



## CLINICAL STUDY

# TO WHAT EXTENT IS RHINOPLASTY, A POPULAR SURGICAL PROCEDURE, INCLUDED IN ACADEMIC THESES IN TURKEY?

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### SUMMARY

**Objective:** This study aimed to examine the distribution of academic theses on rhinoplasty and septorhinoplasty written in Turkey, according to the years and departments in which they were conducted, and to evaluate the topics and research methods of these theses using bibliometric analysis.

**Materials and Methods:** In this study, theses published in the National Thesis Center between 1988 and 2023 and containing the keywords 'rhinoplasty or septorhinoplasty', 'septoplasty and nose', 'rhinoplasty and septum', 'aesthetics and nose' in the title and content of the thesis were examined. The data obtained were grouped and evaluated in terms of publication date, study type, department of the thesis, and thesis content.

**Results:** A total of 133 theses were included in the study, excluding those not directly related to the subject. According to the examination based on departments, it was observed that most of the theses (45.86%) belonged to the department of otorhinolaryngology. In addition to the otorhinolaryngology department, other departments such as plastic reconstructive and aesthetic surgery (21.05%), anesthesiology (20.30%), family medicine, pharmacy, nursing, psychology, sociology, anthropology, bioengineering, and health institutions management, various theses on rhinoplasty were also found to be remarkable.

**Conclusion:** The number of theses on rhinoplasty has been increasing over the years. Although most of these rhinoplasty procedures were conducted in the department of otorhinolaryngology, those from different academic branches on a wide variety of subjects were also performed. The increasing popularity of rhinoplasty as a surgical option is reflected in postgraduate and specialty theses in our country.

**Keywords:** Rhinoplasty, septorhinoplasty, thesis

### POPÜLER BİR CERRAHİ PROSEDÜR OLAN RİNOPLASTİ, TÜRKİYE'DEKİ AKADEMİK TEZLERDE NE ÖLÇÜDE YER ALMAKTADIR?

#### ÖZET

**Amaç:** Bu çalışmada rinoplasti ve septorinoplasti konusunda ülkemizde yazılmış uzmanlık tezlerinin yıllara ve yapıldığı anabilim dallarına göre dağılımlarının incelenmesi, ek olarak tezlerin konuları ve araştırma yöntemlerinin bibliometrik olarak değerlendirilmesi amaçlanmıştır.

**Gereç ve Yöntem:** Çalışmada, Ulusal Tez Merkez'inde 1988-2023 yılları arasında yayınlanan, tez adında ve içeriğinde "rinoplasti veya septorinoplasti", "septoplasti ve burun", "rinoplasti ve septum", "estetik ve burun" anahtar kelimeleri geçen tezler incelenmiştir. Elde edilen veriler yayın tarihi, çalışma türü, tezin yapıldığı anabilim dalı ve tez içeriği gibi özellikler açısından gruplandırılarak değerlendirilmiştir.

**Bulgular:** Anahtar kelimelerle ulaşılan tezler incelenmiş, konu ile doğrudan ilişkili olmayanlar hariç tutulduğunda, 133 tez çalışmaya dahil edilmiştir. Anabilim dalları bazında yapılan incelemeye göre, tezlerin büyük bir kısmının (%45,86) Kulak Burun Boğaz (KBB) anabilim dalına ait olduğu görülmüştür. KBB anabilim dalı dışında, plastik rekonstrüktif ve estetik cerrahi (%21,05), anesteziyoloji (%20,30), aile hekimliği, eczacılık, hemşirelik, psikoloji, sosyoloji, antropoloji, biyomühendislik, sağlık kurumları yönetimi gibi farklı anabilim dallarının da rinoplastiyle ilgili dikkat çeken tezlerin bulunduğu görülmüştür.

