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The Nature and Importance of Women's Goals for Immediate and Delayed Breast Reconstruction.

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Abstract

Objectives: Increasingly, women undergo breast reconstruction surgery (BR) to restore health-related and psychosocial quality of life after mastectomy. Most research focusses on BR outcomes rather than women's pre-surgical expectations of, and goals for, immediate (IBR) or delayed (DBR) procedures, yet such information could support women's decision-making. This study aimed to investigate women's BR goals, whether they differed according surgery timing (IBR or DBR), and the importance women placed on them.

Methods: 76 women considering DBR (n=50) or IBR (n=26) at a UK hospital were encouraged to clarify their BR goals and rate the importance of achieving each one. Content analysis categorised and counted the frequency of the goals they reported.

Results: Fifteen goal categories (7 surgical, e.g. scarring; 8 psychosocial/lifestyle, e.g. feeling feminine) were identified. Many (e.g. scarring, intimacy) were reported by a similar percentage of women in each surgical group, however differences were identified (e.g. breast sensation was not mentioned by women considering IBR). Women reported more psychosocial (n=206) than surgical goals (n=160). Further, an independent t-tests revealed that women in both groups placed significantly more importance on the psychosocial (M = 9.4) than surgical goals (M = 8.5).

Conclusions: This study highlights the variety of goals women have for BR, the importance they attach to them, and differences and similarities between those seeking IBR and DBR. Future research should consider whether BR goals are met, how goal achievement influences satisfaction with outcome over time and how best to incorporate goals into pre-surgical treatment decision-making.

Key Words: breast cancer, breast reconstruction, surgical decision-making, expectations, goals.

Introduction

In England, over 5000 women elect to undergo breast reconstruction (BR) following mastectomy each year[1]. Given the potential for negative physical (e.g., pain) and psychosocial (e.g., poor body image) consequences of losing one or both breasts[2], guidelines in the United Kingdom[1,3,4] recommend all mastectomy patients should be offered BR with the aim of restoring physical and psychosocial quality of life.

However, decision making about BR is complex[5]. Potential choices regarding the type and timing of surgery are considerable, and the best option for each woman will depend on her personal situation and individual needs. She may have a choice between an immediate procedure (IBR) alongside mastectomy, or delayed reconstruction (DBR). Factors including medical history, cancer treatment, and physique will influence suitability for different procedures, including implant-based or autologous reconstruction. Typically, choices are presented soon after diagnosis, when decisions are made in a time-pressured context[6] amid considerable procedural-related anxiety[3,6,7].

Although BR offers numerous psychosocial and aesthetic benefits, many report dissatisfaction with surgical outcomes alongside body image issues, psychosexual difficulties, and, procedural complications[8], despite their surgeon perceiving the aesthetic outcome to be good[9,10]. In such circumstances, regret can occur in around half of cases[8,11]. Decisional regret is associated with factors including depression, anxiety, socioeconomic status, cultural background, self-efficacy, perceived lack of involvement in surgical decision-making, and pre-surgical expectations and goals not having been met[5,12]. Therefore, understanding women's goals and expectations, and ensuring these are realistic, is important within BR decision-making to improve satisfaction with the outcome.

A systematic review[13] examined women's reasons for having, or not having BR and outlined eight domains relating to reasons for BR, including feeling and looking normal, feeling and looking good, being practical, the influence of others, relationship expectations, fear, timing, and BR being deemed unnecessary. However, most (67%) of the studies were retrospective, and there may be some bias associated with recalling motivations post-reconstruction. Additionally, in 30% of the studies IBR was not an option. Furthermore, while this review examined reasons for having BR, it is also important to consider women's specific reconstruction *goals* (i.e. what they aim to achieve through BR), whether goals differ depending on timing of surgery, and how frequently goals are expressed by women having IBR or DBR. Whilst reasons for BR influence a woman's decision, goals are specific, measurable statements about what she aims to achieve through BR. Patients' goals need to be examined in order to understand the most salient issues influencing their decisions[14] and so that unrealistic expectations can be address pre-operatively. This could increase the potential for surgery to improve quality of life and satisfaction with outcome.

The aims of this study were to conduct a prospective study investigating a) the goals of women contemplating BR, b) the importance they placed on them, and c) whether the nature of women's goals and the importance placed on them differs according to the timing of surgery (IBR or DBR).

