

# Systematic Analysis of Theses in the Field of Emergency Medicine in Turkey

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## SUMMARY

### Objectives

The aim of this study is to systematically evaluate the theses in the field of emergency medicine in Turkey and to determine whether they were published as a scientific paper.

### Methods

This is a retrospective observational study. Theses in the field of emergency medicine between 1998 and 2013 were browsed from the internet database of National Thesis Center (Council of Higher Education). Study type, both if it was in the field of emergency, or if it was published and the journal's scope of published studies were assessed and recorded in the study chart.

### Results

579 theses were included in the study. 27.1% of them were published and 14.9% of them were published in SCI/SCI-E journals. Advisors of theses were emergency medicine specialists in 67.6% of theses and 493 (85.1%) of them were in the field of emergency medicine. 77.4% of theses were observational and 20.9% were experimental study. Most of the experimental studies (72.7%, n=88) were animal studies.

### Conclusions

It was concluded that very few theses in the field of emergency medicine were published in journals that were indexed in SCI/SCI-E.

**Key words:** Emergency medicine; systematic analysis; theses.

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## Introduction

In Turkey, the first Emergency Medicine (EM) residency was founded in Turkey by Department of Emergency Medicine of Dokuz Eylul University in 1994, and thenceforward many other departments started EM residency programs.<sup>[1,2]</sup> EM residency programs were firstly established in Educational and Training Hospitals in 2006 and residents were enrolled to a program by a nationwide examination. Currently, 70 centers (43 University hospitals, 27 Education and Training Hospitals) have been providing EM residency programs.<sup>[3]</sup>

In Turkey, residents must complete a thesis about their specialty before graduating according to applicable legislations.<sup>[1]</sup> Studies on EM have been increasing gradually and many studies reported evaluating these studies by the means of qualification and quantity.<sup>[4]</sup> The aim of a thesis is to learn all phases of conducting a scientific study but, to our knowledge, there is not any study evaluating the theses in the field of EM. Similar studies to ours have been reported in the field of Family Medicine.<sup>[5,6,7]</sup>

The aim of this study is to evaluate systematically all the theses in the field of EM that were conducted from the beginning of EM residency programs in Turkey, and determine the publication status of these theses.

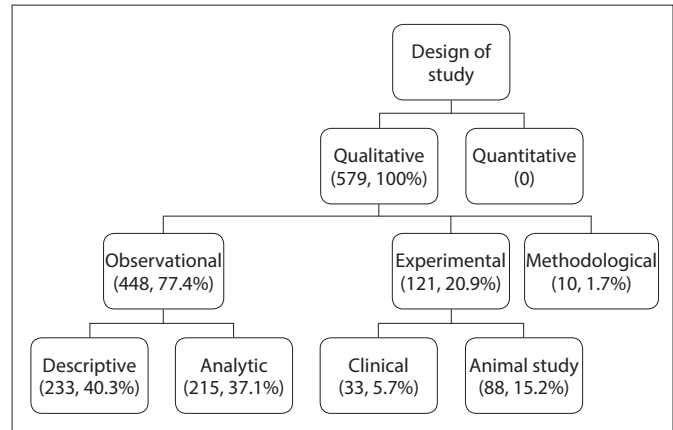
## Materials and Methods

In this retrospective observational study, EM theses between 1998 and 2013 were reanalyzed.

Data were collected via browsing internet database of the National Thesis Center (Council of Higher Education) (<https://tez.yok.gov.tr/UlusalTezMerkezi/tarama.jsp>). While searching, "Emergency Medicine" was selected in the "Department" tab. Information on author, supervisor, institution, objectives, materials and methods, results, and conclusion were analyzed and recorded to the study chart for all theses.

Additionally, year, study design, whether the supervisor was an emergency medicine physician, whether the subject of the thesis was associated with EM topics, whether the power analysis was performed, financial support status, whether the thesis was reported as a publication, if yes, journal's index status and the year of publication were analyzed. While classifying the studies, a standard algorithm was used (Figure 1). For randomized controlled studies (RCT), the registration status was assessed by browsing the internet addresses of [clinicaltrials.gov](http://clinicaltrials.gov), [clinicaltrialsregister.eu](http://clinicaltrialsregister.eu), [isrctn.org](http://isrctn.org).

The publication status of theses were assessed by entry of author's name, title of the thesis and keywords to the search engines of PubMed, Google scholar and Google search. If the study was published, it was assessed if the journal was



**Figure 1.** Algorithm for categorizing the studies.

indexed in SCI (Science citation Index) or SCI-E (Science Citation Index Expanded) by searching the lists of Thomson Reuters. The indexing status of the journal at the time that the thesis was published could not be analyzed.

