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ARAŞTIRMA / RESEARCH

Evaluation of the satisfaction of patients who underwent breast reduction surgery with Breast-Q questionnaire

Meme küçültme ameliyatı olan hastaların memnuniyetinin Breast-Q anketi ile değerlendirilmesi

Ersin Akşam[1], Meltem Ayhan Oral[1]

[1]İzmir Katip Celebi University, Ataturk Training and Research Hospital, Department of Plastic, Reconstructive and Aesthetic Surgery, Izmir, Turkey

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Abstract

Purpose: The aim of this study is to evaluate the influence of patient demographics, operative techniques and post-operative care on patient satisfaction after breast reduction operations were evaluated in this study.

Materials and Methods: Patients who undergo breast reduction surgery were offered to fulfil Breast-Q reduction module survey in pre-operative and post-operative sixth month period. Patient data such as age, height, weight, smoking, marital status and parenting have been recorded. Operative variances such as drain use and cutaneous stitches and complications, post-operative discharge days, staying in a private room were recorded with post-operative survey module.

Results: Seventy-six patients were included in this study. The average age was 45.8 and mean body mass index (BMI) was 29.2. Post-operative satisfaction with breasts, psychosocial, sexual and physical wellbeing scores were significantly higher than pre-operative scores. Older women had higher pre-operative scores from satisfaction with breasts and psychosocial wellbeing. Younger patients and normal weight patients had higher scores from post-operative physical wellbeing. Satisfaction with breasts, sexual and physical wellbeing, satisfaction with information, surgeon and medical stuff scores were significantly lower in patients who had a post-operative complication.

Conclusion: Surgery without complications is the most powerful factor that increases patient satisfaction. Patient demographics such as age and BMI can be used for patient selection for higher patient satisfaction.

Keywords: Body mass index, breast-q, complications, patient satisfaction, surveys and questionnaires

Öz

Amaç: Bu çalışmada meme küçültme amelyiatı sonrası, hasta demografik özellikleri, ameliyat teknikleri ve ameliyat sonrası bakımın hasta memnuniyetine etkisi değerlendirilmiştir.

Gereç ve Yöntem: Meme küçültme ameliyatı geçiren hastalar arasından, ameliyat öncesi ve ameliyat sonrası altıncı aylık dönemde Breast-Q meme redüksiyonu modülü anketi doldurmayı kabul eden hastalar çalışmaya dahil edildi. Hastaların evlilik durumları, çocuk sahibi olup olmadıkları, sigara kullanımı, boy ve kiloları, yaşları ameliyat öncesinde sorularak kaydedildi. Ameliyat sonrası dren kullanılıp kullanılmadığı, cilt dikişleri olup olmadığı, herhangi bir komplikasyon gelişip gelişmediği, postoperatif yatış gün sayısı, hastanede kaldığı odada başka hasta bulunup bulunmadığı sorgulanarak kayıt altına alındı.

Bulgular: Çalışmaya 76 hasta dahil edildi. Ortalama yaş 45.8 ve ortalama vücut kitle indeksi (VKİ) 29.2 idi. Ameliyat sonrası memelerden tatmin, psikososyal, cinsel ve fiziksel iyilik hali puanları ameliyat öncesi puanlardan anlamlı derecede yüksekti. Yaşlı kadınlarda memelerden memnuniyet ve psikososyal iyilik hali ameliyat öncesi puanlarda daha yüksekti. Genç hastalar ve normal kilolu hastalar ameliyat sonrası fiziksel iyilikten daha yüksek puan aldı. Ameliyat sonrası komplikasyonu olan hastalarda memelerden memnuniyet, cinsel ve fiziksel iyilik hali, bilgi memnuniyeti, cerrah ve tıbbi malzeme puanları anlamlı olarak düşüktü.

Sonuç: Komplikasyon olmayan cerrahinin, hasta memnuniyetini artıran en güçlü faktör olduğu görüldü. Yaş ve VKİ gibi hasta demografisi bilgileri, hasta memnuniyetini arttırmak için hasta seçiminde kullanılabilecek kriterlerdir.

