

## Overweight and Obesity in Saudi Female who Present for Plastic Surgery

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**Received:** 04 December 2019; **Accepted:** 29 December 2019

**Citation:** Badr Abdulrauf, Hani Halawani, Osama A Samargandi. Overweight and Obesity in Saudi Female who Present for Plastic Surgery. Surg Res. 2019; 1(3): 1-4.

### ABSTRACT

**Objectives:** To estimate the prevalence of overweight and obesity amongst women who present for BCS in plastic surgery clinic and evaluate their demographics.

**Methods:** We performed a retrospective manual chart review of all women who presented to the private plastic surgery clinic at King Faisal Specialist Hospital and Research Center in Jeddah between January 2007 and January 2009. The women's records were reviewed for demographic data (age, marital status, smoking habits, and occupation) and type of surgery performed. Women were grouped according to their body mass index based on World Health Organization classification of obesity.

**Results:** A total of 87 women in the study. Their mean age was 38 years. Of these, 66.6% were married, 66% housewives, and 20.6% were smokers. Most of the women were obese 39%, while 32.1% were overweight. Twenty percent of the patients were their ideal weight. Abdominoplasty was the most commonly requested BCS accounting for 31.8% of the cases; liposuction alone and breast reduction surgery were performed in 29.5% and 17.0 % of the women, respectively. Most of the women who request abdominoplasty, liposuction alone or breast surgery were overweight ( $p$ -value= 0.719).

**Conclusion:** Most women who presented for BCS were overweight or obese. Abdominoplasty was the most commonly requested procedure. They are well known to have a higher risk for complications and education of the population about the proper weight loss methods is recommended.

### Keywords

Women, Obese, Overweight, Body contouring surgery, Plastic Surgery.

### Introduction

In the United States, aesthetic plastic surgery is becoming increasingly popular every year. The most commonly requested cosmetic plastic surgery procedure in females include breast augmentation, rhinoplasty, liposuction, blepharoplasty, and abdominoplasty (tummy tuck) [1]. The influence of the media in Saudi Arabia over the last one and a half decades has had a tremendous effect on the mentality and perception of body image, both in women and men. The multimedia changed the society [2]. The liberty seen today in Saudi Arabia in terms of female images on

local magazine pages, newspapers and commercial advertisements were considered a taboo 20 years ago. All these changes have helped the aesthetic aspect of plastic surgery to develop and grow very fast. Cosmetic clinics, ranging from skin care to major plastic surgery have become very popular in all major cities of Saudi Arabia, and it has become a normal, well accepted idea for a woman to opt for a cosmetic surgery. The demographics of patients requesting plastic surgery is ever-evolving. Elective procedures in plastic surgery are usually linked to socioeconomic factors. Many demographic factors are attributed to cosmetic surgery, and it is surprising to note that the demographic lines are not necessarily financial despite the fact that medical insurance does not cover elective cosmetic procedures. People with higher incomes are not necessarily the highest seekers of cosmetic surgery. Moreover,

older adults are turning to cosmetic surgery than younger ones [3-7]. Overweight and obesity are frequently encountered in Saudi female and plastic surgeons are always reluctant when operate on obese people [8,9]. That referred to the concern about the poor aesthetic and high risk attendant on various medical and wound-healing problems [10]. To the best of our knowledge, no study has yet determined the body mass index in Saudi patients presenting for BCS. We aimed to determine the prevalence of overweight and obesity amongst women who present for BCS in plastic surgery clinic. Furthermore, we aimed to evaluate the demographics of BCS seekers in our population.

## Methods

The Ethical approval to conduct the study was obtained from the Institutional Review Board of King Faisal Specialist Hospital and Research Center (KFSHRC). We performed a retrospective chart review of the medical charts of women who had undergone body-contouring surgery at KFSHRC from January 2007 through January 2009. KFSHRC is a general organization and a major tertiary care center in the western region of Saudi Arabia. For all women included in the study, we collected demographic data, including age, marital status, smoking habits, and occupation. We also recorded any history of cosmetic surgery. The women were grouped according to their body mass index (BMI), which was defined as the woman's weight in kilograms divided by the square of the height in meters (kg/m<sup>2</sup>). As per the World Health Organization (WHO) classification adults who had a BMI between 18.5 and 24.99 were considered "normal" weight, while those who had a BMI between 25 and 29.99 were considered "overweight". Women who had a BMI ≥ 30 were considered "obese". Obesity was classified as follows: class I (BMI: 30 - 34.9); class II (BMI: 35 - 39.9); and class III or m (BMI ≥40), also known as "morbid obesity". Body contouring options, which included liposuction, abdominoplasty, reduction mammoplasty, mastopexy, and augmentation mammoplasty were reviewed in terms of demographic data.

## Statistical analysis

Data were analyzed using the Statistical Package for Social Sciences (SPSS Inc, Chicago, IL, USA), version 16.0. Data are presented as the mean and standard deviation for variable quantities. The chi-square test was used to compare different variables. Differences were considered statistically significant at a p-value <0.05.