Whether the subject of the thesis was associated with EM topics was determined by assessing the objectives, methods, results, and conclusion sections. For the final decision, two of three researchers' decision was accepted.

There are 1021 emergency physicians (EP) in Turkey as of January 2014. 17 of them are professors, 88 of them are associate professors, 88 of them are assistant professors, 20 of them are instructors and 808 of them are attending physicians. EM residency programs were established in Education and Training Hospitals in 2011 and 282 EP received their degrees from these institutions but in National Thesis Center database we could not find the theses of them. While assessing the publication status, the last two years were excluded because of time constraints for publication.

Frequency and percentage were given for categorical variables in descriptive statistics. Statistical analysis was performed by SPSS 15.0 (SPSS Inc. Chicago, IL).

## Results

A total of 579 theses were included in the study. Three theses were excluded because they lacked an abstract of full text, and one thesis was excluded because of an irrelevant text upload. 579 (56.7%) theses were reached from the target population of the study (theses of 1021 EPs). Demographics are shown in table 1. All of the theses were conducted in university hospitals and according to that, we reached only 78.4% of the target population of study (784 EPs graduated from university hospitals). A great majority of supervisors were EPs ( $n=390$ , 67.6%) and this proportion was increased significantly over time. 493 (58.1%) of the theses were clas-

**Table 1.** Demographics of the theses

Determinants	n	%
Observational	448	77.4%
Descriptive	233	52.1%
Analytic	215	47.9%
Experimental	121	20.9%
Animal	88	72.7%
Clinical study	33	27.3%
Methodological	10	1.7%
Supervisor*		
Emergency physician	390	67.6%
Non-emergency physician	187	32.4%
Data acquisition†		
Prospective	273	53.7%
Retrospective	108	21.3%
Cross-sectional	127	25.0%
Published theses	157	27.1%
Journals published		
National	93	59.2%
International	64	40.8%
Indexing of the journal		
SCI / SCI-E	86	54.8%
Non SCI / SCI-E	71	45.2%

\*Supervisor was not recorded in two theses and the total number was given as 577; †A total number was given as 508 because 71 of theses could not be differentiated.

sified as having a subject associated with EM topics and this proportion also showed a gradual increase over time. 157 (27.1%) of the theses were published and 68 (14.9%) of them were published in the journals indexed in SCI/SCI-E (Figure 2). The distribution of the journals according to their index

status are given in table 2.

448 (77.4%) of the theses were observational, and 121 (20.9%) of the theses were experimental. Descriptive and analytic studies among observational studies showed close percentages (52.1% and 47.9%, respectively). A great majority of the experimental studies were animal studies (n=88, 72.7%).

53 (43.8%) of the experimental studies were randomized and 11 (9.1%) of them were blinded. 75 (62%) of experimental studies had a control group. 38 (31.4%) of these studies were randomized-controlled, and 11 (9.1%) of them were controlled and blinded. Only one study among experimental studies was submitted in a clinical trial registry platform (clinicaltrials.org). Financial disclosure was stated in only one article. Power analysis was assessed in two theses.

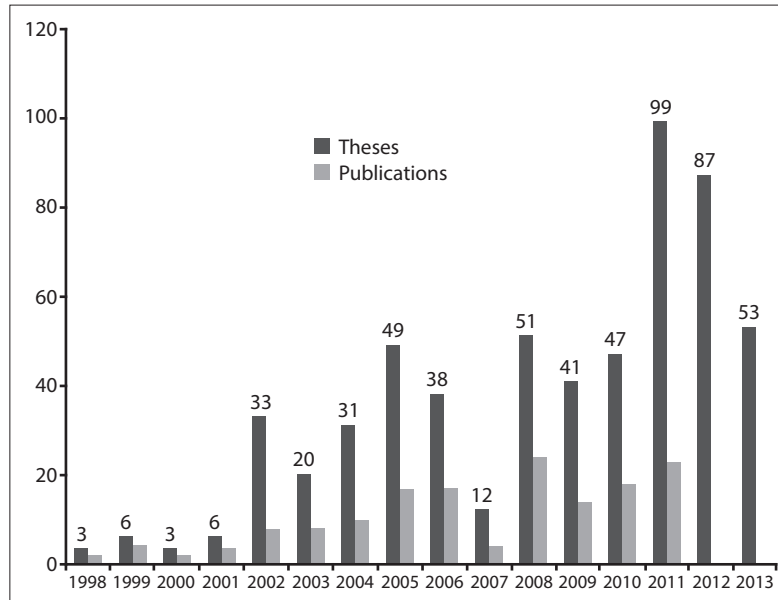
## Discussion

We reached only the theses from university hospitals in our study that was conducted to evaluate the theses on EM. We found that the number of the theses have been increasing over time in direct proportion to number of EPs, most of these theses were observational studies, and 27.1% of them were published. To our knowledge, this is the first study evaluating the theses in the field of EM.

