

# The attitude and perception of breast reconstruction by general surgeons in Saudi Arabia

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**BACKGROUND AND OBJECTIVES:** Post-mastectomy breast reconstruction surgery had always been integral part in the approach to a patient with breast cancer. It is our aim of this study to report in a simplistic manner the variability in the perception and practice by surgeons surrounding breast reconstruction.

**DESIGN AND SETTINGS:** This is a descriptive cross-sectional survey targeting a sample of general surgeons in 6 tertiary hospitals in Saudi Arabia from April 2012 to October 2012.

**METHODS:** A questionnaire adopted from the one designed by Spyrou et al was distributed to our sample of surgeons. It primarily focused on the surgeon's attitude and perception of breast reconstruction surgery after mastectomy.

**RESULTS:** A total of 51 general surgeons were included in the study. Most of them, 24 (47.1%), worked in teaching hospitals. Thirty-six (70.6%) surgeons had a special interest in breast cancer management. Eighteen of them (35.5%) referred their patients for breast reconstruction. We observed that the surgeons of high-referral tendency were generally females ( $P=.016$ ). More than half (33 [64.7%]), thought that a general surgeon is the one responsible for counseling patients. The majority (47%), disagreed with the notion that breast reconstruction can interfere with host defenses. Yet, (76.5 %) were concerned about masking local recurrence of the cancer, and 21 (41.2%) reported that patients refused such type of surgery. Forty-eight (94.1%) agreed that breast reconstruction has psychological benefits.

**CONCLUSION:** In Saudi Arabia, general surgeons have a high concern about masking local recurrence of the cancer despite the lack of evidence in the published reports. Nevertheless, less than half of the surgeons referred their cases for breast reconstruction. We recommend establishing national efforts to educate on the benefits of breast reconstruction and establish a tumor conference protocol on breast reconstruction including all involved specialties (oncologists and general and plastic surgeons).

The management of breast cancer has been changing significantly for the last 15 years, guided by the concern to aesthetically conserve breasts. This had led to achieving optimal results, but has also led to more complications in the management.

Breast cancer is the most prevalent of all cancers in women, affecting 1 of 8 women aged 80 years old and higher.<sup>1</sup> The American Society of Plastic Surgery reports the number of patients in the United States diagnosed with breast cancer to be more than 210 000 in 2005 with 86 424 breast reconstruction procedures being performed in 2009; of those reconstructions, 43 271

procedures were performed on patients in the age group 40 to 54—the highest of any age group. They add that women older than 60 years often do not choose breast reconstruction after mastectomy.<sup>2</sup>

Breast cancer makes up 18% of all cancers in Saudi women. Mastectomy on these patients is performed in almost every surgical department in Saudi Arabia.<sup>3</sup> A number of observational studies have reported discrepancies in the rates of undergoing breast reconstruction, which are generally attributed to variables such as race/ethnicity and geographical areas. Understandable as they may be, they are worth-mentioning insinuating

differences in the access to treatment and variance in patient's concern.<sup>4</sup>

Although most types of breast reconstruction—including submuscular implants, tissue expanders, and musculocutaneous flaps with rectus abdominis or latissimus dorsi flaps—do not affect the oncological consequences of breast cancer and its recurrence,<sup>5</sup> and in spite of its good psychological effect on the patient's self-esteem, femininity, and sexuality, a large proportion (80%) of these women refuse breast reconstruction.<sup>6</sup> Hence, the rule of counseling these patients for breast reconstruction becomes crucial.<sup>7-9</sup> Nevertheless, general surgeons' attitudes toward breast reconstruction and referrals to plastic surgeons for that purpose remain variant despite the aforementioned facts.<sup>9,10</sup> Needless to say, this variation is attributed, in part, to a myriad of factors in the patient herself, which include patients' knowledge, desire, old age, and socioeconomic status. The goal of this study is to survey the current variation in the general surgeon's attitude and perception toward breast reconstruction surgery after mastectomy in Saudi Arabia.

