**A comparison of patient satisfaction (using the Breast-Q questionnaire) with bilateral breast reconstruction following risk-reducing or therapeutic mastectomy**

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**Abstract**

**Introduction**: Patients undergoing mastectomy and immediate breast reconstruction for cancer may be expected to have different perceptions of long term outcomes compared with those who have this operation prophylactically.

**Methods**: Patients who underwent bilateral mastectomy and breast reconstruction from 2008-2014 at the Cambridge Breast Unit were identified from a prospective register and their notes audited. They were classified according to their indication for surgery: bilaterally therapeutic, bilaterally risk-reducing or combination. The Breast-Q™ questionnaire was posted to participants using the “total Dillman method”. Q-SCORE software was utilized to analyze patient satisfaction scores.

**Results**: 65 responses were received (58%) of which 8 were excluded leaving 57 usable for the study. The therapeutic group had higher patient satisfaction than the risk-reducing group across most domains; breast, outcome, psychosocial, sexual, physical, information. The combination group scored lower and BRCA gene mutation positive patients the lowest. Physical wellbeing was maintained across all groups but psychosocial/sexual wellbeing varied. Good psychosocial wellbeing was linked to a higher satisfaction with the outcome in the combination and risk-reducing groups.

**Conclusion**: This study highlights the need for clinicians to take into account the indication for surgery as a major psychological factor in patient perception of self and experience of surgery. It demonstrates that bilateral immediate reconstruction patients report similar physical symptoms irrespective of indication for mastectomy, but the decision-making process in terms of risk-balancing and diagnosis influences satisfaction with self and surgery. It underlines the importance of preoperative management of expectations for patients undergoing risk-reducing procedures.

**Introduction**

Breast cancer is the most common cancer to affect women1. Some women are at a higher risk of cancer than the general population and can undergo chemoprevention, screening or bilateral risk-reducing mastectomy to manage the increased risk2. Bilateral mastectomy and reconstruction is currently a standard option for patients with bilateral cancer BRCA1/2 mutations, and those with unilateral cancer who wish to reduce their overall lifetime risk3. Treatment by bilateral mastectomy nearly doubled in cancer patients and tripled in non-cancer patients between 2002 and 20114. Studies have shown that patient expectations play a critical role in determining patient satisfaction with the results of breast reconstruction surgery5.

We identified that the care pathway for bilateral mastectomy is not altered for the surgery indication, despite the different risk profiles of risk-reducing and therapeutic patients. While the effect of the type of surgery on satisfaction has been reported on6,7, the reason for surgery has not been studied independently as a contributor to patient satisfaction following bilateral mastectomy and reconstruction. The BREAST-Q is an internationally accepted and validated patient-reported-outcomes-measuring tool that is widely used in assessing the outcomes of breast reconstruction8–11. Information on the satisfaction rates of different patient groups based on the indication for surgery might prove useful in counseling patients [about the psychological impact of their diagnosis]. This study explores the impact of the reason for surgery on satisfaction among patients who have undergone bilateral mastectomy and immediate reconstruction. The null hypothesis was that there would be no difference between the risk-reducing and therapeutic groups.

**Patients and Methods**

The University of Cambridge and Addenbrooke’s Hospital Patient Safety and Audit Department approved this project as a ‘Clinical Evaluation Study’.

***Study design***

The participants were women who underwent immediate bilateral breast reconstruction following mastectomy between January 2008 and December 2014 at Addenbrooke’s Hospital (Cambridge University Hospitals NHS Foundation Trust) in the UK. Patient data were collected and audited from November 2015 to May 2016 using operating lists and diary information. The patient lists were then verified with the hospital information departments using UK national databases for living status, eligibility, and contact details.

