



Affecting factors on the publication rate of surgical theses from different departments in Turkey

Ali GÜVEY

Department of Otolaryngology, Faculty of Medicine, Kütahya Health Sciences University, Kütahya, Turkey

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Abstract

The aim of the study is to investigate and compare the factors affecting publication rates of otorhinolaryngology (ORL) theses and plastic and reconstructive surgery (PRS) theses. In order to examine ORL and PRS specialization theses published between 2013 and 2017, the author scanned the Council of Higher Education Thesis Center's browsing system that contains a list of all published theses for the terms "ear, nose, and throat" and "plastic and reconstructive surgery". All accessible theses (in total, 689), including 454 ORL and 235 PRS theses were included in the study. Most ORL and PRS theses authors were male (72.5% and 84.3%, respectively). Most of the ORL theses were conducted in state universities (76.9%), whereas most of the PRS theses were conducted in public universities (87.2%). More than half (50.9%) of the ORL advisors were professor doctors, compared to 46.3% of the PRS advisors. Most of the ORL studies were clinical studies (81.7%), while 74.9% of the PRS studies were experimental animal studies. In total, 24.5% of the ORL theses were published, and 29.7% of them were accepted in SCI-indexed journals. In comparison, a total of 19.6% of the PRS theses were published. The publication rates of experimental PRS and ORL studies were significantly higher than clinical studies. In order to increase the quality of medical theses and to publish them in scientific journals, the frequency of thesis production should be increased and that the factors affecting publication rates should be carefully examined, monitored, and improved.

1. Introduction

The Regulation on Specialist Education in Medicine and Dentistry in Turkey states that "It is obligatory (for specialization students) to prepare a master's thesis, in order to take the final examination of specialization in a main branch." (1). In writing a thesis, specialization students must develop their ability to establish a scientific hypothesis, evaluate the hypothesis using appropriate methodology with the guidance of data, and compare the results with the literature. It can be said that each thesis is a contribution to the knowledge of its field. Publication of a thesis in a peer-reviewed journal is one of the most effective methods of evaluating its quality. In particular, publication in journals that belong to certain indexes is an essential indicator of the importance and accuracy of a study. In addition, publications in these indexes are often accessed and evaluated by more people.

Previous studies have investigated the publication rates of theses from different countries and different fields. The publication rates of theses vary by country, ranging from 17% to 23% (2-4). The publication rate of theses related to family practice in Turkey has been estimated as 11% and 12% in two different studies (5, 6). In addition, as of 2014, 15% of theses published were in the field of orthopedics; as of 2013, 27% of theses published were in the field of emergency medicine (7, 8). Various studies have identified different publication rates

for theses in different fields: infectious diseases (10%), public health (34%), and ophthalmology (50%) (9-11). It has been observed that 35% of speciality theses related to the field of otorhinolaryngology (12), 34% of master's and doctorate theses related to the field of audiology between 2007 and 2012 (13) and 22% of the papers submitted to otorhinolaryngology congresses (14) between 2008 and 2010 have been published.

The factors affecting the publication rates of theses have not been adequately examined and evaluated using appropriate statistical methods in the literature. These factors include the gender of the researcher, the academic institution of the researcher, the academic title of the thesis supervisor, the type of study, the number of discussion pages written in the thesis, and the total number of references used in the thesis. In order for a greater number of qualified scientific publications to be derived from specialization theses, the relationship between the criteria for publication and the publication rates of theses should be investigated.

In the present study, I aimed to investigate the factors affecting publication rates of otorhinolaryngology (ORL) theses in Turkey and compare with the factors affecting publication rates of plastic and reconstructive surgery (PRS) theses between 2013 and 2017.

2. Materials and methods

2.1. Study design

In order to examine ORL and PRS specialization theses published between 2013 and 2017, I scanned the Council of Higher Education Thesis Center's browsing system that contains a list of all published theses for the terms "ear, nose, and throat" and "plastic and reconstructive surgery" (15). All accessible theses performed by relevant departments and clinics were included in the study.

