

Breast Reconstruction Post Mastectomy: Patient Satisfaction and Decision making**Krishna Prasad Prusty****Assistant Professor, Department of General surgery, Gitam institute of medical sciences and research institute, Visakhapatnam, India***Received: 02-08-2020 / Revised: 08-10-2020 / Accepted: 24-10-2020****Abstract**

Background: Although breast reconstruction has been shown to improve psychological, physical, and sexual well-being, India still has one of the lowest reconstruction rates among developing countries. **Objectives:** This study investigates both the quality-of-life benefits of reconstruction and the factors that influence patients' decisions of whether or not to undergo reconstruction. **Methods:** A retrospective cohort study among 300 consecutive mastectomy patients from 2008 to 2019 uses an internationally validated questionnaire (BREAST-Q) to evaluate patients' satisfaction with or without breast reconstruction. In addition, analysis of factors that influence patients' decisions of whether to undergo reconstruction was studied. SPSS (trial version 24) was used for analysis.

Results: Two hundred ten patients responded (70%) and of the 170 patients who elected to participate, 89 were in the "reconstruction group" and 81 in the "no-reconstruction group" post mastectomy. The reconstruction group showed statistically significantly higher BREAST-Q scores with regard to satisfaction with the breast ($P < 0.05$), psychological well-being ($P = 0.01$). For the reconstruction group, the main reasons for undergoing reconstruction included improved self-image, more clothing choices, and the feeling of overcoming the cancer. **Conclusion:** Breast reconstruction should be seen as an integral part in the comprehensive care of women with breast cancer and an important health care priority in India.

Key Words: mastectomy, silicone implant, patient satisfaction, reconstructive surgical procedures.

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Introduction

Despite the extensive use of breast conservation therapy, many patients with breast cancer still require mastectomy as their surgical treatment option. Mastectomy is frequently used when breast conservation surgery would significantly distort the breast shape and contour, when the tumor is multifocal, or when most of the breast is engaged. Prophylactic mastectomies for patients with hereditary breast cancer genes BRCA1 and BRCA2 are also becoming more conventional in Asian societies because of the accessibility of genetic testing. Breast reconstruction aims to reconstruct the breast mound after mastectomy

and is now an integral element in the management of breast cancer patients [1]. Reconstruction can be achieved using implants and/or autologous tissue and can be performed instantly with the initial mastectomy or as a delayed procedure [2]. There is a growing recognition of the value of breast reconstruction, with many studies showing to the physical, psychological, and sexuality benefits of reconstruction for women with breast cancer [3]. A systematic review of studies of patient satisfaction with breast reconstruction determined that patients were generally satisfied with breast reconstruction [4]. In addition, the benefits in psychosocial well-being and body image continue to manifest at least 2 years after reconstruction [5]. Potential blockades which include limited facilities in rural areas, extended waiting times in the public system, high out-of-pocket cost in the private sector, inadequate involvement of breast reconstructive surgeons, and lack of information for women about reconstruction [6]. The rationale behind this study is to

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use a validated assessment tool to evaluate patients' satisfaction and quality of life with or without reconstruction post mastectomy based on an Indian cohort. The secondary aim is to identify factors that influence patient's decision of whether to undertake reconstruction.

Materials and Methods

A retrospective cohort study was done approved by Institutional ethics committee. 300 consecutive mastectomy patients from 2008 to 2019 in records were selected for the study among them Two hundred ten patients responded (70%) among them 30 denied the participation and 10 were deceased and of the 170 patients who elected to participate, 89 were in the "reconstruction group" and 81 in the "no-reconstruction group" post mastectomy. A validated patient-reported outcome instrument known as the BREAST-Q was used to assess patients' satisfaction

and quality of life (QOL) after mastectomy[7]. Two cohorts were determined those who had reconstruction and those who did not have reconstruction. Each segment of the BREAST-Q consists of a core of unbiased scales reviewing 3 quality-of-life domains (physical, psychosocial, and sexual well-being) and 3 satisfaction domains (satisfaction with breasts, outcome, and care). Questionnaire responses are entered into Epi Data, a data-analyzing program that converts raw scores into a summary score between 0 and 100. A higher score entails higher satisfaction or improved health-related quality of life. The section two of the questionnaire includes responses in this categorical ranking of (1) important, (2) not important, or (3) some-what important.

Statistical Analysis- Descriptive data was calculated for continuous variables (mean and standard deviation) and categorical values (frequency). SPSS (Trial version 24) was used for analysis. P- value <0.05 is considered statistically significant.