113 patients were sent an initial “study pack” by post. The Total Dillman Method was adapted to send the surveys12,13. This requires that: the complete questionnaire “study pack” be sent on week 0, a reminder sent a week later (week 1), the whole pack again in week 3, and again in week 7. Their pack contained: a covering letter, printed BREAST-Q questionnaire (post-operation reconstruction module in English), details for contacting the research team, patient liaison service details (a third party to authors), and a stamped addressed return envelope (marked with their unique ID). The letter had been assessed and approved on the basis that it: explained that the study was voluntary, there was a contact point for any issues, and that participants had an anonymous complaint channel. It was estimated that the BREAST-Q questionnaire would take between 5 and 15 minutes to complete.

The patients were split into three groups based on the indication for the mastectomy operations: bilateral risk-reducing (RR), bilateral therapeutic (TT), and combined therapeutic + risk-reducing (TR) (***Table 1***). Patients were deemed therapeutic (TT) if cancerous tissue was removed from both breasts. Those marked as risk-reducing (RR) had non-cancerous tissue removed from both breasts in elective bilateral mastectomy for positive BRCA1/2 gene mutation, or substantial family history of breast cancer with no defined genetic cause. Patients who were labelled as therapeutic + risk-reducing (TR) were those who had undergone a therapeutic mastectomy in one breast and simultaneous contralateral risk-reducing mastectomy. The results of the survey were compared to that of a national study to ensure our population of patients’ scores did not deviate significantly from those of the wider UK population.

***Cohort Measures***

The hospital charts of the respondents were audited. Binary measures included: nipple reconstruction, axillary node clearance, and genetic diagnosis. Descriptive measures were: diagnosis, type of reconstruction, adjuvant therapy, and complications. The type of reconstruction was recorded to reflect the materials used: autologous tissue (such as DIEP or TRAM flaps), implant-based or both. ***Table 2*** demonstrates specifically the type of reconstructions used. Complications were grouped by the location of their management – conservative in an outpatient’s clinic or non-conservative if they needed re-admission or surgical intervention14. Diagnosis was distinguished in the TT and TR groups as: ductal carcinoma in situ (DCIS) or invasive carcinoma (+/- DCIS), demonstrating the level of malignancy.

***Outcome Variables***

The BREAST-Q requests that patients quantitatively score their satisfaction with 14 components of their operation and care. These include satisfaction parameters for: breast overall, outcome, nipples, abdomen, staff and information; as well as scores for sexual, physical and psychosocial wellbeing. The postal version was selected over the computerized version to simplify form completion for our demographic of patients.

For the purpose of analysis, and as per BREAST-Q recommendations, the survey results were grouped and analyzed to produce the following satisfaction scores (***Figure 1; Table 3***):

* Satisfaction with Breast
* Satisfaction with Outcomes
* Psychosocial Well-Being
* Physical Well-Being
* Sexual Well-Being
* Satisfaction with Information/Staff

***Statistical analysis***

The survey contains 116 numerically answered questions. The paper responses were recorded in our database and then evaluated by the recommended Q-SCORE tool to construct a series of “Satisfaction Scores” (max. 100, min. 0)15.

Initially, column statistics and normal distribution tests (D’Agostino and Pearson) were run on each group’s satisfaction scores. Then interquartile range (IQR) and outlier tests (Q=1%) were also applied to show the spread and consistency within each group. ANOVA tests were used to compare satisfaction scores across the groups (e.g. comparing “satisfaction with breast” scores across the TR, RR and TT groups); scores were deemed significant is p was below 0.05. Regression analyses were performed to identify if age, time since procedure, body mass index (BMI) and mastectomy weight were bivariate predictors of the satisfaction scores. Next, multiple comparison tests (Kruskal-Wallis) were run in each surgery group to determine if axillary node clearance, nipple reconstruction, complications, therapy, diagnosis and BRCA status (where relevant).

Analyses of the “satisfaction with information” were omitted because the variability in scores was minimal (P>0.99) – with all patients, except three, agreeing/strongly agreeing with the competency of the staff.

**Results**

***Overall cohort***

Of the total 113 bilateral patients sent the pack, 65 responded (*response rate 58.0%;* **(*Table 4*)**, and 57 of these responses were usable. Eight responses were not used because: patients had delayed reconstructions (n=3), forms had been incorrectly filled (n=3), or returned blank (n = 2). The overall median age was 45 with a range of 24 to 72. ***Table 1*** demonstrates the characteristics of the patients. Despite collection from a single tertiary centre, the data were comparable with a UK National Survey16(***Table 5***).