**Sonuç:** Rinoplasti konusundaki tezlerin sayısı yıllar içinde giderek artmaktadır. Rinoplasti konusunda en fazla tez KBB anabilim dalında yapılmış olmakla birlikte ile çok çeşitli konularda farklı akademik branşlardan tezler de yapılmıştır. Giderek artarak ilgi gören popüler bir cerrahi olarak rinoplastiye olan ilgi ülkemizdeki lisans üstü ve uzmanlık tezlerine de yansımıştır.

**Anahtar Sözcükler:** Rinoplasti, septorinoplasti, tez

## INTRODUCTION

Aesthetic surgical procedures are becoming increasingly widespread in our country, as well as globally. Rhinoplasty (RP), which falls under this category, is one of the most popular surgical cosmetic procedures

performed by plastic surgeons and otolaryngologists (ORL specialists) worldwide, improving both the appearance and function of the nose. According to the American Society of Plastic Surgeons National Center for Plastic Surgery Procedure Statistics, it was the most performed cosmetic procedure in the United States in 2020<sup>1</sup>. Due to the significant increase in the number of surgical procedures performed and the definition of new surgical techniques, the number of publications on RP has been increasing rapidly in recent years<sup>1-4</sup>.

In our country, RP is included in both "otorhinolaryngology (ORL)" and "plastic and reconstructive surgery (PRS)" specialty core

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training programs and is an crucial component of specialty training<sup>5,6</sup>. In recent years, the number of publications related to rhinoplasty has been rapidly increasing in our country. In a study conducted by Zhu et al. in 2023, it was reported that Turkey was the second country after the United States of America among 84 countries contributing to the literature on RP<sup>4</sup>. Despite this, the extent to which RP is reflected in academic theses within the country remains unclear. The present study aims to address this gap by evaluating RP-related theses in Turkey using a bibliometric approach, considering variables such as publication year, departmental affiliation, research methodology, and thesis content.

## **MATERIAL and METHODS**

The National Thesis Center was searched with the keywords 'rhinoplasty or septorhinoplasty', 'septoplasty and nose', 'rhinoplasty and septum', 'rhinoplasty and septum', 'aesthetics and nose' in the name and content of the thesis published between 1988 and 2023. The abstracts of the theses identified in the first screening were examined one by one, and theses that were not directly related to the field of RP were excluded from the study.

The included theses were categorized by publication year, study type, institutional affiliation, departmental affiliation, and thesis content. Descriptive statistical analysis, including frequency and percentage calculations, was applied to summarize the categorical data. Ethical approval for this study was obtained from the Pamukkale University Ethics Committee on 01.02.2024 (approval number: E.60116787-020-492866).

## **RESULTS**

### **Distribution of academic theses according to the departments**

A total of 133 theses meeting the criteria were included in the study. When the theses were distributed according to the departments, 61 (45.86%) were from ORL, 28 (21.05%) from PRS, 27 (20.30%) anesthesiology and reanimation, 17 (12.78%) were grouped as others (Anatomy, Family Medicine, Pharmacy, Nursing, Psychiatry, Audiology, Sociology, Anthropology, Bioengineering, Health Institutions Management) (Figure 1). Regarding academic

level, 119 theses were specialty theses, 10 were master's theses, and 4 were doctoral theses.

### **Distribution of academic theses according to years**

When the theses on rhinoplasty are classified by year, their 5-year distribution is shown in Figure 2. Only two theses were identified between 1988 and 2002, while the number increased to 60 in the last five years. Although this growth was observed across all departments, the ORL department exhibited the fastest increase.