A total of 689 abstracts of theses were accessible, including 454 ORL and 235 PRS theses. I accessed the full text of the 537 theses and recorded the number of discussion pages and the number of references used. I also recorded the gender of the author, the year of the thesis, the type of institution where the thesis was produced, the academic title of the thesis supervisor, and the type of study (clinical study/experimental animal study). I determined the publication status of theses by searching the authors' surnames in Google Scholar and PubMed Central indexes. I recorded the country of publication (Turkey, International), the journal index (Science Citation Index/ Science Citation Index Expanded/Other), and the year and language of publication.

2.2. Statistical analysis

I analyzed and uploaded the research data via SPSS for Windows 15.0 (SPSS Inc., Chicago, IL). I presented descriptive statistics as median (min-max), frequency distribution, and percentage. I used Pearson's chi-square test to evaluate categorical variables and examined the convenience of the variables to normal distribution using visual (histogram and probability graphs) and analytical methods (Kolmogorov–Smirnov/Shapiro–Wilk test). For variables that were not found to fit the normal distribution, I used the Mann–Whitney U test to determine the presence of a statistical significance between two independent groups, and the Kruskal–Wallis test for three independent groups. When I detected a significant difference between the three independent groups, applied a post-hoc Bonferroni correction test to determine the source of the difference. I accepted the level of statistical significance as $P < 0.05$.

3. Results

Within the scope of the research, a total of 689 specialty theses were accessible: 454 ORL theses and 235 PRS theses. Most of the ORL and PRS theses authors were male (72.5% and 84.3%, respectively). Most of the ORL theses were conducted in state universities (76.9%), whereas most of the PRS theses were conducted in public universities (87.2%). More than half (50.9%) of the ORL advisors were professor doctors, compared to 46.3% of the PRL advisors. Most of the ORL studies were clinical studies (81.7%). In comparison, 74.9% of the PRL studies were experimental animal trials (Table 1).

In total, 24.5% of ORL theses were published, and 29.7%

of these were accepted in SCI-indexed journals. In comparison, 19.6% of the PRS theses were published, and 19.6% of these were published in SCI-indexed journals. Most ORL and PRS theses were published in international journals (70.3% and 80.4%, respectively). The majority of ORL and PRS theses were published in English (94.6% and 93.5%, respectively) (Table 2).

Table 1. Descriptive characteristics of the theses analyzed

The year of the publication	ORL (n=454) n (%)	PRS (n=235) n (%)
2013	73 (16.1)	47 (20.0)
2014	106 (23.3)	61 (26.0)
2015	93 (20.5)	44 (18.7)
2016	88 (19.4)	33 (14.0)
2017	94 (20.7)	50 (21.3)
The gender of the first author of the thesis		
Male	329 (72.5)	198 (84.3)
Female	125 (27.5)	37 (15.7)
The institution where the thesis was performed		
State University	349 (76.9)	205 (87.2)
Training and Research Hospital	87 (19.1)	22 (9.4)
Foundation University	18 (4.0)	8 (3.4)
Academic title of the advisory of the thesis		
Professor	231 (50.9)	109 (46.3)
Associate Professor	167 (36.8)	65 (27.7)
Assistant Professor or Lecturer	56 (12.3)	61 (26.0)
Type of the study		
Clinical Study	371 (81.7)	59 (25.1)
Experimental animal study	83 (18.3)	176 (74.9)

ORL, Otolaryngology diseases; PRS, Plastic and reconstructive surgery

The publication rate (27.0%) of all theses derived from experimental animal studies was significantly higher than that of those derived from clinical studies (20.2%) ($P = .039$) (Table 3). However, the gender of the author, type of institution, academic title of the thesis supervisor, specialty branch, number of discussion pages, and number of references were not statistically significant ($P > 0.05$) (Table 3). When the theses were evaluated separately according to the two different branches, ORL and PRS, the effect of the independent variables did not change ($P > 0.05$).

The median length of the discussion sections of theses published in SCI journals was seven pages (min: 2, max: 14). The median number of references was 91 (min: 51, max: 236). The median length of discussion sections of theses published in journals non-SCI journals was seven pages (min: 3, max: 20). The median number of references was 91 (min: 29, max: 233). There was no statistically significant difference between the theses published in SCI or non-SCI journals in terms of the length of discussion sections and the total number of references ($z = -0.86$, $P = .392$; $z = -0.481$, $P = .631$, respectively).