The score for each groups’ physical symptoms were very similar (***Table 6***) and the spread of results (***Table 7***) was smallest (IQR = 16.5) in this parameter, reflecting that patients had very similar post-operative symptoms. Therefore, differences in other satisfaction parameters were not due to differences in physical symptoms or pain.

The satisfaction scores for “outcome” and “psychosocial wellbeing” were also very similar (***Table 6)***. A paired t-test of results showed that these two scores increased together significantly (R = 0.49; P<0.0001).

The scores for sexual wellbeing were lower than the other parameters, and the only ones with a median below 65 (median = 54; ***Graph 1***). Ordinary one-way ANOVAs comparing all of the satisfaction score components found this score to be significantly lower (P<0.0001 vs. physical, psychosocial, outcome; P=0.01 vs. breast).

***Satisfaction scores by indication for surgery***

With exception of physical symptoms, the risk-reducing (RR) group scored lower (P=0.09) than the therapeutic (TT) group (***Table 6***). While RR scores demonstrated greater heterogeneity in results (***Table 7***), individual scores were not significantly different from the TT group. When comparing the TR and TT groups, the TR patients scored lower satisfaction across all groups (P=0.04) but there was no significant difference between individual scores (P<0.15). In all groups, sexual wellbeing scored the lowest.

In the RR and TR groups, the significant correlation between the scores for psychosocial wellbeing and satisfaction with outcome was maintained (R=0.55, P=0.001; R=0.43, P=0.03; respectively). This was not seen in the TT group (R=0.24, P=0.26).

Patients in the TR group were subdivided by BRCA diagnosis. This showed that BRCA gene mutation-positive patients had even lower satisfaction scores (***Table 8***) compared to other patient groups. Welch’s t-tests showed that the results in this group were significantly lower for satisfaction with outcome compared to the TT group (P<0.03) (***Graph 2***).

***Multivariate Analysis of Patient Variables***

The multivariate analyses showed that the satisfaction scores are influenced by patient characteristics, namely: age, BMI and mastectomy weight (***Table 9***). It appears that the therapeutic (TT) group is least affected by these continuous variables.

***Age and time since procedure***

The higher age of patients was linked to: greater psychosocial wellbeing in the RR and TR groups; greater sexual wellbeing (P<0.01) in the TR group; and greater satisfaction with breasts in the TT group (P<0.05).

Time since procedure (1 year to 8 years) did not lead to any significant differences in satisfaction.

***BMI and mastectomy weight***

Higher BMI led to higher breast satisfaction in the TR group (P<0.05). Mastectomy weights only influenced the RR group, with greater breast tissue removed leading to higher satisfaction scores for breast (P<0.05), sexual wellbeing (P<0.05) and psychosocial (P<0.01). Satisfaction with physical symptoms was unaffected.

***Other factors***

The effect of other procedures on satisfaction was also assessed. Axillary node clearances and nipple reconstructions were not found to influence the satisfaction scores of the whole cohort, or each individual indication group. Post-operative therapy was divided into: none, biologics, chemotherapy +/- biologics, radiotherapy, and radiotherapy + one other. Kruskal-Wallis tests comparing each method of adjuvant therapy and also [any] therapy vs. no therapy found no influence on satisfaction scores. Additionally, the severity of the diagnosis did not alter the satisfaction scores in the TR and TT patients.

Similar tests were run to study the effect of post-operative complications on satisfaction. In the whole cohort, complications had no effect on satisfaction, although the presence of complications could have affected the sexual wellbeing scores (P=0.057). The presence of any complications led to lower satisfaction scores for physical symptoms in the TR group (P=0.04). In the TT group, the occurrence of complications may have contributed to lower scores for outcome (P=0.051) and sexual wellbeing (P=0.08).