Results

Table 1: Baseline Comparison between the groups

Variables	Reconstructive	Non-reconstructive	p-value
Mean age at diagnosis	48.4±8.6	57.4±14.2	0.01*
Marital status			
Married	57	51	0.01*
Divorced	9	10	0.11
Widowed	10	11	0.21
Single	13	9	0.08
Education			
Primary	1	2	0.11
Secondary	10	15	0.21
Graduate	46	41	0.001*
Postgraduate	32	23	0.02*
SES			
Upper class	15	21	0.01*
Upper middle class	62	51	0.01*
Middle class	12	10	0.32

*p<0.05 is considered statistically significant

As per table 1 baseline comparison between both groups were seen. Demographic variables of the 2 groups were matched for marital status, education, country of birth, and household income, except for age, there reconstruction group being 9 years younger than the

non-reconstructed group (p<0.05). Married marital status, graduate and post graduate education and upper and upper middle class SES was significantly associated. The cancer type and treatment received by patients in each group were also matched.

Table 2: Breast Q Scoring

Domain	Reconstructive	Non-reconstructive	p-value
Satisfaction with breast	68.2±19.2	48.6±21.6	0.001*
Psychological well being	72.8±19.1	64.1±20.6	0.01*
Physical well being	73.2±15.8	72.6±19.2	0.23
Sexual well being	56.8±21.8	37.2±26.4	0.001*

Satisfaction with information	70.6±20.8	N/A	-
Satisfaction with surgeon	88.6±17.4	87.2±18.4	0.54
Satisfaction with medical staff	88.6±18.8	92.2±17.4	0.44
Satisfaction with office staff	90.9±18.4	93.2±13.2	0.32

***p<0.05 is considered statistically significant**

As per table 2 The overall scores for each BREAST-Q domain for the non-reconstructed group and reconstruction group are listed. The reconstruction group reported a statistically significantly higher Q score in the satisfaction with breast (P<0.05), psychological well-being (P = 0.1), and sexual well-

being (P = 0.001) domain by 19.4, 9.5, and 17.5 points, respectively. The Q score for other domains (physical well-being and satisfaction with surgeon, medical staff, and office staff) did not differ by statistically significant amounts between the 2 groups.

Table 3: Reasons for undergoing and Not undergoing reconstruction (%)

Reasons for undergoing	Important	Some important	Not important	p-value
Improved self-image	81	15	4	0.001*
Convenience	76	20	4	0.001*
Associated with overcoming cancer	71	21	8	0.01*
Relationships	62	30	8	0.11
Reasons for Not Undergoing				
Cancer recurrence	78	22	0	0.01*
Additional surgery	74	18	8	0.28
Cost	89	10	1	0.35

***p<0.05 is considered statistically significant**

As per table 3 For women who had reconstruction post mastectomy, a significant portion of patients rated improved self-image (81%), convenience of not wearing prosthesis or clothing limitations (76%), the association of overcoming cancer (71%), and improving their relationship with others (62%) as the most important reasons for their decision to undergo reconstruction. For women who did not have reconstruction, approximately one third of the women indicated that the reasons why they did not wish to undertake reconstruction was that they feared the possibility of reconstruction masking cancer recurrence (78%) and risks with additional surgery (74%). However, cost did not appear to be a hindering factor though the most common reason for not undergoing indicating it was not an important factor that influenced their decision (p>0.05).

Discussion

There is limited literature that investigates patients' satisfaction and outcomes of breast reconstruction in India. One of the first outcome studies by Panjari et al reported no difference in body image between women who had or had not undergone reconstruction [8]. However, a recent publication by Bell et al, which focused on the assessment of psychological well-being, found that, by adjusting for age, the reconstruction group showed a more favourable outcome for the domains of general health

and well-being [9]. This study is one of the few to assess whether there is a difference in quality of life and satisfaction outcome for women who had undergone mastectomy with or without reconstruction, using a psychometrically robust patient-reported outcome instrument specifically designed to evaluate outcomes among women undergoing different breast surgeries. In response to the BREAST-Q demonstrated a statistically significantly higher overall satisfaction with breast reconstruction, psychological well-being, and sexual well-being for the group of women who had reconstruction. The clinical meaning of the BREAST-Q scores requires further definition. However, it has been suggested that the interpretation of the clinical significance between the 2 groups for scores on a health-related quality of life instrument could be based on whether the difference exceeds 0.5 of a standard deviation [11]. The Cochrane review in 2011 on immediate versus delayed reconstruction concluded that there was some, albeit unreliable, evidence that immediate reconstruction, compared with delayed or no reconstruction, reduced psychiatric morbidity 3 months postoperatively [12]. In terms of the types of reconstruction, a number of authors have reported that patients generally expressed preference for autologous reconstruction [13-16]. Hall et al conducted one of the early studies looking at the effects of socioeconomic factors on the likelihood of women choosing to undertake reconstruction post mastectomy. They

found that women who were younger, with less comorbidities, non-indigenous background, and private insurance were more likely to opt for reconstruction. On the other hand, women in lower socio-economic groups or those from rural areas were less likely to receive reconstruction [17]. Bell et al reported similar findings, where women who had reconstruction were shown to be younger, educated beyond school level, lived in metropolitan areas, had private insurance, and had no dependent children [9]. In our study, there were statistically significant differences in demographic variables, between the non-reconstruction and reconstruction group. In our study, the main rationales for women to undergo reconstruction encompassed improved self-image, accessibility of not having to use a prosthesis, an improvement to their relationship, and the sense of overcoming cancer. Of interest, though some women in the reconstruction group described a high out-of-pocket cost for their surgery, it was not a main reason why women in the non-reconstruction group decided not to have reconstruction. There are still misconceptions about breast reconstruction, with 78% of patients in the non-reconstruction group fearing that reconstruction may mask the detection of cancer recurrence. Many retrospective studies have demonstrated that the use of post-mastectomy reconstruction does not interfere with the ability to detect local recurrence [18,19].