Materials/ Patients and Methods

Participants

Data was collected from a consecutive sample of 76 women aged 31-62 years (Mean=48.93, SD=8.87), who were contemplating IBR (*n*=26; 34.2%) or DBR (*n*=50; 65.8%) at a hospital in the UK between February 2012 and August 2016. Most (72.4%; *n*=55) identified as White, six

(7.9%) Asian and 7 (9.2%) Black. Over half (55.3%, *n*= 42) were married or living with a partner, 22.4% (*n*=17) lived alone, and 22.4% (*n*=17) with friends or relatives.

Procedure

Data was collected during routine service evaluation of a BR service in an NHS hospital in the UK, therefore further ethical approval was not necessary. This service was previously involved in a feasibility study for an intervention to facilitate shared decision-making in BR[15] and incorporated the intervention into routine care. The intervention involved potential BR patients attending a pre-surgical consultation with a psychologist to discuss their expectations of reconstruction, set personal BR goals and rate how important achieving each goal was (from not at all (rated one) to very (rated 10)). During the subsequent surgical consultation, a surgeon reviewed the woman's goals, commented on how realistic each was given her specific medical and physical circumstances, and addressed any unrealistic expectations before a shared decision about surgery was made.

Data Analysis

Basic content analysis[16] was employed independently by two authors (EG and NP) to categorise and count the frequency of the surgical and psychosocial goals reported by the participants. Both authors were blind to whether women were in the IBR or DBR group. Content analysis is used to systematically code and categorise themes occurring within textual data and can be used to quantify qualitative data by identifying the frequency of categories within a dataset[17].

Given the small numbers of women citing goals in some of the categories, it was not appropriate to conduct statistical analyses to compare the frequency of individual goal categories reported by the two groups. Therefore, the goals revealed from the content analysis

are considered descriptively. Overall importance ratings were formulated by calculating means for the ratings of each goal category and independent samples t-tests were conducted to assess whether there were significant differences between mean importance ratings given to goals in the two surgical groups (IBR and DBR) and between the psychosocial and surgical goal categories.

Results

In total, 160 surgical goals (in 7 categories) and 206 psychosocial/lifestyle goals (in 8 categories) were reported (see Table 1).

Women's Goals: Surgical Categories

1. *Scarring*

Similar proportions of women in each group (IBR *n=4;* 15.4%, DBR *n=9,* 18%) cited a goal related to scarring. The DBR group, where women had already undergone mastectomy, wanted to reduce their current scarring, whereas the IBR group wanted to incur as little scarring as possible.

2. *Pain/discomfort*

Goals relating to pain and discomfort were mentioned by 15.4% (*n*=4) and 20% (*n*=10) of the IBR and DBR groups, respectively. Both focussed on comfort as a goal, with women undergoing DBR also looking to reduce levels of pain they were experiencing post-mastectomy.

3. *Risk of cancer*

In the IBR group, 30.8% (*n*=8) of women reported a goal of cancer risk reduction. This was also reported by 12% (*n*=6) of women in the DBR group.

4. *Natural look and feel*

Similar proportions of women in both groups (IBR 42.3%, *n*=11; DBR 38%, *n*=19) wanted their breasts to look and feel natural following surgery.

5. *Sensation*

Ten percent of the DBR group (*n*=5) cited a goal around regaining breast sensation. This was not mentioned by any women in the IBR group.

6. *Symmetry*

More than half of the women in each group (IBR 61.5%, *n*=16; DBR 68%, *n*=34) cited wanting symmetrical breasts as a result of BR. Those in the IBR group were more specific about the symmetry they were aiming for.

7. *Specific aesthetic goals*

Most women seeking IBR group (77%, *n*=20) and a quarter (28%, *n*=14) of those electing DBR stated specific aesthetic goals. Women in both groups had goals relating to the appearance of their nipples, cleavage and breast size following BR. However, the women in the IBR group were more specific about their aesthetic goals. For example, stating the cup size they hoped to achieve.

Women's Goals: Psychosocial/lifestyle Categories

1. Clothing

Not feeling restricted in their choice of clothing was an overarching goal amongst both groups (IBR *n*=20, 76.9%; DBR *n*=40, 80%). This included having an increased choice, feeling able to wear the clothes they used to, and more feminine clothes, and bras that would fit them properly.