### **Distribution of academic theses according to their topics**

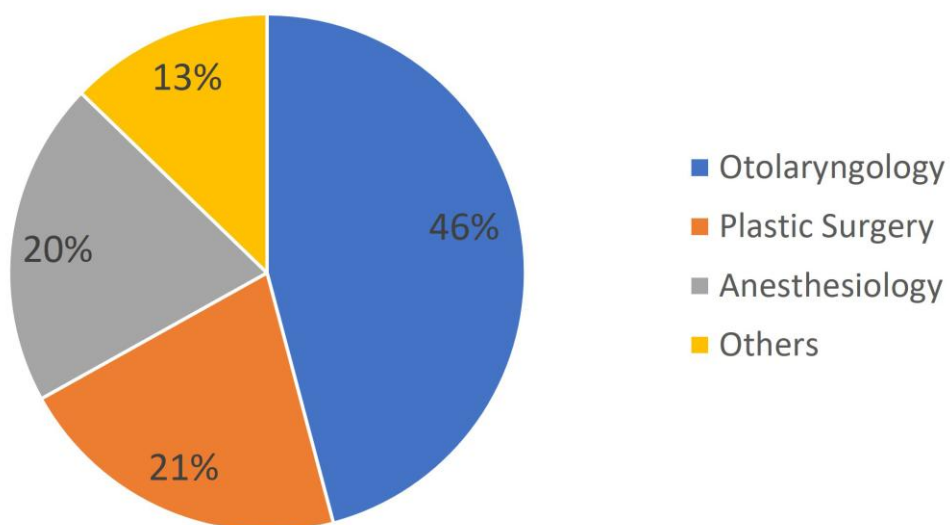
Of the 133 theses, 112 (84.2%) of the theses were clinical research and 21 (15.7%) were experimental research conducted in animal laboratories. Experimental studies were distributed nearly equally between ORL (11 theses) and PRS (10 theses).

The distribution of a total of 112 clinical research theses, categorized by topic and department, is summarized in Table 1. The most frequently researched thesis topic was 'surgical technique' (28.6%). Of the theses on surgical technique, 62.5% were conducted by ORL and 37.5% by PRS departments. Of these studies, three were innovative research projects on the development of new surgical techniques, with ORL departments conducting two and PRS departments conducting one.

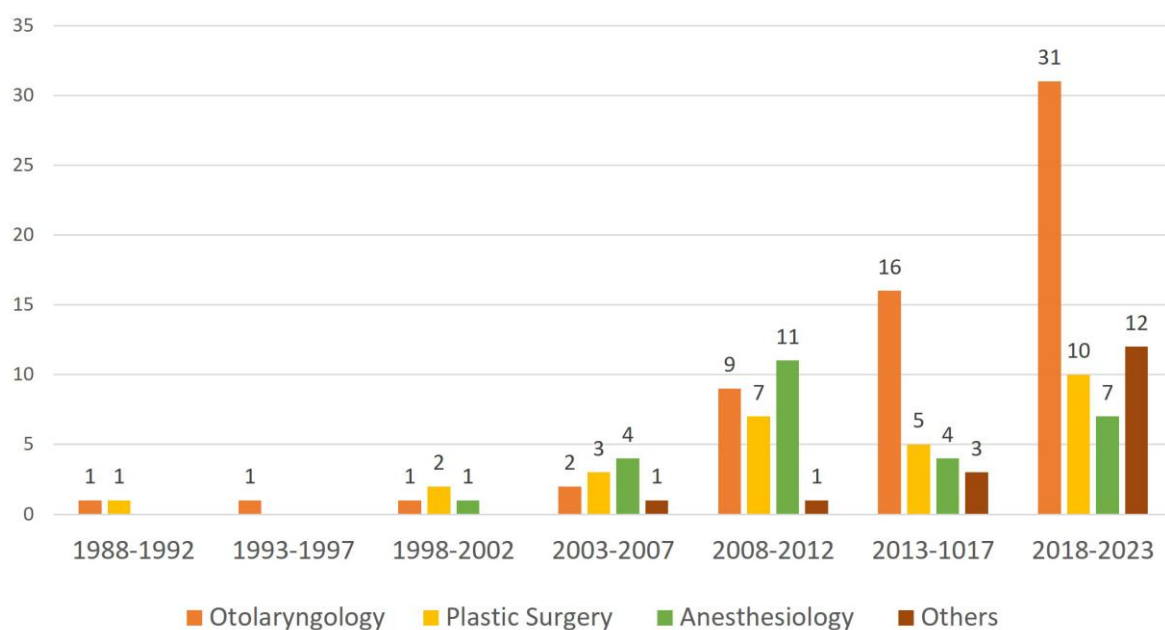
The second most studied topic was 'hemodynamics and controlled hypotension' (17.8%), and almost all of these studies were conducted by the anesthesiology and reanimation departments.