***Type of reconstruction***

Participant responses were also divided according to the type of breast reconstruction: autologous tissue only or implant-based. A significantly lower satisfaction with breasts was seen in the implant group (P=0.03; ***Graph 3***).

In the TR group, there was no significant difference in the satisfaction scores. With TT patients, satisfaction with breasts was significantly higher in the presence of autologous reconstruction (p<0.035); this was profound in the RR group (p<0.0005). RR patients also showed higher satisfaction with the outcome (p<0.03). There was no significant difference in the physical symptoms post-operatively between autologous and implant reconstruction.

**Discussion**

This study provides insight into the comparative satisfaction of patients who underwent bilateral mastectomy and reconstruction for therapeutic and risk-reducing reasons at a major UK teaching hospital. It focused on the pre-surgery cancer-risk status of the patient as a measure of potential difference in patient expectations and subsequent satisfaction. The results build on previous work which suggests that patient expectations and the decision-making process play a key role in determining satisfaction with breast reconstruction following mastectomy 5,17,18. There is as yet no literature assessing the reason for the ablative surgery as an independent determinant of satisfaction. This is also (to the authors’ knowledge) the first study to use solely primary data to compare these groups.

The three groups analysed; risk-reducing (RR), therapeutic/risk-reducing (TR) and therapeutic (TT); had different satisfaction scores across most domains. RR scores were lower than TT which we had anticipated. It had been expected that the results for the TR group would fall somewhere between RR and TT. Surprisingly, TR scored the lowest particularly in psychosocial and outcome measures compared to the other two groups. In the TR group, patients have chosen bilateral surgery for unilateral cancer, an option that is becoming increasingly common and our findings caution against this unless the indications are solid or the patients are well counselled.

In contrast, the TT group did not have to make a decision to remove any of their breasts based on future cancer risk; they had bilateral cancer which meant that surgery was almost certainly the best option. The outcome (cancer-free) was therefore a stark contrast to the pre-surgical state of being with cancer.

For the TR group, feelings of regret about losing non-diseased breast tissue, the inevitable asymmetry that results from pre- and/ or post-operative radiotherapy or wide local excision pre-mastectomy could contribute to the lower scores. These patients made the decision to have risk-reducing surgery in addition to therapeutic mastectomy in a shorter and more pressurised time frame with the additional stress of having cancer. Their satisfaction with the outcome may also been affected by an increase in complications (p=0.051).

Furthermore, there is an association between patient scores psychosocial wellbeing and satisfaction with outcome in TR and RR groups, and not in the TT group. This could indicate that the psychological impact of losing healthy breasts experienced by patients in RR and TR groups significantly influenced the satisfaction with outcome.

On further subdivision of the TR group it was found that those who were BRCA mutation carriers had even lower scores in most domains. They were significantly lower than TT for satisfaction with outcome (p<0.026). This further supports the hypothesis that the combination of risk perception and cancer could impact significantly on satisfaction scores. These findings build on research which concluded that overestimation of breast cancer risk can worsen satisfaction following prophylactic mastectomy17, and the management of this perception of risk is an important consideration in counselling high risk patients.

The TT group was least affected by continuous variables and we speculate that the curative requirement of the procedure transcends any influence that age, mastectomy weight and BMI have on satisfaction. We were interested to find that there appeared to be no difference between the three groups for satisfaction with physical symptoms.

We also found no correlation between ANC, nipple reconstruction, adjuvant therapy and diagnosis and satisfaction scores in any domain. Sharing the same physical treatment pathway means that symptoms post-operatively are likely to be similar. These results suggest that what differed between groups in this study were predominately non-physical factors.

The results discussed above must be interpreted in the context of the limitations of the study. The study comprises patients from a single tertiary referral centre in the South-East of England. These results need to be further explored by expanding the analysis to multiple centres to allow generalizable conclusions to be made. The postal nature of our questionnaire could be self-selecting to have higher response rates from a certain sort of patient, which cannot be controlled for. It demands a certain level of mobility, wellness and motivation for the practicalities of response. An important limitation is the useable response rate of 50%, which could impair accurate representation of the subject population. There is also a possibility of non-responder bias. Finally, while this study is focused on the risk management associated with cancer diagnosis vs risk-reducing, it was not possible to quantify the exact risk level of those patients who had ‘strong family history’ as an indication for risk-reducing mastectomy. An assumption was made of a similar risk profile for these patients compared to BRCA mutation carriers.