2. Intimate relationships

Women in both groups (IBR *n=6,* 23.1%; DBR *n=12,* 24%) listed a goal related to intimacy. For those in the IBR group, this related to maintaining intimate relationships, whereas the DBR group reported wanting to restore intimacy.

3. *Feeling feminine*

Small numbers of women in both groups (IBR *n*=3, 11.5%; DBR *n*=4, 8%) reported goals relating to feeling more feminine, stipulating that breasts were an important part of being a woman.

4. *Living without breast(s)*

A few women undergoing DBR (*n*=3, 6%) wanted reconstruction so that they no longer had to experience living without a breast(s). Almost half of those in the IBR group (*n*=11, 42.3%) wanted an immediate procedure to avoid not having a breast(s).

5. Prosthesis

Women from both groups (IBR *n*=4, 15.4%, DBR *n*=8, 16%) wanted BR so that they did not have to rely on a prosthesis and saw BR as a more permanent solution.

6. Improved wellbeing

A quarter (*n*=7, 26.9%) of women in the IBR group, and around half (*n*=26, 52%) of the DBR group wanted BR to improve psychosocial and emotional wellbeing. In both groups, goals were around wanting to improve confidence and body image and reduce self-consciousness.

7. Moving on

Some of the DBR group (*n*=10, 20%) and over half of those electing IBR (*n*=16, 61.5%) wanted BR to help them put the experience of cancer behind them. The IBR group referred to moving on as quickly as possible and having all surgical procedures within one operation.

8. *Being active*

Around half of women in each group (IBR *n*=11, 42.3%; DBR *n*=25, 50%) had a goal that was included in this category. Women in both groups listed exercise (e.g. yoga, cycling, dancing) and activities including gardening, baking, holidays and returning to work.

The importance of each goal

Overall mean importance ratings for all goals (see Table 2) were above 6.4. An independent samples t-test revealed the overall mean rating for psychosocial goals (Mean=9.4; range 7.8-10) was significantly higher than for surgical goals (Mean=8.5; range 6.5-10) t (160) = 17.07, p<.001. With regards to differences according to timing of surgery, the overall mean importance ratings for IBR (Mean= 8.87; range 6.5-9.75) and DBR (Mean=8.94; range = 6.4-9.6) did not differ significantly t (160) = 1.23, p= 0.22.

An independent t-test revealed that the IBR group rated the importance of psychosocial goals (Mean=9.12; range=8.2-9.75) significantly higher than the DBR group (Mean=8.96; range =7.8-9.6); t (160) 5.48, p<0.001. However, the DBR group rated the surgical goals (Mean=8.82; range= 6.4-8.8) as more important than the IBR group (Mean=8.35; range=6.5-9.9), and this was significant t (160) 8.91, p<0.001.

Further t-tests were carried out to examine groups differences relating to the importance of surgical and psychosocial goals within the two surgical groups. The IBR group rated the psychosocial (Mean = 9.11; Range = 8.2-9.7) goals to be significantly more important than the surgical goals (Mean = 8.53; Range = 6.5-9.9) goals t (63) 5.21, p<0.001. Similarly, the DBR

group rated the psychosocial (Mean = 8.96; Range = 7.8-10) goals to be significantly more important than the surgical (Mean = 8.47; Range = 6.4-10) goals t (97) 7.10, $p<0.001$.

Discussion

This study reports women's BR goals, according to timing of surgery (IBR or DBR), and the importance they placed on them. Seven surgical and eight psychosocial goals categories were identified. Although the number of surgical and psychosocial goal categories was similar, notably more psychosocial than surgical goals were reported. Furthermore, the statistical findings showed women placed more importance on achieving psychosocial than surgical goals, regardless of timing of surgery. UK guidelines state every woman should be offered BR on the basis of evidence around the aesthetic results of surgery[4], however research finds that psychosocial outcomes can have a greater influence on quality of life than do physical outcomes[18]. Our findings support this, highlighting the importance of considering both surgical and psychosocial/lifestyle goals when carrying out decision-making around BR.