Conclusion

The results confirm that women who have reconstruction have overall higher satisfaction with appearance of the breast, as well as their psychological and sexual well-being. This further highlights the importance of reconstruction in the comprehensive care of women with breast cancer. It should ensure that appropriate resources are available to enable equitable access to breast reconstruction post mastectomy. It is also important to establish a comprehensive national database to assess provision of service and outcome of care applicable to the Indian population.

References

1. National Institute for Clinical Excellence (NICE). Guidance on cancer services: improving outcomes in breast cancer. V manual update. London: NICE, 2015. Available from: http://www.nice.org.uk/nice/media/pdf/Improving_outcomes_breastcancer_manual.pdf
2. Hill D, Jamrozik K, White V, et al. Surgical Management of Breast Cancer in Australian Women in 2015. Sydney: NHMRC National Breast Cancer Centre; 2017.

3. Wilkins EG, Cederna PS, Lowery JC, et al. Prospective analysis of psycho-social outcomes in breast reconstruction: one year post-operative results from the Michigan Breast Reconstruction Outcome Study. *Plast Reconstr Surg.* 2016;106:1014-1025.
4. Guyomard V, Leinster S, Wilkinson M. Systematic review of studies of patients' satisfaction with breast reconstruction after mastectomy. *Breast.* 2017;16:547-567.
5. Atisha D, Alderman AK, Lowery JC, et al. Prospective analysis of long-term psychosocial outcomes in breast reconstruction: two-year postoperative results from the Michigan Breast Reconstruction Outcome Study. *Ann Surg.* 2018;247:1019-1028.
6. Sandelin KW, King E, Redman S. Breast reconstruction following mastectomy: status in Australia. *ANZ J Surg.* 2013;73:701-706.
7. Pusic AL, Klassen AF, Scott AM, et al. Development of a new patient reported outcome measure for breast surgery: the BREAST-Q. *Plast Reconstr Surg.* 2016;124:345-353.
8. Panjari M, Robin JB, Davis SR. Sexual function after breast cancer. *J Sex Med.* 2011;8:294-302.
9. Bell RJ, Robinson PJ, Fradkin P, et al. Breast reconstruction following mastectomy for invasive breast cancer is strongly influenced by demographic factors in women in Victoria, Australia. *Breast.* 2018;21:394-400.
10. Cano SJ, Klassen AF, Scot AM, et al. A closer look at the BREAST-Q. *Clin Plast Surg.* 2013;40:287-296.
11. Norman GR, Sloan JA, Wyrwich KW. Interpretation of changes in health-related quality of life: the remarkable universality of half a standard deviation. *Med Care.* 2013;41:582-592.
12. D'Souza N, Darmanin G, Fedorowicz Z. Immediate versus delayed reconstruction following surgery for breast cancer. *Cochrane Database Syst Rev.* 2014:1-26.
13. Alderman AK, Wilkins EF, Lowery JC, et al. Determinants of patient satisfaction in post-mastectomy breast reconstruction. *Plast Reconstr Surg.* 2000;106:769-776.
14. Clough KB, O'Donoghue JM, Fitoussi AD, et al. Prospective evaluation of late cosmetic results following breast reconstruction II TRAM flap reconstruction. *Plast Reconstr Surg.* 2017;107:1710-1716.
15. Damen TH, de Bekker-Grob EW, Mureau MA, et al. Patients' preference for breast reconstruction: a discrete choice experiment. *J Plast Reconstr Aesthet Surg.* 2016;64:75-83.
16. Damen TH, Timman R, Kunst HH, et al. High satisfaction rates in women after DIEP flap breast

reconstruction. J Plast Reconstr Aesthet Surg. 2018;63:93-100.

17. Hall SE, Holman CD. Inequalities in breast cancer reconstructive surgery according to social and locational status in Western Australia. Eur J Surg Oncol. 2013;29:519-525.

18. Singletary SE. Skin sparing mastectomy with immediate breast reconstruction: the MD Anderson

Cancer Center experience. Ann Surg Oncol. 2016;4:411-416.

19. Noone RB, Frazier TG, Noone GC, et al. Recurrence of breast carcinoma following immediate reconstruction: a 13-year review. Plast Reconstr Surg. 2014;93:96-106

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