## METHODS

A cross-sectional survey was conducted from April 2012–October 2012. A convenient sampling method was applied and a questionnaire was distributed to general surgeons in the departments of surgery of 6 main tertiary hospitals in Jeddah, Saudi Arabia. The inclusion criterion was simply to include all breast surgeons and general surgeons who have an interest in breast surgery, while the exclusion criterion was to exclude a trainee surgeon.

The questionnaire we used was adopted from the one designed by Spyrou et al.<sup>10</sup> It comprised 2 parts and took approximately 10 minutes to complete, it focused primarily on the surgeon's attitude and perception of breast reconstruction surgery after mastectomy.

The first part of the questionnaire included general questions about a surgeon (demographic details, qualification and training information, interest in breast cancer, referral to breast reconstruction, number of mastectomies done by the surgeon, performing a breast reconstruction or not, offering breast reconstruction, and so on). In the second part, surgeons were asked to indicate the level of agreement using a Likert scale (strongly agree/strongly disagree) toward the following criticism statements:

1. Reconstructive surgery may interfere with host defenses.
2. Masking local cancer recurrence so delaying its detection.
3. This type of surgery is unnecessary; the patient

should learn to live with the deformity.

4. The patient has already undergone enough surgery, and further surgery for reconstruction is not warranted.
5. The qualitative results of breast reconstruction are not worth the time and effort involved.
6. Patients do not want reconstruction, despite being advised, or being aware of its availability.
7. The reconstructive options available have a high morbidity.
8. Reconstructive surgery proves to be beneficial to improve the psychological disorders following mastectomy.

Each General Surgeon instructed to fulfill the questionnaire by himself.

The data were entered and analyzed using SPSS, version 16.0 (SPSS Inc, Chicago, IL USA). Data were presented as a mean for central tendency and a standard deviation for variance. Chi-square test was used to compare between different variables. Statistically significant differences were defined as those with a *P* value <.05.

The study was approved by the ethical review committee within the surgical department at King Abdulaziz University.

## RESULTS

A total of 60 questionnaires were distributed; 51 of them were completed by general surgeons resulting in a response rate of 85%. Of these 51 surgeons, 36 (70.6%) had a special interest in breast cancer. The mean age of the participants was 48.64 ( $\pm 8.48$ ) years with the range being 37 to 65 years. The majority of them, 24 (47.1%), practiced in teaching hospitals, 21 (41.2%) in community (government) hospitals, and 6 (11.8%) in oncology centers. Of all surgeons, 48 (94%) were male. Most of the surgeons were trained in Saudi Arabia (58.8%) (**Table 1**).

### General questions

Of all the surgeons, 18 (35.5%) usually referred their patients for breast reconstruction and only 6 (11.8%) performed breast reconstruction themselves. All the female surgeons in the sample claimed that they referred their patients to breast reconstruction, while only 15 (31.2%) of all male surgeons referred their patients (*P*=.016). A total of 36 surgeons (70.6%) reported that they had a plastic surgeon who was trained for breast reconstruction in their institute. Concerning participants' opinion, 45 (88.2%) agree that breast reconstruction after mastectomy does not go against Islamic Sharia law. More than half (33 [64.7%]) thought that a general surgeon is the one responsible for counseling patients on breast

**Table 1.** Study sample characteristics and referral to breast reconstruction tendency (N=51).

Variable	Number (%)
Average age (SD)	48.6 (±8.5)
<b>Hospital practice setting</b>	
Teaching hospital	24 (47.1%)
Community hospital	21 (41.2%)
Oncology center	6 (11.8%)
<b>Training</b>	
Trained in Saudi Arabia	30 (58.8%)
Trained abroad	21 (41.2%)
<b>Gender</b>	
Male	48 (94%)
Female	3 (6%)
<b>Referral tendency</b>	
Male	15 (31.2%)
Female	3 (100%)
<b>Total</b>	<b>18 (31.2%)</b>

reconstruction after mastectomy. Thirty-nine surgeons of the sample (76.5%) explained to their patient the option of breast reconstruction.