Overall, goals reported by women in this study are consistent with previous prospective and retrospective research. For example, women's surgical goals included hoping to achieve symmetry, a natural look and feel, and specific aesthetic outcomes such as breast volume and creating cleavage [9]. Additionally, the present study found that women undergoing DBR wanted to reduce current scarring, and those seeking IBR wanted to be left with as few scars as possible. Similarly, Snell *et al*. (2010)[9] report many women hold the inaccurate belief and expectation that they will not sustain scarring from BR. Therefore, it is important that health professionals are aware of this potential misconception in order to ensure expectations are realistic.

A somewhat concerning finding was that a small number of women in both groups reported wanting BR in order to reduce their risk of cancer. For those in the IBR group, this may reflect

having reconstruction and the mastectomy at the same time; however, it was also mentioned by women contemplating DBR. Although BR does not reduce cancer recurrence, Denford *et al.* (2011) [19] also identified misconceptions that BR removes cancer and prevents recurrence, highlighting the importance of checking and correcting any misunderstandings, so that patients can make a fully-informed decision.

The psychosocial/lifestyle goals also support previous research (e.g. wanting to improve/maintain intimacy, feel feminine/womanly, not be without breasts, avoid wearing a prosthesis, move on from cancer, be active, and improve wellbeing [14,20–22]). One particularly prominent goal, reported by over 75% of all women, related to choice of clothing, supporting previous research[11,14,21]. Similarly, Denford *et al*[19] suggest many women use clothing to restore a feeling of normality following BR. Helping women to be explicit about their psychosocial/lifestyle goals may allow health professionals to identify potentially unrealistic expectations and address these prior to surgery.

This study also explored whether goals differed according to the timing of surgery. Almost half of the goals were reported by a similar percentage of women in both groups; for example, scarring, intimacy, using prostheses, achieving symmetry, and having natural breasts. Additionally, previous research has also found women can have unrealistic expectations that their breasts will look natural and symmetrical following BR [9,19]. However, the current study adds to these findings by comparing women undergoing immediate and delayed BR, enabling us to identify that women seeking surgery at these different times may have different needs.

Our findings suggest several of the goals of women undergoing immediate or delayed procedures are similar, but there were also some differences between the two groups. Specifically, the psychosocial goal category ‘breast sensation’ was only reported by women in the DBR group. Interestingly, Snell et al[9] use this as an example of the discrepancies between

surgeons' and patients' views on what information is important when choosing between BR procedures: whilst a patient may be unaware that loss of sensation is an outcome of surgery, a surgeon may have the misconception that the patient is already aware of this as a possible consequence. This highlights the importance of pre-surgical discussions to ensure both the surgeon and patient are each fully aware of the other's understanding of the available options, potential risks and consequences, and can make fully informed shared decisions about treatment. This could potentially go some way to reducing decisional regret at a later stage[12].

We also found that more women in the IBR than in the DBR group reported goals relating to specific aesthetic outcomes, and they were more precise about these (e.g. reporting the exact cup size that they wanted to achieve). While we cannot explain this difference on the basis of the data available in the current study, Flitcroft et al.[14] and Gopie et al. [23] reported that women who value aesthetic outcomes more highly, and are more invested in their appearance, are more likely to choose IBR, and may have unrealistic expectations of the aesthetic outcomes of surgery[9], which may provide some explanation for this finding. Likewise, improved psychosocial wellbeing was reported as a goal by more women in the DBR group, a finding that was also reported by Denford and colleagues[19].

Not wanting to live without a breast and wanting to recover or move on from the experience of cancer was reported by a higher proportion of women in the IBR group. Denford *et al.* (2010)[19] also found that some women wanted to move on from cancer and return to their everyday lives as soon as possible, often hoping that this would help them feel as if they had never had cancer. Additionally, some considered BR to be the final stage of their cancer treatment and a mark of the end of their illness. Being aware of these goals may enable health professionals to understand a patients' perspective on their disease and its treatment and support them in coming to terms with their diagnosis and understanding that the impact of breast cancer can be long-lasting, and direct them to appropriate psychosocial support, if needed.