Anahtar kelimeler: Vücut kitle indeksi, breast-q, komplikasyonlar, hasta memnuniyeti, anketler

Yazışma Adresi/Address for Correspondence: Dr. Ersin Aksam, Address; Izmir Katip Celebi Universitesi, Ataturk Egitim ve Arastirma Hastanesi, Plastik Cerrahi Klinigi, Izmir, Turkey E-mail: ersinaksam@gmail.com
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INTRODUCTION

Breast reduction operations are one of the commonly performed surgeries by plastic surgeons. Over 100.000 breast reduction operations were reported in 2018 by ASPS member surgeons[1]. Women seek for a reduction mammoplasty to reduce the symptoms related with heavy and big breast tissue such as neck and back pain, dermatitis and diminished sexual and psychosocial wellbeing[2-5]. As in all aesthetic surgical operations, the plastic surgeon's evaluation of the post-operative result consist of generally technical aspects such as; bottoming out, wound dehiscence, marginal skin necrosis, hematoma formation, asymmetry, sensation loss and the final shape of the breasts. However, we do not evaluate the impact of the operation on patient's physical, social and sexual life and we ignore patient's evaluation about medical service she got. Using a validated survey for this purpose is crucial to get substantial results[2-4,6-10]. The Breast-Q survey is the most appropriately developed, internationally approved questionnaire about breast reduction operation measuring satisfaction with breasts, physical, psychosocial and sexual wellbeing and medical service[9,11].

Many studies were evaluated the effects of the difference of the techniques for reduction mammoplasty, how much volume of the breast had been removed or the final result of the shape of the breast on patient satisfaction. However, no previous study evaluated the effects of minor operational or postoperative care differences such as drain use, cutaneous stitches, postoperative discharge days or staying in a private room on patient satisfaction.

In this study we aimed to evaluate the impact of patient demographics, operative technique and medical service on patient's physical, social and sexual life and her satisfaction from the operation with using a validated questionnaire; the Breast-Q.

MATERIALS AND METHODS

This study was executed between November 2017 and January 2019 by two plastic, reconstructive and aesthetic surgeons who uses superomedially pedicled inverted T scar as breast reduction technique. All procedures performed in this study were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. All participants signed a written informed consent. Ethical board approval was obtained from Izmir Katip Çelebi University ethics committee (No: 289/28.08.2019). All patients undergoing a breast reduction operation was offered to fulfil the Breast-Q reduction questionnaire. Written informed consents were taken from all of the patients. Inclusion criteria were; women older than 18 years and admitted to Izmir Katip Çelebi University department of plastic surgery who were candidates for breast reduction using the superomedially pedicled inverted T technique, patients who agreed and fulfilled the pre-operative Exclusion criteria were women unable to understand the Turkish language sufficiently to complete the BREAST-Q in Turkish, breast asymmetry patients, and/or oncological patients (previous history of oncological breast surgery, radiotherapy and/or chemotherapy), and secondary cases. Breast-Q reduction questionnaire has been administered before the operation and the post-operative Breast-Q reduction questionnaire six months after the operation.

Breast Q scale

Breast-Q questionnaire was developed by Pusic et al in 2009 and jointly owned by Memorial Sloan-Kettering Cancer Center and the University of British Columbia[9]. Breast-Q reduction module fulfilled Rasch and traditional psychometric criteria (including person separation index 0.79 to 0.95; Cronbach's alpha 0.83 to 0.95; and test-retest reproducibility 0.73 to 0.94)[9].

Breast-Q reduction mammoplasty questionnaire was applied to the patients. Pre-operative Breast-Q questionnaire, marital status of the patients (married, single, divorced, widow), whether they have children, smoking, age, height and weight of the patient were recorded before surgery. In addition to the post-operation Breast-Q questionnaire, whether the drain was used after the surgery, whether there were any skin stitches, complications occurred, the number of post-operative days they stayed in hospital and the presence of other patients in their hospital room were recorded. The questionnaires were collected by the second author and the senior author blindly entered the data.

Statistical analysis

The IBM SPSS Statistics Standard Concurrent User V 25 (IBM Corp., Armonk, New York, USA) software package was used in the statistical analysis

of the data. Shapiro-Wilk test was used for analysing the distribution of data. As the results were abnormally distributed Wilcoxon Signed rank test was used for comparison of related samples. Mann-Whitney U test was used for comparison of independent samples. For comparison of pre-operative and post-operative test results two way repeated measures analysis of variance was preferred. $p<0.05$ was considered statistically significant.

RESULTS

In this time period 223 patients were admitted for breast reduction. Between these patients six patients were unable to fulfil a Turkish questionnaire, 14 patients were admitted for breast symmetrisation and 61 of them rejected to fulfil the questionnaire. Only 76 of the remaining 142 patients fulfilled both the pre-operative and post-operative sixth month Breast-Q questionnaire. Total of 76 patients were included in this study.

