aktaş EÖ. Evaluation of publication rate of forensic medicine specialty theses in Turkey. *Bull Leg Med*. 2020;25(1):1–5.
- Hollmann M, Borrell C, Garin O, Fernández E, Alonso J. Factors influencing publication of scientific articles derived from masters theses in public health. *Int J Public Health*. 2015;60(4):495–504.
- Türk Dişhekimleri Birliği. Available from: https://www.tdb.org.tr/sag_menu_goster.php?id=84. Cited 2024 Jul 19.
- Özkalaycı N, Yolcu İ, Töz M, Çiçek O. 2016–2020 Yılları Arasında Yazılmış Ortodonti Uzmanlık ve Doktora Tezlerinin Yayınlanma Oranlarının İncelenmesi. *Ükseköğretim Ve Bilim Derg*. 2022;12(2):351–7.
- Puljak L, Tolić M, Sablić M, Silobrić V, Heffer M, Polić B, et al. Difficulties in accessing the list and full text of the defended PhD theses from medical schools: a retrospective case study from Croatia. *Acta Medica Acad*. 2024;53(1):1–9.

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.