The final aim was to investigate the importance of women's goals. Overall, the women rated all goals highly, which is unsurprising given that factors deemed unimportant were unlikely to be listed as a goal. However, there was a higher importance placed on psychosocial goals than surgical goals from both groups. Again, this highlights the importance of recognising women's psychosocial *and* surgical goals, and the importance of creating opportunities to explore these within the context of pre-surgical shared decision making. Finally, an interesting finding was that women in the IBR group rated the importance of psychosocial goals significantly higher than the DBR group. Conversely, the DBR group rated surgical goals as significantly more important than the IBR group. This finding is likely to reflect that the women in the DBR group, who have been living without a breast(s) following mastectomy, are choosing to have delayed reconstruction because they are dissatisfied with their mastectomy and want to have further surgery. Therefore, focussing on surgical goals may be more of a priority for them.

Study limitations

Although this study provides an insight into BR decision-making, a number of methodological limitations must be considered. Within this sample of 76 women, a greater proportion were seeking DBR, which reflects the rates of IBR and DBR at this particular hospital. The results cannot necessarily be generalised to other BR services across the UK, or elsewhere. Moreover, this study only examined timing (DBR versus IBR) rather than type of reconstruction; future research should consider women's goals in relation to different surgical procedures (e.g., deep inferior epigastric perforator (DIEP) flap, implant). Furthermore, information about diagnosis and other treatments that these patients were undergoing was not available for all of the sample. This is an important consideration because it may have influenced their options and choices.

Finally, future research should examine the extent to which women's pre-surgical goals are met, and if (and how) this influences satisfaction over time.

This study also has numerous of strengths. Being prospective, it has avoided problems of recall bias inherent in the majority of studies that have asked women retrospectively about their decision to undergo BR. Furthermore, women in this study were asked to generate their own BR goals, rather than relying on a predetermined list of goals, which may not have covered the breadth of individual goals and motivations. Additionally, as well as looking at the nature of BR goals, this study examined the importance women place on them, and whether this differs depending on timing of BR.

Clinical implications

This study emphasises the importance of considering both psychosocial *and* surgical BR goals when working with patients. It also highlights that goals may differ depending on the timing of surgery. Understanding each woman's individual goals will enable health professionals to enter into a discussion about the procedures for which she is considered a suitable candidate and are thought likely to meet her expectations, thereby facilitating shared surgical decision-making. Additionally, it suggests women may have unrealistic expectations, such as those around sensation and reducing cancer risk, which should be addressed at the outset to reduce the likelihood of dissatisfaction with the outcome.

Conclusions

This study examined the importance of women's individual goals when making decisions regarding IBR or DBR. In line with previous literature, various psychosocial and surgical goals were identified. While many goals in both surgical groups were similar, there were some interesting differences, such as women in the IBR group reporting more specific aesthetic goals. Women in both groups reported psychosocial goals as significantly more important than surgical goals, illustrating the importance of considering both during decision-making. The results also highlight that women in both groups had potentially unrealistic goals, which are important to identify in order to ensure expectations of BR are realistic. Future research should consider whether BR goals are met, how goal achievement influences satisfaction with

outcome over time, and how to best incorporate goals into shared pre-surgical decision-making to increase satisfaction with outcome and reduce decisional regret.

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References

1. Jeevan R, Cromwell DA, Browne JP, et al. Findings of a national comparative audit of mastectomy and breast reconstruction surgery in England. *J Plast Reconstr aesthetic Surg*. 2014;67(10):1333-1344.

2. Fernández-Delgado J, Lopez-Pedraza MJ, Blasco JA, et al. Satisfaction with and psychological impact of immediate and deferred breast reconstruction. *Ann Oncol*. 2008;19(8):1430-1434. doi:10.1093/annonc/mdn153

3. NICE. *Early and Locally Advanced Breast Cancer: Diagnosis and Management National Institute for Health and Clinical Excellence Guideline 2018*. Elsevier; 2018.

4. British Association of Plastic and Reconstructive Surgeons. *Oncoplastic Breast Reconstruction Guidelines for Best Practice*.; 2012. http://www.bapras.org.uk/docs/default-source/commissioning-and-policy/final-oncoplastic-guidelines---healthcare-professionals.pdf?sfvrsn=0.