The third most common topic was 'patient satisfaction and patient psychology' (14%). Apart from ORL and PRS clinics, this topic was studied by a wide range of clinics, including psychiatry, family medicine, nursing, sociology, and health institution management.

The other thesis topics investigated were postoperative edema and ecchymosis (10.7%), antropometric facial measurements after RP (8.9%), the effect of RP on nasal patency (6.2%), systemic effects of RP (6.2%), postoperative pain (5.3%) and radiological evaluation (1.7%).



**Figure 1:** Distribution of academic theses according to the departments



**Figure 2:** Distribution of academic theses by year at 5-year intervals



**Table 1.** Distribution of clinical research theses according to topics and departments

Thesis topic	ORL	PRS	AR	Anatomy	Nursing	Psychiatry	Others
Surgical technique	20	12					
Hemodynamics and controlled hypotension			19				1
Patient satisfaction and psychology	6	2			3	2	3
Postoperative edema	8	1	2		1		
Antropometric facial measurements	2	3		4			1
Nasal passage patency	7						
The impact on other systems	6						1
Postoperative pain			6				
Radiological evaluation	1	1					

ORL: Otorhinolaryngology; PRS: Plastic and Reconstructive Surgery; AR: Anesthesiology and Reanimation

## DISCUSSION

Today, the high demand for rhinoplasty is reflected in the educational processes and theses. This increase accelerated 15 years ago and is still on an upward trend. One of the most important reasons for this change is the inclusion of rhinoplasty in specialty core programs.

Innovative surgical techniques are constantly being developed in rhinoplasty. Technological innovations are the factors that change surgical procedures the most<sup>7</sup>. However, one of the most significant reasons for this change in RP operations is the shift in societal perceptions of beauty, which has led to evolving expectations of people regarding rhinoplasty

over time<sup>8</sup>. Analysis of thesis topics reveals that the first ORL thesis in 1988 focused on corrective rhinoplasty, while studies in the 1990s examined the advantages and disadvantages of open techniques. In the 2000s, the focus shifted to methods and indications of external versus endonasal approaches. In recent years, thesis studies have primarily focused on osteotomy techniques and the types of grafts used in these procedures. It is noteworthy that the most frequently investigated topics in experimental thesis studies are the development of cartilage and fat grafts using various techniques and methods to increase their durability. The frequent selection of cartilage grafts in



experimental research likely reflects its essential role in nearly all RP procedures.

Rhinoplasty has been considered a form of psychosurgery and affects not only the nose but also the psychology of the patients<sup>9</sup>. Many studies are showing that patients who have unrealistic expectations about the surgical procedure, who have had previous unsatisfactory plastic surgeries, and who have a history of anxiety or personality disorder have worse psychosocial outcomes in the postoperative period<sup>10,11</sup>. This issue is also reflected in thesis studies, and it is noteworthy that thesis studies on patient satisfaction, psychological evaluations, postoperative quality of life, and patients' expectations from surgery are frequently conducted. Importantly, this research is conducted across multiple disciplines-including psychology, sociology, nursing, and health institution management-beyond the ORL and PRS departments.

