

# Research Paper: Complications of Rhinoplasty in Patients: An Epidemiological Study



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## ABSTRACT

**Background:** In addition to odor perception, the nose also plays an important role in breathing and speech. In Iran, 70% of plastic surgeries is performed on the nose.

**Methods:** In the present study, all patients underwent rhinoplasty during 5 years from April 2012 to March 2017 and were evaluated using a census method. A researcher-made questionnaire including the following variables were used: age, gender, level of education, season of performing the operation, length of hospitalization, occupational status, type of surgery, surgical procedure, and type of repair surgery. The obtained data were analyzed by SPSS.

**Results:** A total of 106 individuals, with the mean age of 27.37 years were enrolled into the study. Most of the rhinoplasty surgeries were performed in summer and the lowest frequency was in spring. Most clients had a diploma, and in terms of occupational status, most subjects were students.

**Conclusion:** There was a significant relationship between gender, educational level, and type of surgery.

## 1. Introduction

The main reasons for nasal surgery are to correct the angle, reduce the size of the nose, or remove the nasal hernia [1]. Rhinoplasty is performed during mid-adolescence when nasal growth is complete [2]. Many patients are dissatisfied with the outcome of surgery, because of psychological problems, obsessions, personal insecurities, or over-influence by others [3].

According to the Association of American Plastic Surgeons, 3.8 million cosmetic surgeries were performed between 2003 and 2012, with 299% increase, compared to 1997 [4]. Iran is ranked the first globally in the world in with regard to the number of cosmetic surgeries. Tendency to rhinoplasty in Iran is more than other countries because a large nose is considered among the factors that majorly influence the Iranian females' faces [5].

In a study on 175842 patients who underwent septoplasty, a significant relationship was found between gender, age, history of anxiety, and surgery [6]. In

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another study on 2326 patients who underwent rhinoplasty, 83.8% of the cases were females who decided for the surgery under the influence of social stimuli [7]. Results of another study, showed 61% of the subjects were female and the mean age was 39 years and no significant relationship was found between open and close surgeries [8]. A study was conducted in Iran with on two groups of 40 (50%) male and 40 (50%) female participants in which 68 (85%) subjects in each group were single, their mean age was 24 years, and most participants were students. Bachelor's degree (51.3%) was the highest and the guidance school (2.5%) was the lowest educational level in them [9, 10].

In a retrospective study, the number of nasal surgery cases was evaluated over a 2-year period and the results showed that of 101 patients (62 females and 39 males) with the Mean $\pm$ SD age of 24.4 $\pm$ 6.8 years, 80% underwent rhinoplasty and 20% underwent septorhinoplasty. Although more than 63% of the patients underwent septorhinoplasty, the rates of open and close surgery were 61% and was 39%, respectively [11, 12]. However, no study was conducted in Iran to determine the incidence, prevalence, and complications of surgery as well as mortality rate. Therefore, considering the prevalence of rhinoplasty and its associated complications, complaints from surgeons, and small number of studies performed in this field in Iran, the determination and evaluation of the epidemiology of rhinoplasty can be useful as a guideline to treat or prevent such damages and complications.

## 2. Materials and Methods

The current cross-sectional descriptive, analytical study was performed using a researcher-made questionnaire in order to collect the following information from the patients: age, gender, level of education, season, length of hospitalization, occupational status, type of surgery, sur-

gical procedure and type of repair surgery, using census method. The inclusion criteria were 17 years of age or above, and individuals who underwent rhinoplasty for cosmetic purposes. The exclusion criteria were rhinoplasty due to nasal burn, of agecases of traumatic nasal injury, and pathological problems.

The obtained data were analyzed in SPSS V. 19. We used statistical methods such as mean, median, etc., and central indices. Also and, the relationship between variables was studied by statistical tests such as Chi-square test. One of the limitations of the current study was the lack of access to some information due to reasons such as confusing content, missing files, files being sent to other agencies, and inadequate explanations.

## 3. Results

In the current study, 106 eligible individuals with the Mean $\pm$ SD age of 37.27 $\pm$ 6.9 years (ranged 18 to 54 years) were enrolled. The mean age of the study participants was 26 years. Of these, 28 were male with the Mean $\pm$ SD age of 23.68 $\pm$ 4.82 years and 78 were female with the Mean $\pm$ SD age of 28.99 $\pm$ 7.98 years. Also, with 95% Confidence Interval (CI), males were within the age range of 18.21 to 25.55 years and females within the age range of 26.98 to 30.49 years. Most of the subjects (n=58, 54.7%) belonged to the age group of 25-39 years and the age group of 60-40 years had the least number of subjects (n=8). However, according to Chi-square test, there was no significant relationship between gender and age in the current study ( $P>0.05$ ).