Our results suggest that careful counselling of the individual patient and support with the decision-making process for bilateral mastectomy and reconstruction needs to be tailored to the individual’s risk profile rather than to the surgical procedure.

Summary: This study is the first to directly compare the reason for mastectomy (risk-reducing, therapeutic or both) as the determinant for different domains of satisfaction with the outcome of reconstruction. The risk-reducing, therapeutic and combination groups behaved differently in the different domains. It was found in bilateral breast reconstruction patients undergoing risk-reducing mastectomy have a lower median satisfaction than the therapeutic patients across most domains. The therapeutic & risk-reducing combination group had the lowest satisfaction scores, particularly if they were BRCA gene mutation positive. Good psychosocial wellbeing was linked to a higher satisfaction with the outcome in the combination and risk-reducing groups.

**Conclusion**

This study demonstrates that the decision-making process in terms of risk-balancing, diagnosis and decisions about surgery influence patient satisfaction. Satisfaction varied the least between groups when comparing the physical wellbeing scores suggesting the difference between groups was more dependent on the difference between the patient’s expectations of surgery compared to outcome and less dependent on the physical symptomatic experience of post-operative recovery. It also highlights the need for clinicians to take into account the reason for surgery as a major influence on patient satisfaction, and can help to guide clinicians in supporting patients with making difficult decisions; particularly if considering a therapeutic mastectomy with a contralateral risk-reducing mastectomy. These data can also improve the information available to patients and can provide a step towards narrowing the gap between the expectations and experience of patients in different groups.

**FIGURE LEGENDS**

Figure 1: Patient results split into six domains that reflect “quality of life” and “satisfaction” parameters

Graph 1: Satisfaction scores in bilateral patients across the domains

Graph 2: Satisfaction with outcome in patient groups including risk-reducing/therapeutic (TR) BRCA-positive patients

Graph 3: Comparison of scores for satisfaction with breast in autologous and implant patients

**Conflicts of interest**

None.

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**Tables**

Table 1: Patient characteristics

|  |  |  |
| --- | --- | --- |
| **Feature** | **n** | **%** |
| Bilateral | 57 | 100 |
| Bilateral Risk-Reducing (RR) | 29 | 50.9 |
| Therapeutic + Contralateral  Risk-Reducing (TR) | 19 | 33.3 |
| Bilateral Therapeutic (TT) | 9 | 15.8 |
| Active Smoker | 4 | 7.0 |
| Autologous Reconstruction | 25 | 43.9 |
| Implant-based Reconstruction | 32 | 56.1 |
| Axillary Node Clearance | 17 | 29.8 |
| Outpatient-Managed Complications | 11 | 19.3 |
| Inpatient-Managed Complications | 24 | 42.1 |
| Adjuvant Therapy (Biologic +  Chemotherapy excluding Radiotherapy) | 9 | 15.8 |
| Radiotherapy | 21 | 36.8 |
| Nipple Reconstruction | 28 | 49.1 |
| BRCA-positive | 35 | 61.4 |

Table 2: Reconstruction Procedures. ADM = acellular dermal matrix. LD = latissimus dorsi. SGAP = superior gluteal artery perforator.

|  |  |  |
| --- | --- | --- |
| **Reconstruction Type** | **n** | **%** |
| Patients | 57 | 100 |
| **Implant-based** | **32** | **56.1** |
| - Implant (sub-pectoral ± ADM) | 24 | 42.1 |
| - LD with implants | 8 | 14.0 |
| **Autologous** | **25** | **43.9** |
| - Free abdominal transfer\* | 21 | 36.9 |
| - Totally autologous LD | 3 | 5.3 |
| - SGAP | 1 | 1.7 |

\* Free abdominal transfer includes: DIEP (deep inferior epigastric artery), TRAM (transverse rectus abdominis myocutaneous), and SIEA (superficial inferior epigastric artery).