#### *Hypothetical criticisms of breast reconstruction*

Results on hypothetical criticism of breast cancer are demonstrated in **Figure 1**. The majority (47%) disagreed with the notion that breast reconstruction can interfere with host defenses. Yet 76.5% of the respondents were concerned about breast reconstruction masking breast cancer local recurrence. A total of 41% of the respondents reported that they had patients refusing such type of surgery despite its availability. Most of the surgeons (94.1%) agreed that patients would improve psychologically after breast reconstruction.

## DISCUSSION

In our sample, we found that less than half of the surgeons (35.5%) referred their patients to plastic surgery after mastectomy, which is a low number compared to British general surgeons (76%) in the study by Spyrou et al.<sup>10</sup> We also observed that the surgeons of high-referral tendency were generally females and work in teaching hospitals.

The low frequency of referral to breast reconstruction is understandably attributed to both surgeons and patients. Surgeon factors attributing to refusal for breast

reconstruction include the following: (1) any concern in the procedure interfering with cancer surveillance or any other cause that may mask the recurrence or increase its chance, (2) the belief, specifically in our society, that such reconstruction qualifies for cosmetic and, therefore, religion is against it, (3) the unavailability of a trained plastic surgeon for such a procedure.

Patient factors that lead to refusing the reconstruction are as follows: advanced age, late stage, socioeconomic status, psychological problems, fear of complication, frustration from operations, and refusing any further surgical operations.<sup>11</sup>

It stood out in our study that all female surgeons referred their patients to breast reconstruction, while only 31.2% of male surgeons referred theirs. This significant discrepancy demonstrates that the gender of the surgeon influences the decision to counsel or refer for breast reconstruction. This is easily accounted for by the female surgeon understanding better the consequences, other than oncological, of mastectomy and therefore being more motivated, apt, and believable in counselling their patients for reconstruction. A similar result was found in the study by Alderman et al, they reported that high referral general surgeon were more likely to be a female, to have a high follow of breast cancer patients, and to work in oncology center.<sup>12</sup>

The approach to counsel a breast cancer patient for reconstruction is one that requires the synergy of multiple disciplines in medicine and surgery, starting from an oncologist, general surgeon, and radiotherapist to a plastic surgeon. However, many breast surgeons took a leap and went through further training to carry out reconstruction themselves, and many times performed breast reconstruction in one session when mastectomy is done. These surgeons are therefore called "oncoplastic Surgeons." A survey done in England by Spyrou et al.<sup>10</sup> found that most general surgeons (63%) believed either a plastic or a general surgeon should perform the breast reconstruction surgery. In the same survey, general surgeons cited being able to perform different types of breast reconstruction including silicone implant, temporary tissue expander and silicon implant, permanent tissue expander, and pedicled muscle flap with or without silicon implant.<sup>10</sup>

We found in our sample that 70.6% of the surgeons had a special interest in breast cancer. However, 35.5% usually referred their patients for breast reconstruction and only 11.8% performed reconstruction themselves. The authors explained this disparity (between their interest in breast surgery and their performing the reconstruction surgery) as simply the lack of information that general surgeons have when it comes to breast re-

