Breast Reconstruction and Psychosocial Adjustment: What Have We Learned and Where Do We Go from Here?

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ABSTRACT

For women with breast cancer, there are many treatment options, with surgery often the primary treatment for early-stage disease. An increasing number of women are choosing to have reconstruction following their mastectomies. Both surgical and medical treatments for breast cancer are increasingly evaluated not only on the basis of their safety and medical outcomes but also their impact on women's psychosocial and quality of life (QOL). The objective of this article is to describe current knowledge regarding the psychosocial adjustment of women undergoing reconstruction, identify limitations in the existing literature, and offer suggestions for the direction of future work in this area. Though most studies have found comparable general QOL in women who have different surgical treatments for breast cancer, some research suggests that reconstruction may provide benefits in terms of body image and sexuality, especially compared with women who have mastectomies only. Most of the existing studies have failed to consider the potential importance of demographic- and treatment-related variables on women's psychosocial adjustment. As reconstruction procedures continue to be developed and refined, the impact of these procedures on women's short- and long-term psychosocial adjustment and QOL is needed.

KEYWORDS: Psychosocial adjustment, quality of life, breast reconstruction

The American Cancer Society estimates that 211,300 new cases of invasive breast cancer were diagnosed during 2003.¹ For women with breast cancer, there are many treatment options, with surgery often the primary treatment for early-stage disease. Surgical procedures include breast conserving therapy (BCT), mastectomy alone, or mastectomy with reconstruction. In the United States, between 15 and 30% of women who undergo mastectomy as their treatment also have breast reconstruction. That is, over 75,000 women annually elect to receive some type of breast reconstruction.^{2,3}

Implants began to be used regularly for breast reconstruction in the early 1970s, and today there are many different types of reconstruction procedures including implants, several autologous procedures [e.g., transverse rectus abdominis myocutaneous (TRAM) flap], or a combination of implants and autologous procedures. Both surgical and medical treatments for breast cancer are increasingly evaluated not only on the basis of their safety and medical outcomes but also their impact on women's long-term functioning, well-being, and quality of life (QOL). This article will review the current

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state of knowledge regarding the psychosocial adjustment and QOL of women undergoing breast reconstruction, describe gaps in the existing literature, and highlight directions for future research.

The emotional and psychological response to breast cancer surgery and its impact on women's psychosocial adjustment and QOL has received a great deal of attention. Studies of breast cancer patients post-surgery have described changes in mood, body image, sexuality, and social and occupational functioning.⁴⁻⁶ Most studies, however, have found that women's psychosocial adjustment improves over time regardless of the type of surgical procedure.⁵⁻⁷ For example, Harcourt and colleagues⁶ found that women undergoing all types of procedures reported less distress a year after surgery. They also found, though, that women continued to have poorer body image regardless of the type of procedure. Younger age, poorer presurgical body image, and higher levels of anxiety and depression were associated with poorer body image at 6 months and 1 year. Thus, a breast cancer diagnosis and surgery has at least a short-term affect on women's adjustment and QOL; functioning improves in most areas, though many women may continue to experience poorer body image.

MASTECTOMY, BCT, AND PSYCHOSOCIAL ADJUSTMENT

Many investigations have compared mastectomy and BCT in terms of women's psychosocial adjustment and QOL. The majority of these studies found little or no difference between these two surgical procedures on women's general functioning in the areas of emotional adjustment, physical functioning, daily activities, social adjustment, and general QOL.⁸⁻¹⁴ However, the literature is mixed with regard to whether the type of surgery influences specific domains such as body image or sexual functioning. There is some evidence that suggests that mastectomy patients have poorer body image and poorer sexual functioning than women undergoing BCT.^{10,14-16}

MASTECTOMY WITH RECONSTRUCTION, OTHER SURGICAL PROCEDURES, AND PSYCHOSOCIAL ADJUSTMENT

A significant limitation of many of the studies that have been conducted, especially the early ones, is that they generally focused on women who had mastectomies only (no reconstruction) or they included women that had mastectomies whether or not they had also had breast reconstruction. Therefore, in these studies it is difficult to know whether undergoing reconstructive procedures in addition to mastectomy improves breast cancer patients' outcomes. Accordingly, more recent studies have typically compared either three groups, mastectomy with