Table 3: Definitions of each domain for BREAST-Q analysis

|  |  |
| --- | --- |
| **Domain** | **Content** |
| Breast | Shape & symmetry, confidence in clothes, body shape |
| Outcome | Managing expectations and experience |
| Psychosocial | Emotions and confidence (feeling “normal and attractive”) |
| Sexual | Attractiveness and confidence in sex life |
| Physical | Symptoms associated with surgery (pain & mobility) |
| Care | Satisfaction with information, staff and surgeon |

Table 4: Response Rates. \*Only 57 of these were correctly completed and useable for the purposes of this study.

|  |  |  |  |
| --- | --- | --- | --- |
| **Patients** | **Total Sent** | **Responses** | **Response Rate** |
| Bilateral | 112 | 65\* | 58.0% |
| Risk-Reducing | 53 | 29 | 54.7% |
| Risk-Reducing/Therapeutic | 43 | 23 | 53.5% |
| Therapeutic | 16 | 13 | 81.3% |

\* Of the initial 65, 57 responses were useable.

Table 5: National survey results compared to bilateral patients in Cambridge

|  |  |  |  |
| --- | --- | --- | --- |
| **Satisfaction** | **National**  **n > 18,000** | **Bilateral**  **n = 57** | **Significant difference? (p<0.05)** |
| Breast Area | 69 | 69 | No |
| Sexual | 45 | 53 | No |
| Emotional | 66 | 72 | No |
| Physical | 75 | 73 | No |
| Information | 72 | 73 | No |
| Consultant | 89 | 92 | No |
| Clinical Team | 92 | 88 | No |

Table 6: Comparison of median satisfaction score in bilateral patients.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Patients** | **RR** | **TR** | **TT** | **All** |
| Breast | 68.3 ±3.7 | 62.0 ±5.1 | 68.8 ±6.0 | 66.3 ±2.7 |
| Outcome | 75.6 ±4.1 | 66.6 ±5.5 | 81.3 ±7.5 | 73.5 ±3.1 |
| Psychosocial | 75.7 ±4.1 | 66.0 ±5.6 | 77.9 ±5.1 | 72.8 ±2.9 |
| Sexual | 53.8 ± 4.2 | 49.6 ±4.6 | 62.1 ±6.3 | 53.7 ±2.9 |
| Physical | 74.0 ±2.4 | 72.4 ±3.0 | 72.6 ±2.4 | 73.3 ±1.7 |

Table 7: Comparison of IQR of satisfaction scores in bilateral patients.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Patients** | **RR** | **TR** | **TT** | **All** |
| Breast | 30.5 | 30 | 29 | 28 |
| Outcome | 39 | 31 | 32 | 43.5 |
| Psychosocial | 42 | 51 | 25.5 | 38 |
| Sexual | 26 | 31 | 20 | 28 |
| Physical | 18.5 | 18 | 28 | 16.5 |

Table 8: Comparison of median satisfaction score in bilateral patients with the inclusion of TR patients who were BRCA-positive.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Patients** | **RR** | **TR** | **TT** | **TR BRCA+** |
| Breast | 68.3 ±3.7 | 62.0 ±5.1 | 68.8 ±6.0 | 57.5 ±7.4 |
| Outcome | 75.6 ±4.1 | 66.6 ±5.5 | 81.3 ±7.5 | 59.3 ±4.3 |
| Psychosocial | 75.7 ±4.1 | 66.0 ±5.6 | 77.9 ±5.1 | 62.0 ±13.1 |
| Sexual | 53.8 ± 4.2 | 49.6 ±4.6 | 62.1 ±6.3 | 48.5 ±6.2 |
| Physical | 74.0 ±2.4 | 72.4 ±3.0 | 72.6 ±2.4 | 72.0 ±1.7 |

Table 9: The influence of the variables on satisfaction in each group. Arrows represent if satisfaction increased or decreased.