A statistically significant difference was found between the publication status of the theses and the year in which they were published ($P < 0.05$). The lowest publication rates occurred in 2017. A statistically significant difference was also found between the academic titles of thesis advisors and the amount of time elapsed between the completion of a thesis and its publication ($P < 0.05$). Post-hoc paired comparisons revealed that the time interval between completion and publication was significantly shorter for theses advised by assistant professors or lecturers compared to those advised by professors (Table 4).

Table 2. Publication status of the theses analyzed, their citation indices, origin and language of the journals that published these theses

Publication status of the theses	ORL (n=454) n (%)	PRS (n=235) n (%)
Published	111 (24.5)	46 (19.6)
Unpublished	343 (75.5)	189 (80.4)
Citation indices (n=157)		
Science Citation Index (SCI)	33 (29.7)	9 (19.6)
SCI-Expanded	52 (46.8)	23 (50.0)
Others	26 (23.4)	14 (30.6)
Origins of the Journals (n=157)		
Turkey	33 (29.7)	9 (19.6)
Abroad	78 (70.3)	37 (80.4)
Language of the Publication (n=157)		
Turkish	6 (5.4)	3 (6.5)
English	105 (94.6)	43 (93.5)

ORL, Otolaryngology diseases; PRS, Plastic and reconstructive surgery

Table 3. Distribution of some characteristics of the thesis published

Variables	Publication status		χ^2/Z	P
	Not published (n=532)	Published (n=157)		
Responsible author of the thesis, n (%)				
Male	405 (76.9)	122 (23.1)	0.17	682
Female	127 (78.4)	35 (21.6)		
The institution where the thesis was performed, n (%)				
State University	427 (77.1)	127 (22.9)	1.37	505
Training and Research Hospital	87 (79.8)	22 (20.2)		
Foundation University	18 (69.2)	8 (30.8)		
Academic title of the thesis advisor, n (%)				
Professor	260 (76.5)	80 (23.5)	2.18	337
Associate Professor	186 (80.2)	46 (19.8)		
Assistant Professor / Lecturer	86 (73.5)	31 (26.5)		
Type of the study, n (%)				
Clinical study	343 (79.8)	87 (20.2)	4.24	039*
Experimental animal study	189 (73.0)	70 (27.0)		
Specialty, n (%)				
ORL	343 (75.6)	111 (24.4)	2.09	148
PRS	189 (80.4)	46 (16.6)		
Number of pages reserved for the "Discussion" section, median (min-max)	7 (2-38)	7 (2-20)	0.05	0.960
Total number of references, median (min-max)	96 (25-347)	91 (29-236)	0.28	0.778

* $P < 0.05$

Table 4. Investigation of the academic title of the thesis advisor, and the time to publication of the thesis

Academic title of the thesis advisor, n (%)	n	Time to publication (years) median (min-max)	χ^2	P
Professor	80	2 (1-5)	27.7	<0.001*#
Associate Professor	46	2 (1-6)		
Assistant Professor / Lecturer	31	1 (1-5)		

* $P < 0.05$; # the significant difference in post-hoc pairwise comparisons was ensured from the "assistant professor or lecturer" group

4. Discussion

The publication of medical specialization theses on critical scientific topics in peer-reviewed journals is an essential criterion in the evaluation of the quality of the study. In the present study, I aimed to analyze publication rates of theses written in the fields of ORL and PRS between 2013 and 2017 and the factors affecting them.

I found that 72.5% of the authors of ORL theses were male. A similar study found that 79.3% of ORL theses written between 2007 and 2012 were written by males (12). This is unsurprising, as fewer women than men in Turkey choose to pursue medical careers in surgical branches. This trend has not changed much within the last five years.

In the present study, I found that 76.9% of the ORL theses were performed in state universities, while 19.1% were performed in education and research hospitals. Aslı Çakır Çetin et al. (12) examined theses published between 2007 and 2012 found that 87% of the theses were conducted in state universities and 11.7% in education and research hospitals. As explained by authors of mentioned study, theses and dissertations can only be identified using the Council of Higher Education's browsing system, so the inability to identify theses realized in some hospitals may be the cause of this discrepancy (12). I identified two factors affecting the publication rates of theses: the type of study and the time elapsed between completion of the thesis and publication. My study and mentioned study found that approximately one-fifth of the ORL theses were experimental animal studies. Experimental animal studies were published significantly more frequently. This may indicate that there are some problems in the design of clinical trials that affect the publication rates of theses. Although three-quarters of the PRS theses examined were experimental animal studies, the fact that PRS theses were published less frequently than the ORL theses shows that this is not a factor in itself. Reasons for this preference for experimental animal studies over clinical studies in PRS theses may be the subject of new research.