5. Zhong T, Hu J, Bagher S, et al. Decision regret following breast reconstruction: the role of self-efficacy and satisfaction with information in the preoperative period. *Plast Reconstr Surg*. 2013;132(5):724e-734e. doi:10.1097/PRS.0b013e3182a3bf5d

6. Harcourt D, Rumsey N. Mastectomy patients' decision-making for or against

immediate breast reconstruction. *Psycho-Oncology J Psychol Soc Behav Dimens Cancer*. 2004;13(2):106-115. doi:10.1002/pon.711

7. Downey, S., Chagla, L., Chandran, V., Gandhi, A., Layer, G., Sahu, A., & Sibbering M. *Association of Breast Surgery Best Practice Guidelines for Surgeons in Breast Cancer Screening.*; 2018.

8. Sheehan J, Sherman KA, Lam T, Boyages J. Association of information satisfaction, psychological distress and monitoring coping style with post-decision regret following breast reconstruction. *Psycho-Oncology J Psychol Soc Behav Dimens Cancer*. 2007;16(4):342-351. doi:10.1002/pon.1067

9. Snell L, McCarthy C, Klassen A, et al. Clarifying the expectations of patients undergoing implant breast reconstruction: a qualitative study. *Plast Reconstr Surg*. 2010;126(6):1825. doi:10.1097/PRS.0b013e3181f44580

10. Wachter T, Edlinger M, Foerg C, et al. Differences between patients and medical professionals in the evaluation of aesthetic outcome following breast reconstruction with implants. *J Plast Reconstr Aesthetic Surg*. 2014;67(8):1111-1117. doi:10.1016/j.bjps.2014.04.004

11. Flitcroft K, Brennan M, Spillane A. Women's expectations of breast reconstruction following mastectomy for breast cancer: a systematic review. *Support Care Cancer*. 2017;25(8):2631-2661. doi:10.1007/s00520-017-3712-x

12. Flitcroft K, Brennan M, Spillane A. Decisional regret and choice of breast reconstruction following mastectomy for breast cancer: a systematic review. *Psycho-oncology*. 2018;27(4):1110-1120. doi:10.1002/pon.4585

13. Flitcroft K, Brennan M, Spillane A. Making decisions about breast reconstruction: a

systematic review of patient-reported factors influencing choice. *Qual Life Res*. 2017;26(9):2287-2319. doi:10.1007/s11136-017-1555-z

14. Flitcroft K, Brennan M, Costa D, Wong A, Snook K, Spillane A. An evaluation of factors affecting preference for immediate, delayed or no breast reconstruction in women with high-risk breast cancer. *Psycho-oncology*. 2016;25(12):1463-1469. doi:10.1002/pon.4087

15. Harcourt, D., Griffiths, C., Baker, E., Hansen, E., White, P. & C. The acceptability of PEGASUS: an intervention to facilitate shared decision-making with women contemplating breast reconstruction. *Psychol Heal Med*. 2016;21(1):248-253. doi:10.1080/13548506.2015.1051059

16. Krippendorff K. *Content Analysis: An Introduction to Its Methodology*. 4th ed. Sage Publications; 2018.

17. Green J, Thorogood N. Thematic content analysis. *Qual methods Heal Res London SAGE Publ Ltd*. 2014:209-218.

18. Kim MK, Kim T, Moon HG et al. Effect of cosmetic outcome on quality of life afterbreast cancer surgery. *Eur J Surg Oncol*. 2015;41:426–432. doi:10.1016/j.ejso.2014.12.002

19. Denford, S., Harcourt, D., Rubin, L., & Pusic A. Understanding normality: a qualitative analysis of breast cancer patients concepts of normality after mastectomy and reconstructive surgery. *Psycho-Oncology*. 2011;20(5):553-558. doi:10.1002/pon.1762

20. Brandberg Y, Malm M, Rutqvist L-E, Jonsson E, Blomqvist L. A prospective randomised study (named SVEA) of three methods of delayed breast reconstruction.

Study design, patients' preoperative problems and expectations. *Scand J Plast Reconstr Surg hand Surg*. 1999;33(2):209-216. doi:10.1080/02844319950159479

21. Reaby LL. Reasons why women who have mastectomy decide to have or not to have breast reconstruction. *Plast Reconstr Surg*. 1998;101(7):1810-1818.