Table 1. Patient demographic features

Variable		
Age	45.8 (between 30 – 72 years old)	
BMI	Mean (min-max).: 29.2 (22.6 – 37.5)	
	18.5 – 24.9 25 – 29.9 30 – 34.9 35 – 40	15 (19.7%) 24 (31.6%) 34 (44.7%) 3 (3.9%)
Marital status	Married; 58 (76.3%) Single; 9 (11.8%) Divorced; 7 (9.2%) Widow; 2 (2.6)	
Having a child	Yes; 57 (75%) No; 19 (25%)	
Smoking	Yes; 25 (32.9%) No; 51 (67.1%)	

The mean age was 45.8 (between 30 and 72 years old). The mean body mass index (BMI) was calculated as 29.2 (between 22.6 and 37.5). Fifteen of the patients BMI was between 20 and 25, 24 of them between 25.1 and 30, 34 of them between 30.1 and 35 and three patients BMI was between 35.1 and 40. Fifty-eight of the patients were married, nine were single, seven were divorced and two patients were widow. Fifty-seven of the patients had children while 19 were childless. Only 25 of the patients were smokers and 51 of the patients were non-smokers (Table 1).

Surgeons preferred using drains in 52 of the patients and not using any drains in 24 patients. Cutaneous stitches such as staples or simple running suture were used in 32 patients and only subcuticular running sutures were preferred in 44 patients. Twenty-five of the patients were discharged in post-operative first day and 25 of the patients in post-operative second day. Seventeen of the patients were discharged on post-operative third day and nine patients stayed more than three days in post-operative period.

Fifteen of the patients stayed in a private room for a single patient which has its personal toilet and shower and 61 of the patients stayed in a standard room designed for three patients which does not have any toilet or shower. No early or late post-operative complications were seen in 69 of the patients. Wound dehiscence was seen in one patient, prolonged discharge from wound was seen in six patients (Table 2).

Table 2. Operative variances and post-operative care data

Variable	
Drains	Yes; 52 (68.4%) No; 24 (31.6%)
Skin stitches	Yes; 32 (42.1%) No; 44 (57.9%)
Post-operative hospital stay (days)	1 day; 25 (32.9%) 2 days; 25 (32.9%) 3 days; 17 (22.4%) 4 or more days; 9 (11.8%)
Private room	Yes; 15 (19.7%) No; 61 (80.3%)
Complication	Yes; 7 (9.2%) No; 69 (90.8%)

Table 3. Comparison of pre-operative and post-operative tests.

	Pre-operative scores	Post-operative scores	p value
Satisfaction with breasts	31.07	87.24	0.000
Psychosocial wellbeing	35.08	85.74	0.000
Sexual wellbeing	36.02	77.62	0.000
Physical wellbeing	35.2	81.09	0.000

Post-operative satisfaction with breasts scores were statistically significantly higher than pre-operative satisfaction with breast scores; 87.24 vs 31.07

(p<0.05). Post-operative psychosocial wellbeing scores were statistically significantly higher than pre-operative psychosocial wellbeing scores; 85.74 vs 35.08 (p<0.05). Post-operative sexual wellbeing scores were statistically significantly higher than pre-operative sexual wellbeing scores; 77.62 vs 36.02 (p<0.05). Post-operative physical wellbeing scores were statistically significantly higher than pre-operative physical wellbeing scores; 81.09 vs 35.20 (p<0.05). (Table 3).

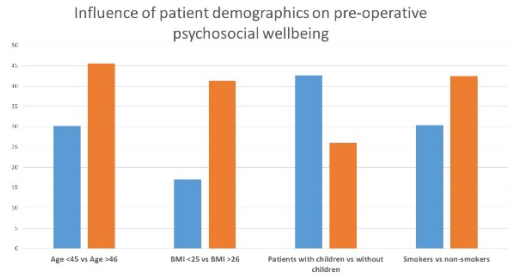

Figure 1. Influence of patient demographics on pre-operative psychosocial wellbeing