The physiological impact of RP is another area of interest, primarily examined by ORL departments. Studies have evaluated nasal passage patency, vestibular function, olfaction, and acoustic changes. In these studies, it has been demonstrated that RP has a positive effect on olfaction, while postoperative voice changes may occur. Additionally, the osteotomy applied in rhinoplasty has no significant impact on the vestibular system. According to these results, it is evident that the ORL branch not only evaluates rhinoplasty surgery aesthetically but also considers its functional outcomes and their relationship with other systems.

Periorbital edema, ecchymosis, and subconjunctival hemorrhage are common transient postoperative complications and cause prolongation in the period of return to everyday life<sup>12,13</sup>. Therefore, postoperative complications are frequently the subject of academic theses. There are theses in which the relationship between the anesthetic agents used, steroid use during surgery, tampons used, and external splints with edema and ecchymosis are examined. Several pharmacological agents and methods are employed to reduce edema and ecchymosis around the eye during the postoperative period and to maintain a bloodless

operative field during the intraoperative period. For example, a 2021 study from the Department of Anesthesiology and Reanimation demonstrated that varying the reverse Trendelenburg position during open rhinoplasty reduced intraoperative bleeding, postoperative edema, and ecchymosis<sup>14</sup>.

Following the ORL and PRS departments that perform the surgical procedure in rhinoplasty, the department of anesthesia, which is one of the most essential components of the surgical team, is the branch that most frequently conducts academic theses. One of the key features of nasal surgery anesthesia is the application of controlled hypotension to minimize bleeding during the procedure. Intraoperative bleeding from the blood-rich nasal mucosa can interfere with the visibility of the surgical field and sometimes cause the surgical outcome to be less than desired. The application of controlled hypotension increases the visibility of the surgical field, reduces the duration of surgery, total blood loss, and the rate of postoperative edema and ecchymosis<sup>15</sup>. It is seen that this issue is frequently investigated in academic theses. Additionally, topics such as postoperative recovery and hemodynamics are also among the thesis topics.

As in all surgical procedures, postoperative pain control in rhinoplasty plays a crucial role for both the patient and the staff<sup>16</sup>. Especially when postoperative pain is well controlled, it shortens hospitalization times and reduces treatment costs. Pain should be well evaluated and managed by anesthesiologists from the beginning of surgical trauma. The choice of analgesic for postoperative pain varies according to the type of surgery performed, the duration of the surgery, and, most importantly, the anesthesiologist's experience. There are thesis studies conducted by anesthesiologists on this subject.

Several bibliometric analyses related to RP have been published in the current literature. In a study conducted by Sinha et al., the 100 most cited articles in the field of RP were analyzed, and it was reported that 53% of these publications focused on surgical techniques, 18% on postoperative outcomes, 11% on psychiatry,





and 7% on Anatomy<sup>17</sup>. Another study by Ri et al. demonstrated that the most frequently explored topics included the use of cartilage grafts and implants in rhinoplasty, nasal tip surgery, outcome research, flaps in nasal reconstruction, and postoperative edema and ecchymosis<sup>2</sup>. A bibliometric analysis carried out in Saudi Arabia revealed that 75% of the publications were in the field of ORL, 12.5% in PRS, and the remainder in dermatology, maxillofacial surgery, and Anesthesiology<sup>1</sup>. It was further reported that the majority of these studies were focused on aesthetic rhinoplasty.

The present study constitutes the first bibliometric analysis on RP conducted in our country. Nonetheless, it has some limitations. The analysis was based solely on the National Thesis Center database, and unregistered or inaccessible theses could not be included. This may have restricted the accuracy and comprehensiveness of the findings.

## CONCLUSION

The number of academic theses on RP in Turkey has been increasing over the past decades. While the majority of studies originate from the Department of ORL, significant contributions from other departments demonstrate the interdisciplinary interest in this procedure. The findings highlight that rhinoplasty is not only a widely performed surgical procedure but also a subject of academic and clinical importance across multiple fields. It can be anticipated that this trend will continue, reflecting both the growing demand for rhinoplasty and its evolving role in medical education and research.

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