## Results

We included 87 women in the study. Their mean ± SD age was 38 ±

Procedure	Married	Single	Widowed	Divorced	Smoker	Non-smoker	Total
Liposuction alone	16 (18.4%)	8 (9.2%)	1 (1.15%)	1 (1.15%)	20 (22.9%)	6 (6.9%)	26 (29.5%)
Abdominoplasty +/- Liposuction	11 (12.6%)	2 (2.3%)	1 (1.15%)	4 (4.6%)	27 (31%)	1 (1.15%)	28 (31.8%)
Reduction Mammo-plasty	7 (8%)	6 (6.9%)	0	2 (2.3%)	14 (16%)	1 (1.15%)	15 (17%)
Augmentation Mam-moplasty	6 (6.9%)	1 (1.15%)	1 (1.15%)	2 (2.3%)	9 (10.3%)	1 (1.15%)	10 (11.4%)
Breast Lift (mastopexy)	8 (9.2%)	1 (1.15%)	0	0	7 (8%)	2 (2.3%)	9 (10.2%)

**Table 2:** Requested Procedures Based on the Marital Status and Smoking Habits of the Women.

\*aData are presented as frequency (percent).

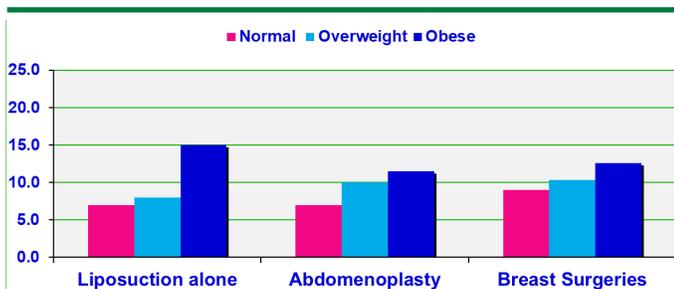
9.58 years (range, 17 to 58 years). Of these 87 women, 58 (66.6%) were housewives, 24 (27.5%) were medical professionals, 2 (2.3%) were students, and 3 (3.4%) were in other job fields. Fifty-eight (66.6%) of the women were married, 11 (12.6%) were divorced, 17 (19.5%) were single, and 2 (2.3%) were widowed. Cigarette and/or water pipe (shisha) smoking history was documented in 18 women (20.6%). Based on the WHO classification of obesity, most women were obese (n=34; 39.0%), followed by overweight women (n=28; 32.1%) and those with normal weight (n=18; 20.7%). Demographics and BMI of the study population are detailed in Table 1. The most commonly requested body contouring surgery was abdominoplasty with or without liposuction (n=28; 31.8%), followed by liposuction alone (n= 26; 29.5%). Breast cosmetic surgeries were performed in 33 women (37.5%), of which 15 (17.0%) had breast reduction, 10 (11.4%) had breast augmentation, and 9 (10.2%) had a breast lift. Details of requested procedures and its relation to the marital status and smoking habits are demonstrated in Table 2. Of the 87 women, 27 (30.7%) had a history of cosmetic surgery. As shown in Figure 1, most women who presented for abdominoplasty (n=12; 13.8%), liposuction alone (n=13; 14.9%), or breast surgery (n=12; 13.8%) were obese (p-value =0.719). There was no significant difference between the women in terms of their marital status (p-value =0.476).

Demographic data	Category	N (%)
Age (mean ± SD)	38 ± 9.58 years	
Occupation	Housewife	58 (66.6%)
	Health care worker	24 (27.5%)
	Student	2 (2.3%)
	Other job	3 (3.4%)
Marital Status	Married	58 (66.6%)
	Divorced	11 (12.6%)
	Single	17 (19.5%)
	Widowed	2 (2.3%)
Smoking	Smokers	18 (20.6%)
	Non-smokers	69 (79.4%)
BMI	Normal	18 (20.7%)
	Overweight	28 (32.1%)
	Mild Obesity	17 (19.5%)
	Moderate obesity	8 (9.2%)
	Morbid obesity	9 (10.4%)

**Table 1:** Demographic Characteristics of the Study Population.

**Abbreviation:** BMI: Body Mass Index.

aData are presented as frequency (percent).