Of total rhinoplasty cases, 38 (35.8%) cases were performed in summer, 31 (29.2%) in autumn, 21 (19.8%) in winter, and 16 (15.1%) in spring. The highest prevalence of rhinoplasty was in summer and the lowest in spring. There was a significant relationship between

**Table 1.** Absolute and relative frequency of occupational status in the subjects who underwent rhinoplasty

Occupation	No.	%
Clerk	23	21.7
Student	38	35.8
Housewife	32	30.2
Nurse	2	1.9
Self-employed	11	10.4
Total	106	100

rhinoplasty and season based on the Chi-square test ( $P < 0.05$ ). About 51 (48.1%) cases had bachelor's, 46 (43.4%) had diploma, 6 (5.7%) were educated under high school diploma, and 3 (2.8%) had associate degree. There was a significant relationship between the level of education and rhinoplasty based on the Chi-square test ( $P < 0.05$ ). Most of the subjects ( $n = 38$ , 35.8%) were students. There was no significant relationship between occupational status and rhinoplasty, according to the Chi-square test ( $P < 0.05$ ) (Table 1).

Open surgery was the most common procedure ( $n = 104$ , 98.1%) followed by close procedure ( $n = 2$ , 1.9%). There was a significant correlation between rhinoplasty and surgical procedure based on the results of Chi-square test ( $P < 0.05$ ). There were two deaths caused by anesthesia.

#### 4. Discussion

In a review study by Tussouli et al. majority of the subjects were within the age range of 18-25 years that was similar to the current study. In a study in Norway (2010), most of the subjects who underwent rhinoplasty aged 18-35 years, which is consistent with the current study. Overall, previous studies were conducted in the age range similar to the current study. The most frequent rhinoplasty cases belong to the young people. The importance of this issue lies in the fact that there is a statistically significant relationship between having a beautiful and elegant look and high self-esteem that was also reported in other studies [11, 12].

As it is known, most aesthetic nose surgery candidates of the current study were female, and numerous studies also indicated a significant relationship between gender and tendency toward aesthetic surgeries. There was also a significant relationship between gender and rhinoplasty based on the findings ( $P < 0.05$ ). According to the results, 38 (35.8%) rhinoplasty cases were performed in summer, 31 (29.2%) in autumn, 21 (19.8%) in winter, and 16 (15.1%) in spring and there was a significant correlation between seasons and the frequency of rhinoplasty ( $P < 0.05$ ).

The highest and lowest number of rhinoplasty were in the summer and spring, respectively and the reason is attributed to the viewpoint of those who underwent rhinoplasty. In other words, they avoid surgical procedures in spring and winter, because the prevalence of allergic reactions is higher in the spring, and the risk of catching a cold is higher in winter, which can affect the surgery outcomes. These trends mostly rely on the patients'

viewpoints. According to cosmetic surgeons, no certain season is recommended for rhinoplasty [13, 14].

The current study showed that most applicants for cosmetic surgery are females, and most of them have a bachelor's degree, which is in line with the results of the studies by Henderson et al. (2007), and Rabbani et al. Abbasi also achieved similar results as ours [15]. Most of the current study subjects who underwent rhinoplasty were students ( $n = 38$ , 35.8%). Khanjani et al. reported similar results to the current study. In a study by Ehyaei et al. 384 (48%) subjects were students. Most participants of the current study who underwent cosmetic surgery were students, which is in line with the study by Kalantar Hormozi [16].

Open method of surgery was the most prevalent procedure ( $n = 104$ , 98.1%), followed by the close method ( $n = 2$ , 1.9%). In the study by Bagheri et al. in Tehran, the rate of open and close surgery were 61% and 39%, respectively. The current study also indicate that the rate of open surgery is higher than close surgery that is inconsistent with those of Marki [17]. Given the cultural, social, and environmental differences of different regions, it is imperative that evaluation of the patient by surgeon as well as psychiatric counseling in terms of motivation and tendency toward aesthetic nose surgery can improve patient's satisfaction and reduce the tangible and intangible costs of this practice.

#### 5. Conclusion

There was a significant relationship between gender, educational level, and type of surgery.

#### Ethical Considerations

##### Compliance with ethical guidelines

Ethics approval was obtained from the Ethics Committee in Research of Shahid Beheshti University of Medical Sciences, Tehran, Iran.

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##### Conflict of interest

The authors declared no conflict of interest.

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