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Letter to the Editor

Incidence and Economic Burden of Rhinoplastyin Tehran, Iran

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Dear Editor-in-Chief

According to unofficial sources, Iran has the most rhinoplasty in the world. It is a rapidly growing phenomenon due to several factors, including increased safety of cosmetic surgery (CS), improved techniques, medical equipment and body dissatisfaction (1-3). However, there was no evidence of frequency, trends and cost of CS in Iran. Therefore, the present study was conducted in Tehran, Iran, to provide information for better evidence-informed decision-making.

A telephone survey was conducted in 2015. Two thousand two individuals aged 15 to 60 yr were investigated using random digit dialling. In addition, 61 study subjects who were gone under rhinoplasty in the last two months were interviewed on their costs in Rials. Details of direct medical, non-medical (transportation) and indirect (loss of earning money due to patients and/or their caregivers' absence from the workplace) costs were asked.

The Ethics Committee approved this study of Tehran University of Medical Sciences with thesis code IR.TUMS.REC.1394.2140.

Rhinoplasty was the most common cosmetic surgery, with 89.2% of operations. The standardized incidence of rhinoplasty in 2015 was estimated as3473, 1768 and 2286 per 100,000 population for females, males and overall, respectively.

There was a birth cohort effect on the incidence of CS. As shown in Fig. 1, there was an increase in incidence in recent birth cohorts compared to older cohorts. In Fig. 1, each line represents the incidence of a specific age from 1951 to 2015 in different birth cohorts. For example, the age group of 20-29 yr in the birth cohorts of 1961-70, 1971-80, 1981-90 and 1991-2000 had an incidence of 159, 255, 1614 and 2507, respectively.

The operation fee is a significant part of the rhinoplasty cost (Table 1). The rhinoplasty's medical cost was 648 to 3366 US$ with an average of 1564 and 1726 US$ respectively in clinics and hospitals, equal to 6267 and 6915· PPP$. Based on the first part of the study's question of 200 individuals gone under rhinoplasty, 62% of rhinoplasty operations were done in hospitals. Therefore, the weighted average cost of CS is [(0.62×1725.6) + (0.38×156.8)]= 1664 US$.

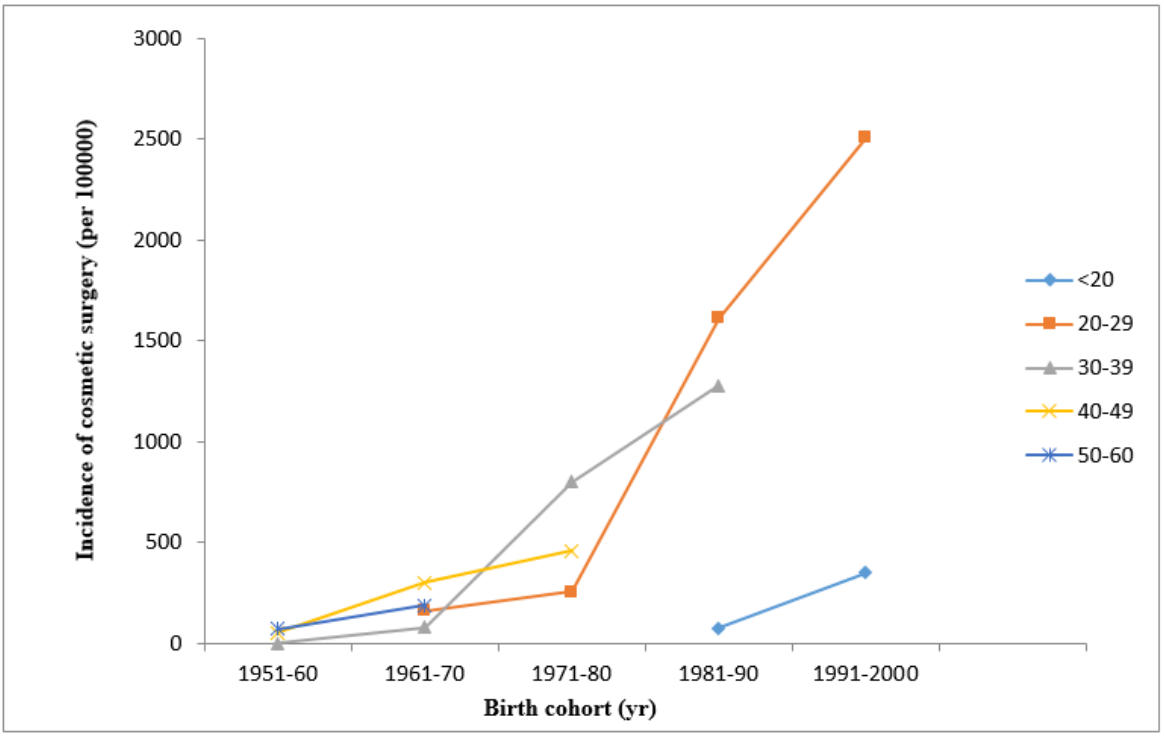

Fig. 1: The incidence per 100,000 Population for cosmetic surgery according to age and birth cohort

Table 1: Average cost of rhinoplasty for Tehran's residents in 2015. Mean (Standard Deviation) in US Dollars

Costs	*Hospital*	*Clinic*
Operation fee	1,626·7 (532·4)	1,434·9 (502·8)
Laboratory	26·8 (11·8)	36.3 (29·9)
Control of complications	17·2 (1·8)	16·2 (0·3)
Hoteling	15·6 (3·3)	3·1 (8·4)
Imaging	14·8 (5·3)	17·6 (7·1)
Consultation visits	9·5 (3·8)	8·4 (4·1)
Drugs and devices	5·3 (20·1)	45·8 (26·0)
Other medical costs	9·7 (3·8)	1·5 (4·1)
Direct medical costs(total)	1,725·6 (576·8)	1,563·8 (553·6)
Direct non-medical costs	8·9	12·9
Total direct costs	1,734·5	1,576·8
Total Indirect costs	109·8	122·2
Total costs	1,844·3	1,699·0

The total number of rhinoplasty operations in Tehran for the 15-60 yr old population, considering the age-standard incidence of rhinoplasty for the population of Tehran, was estimated as 156,808, which cost 260.9 million US$ in 2015. This is equal to 1,045.7 million PPP$.

The CS per 100,000 populations has been estimated in other parts of the world; for example, in 2014, this rate evaluates 898, 666, 536, 469, and 371 per 100,000 populations in South Korea, Brazil, Columbia, USA, and France, respectively (4). Therefore, the incidence estimated in this study is the highest compared to other countries.

The average cost of rhinoplasty in Tehran was estimated as 1664 US$, while it was 4806 US$ in the same year in the USA, which was almost 2·9 times more than Iran. The total cost in Tehran and USA was 260.1 and 698 million US$ (5). The economic burden of the problem which be more clear if we consider the international (PPP) $, which is 1,045.7 million with the 15-60 yr old population of almost 6 million.

The current study had some limitations. First, we involved only individuals staying at home because of the data collection method. Thus, to overcome the bias, the data collecting have done at various hours of the day. Second, a cross-sectional study was used to find a birth cohort effect. It was possible by asking the year of the operation and the age at the time of the surgery.

Iran's capital has the highest rhinoplasty rate, and the CS trend is increasing through birth cohorts. While the cost of each rhinoplasty is almost cheap in Iran, in comparison to other parts of the world, the total cost of it has a high burden on out-of-pocket payments and health expenditure of Iranians.

Acknowledgements

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Conflict of interest

The authors declare that there is no conflict of interest.

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