There are several studies evaluating the background of the publication in the era of EM in Turkey.<sup>[4,8,9]</sup> Çınar et al. reported that publication numbers have been increasing over time, and 514 articles were published from Turkish emergency departments between 1995 and 2010 according to data acquired from PubMed search engine.<sup>[4]</sup> They have reported that, 40 (7.8%) of these articles were animal studies, and 75 (14.6%) of them were designed as a retrospective study.<sup>[4]</sup> The international EM literature showed that 57% of the studies were original articles, and the maximal contribution to literature was from US and England.<sup>[10,11]</sup> We also

**Table 2.** The distribution of the published studies' design according to the indexing of the journals

Study design	Non- SCI/ SCI-E		SCI / SCI-E		Total n
	n	%	n	%	
Observational					
Descriptive	26	16.6%	18	11.5%	44
Analytic	36	22.1%	29	18.5%	65
Experimental					
Animal study	7	4.5%	24	15.3%	31
Clinical study	18	0.6%	11	7.0%	12
Methodological	1	0.6%	4	2.5%	5



**Figure 2.** Number of theses and publication rates in years.

found that the number of theses increased over time and concluded that this increase was associated with an increase in the number of educational institutions.

In a study evaluating the theses in the field of Family Medicine, Yaman et al. showed that 67.1% of them were observational, 7.9% of them were experimental, and 25% of them were retrospective.<sup>[5]</sup> It was reported in the same study, that 59.3% of observational studies were descriptive, and 70% of them were cross-sectional.<sup>[5]</sup> Our result showed that most of the theses on EM were also observational studies and that was compatible with Yaman et al. But the proportion of experimental studies were higher from the results of Yaman et al. and Çınar et al. According to another study evaluating the studies of academic members of EM on the subject of trauma in Turkey, it was demonstrated that the number of articles increased over time, 74.3% of the studies were original articles, 74.3% of the studies were original articles, and most of experimental studies (88.8%) were conducted on human subjects. But according to our results minority of the experimental studies (27.2%, 33/121) were conducted on human subjects.<sup>[4,12]</sup> We concluded that this difference may result from a disparity between the target population of studies and family medicine topics that were mainly directed to primary health care.

Doğan et al. reported that academic members of EM in Turkey published 94.4% of their studies on trauma in the journals indexed in SCI/SCI-E.<sup>[12]</sup> This number was 2.1% for the theses on family medicine.<sup>[5]</sup> Our results showed that 27.1% of the theses on EM were published, and 14.9% of the published articles were in journals indexed in SCI/SCI-E. Most of the SCI/SCI-E articles were observational analytical studies and animal studies.

While evaluating the contribution of Turkish EM to international literature, Çınar et al. reported that 31 (6%) of the studies were RCTs, presenting a high level of evidence.<sup>[4]</sup> Our results showed that 49 (8.5%) of theses were designed as RCT and that was compatible with the results of Çınar et al..<sup>[4]</sup>

Clinical studies (especially the RCTs) must be submitted to accepted platforms in order to maintain the transparency of the study, and to prevent the methodological changes. In 2005, the Committee of Medical Journal Editors made a decision not to publish the studies made a decision to allow submission of clinical trials only after registration to an accepted platform.<sup>[13]</sup> However, in our study, only one thesis was submitted to these platforms.

Power analysis can be used to calculate the minimum required sample size prior to study. According to our results, power analysis was assessed in only two theses. The power analysis may be omitted to state in the text.

Financial disclosure was not mentioned in any study. In the specific assessment of animal studies and experimental studies that used drugs or kits, we determined that the power analysis was calculated and financial support was received but neither of them were mentioned adequately in the abstracts/ full texts of the theses. From this we concluded that negative perceptions may be caused by not providing this information, as the theses in the field of EM have limited financial support or power analysis.

## Limitations

We reached just the theses from university hospitals because

of the theses from Education and Research Hospitals were not uploaded to national thesis database. Theses conducted in the last two years were excluded because of limited time to publish. So, 56.7% of the theses of 1021 EPs could have been included in the study. In some theses, evaluation was based on the abstract rather than full text because of unauthorized access. These determinants make it impossible to comment for all theses on EM.

## Conclusion

We concluded that only minority of theses on EM are published in journals indexed in SCI/SCI-E. It was assessed that clinical, experimental and analytical observational studies were regarded as insufficient. Original subjects that can contribute to the literature may be important for the evolution of EM. If all theses were uploaded (including the theses from Education and Training Hospitals) to the national thesis database, it would facilitate further studies based on theses.

## Conflict of Interest

The authors declare that there is no potential conflicts of interest.

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