Older women (over 45 years old) had significantly higher scores from satisfaction with breasts and psychosocial wellbeing (p=0.021 and 0.016 respectively). The patients with lower BMI (lower than 25) had significantly lower scores from satisfaction with breasts, psychosocial and physical wellbeing (p=0.004, 0.001 and 0.020 respectively). Patients who have children had significantly higher scores from psychosocial wellbeing (42.68 vs 25.95, p=0.004). Smokers had significantly lower scores from psychosocial and physical wellbeing (30.34 vs 42.50, p=0.023 and 29.14 vs 43.09, p=0.009). (Figure. 1)

Younger patients (between 30 to 35 years old) had the highest scores and patients between 46 to 50 years old had the lowest scores from physical wellbeing (p=0.001). Patients with BMI below 25 had the highest scores from physical wellbeing (p=0.001). Patients who do not have any children had higher scores from satisfaction with breasts and nipples, psychosocial and physical wellbeing (50.71 vs 34.43 p=0.003, 45.79 vs36.07 p=0.049, 51.18 vs 34.27p=0.002, 54.18 vs 33.27 p=0.001 respectively). Non-smoker patients had significantly lower scores from physical wellbeing (33.89 vs 47.90 p=0.009). (Figure. 2).

The satisfaction with information scores were significantly lower in the no drains used group (31.50 vs 41.73, p=0.044). Satisfaction with breasts (40.77 vs 16.14, p=0.003), sexual wellbeing (25.00 vs 11.20, p=0.028), physical wellbeing (41.13 vs 12.57, p=0.001), satisfaction with information (40.38 vs 20.00, p=0.013), surgeon (40.27 vs 21.07, p=0.001) and medical stuff scores (39.72 vs 26.43, p=0.004) were significantly higher in patients who did not have a post-operative complication (Table 4). Physical wellbeing scores were significantly lower in the patients who stayed longer than two days in the hospital post-operatively (43.02 vs 29.81, p=0.013). Physical wellbeing and information scores were higher in patients who stayed in a private room in the hospital (49.90 vs 35.70, p=0.024 and 53.10 vs 34.91, p=0.002 respectively). No statistically difference were seen in the post-operative questionnaire scores between the patients who had skin stitches and who have only subcutaneous sutures.

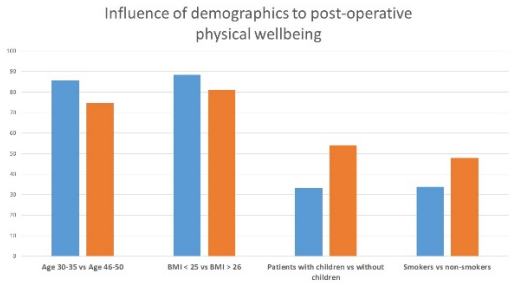

Figure. 2. Influence of demographics to post-operative physical wellbeing

Table 4. The effects of having a post-operative complication on Breast-Q results

	No complication group	Post-operative complication group	p
Satisfaction with breasts	40.77	16.14	0.003
Sexual wellbeing	25.00	11.20	0.028
Physical wellbeing	41.13	12.57	0.001
Satisfaction with information	40.38	20.00	0.013
Surgeon	40.27	21.07	0.001
Medical stuff scores	39.72	26.43	0.004

DISCUSSION

Breast-Q reduction module consist of pre-operative and post-operative questionnaires. The pre-operative part evaluates satisfaction with breasts, psychosocial wellbeing, sexual wellbeing and physical wellbeing. The post-operative part evaluates satisfaction with breasts, satisfaction with overall outcome, psychosocial wellbeing, sexual wellbeing, physical wellbeing, satisfaction with information, satisfaction with nipples, surgeon, medical staff and office staff [9].

The breast reduction operation is a functional operation beside its aesthetic benefits. Thus the patient satisfaction rates are high in several studies as in our study [3-6, 12]. The post-operative satisfaction with breasts, psychosocial wellbeing, sexual wellbeing and physical wellbeing scores are higher than pre-operative scores and these differences are statistically significant. All of the previous studies with Breast-Q questionnaire have approximately same results between these tests. The reduction of breast volume contribute to revealing back and neck pain and reducing dermatitis in intertriginous areas [13-14]. However, very few studies have been done to evaluate the factors that effects the satisfaction of patients. The effects of demographics of the patients and surgical variances on the patient satisfaction were evaluated in this study.