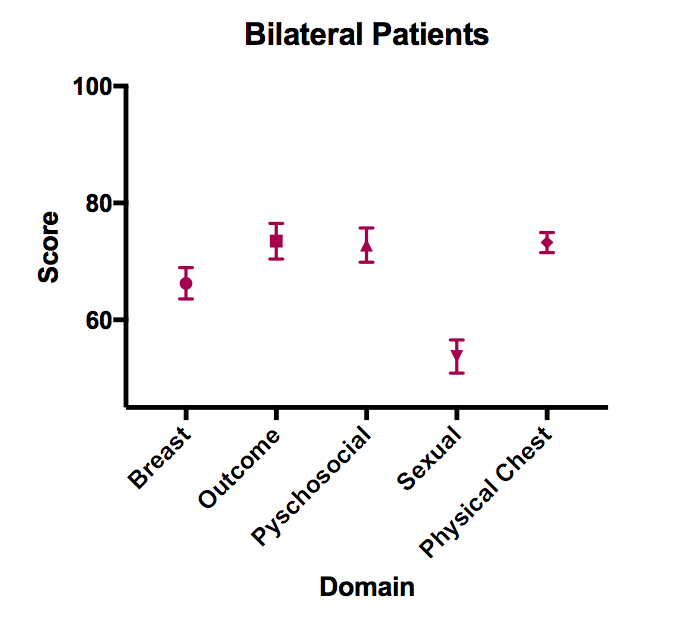
|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **All** | | **RR** | **TR** | **TT** |
| **Age** | | Breast (↑)\*\*  Psychosocial (↑)\*\*\*  Sexual (↑)\*\*\* | Psychosocial (↑)\* | Psychosocial (↑)\*  Sexual (↑)\*\*  Info/Staff (↑)\* | Breast (↑)\* |
| **BMI** | | Breast (↑)\* | No Significance | Breast (↑)\*  Info/Staff (↑)\* | No Significance |
| **Mastectomy Weight (g)** | | Outcome (↑)\*  Sexual (↑)\* | Breast (↑)\*  Outcome (↑)\*\*  Sexual (↑)\* | No Significance | No Significance |
| **Complications Present** | | No Significance | No Significance | Physical ()\* | No Significance |
| **Autologous Reconstruction Both Breasts** | | Breast (↑)\* | Breast (↑)\*\*\*  Outcome (↑)\* | No Significance | Breast (↑)\* |

\* p < 0.05; \*\* p <0.01; \*\*\* p <0.001

**Figures & Graphs**

Figure 1: Patient results split into six domains that reflect “quality of life” and “satisfaction” parameters.

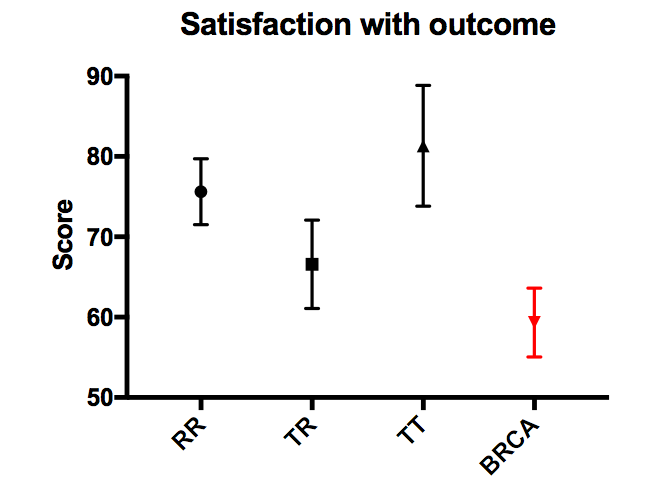
Graph 1: Satisfaction scores in bilateral patients across the domains



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\*\* p<0.001

Graph 2: Satisfaction with outcome in patient groups including risk-reducing/therapeutic (TR) BRCA-positive patients.



p<0.05

\*

Graph 3: Comparison of scores for satisfaction with breast in autologous and implant patients.



\*

p<0.05