In the present study, I found that 50.9% of the ORL thesis

advisors were professors, and 36.8% were associate professors. In comparison, 46.3% of PRS thesis advisors were professors, and 27.7% were associate professors. Also, when I examine possible reasons for the length of time between thesis completion and publication, the only significant variable is the academic title of the thesis advisor. The theses that were supervised by assistant professors and lecturers were published in a shorter time. This may be due to the fact that assistant professors and lecturers more frequently feel the need to produce publications than do full-time professors. The only comparable study is that of Mengüllüoğlu et al. (6), who evaluated family practice theses between 2005 and 2015 and found that 34% of thesis advisors were associate professors and 19% were professors. This result may be related to the fact that the Departments of Family Practice is a new medical discipline in Turkey; thus, the field lacks a sufficient number of academics. It may also suggest that the academic staff of ORL departments is more qualified than that of the PRS departments in Turkey.

This study aimed to compare the publication of ORL and PRS theses. In this study, no statistically significant difference was found in terms of publication rates of theses of the two branches. The publication rates of ORL and PRS theses were 24% and 16%, respectively. My findings revealed that 24.5% of ORL specialization theses written between 2013 and 2017 were published. In a similar study, Aslı Çakır Çetin et al. (12) reported that 35.6% of ORL theses were published. This difference is probably due to the fact that the theses analyzed by these authors were completed no later than 2012 (four years before the time study was conducted). Mentioned research chose to conduct a retrospective examination covering 2007 and 2012 years. The lowest publication rate of these theses reviewed in the present study was detected in 2017. If I was to repeat our study four years from now, I could expect that additional theses will have been published. Similar publication rates were detected for master's and doctorate theses in the field of audiology: a study found that 34% of master's theses and 39% of doctorate theses were published (13). One study examined the publication rate of theses in the field of orthopedics over a very long interval but found they remained at 15% (7). In comparison, 11% of family practice theses were published, (5, 6) 34% of public health theses were published (9). Another study reported that approximately 50% of ophthalmology theses were published (11). However, since the methodology of this study was based on self-reports of accessible specialists, it is unlikely that the result is accurate.

In a large-scale study evaluating theses in all branches of medicine, 6.5% were published in SCIE journals (16). The same study found that 18% of all ORL theses examined were published in SCI and SCIE journals, which corresponds to approximately three-quarters of the theses published. Approximately 13% of all PRS theses were published in SCI and SCIE journals. According to the literature, publication

rates in SCI journals vary between 3.5% and 32.7% (17). The findings in my study are consistent with the literature.

The time elapsed between completion and publication of a thesis is a controversial issue. Of the theses examined, at least one year has passed between completion and publication. However, I found a significant difference in the publication rate of theses in 2013. When evaluating the publication rates of these theses, it should be noted that at least five years have passed since their completion. I also found that theses submitted in 2017 were published significantly less frequently than those submitted in other years. This condition also indicates that a minimum of two years should be passed over the completion of the thesis. In the present study, we found no significant difference between publication rates in 2014, 2015, and 2016.

One way to evaluate the quality of a thesis is to look at the number of pages in its discussion section. It is expected that approximately one-third of a thesis will consist of discussion. This criterion is rarely met by medical theses published in Turkey. The number of references used is also thought to affect the quality of the thesis. However, in the present study, the number of discussion pages and the number of references used in a thesis did not appear to affect publication rates. This shows that the quality of a thesis is based more on the product of quality content than the quantity of content.

In order to increase the quality of medical theses in Turkey so that more may be published in scientific journals, the frequency of medical thesis completion and publication must be increased. Therefore, the factors that influence publication rates in all disciplines should be studied further. The significantly lower publication rates of clinical trials may indicate problems with clinical trial designs. I believe that the evaluation of thesis subjects and study designs by a scientific committee authorized by academic departments within universities can solve this problem.

Conflict of interest

None to declare

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