Some interesting correlations have been reached between patient demographics and pre-operative test scores. Older women have higher scores from satisfaction with breasts and psychosocial wellbeing; this may be explained by increased self-knowledge of body image with increased age. Also, higher expectation rates in younger patients may be considered. These results are consistent with the results of the studies by Braig et al and Heddens [15-16]. Shermak et al have observed increased wound healing problems in older patents but no correlation was seen in our study [17]. Another interesting result was decreased scores of satisfaction with breasts, psychosocial and physical wellbeing in normal weight patients. The disproportion of the big breasts with a slim body may be the primary cause of these low scores. Being a mother increases the psychosocial wellbeing; the woman has more knowledge about the functional aspects of her breasts and correlate the hypertrophy of breasts with pregnancy. As expected smokers had significantly lower scores from psychosocial and physical wellbeing. Smoking reduces overall health condition in many ways.

The post-operative physical wellbeing scores were significantly different between age groups; 30 to 35 years old patients had the highest scores and 46 to 50 years old patients had the lowest scores. Younger patients recovers better than older patients in post-operative period. Also younger generation is more educated and more concerned about their physical conditions than older generation. Normal weight patients have highest scores from post-operative physical wellbeing; these patients recover better than obese patients and their gain from the operation is much more than patients with higher BMI. Karamanos et al find out high BMI and tobacco use as a negative predictive factor for reduction mammoplasty outcomes and Guemes et al find no difference in post-operative satisfaction between obese and normal weight patients [18-19] Being a mother significantly increases the post-operative scores of satisfaction with breasts and nipples, psychosocial and physical wellbeing; this result is somewhat hard to interpret. The social support of the children maybe the cause of this increase. Another explanation is the increased breast mount during pregnancy which causes the patient being more eager to breast reduction operation. One of the most interesting result is the decreased scores of post-operative physical wellbeing in non-smoker patients; the increased expectations maybe accused for this.

Surgical variances and post-operative care have some significant difference on post-operative scores. Drain use in breast reduction operation is controversial amongst surgeons. Despite it is safe to not using drains many surgeon still uses drains routinely [20-21]. An increase in post-operative scores were expected in no drains used group in preparatory work of this study. However; lower scores from the satisfaction with information were seen in no drains used group. These patients may felt themselves uncared than patients with drains. Complications can occur after reduction mammoplasties and these complication can effect patient satisfaction [22-25]. Having a complication reduces the post-operative satisfaction with breasts and information, sexual and physical wellbeing, surgeon and medical staff scores significantly as expected. This is the most powerful determinant of the post-operative scores. Physical wellbeing scores were significantly lower in the patients who stayed longer than two days in the hospital post-operatively; actually this should be interpreted as patients with lower physical wellbeing status stayed in hospital longer than two days before discharge. There are two types of patient rooms in

our hospital; private rooms for one patient that have their own television and bathroom and normal rooms for three patients that have shared bathroom. Better scores from physical wellbeing and information were seen in patients who stayed in private rooms. They should have felt special for staying in a private room. Also, as a hospital policy the relatives of the medical stuff have right to stay in private room and all the doctors pays more attention for patients who are relatives of medical stuff.

No statistically significant difference were seen in any post-operative score between the patients who have cutaneous sutures and who have only subcutaneous sutures. The influence of surgical variances such as suture technique and drain usage and post-operative care variances such as staying in a private room and post-operative discharge day on satisfaction with breasts and overall outcome, surgeon, medical staff and office staff were not significant. These are the very few modifications that can a surgeon do in reduction mammoplasty operations. And none of these modifications has an impact of patient satisfaction.

To our knowledge this is the first patient reported outcome measures study in Turkish population that uses an international validated questionnaire; the Breast-Q. Besides, this study is one of the biggest series performed with the Breast-Q that makes it possible to evaluate the effects of intraoperative techniques and post-operative services on patient's perceptions of the results of surgery.

This study has some limitations; no patient below age 30 were agreed to fulfil the Breast-Q survey. The effects of breast reduction surgery on breastfeeding may be the reason behind the low number of patients below age 30 who accepted breast reduction surgery. And the effect of comorbidities on patient satisfaction were not evaluated. However, comorbidities increases the post-operative complications and post-operative complications decreases patient satisfaction.

Plastic surgeons always tries to perform surgeries better to increase patient satisfaction. Using subcutaneous sutures, avoiding drains and early discharge from hospital maybe thought as criteria for a better surgery but these factors do not increase patient satisfaction. The most powerful factor that increases patient satisfaction is a surgery without complications. The unmodifiable factors that influence patient satisfaction such as age and BMI can be used for patient selection.

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