reconstruction, mastectomy only, and BCT, or alternatively two groups, mastectomy with reconstruction and mastectomy only. As with the studies of BCT and mastectomy, there is significant variability in the findings of these studies. Some have found that there are no differences between groups in terms of general psychosocial functioning and QOL,¹⁷⁻¹⁹ whereas others have found the outcomes with BCT were better than mastectomy with or without reconstruction or that women who had mastectomy only had better adjustment than women who had mastectomy with reconstruction, especially in the early recovery period.²⁰⁻²² For instance, Rowland and colleagues¹⁹ compared the psychosocial outcomes of women undergoing BCT, mastectomy with reconstruction, or mastectomy alone in a large sample of breast cancer survivors who were 1 to 5 years postdiagnosis. Consistent with other studies, there were no differences between the three surgery groups in terms of depressive symptoms, general QOL, perceived social support, or fear of recurrence. Women who underwent BCT had fewer problems with body image and feelings of attractiveness than either mastectomy group. In addition, there was little difference in sexual functioning and body image for women who underwent mastectomy with reconstruction versus mastectomy alone. However, lymphedema was significantly more prevalent in the mastectomy alone group compared with the other two groups and the sight of their surgical scars was a major concern for more patients who underwent mastectomy alone compared with women undergoing breast reconstruction or BCT.

In contrast, other studies have found that women's body image, sexual functioning, and attractiveness are better with reconstruction compared with mastectomy only, but similar with regard to other aspects of QOL.²³⁻²⁵ For example, in the study by Al-Ghazal and colleagues,²¹ women who had wide local incision surgery had significantly less anxiety and depression, better body image, and greater self-esteem than the reconstruction patients; however, the mastectomy with reconstruction patients, in turn, had significantly less anxiety and depression, better body image, and higher self-esteem than the mastectomy only group. Thus, women who have breast reconstruction may benefit in specific areas such as body image and sexuality, especially compared with women who undergo mastectomy only.

DELAYED RECONSTRUCTION, IMMEDIATE RECONSTRUCTION, AND PSYCHOSOCIAL ADJUSTMENT

Another question that has been investigated is whether the timing of the reconstruction influences women's psychosocial adjustment and QOL. It was initially believed that breast reconstruction was best done in a separate procedure, several months or longer after the

mastectomy, to allow for healing of the mastectomy site and to allow women to first cope with their cancer experience and the loss of their breast and then later make decisions about reconstruction. Others believed that immediate reconstruction was preferable because it reduces the inconvenience for the patient, may be associated with a quicker overall recovery, is more cost-effective, and may lead to better psychosocial adjustment.²⁶⁻²⁸ Accordingly, several authors have investigated whether there is a benefit to undergoing the reconstruction at the time of the mastectomy or to have the reconstruction at a later time point. Al-Ghazal and associates,²⁶ for example, examined the potential impact of the timing of reconstructive surgery on psychosocial outcomes among a sample of breast cancer patients. Using a retrospective design, they found that patients who had undergone immediate reconstruction were significantly more satisfied with the reconstruction and had significantly less anxiety and depression and better body image and self-esteem compared with women who had delayed reconstruction. Wilkins and colleagues⁷ conducted a prospective analysis of the psychosocial outcomes of women who underwent either immediate or delayed breast reconstruction (expander implant, pedicle TRAM, or free TRAM) procedures 1 year following surgery. Patients who underwent delayed reconstruction had poorer body image scores than women who had immediate reconstruction. However, both groups generally had increases in QOL 1 year following surgery. In examining the different reconstruction techniques, QOL did not differ by procedure type for the immediate reconstruction group. In contrast, for women who had delayed reconstruction, there were differences in QOL by procedure type such that expander implant patients had greater increases in vitality and social well-being a year following surgery compared with TRAM flap patients. However, TRAM flap patients reported significant increases in body image compared with women who had implant expanders. One factor that may have affected the findings of these studies that was not considered is premorbid differences that may influence women's choice of immediate versus delayed reconstruction. For example, there may be disease-related or personality characteristics that may affect women's decision about when to have their reconstruction that may also influence their psychological functioning. A prospective design beginning at the time when treatment decisions are made is needed to better understand the nature of these relationships.

COMPARISON OF DIFFERENT RECONSTRUCTION TECHNIQUES ON PSYCHOSOCIAL ADJUSTMENT

Other studies have focused specifically on breast reconstruction patients and have compared the outcomes of