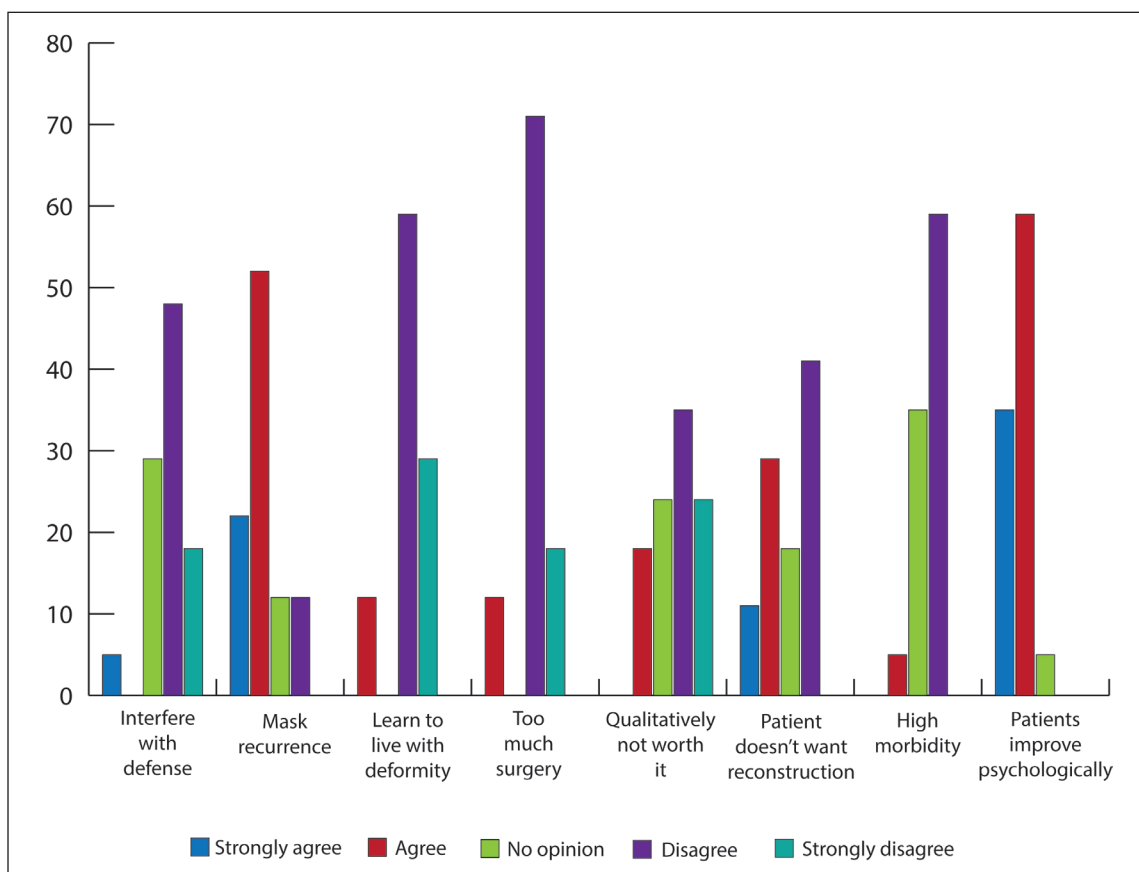


Figure 1. Hypothetical criticism of breast reconstruction. Surgeons' level of agreement in percentage.