**Figure 1:** Percentage of Normal-Weight, Overweight and Obese Women Who Presented for Body Contouring Surgery.

## Discussion

Plastic surgeons are presented with an increasing number of obese. Only 20.7% of the women in our study had a normal BMI. Most women were either overweight (32.0%) or obese (39.0%). These results can be attributed to many factors. The prevalence of obesity in Saudi Arabia is high based on reports of studies conducted locally. One report state that the prevalence of overweight and obesity in women in Saudi Arabia was 31.5% and 49.15%, respectively [8]. The previous results are similar to those in our study even though our sample size is relatively small. These findings indicate the poor overall health of these women, deemed financially fit, who resort to optional cosmetic surgery. The high prevalence of overweight and obesity in Saudi women can be explained by the general misconception of the local population, who believe that abdominoplasty, liposuction, and other plastic surgical procedures would help in weight reduction- a concept that we struggle with on a daily basis during consultations. Abdominoplasty is an operation designed to address the surface contour deformities of the abdominal wall for a better functional and cosmetic results. If attempted on an obese patient, it can lead to disastrous complications [11-13]. Tense wound closures of heavy fatty tissues are prone to wound necrosis, separations, infections and abscesses. Moreover, undermining of thick skin flaps may jeopardize tissue vitality [10]. Likewise, liposuction is a procedure designed to remove excess fat in people with abnormal fat distribution (lipodystrophy) in order to improve their shape. Large volume liposuction should not be used as a means of treating obesity since this carries a high rate of complications [14-16].

The results of our study revealed that there was no statistically significant association ( $p$ -value =0.719) between BMI and presentation for body contouring procedures. Women will keep presenting for body contouring surgery regardless of their BMI. Given that the women in this study all requested body contouring surgery rather than cosmetic procedures in general (for example, fillers and rhinoplasty), it is reasonable that most of them were married women (66%) of the middle age group (mean age,  $38 \pm 9.58$  years). Women at this stage of their lives, especially after a few pregnancies, commonly have a poor body image, diminished self-esteem associated with a sense of insecurity, basically because they fear their spouses would get a second wife [17-20]. This is in fact a universal issue; however, the terminologies do vary in the western cultures from Saudi cultures. Depression and anxiety, although not investigated in our study, were found to be a frequent

health issue in these women [21,22].

Abdominoplasty with or without ancillary liposuction was the most common body contouring procedure requested in these women (31.8%). This finding is different from that of the American Society of Aesthetic Plastic Surgery (ASAPS), which reported that breast augmentation was the most commonly performed body contouring surgery, followed by liposuction [1]. After a few pregnancies and childbirths as well as after weight loss, the skin of the abdomen becomes stretched and marked with streaks or folds. In addition, divarication of the rectus abdominis muscles may occur, resulting in bulging of intra-abdominal viscera and occasionally true hernias [18-20]. Abdominoplasty is considered a sort of rehabilitative procedure to correct the above-mentioned problems in return trading with a lower abdominal somewhat hidden horizontal scar [12,13].

In our study, liposuction, as a primary operation, was the second most requested procedure. Liposuction is universally known to be an extremely common procedure that is requested by women undergoing plastic surgery to same area and or other distant areas. In fact it is considered to be complementary to abdominoplasty, where excess fat can be removed from areas, such as the flanks and the epigastric and suprapubic areas [14,23]. Another commonly performed body contouring procedure was breast surgery. Reduction mammoplasty was the most common breast procedure requested in our study. This is an operation that relieves women from heavy breasts, and at same time it gives a breast-tightening effect. This operation is universally useful regardless of the patient's age, a fact that was noted in our sample [24]. Currently, augmentation mammoplasty is performed all over the world. According to the American Society of Plastic Surgeons (ASPS), approximately 307,000 women in the United States alone underwent augmentation mammoplasty in 2008, and the need for implants is increasingly rising [25]. However, this procedure was not common in our study population.

Cigarette smoking is an important public health problem in Saudi Arabia. Moreover, some reports indicate that smoking has increased among Saudi female college students [26,27]. In our study population, approximately 20% of women were smokers. Besides the fact that smoking is a significant health hazard, surgical risk is higher in patients who smoke owing to the detrimental effects of smoking on blood circulation in redraped skin flaps. A more intense and comprehensive tobacco control effort is needed.

## Recommendation, Limitation and Conclusion

The results this study reveal some important messages to the plastic surgeons, specifically in our area. Careful selection of patients to identify candidates for body contouring and abdominoplasty is important since the prevalence of obesity and overweight is high. Overweight and obese patients are well known to have a higher risk for complications, and as responsible health care providers, plastic surgeons, including full time private practitioners, and primary health care physician should educate their patients and provide alternative treatments for weight loss. Cigarette and/ or

shisha smoking habits are underestimated in our conservative society, these can cause serious complications in body contouring surgeries. Our study has several limitations. Although the sample size was appropriate for the planned research method and analysis, better sample randomization may have further eliminated bias speculation.

Furthermore, the women in this study were recruited from one center only and therefore the results cannot be extrapolated to women in Jeddah. In conclusion, most women who presented for body contouring surgery were overweight or obese, and the BMI of the women was taken into consideration prior to surgery. The most commonly requested plastic surgery procedure was abdominoplasty, followed by breast cosmetic surgery and liposuction, respectively. The misconception that plastic surgery is meant to correct overweight should not be overlooked, and steps should be undertaken to educate patients as well as raise awareness among physicians of the indications of this type of surgery.

### Acknowledgment

The authors would like to thank Dr. Bakr Sadiq (KFSHRC, Jeddah) for his valuable contribution and guidance in creating the study design.

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