22. Schain WS. Breast reconstruction. Update of psychosocial and pragmatic concerns. *Cancer*. 1991;68(S5):1170-1175.

23. Gopie, J. P., Hilhorst, M. T., Kleijne, A., Timman, R., Menke-Pluymers, M. B., Hofer, S. O., ... & Tibben A. Women's motives to opt for either implant or DIEP-flap breast reconstruction. *J Plast Reconstr aesthetic surgery*. 2011;64(8):1062-1067. doi:10.1016/j.bjps.2011.03.030

Table 1. Content analysis of women's goals for breast reconstruction.

Goal Categories	**IBR**		**DBR**	
	n = 26		**n = 50**	
Surgical Categories	**Frequency** ***n* (%)**	**Example Quotes**	**Frequency** ***n* (%)**	**Example Quotes**
Scarring	4 (15%)	"Want to have the least possible scars"	9 (18%)	"To minimise my scarring…"
Pain/ discomfort	4 (15%)	"I am free to sleep in a more comfortable position"	10 (20%)	"My constricting pain and sharp pain in my left side is lessened"
Risk of cancer	8 (31%)	"Significantly reduce risk of cancer"	6 (12%)	"Feel safe and [know] cancer [is] not coming back"
Natural look and feel	11 (42%)	"Natural feel with some movement"	19 (38%)	"My breasts look natural to look and to touch"
Sensation	N/A	N/A	5 (10%)	"[Have] some feeling in my breast"
Symmetry	16 (62%)	"To have a pair of breasts that are symmetrical"	34 (68%)	"My reconstructed breast is as similar as possible to my other breast in terms of size, position"

Specific aesthetic goals	20 (77%)	"I have a pair of breasts that fill an A cup/ B cup (not as big as a C cup)"	14 (28%)	"As big, or slightly bigger, than before"

Goal Categories	**IBR**		**DBR**	
Psychosocial Categories	**Frequency n (%)**	**Example Quotes**	**Frequency n (%)**	**Example Quotes**
Clothing	20 (77%)	"Look normal in clothes"	40 (80%)	"wear the clothes I used to"
Intimate relationships	6 (23%)	"Have breasts be a part of intimacy"	12 (24%)	"Feel less self-conscious during intimacy"
Feeling feminine	3 (12%)	"Breasts are part of being a woman"	4 (8%)	"To feel more feminine"
Living without breast(s)	11 (42 %)	"Don't wake up with one breast"	3 (6%)	"Look in the mirror and see two breasts"
Prosthesis	4 (15 %)	"Don't have to wear a prosthesis"	8 (16%)	"I don't have to wear a heavy prosthesis anymore"
Improved wellbeing	7 (27 %)	"I will feel more positive about the appearance of my breasts"	26 (52%)	"Feel more confident in my own appearance"
Moving on	16 (62%)	"To move on from cancer as soon as possible"	10 (20%)	"To move on from having had breast cancer"
Being active	11 (42%)	"Do yoga and flexibility"	25 (50%)	"Do cycling, Pilates, ballet"

Table 2. Ranges and means for importance ratings of women's goals.

Goal Categories	**IBR**	**DBR**
	n = 26	**n = 50**
Surgical Categories	**Importance Rating**	**Importance Rating**
	Range (Mean)	**Range (Mean)**
Scarring	2-10 (6.5)	6-10 (8.5)
Pain/ discomfort	8-10 (9)	8-10 (8.8)
Risk of cancer	9-10 (9.9)	10 (10)
Natural look and feel	6-10 (8.9)	7-10 (8.8)
Sensation	N/A	3-9 (6.4)
Symmetry	5-10 (8.6)	4-10 (8.5)
Specific aesthetic goals	5-10 (8.3)	6-10 (8.3)
Psychosocial Categories	**Importance Rating**	**Importance Rating**
	Range (Mean)	**Range (Mean)**
Clothing	5-10 (8.2)	4-10 (7.8)
Intimate relationships	6-10 (8.8)	6-10 (8.6)
Feeling feminine	8-10 (9)	8-10 (9.5)
Living without breast(s)	8-10 (9)	10 (10)
Prosthesis	8-10 (9)	8-10 (9.4)
Improved wellbeing	9-10 (9.75)	6-10 (8.7)
Moving on	7-10 (9.7)	8-10 (9.6)
Being active	8-10 (9.5)	5-10 (8.1)