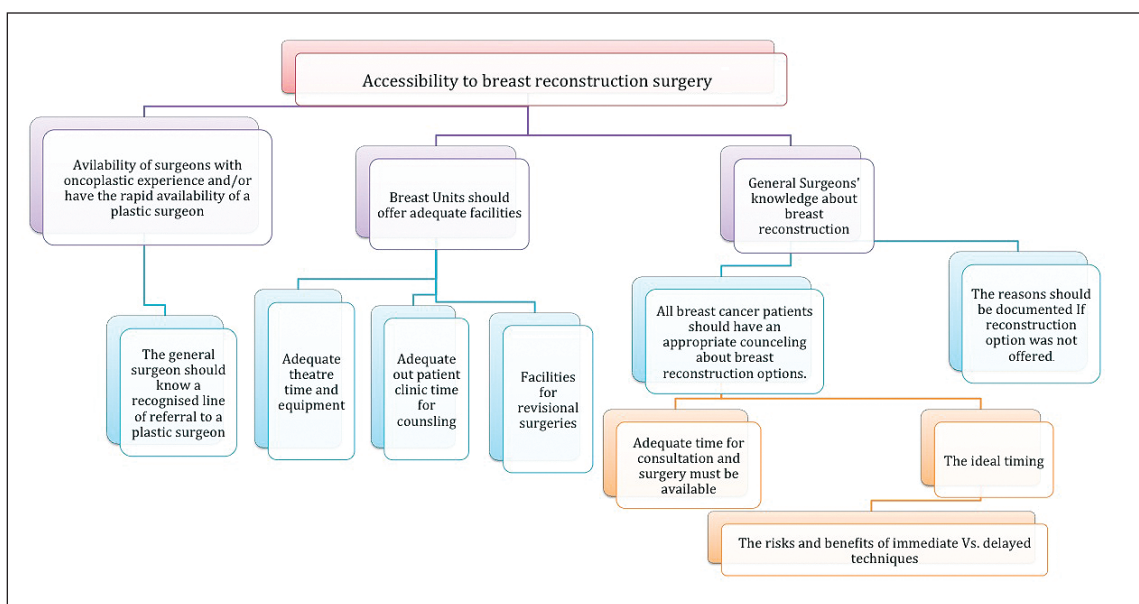


Figure 2. Measures to increase the accessibility to breast reconstruction surgery. Adopted from "Association of Breast Surgery at BASO, the British Association of Plastic, Reconstructive and Aesthetic Surgeons and the Training Interface Group in Breast Surgery. Oncoplastic Breast Surgery—A guide to good practice."<sup>34</sup>

construction options and benefits.

Moreover, about 70% of locations where mastectomies are performed have no surgeons trained for breast oncoplastic repair, raising further the significance of the low number (11.8%) of surgeons performing reconstruction themselves.

The authors of this study agree with Spyrou et al,<sup>10</sup> that the 2-team approach (plastic and general surgeons) facilitates the opportunity for simultaneous mastectomy and breast reconstruction. This approach provides better results in terms of oncological treatment, flap design, cosmetic appearance, and in lowering complication rates. In our study, 70.6% of the surgeons stated that they had a plastic surgeon that was trained for breast reconstruction at their institute. Because of the already available surgeon for reconstruction, this approach hailed by Spyrou et al was highly recommended for breast cancer treatment.

Stacey et al reported that only 17% of surgeons refer patients after mastectomy despite the approved safety of the immediate breast reconstruction. The possible reasons for delaying breast reconstruction surgery include difficulty coordinating a 2-team approach (18%) and having no plastic surgeon available for referral (11%).<sup>13</sup> When compared with our survey results, it was found that we have a higher number of post-mastectomy referrals. This could be explained by the availability of plastic surgeons in the tertiary hospitals surveyed in our sample.

It is worth mentioning that 11.8% of surgeons in our sample cited the procedure to be in conflict with religious values, deeming it cosmetic. This happens although prominent religious scholars have vindicated breast reconstruction even if it necessitates using an implant for reconstruction.

We strongly recommend that all general surgeons should be the first to counsel their patients on breast reconstruction; preferably the discussion can begin even before mastectomy. However, in this survey 76.5% counseled their patients while a surprising 35.3% thought that the general surgeon should not counsel the patient on reconstructive surgery. The earlier number is higher than 2 studies performed in the United States and Japan in which only 74% and 23%, respectively, usually discuss breast reconstruction with all of their patients. However, the discussion is variable with each patient depending on the indication and eligibility to undergo breast reconstruction. These geographical variations should be more investigated in terms of patient factors rather than surgeon decisions.<sup>13,15</sup>

A big concern shared by 76% of surgeons in our sample is that post-mastectomy breast reconstruction

might delay the detection of local recurrence. Noone et al in a review of 306 patients undergoing immediate breast reconstruction including submuscular implants, tissue expanders, and musculocutaneous flaps showed that the diagnosed local or regional recurrence rates are similar to those in published reports of un-reconstructed patients. Therefore, reconstructions did not affect the detection and treatment of recurrences in breast cancer.<sup>5</sup>

In our survey, a little concern was found regarding morbidity after breast reconstruction. Moreover, about 30% of surgeons in the study had no opinion regarding high morbidity. However, the reported complications of breast reconstruction include infection, total flap loss, partial flap loss (fat necrosis), implant failure, capsular contracture, anastomotic thrombosis, lymphedema, and seroma/hematoma formation. They usually vary according to the type of breast reconstruction and the overall patient status.<sup>16</sup> Surgeons should be informed about the complications and disadvantages of the most common types of breast reconstructions so they can counsel their patients properly.

Transverse rectus abdominis myocutaneous (TRAM) flap reconstruction has been the autogenous tissue of choice for breast reconstruction.<sup>17</sup> Different methods and techniques have been developed to improve blood supply to the transferred abdominal tissues. With more access to microsurgical expertise and the abdominal morbidity of TRAM flaps has led the move toward free abdominal flaps.<sup>17,18</sup> Grotting et al<sup>19</sup> compared pedicled immediate TRAM flap with immediate free TRAM flap and found that free tissue transfer was safer, with less donor site morbidity and improved aesthetic result.

The free deep inferior epigastric perforators (DIEP) flap is a reliable and safe technique for autogenous breast reconstruction. DIEP flap gives the patient the same advantages as the TRAM flap without the most important disadvantages of the myocutaneous flap.<sup>17,18</sup>

Pedicled latissimus dorsi muscle breast reconstruction is still a reliable procedure with minimal long-term donor site morbidity and has the potential of reconstructing small or medium-sized breast.<sup>20</sup> A disadvantage of the technique is that an implant is frequently required for increased breast volume.<sup>21</sup>

In 1978, Radovan introduced the temporary tissue expander that is now replaced by permanent implants.<sup>22</sup> Implant reconstructions are believably deemed less complex procedures than flap reconstructions with or without implant. While the demand for the operation remains variable, the reported rates of complication may exceed those seen for flap reconstructions.<sup>23,24</sup>



Roostaiean et al stated that immediate breast reconstruction with implant techniques is a safe and reliable choice that can offer a very good aesthetic outcome in appropriately selected patients. However, further caution and counseling is to be considered in patients with a history of radiotherapy, larger breasts, and/or ptotic breasts.<sup>25</sup>

Breast lipografting is a safe procedure that is performed over multiple sessions and can be offered to patients for breast reconstruction, although it should be done by experienced surgeons with a careful oncological follow-up.<sup>26</sup> Currently the autologous lipografting procedures are a safe technique that can improve major contour deformities after breast reconstruction;<sup>27</sup> it is becoming a routine procedure in many centers due to easiness, safety, and reliable reproducibility.<sup>28,29</sup>

Generally, post-reconstruction morbidity and complications can be reduced by the careful choice of the reconstruction technique according to the patients' condition. Also proper reconstruction timing, suitable implant material and technique, appropriate flap design, and overall good surgical technique should all minimize the complication rate after the reconstruction.<sup>30</sup>

In this survey, 41.2% of the surgeons reported that patients refused reconstruction, despite the advice for breast reconstruction. Here, the authors agree with these 41% of surgeons that there are reported barriers for breast reconstruction among women and most commonly due to fear of complication, belief they are too old, and fear it will interfere with cancer treatment.<sup>12,31</sup>

Many studies were carried out to report psychological reactions post-mastectomy, which include low self-esteem, anxiety, and depression after breast removal.<sup>32</sup> The majority of the surgeons (94.1%) believed that breast reconstruction has a beneficial psychological outcome.

We argue that it provides a first glimpse into the perceptions and attitudes of general surgeons on breast re-

construction after mastectomy. We also admit to some limitations in reaching surgeons for breast reconstruction, which may account to the small sample size. Better sample randomization may further eliminate biases. More studies are recommended to address the causes of low prevalence of breast reconstruction after mastectomy.

In conclusion, our data showed that our general surgeons have a high concern over masking local recurrence despite the lack of evidence in the published reports and that such concern is factored in counseling and referral for reconstruction. Less than half of the surgeons referred their cases for breast reconstruction. However, they agreed that breast reconstruction has a considerably positive outcome on the psychosocial well-being of patients. Educating general surgeons about the benefits of breast reconstruction and establishing a tumor conference protocol on breast reconstruction that involves all specialties concerned (oncologists and general and plastic surgeons in Saudi Arabia) are 2 points that are highly recommended by the authors. General Surgeons' knowledge of breast reconstruction, fostering a good relationship between the general surgeon and the reconstructive surgeon, and having adequate facilities in the breast unit are all crucial to increasing the accessibility to breast reconstruction surgery<sup>33</sup> (**Figure 2**). For further guidance, the Association of Breast Surgery, the British Association of Plastic, Reconstructive and Aesthetic Surgeons, and the Training Interface Group in Breast Surgery have published a guideline for best practice of oncoplastic breast reconstruction.<sup>34</sup>

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