different breast reconstruction procedures.^{7,29-32} Again, the research is inconsistent in terms of the benefits of one technique over another. Some research has shown that autologous tissue breast reconstruction, particularly the TRAM flap (or similar procedures), have better aesthetic, psychological, social, and physical outcomes, with minimal or no functional morbidity compared with implants.³³⁻³⁵ Other studies, however, found no difference between the type of reconstructive procedure on patients' psychosocial adjustment and QOL.^{5,7} For example, Wilkins and colleagues⁷ examined the QOL of women undergoing different types of reconstruction procedures. They found that the psychosocial adjustment and QOL of women in all three groups (tissue expander/implant, pedicle TRAM, free TRAM) improved from preoperative assessment to the 1 year assessment in all domains except body image, which did not change over time. The type of reconstructive procedure was not associated with psychosocial or QOL outcomes. Two reconstruction techniques [skin-sparing mastectomy with immediate latissimus dorsi myocutaneous flap reconstruction (SSM) and partial mastectomy with latissimus dorsi miniflap reconstruction (LDMF)] were compared in a retrospective study of 106 disease-free patients (average time since surgery = 42 months).³⁶ Using several different methods of assessment (i.e., patient, partner, photographs evaluated by an expert panel), both procedures were rated as having a good cosmetic outcome overall. However, LDMF reconstruction was associated with less loss of sensation compared with SSM. Additionally, significantly more women reported they had restricted activities such as swimming, should extension, and gardening after SSM. Anxiety, depression, self-esteem, and body image scores were similar and within the normal range for both groups, and women in both groups experienced moderate levels of concern about residual cancer.

A study by Edsander-Nord and associates³⁰ examined two types of TRAM procedures (free and pedicled) on the QOL, satisfaction, and aesthetic outcome of 63 women who underwent these surgeries more than 1 year earlier. Women who had either procedure were equally satisfied with their reconstruction, and there were no significant differences between the procedures in general QOL. Based on the women's self-evaluation of the cosmetic result, however, the women who had free TRAM flaps showed significantly higher ratings of symmetry than women in the pedicled TRAM flap group. Ratings of a panel of plastic surgeons generally rated the free TRAM flaps as having an aesthetically better outcome in terms of breast symmetry, position of the submammary fold, color of the flap, scar on the breast, and the overall cosmetic result of the reconstruction. There was no difference between the two groups on ratings of the nipple-areola complex.

ROLE OF DEMOGRAPHIC AND OTHER TREATMENT VARIABLES

An important limitation of many of these studies is that the majority have not considered the impact of demographic (e.g., ethnicity, age, and marital status) or medical (e.g., other health problems, other cancer treatments) variables. For example, in recent years it has become more common for women in all surgical groups to undergo neoadjuvant or adjuvant therapies (e.g., chemotherapy or radiation) in addition to surgical treatment for breast cancer. Several studies with other cancer patients have demonstrated that chemotherapy negatively affects women's sexual functioning as well as other areas of adjustment and QOL, at least in the short term.³⁷⁻⁴⁰ For example, in a study by Arora and colleagues,³⁷ women who received chemotherapy reported being less satisfied with their sex lives. Despite these findings, many authors fail to consider these and other factors that may occur prior to or during the treatment and assessment period that may impact psychosocial adjustment and QOL.

One of the few studies that has assessed the role of patient- and disease-related variables on psychosocial adjustment and in women with breast cancer post-surgery was conducted by Pusic and associates.²³ They found that the relationship between type of surgery and QOL following surgery varied with age. Younger women (under age 55) who had undergone mastectomy had poorer QOL than those who had lumpectomy, whereas the opposite was true for older women. Women over age 55 who had lumpectomy reported poorer QOL than older women who underwent mastectomies. This relationship between age and type of surgery on QOL has been found in other studies.⁴¹ A retrospective study was conducted by Giroto and colleagues to examine the psychosocial adjustment of older women (65 and older) an average of 4.2 years following breast reconstruction.⁴² Women had several types of reconstructive procedures including free TRAM, pedicle TRAM, latissimus, and implant, and 79% of the women had immediate reconstruction. Older women in this study who had mastectomy with reconstruction reported their QOL in all areas as significantly better compared with age-matched controls from the general population and previous reports of women who underwent mastectomy only. Compared with younger patients who underwent mastectomy with reconstruction, they reported better outcomes related to mental health (e.g., social functioning, role limitations due to emotional reasons), but, not surprisingly, the older patients had poorer QOL in the area of physical functioning. In an analysis of a small number of patients by type of reconstruction, women with implants had significantly more physical pain and more role limitations than women with autologous tissue reconstruction. There were no differences among the types of reconstruction groups in the areas of emotional limitations, vitality, and general health.

Several studies have examined the characteristics of women who choose to have reconstruction. Women who choose reconstruction are more likely to be younger,^{18,20,27} Caucasian,¹⁸ of higher socioeconomic status,^{18,27} and married.^{19,27} A recent study by Alderman and colleagues² examined the effects of sociodemographic factors of women who had immediate and early delayed breast reconstruction in the United States using the Surveillance, Epidemiology and End Results (SEER) registry database from 1998. Of the 10,505 mastectomies in that year, 15.4% of women underwent breast reconstruction within 4 months after mastectomy. Consistent with other findings, younger women (age 44 and below) were more likely to have reconstruction and the likelihood of having reconstruction decreased with age. Compared with Caucasians, the odds of reconstruction were significantly decreased for African-American, Hispanic, or Asian women. Marital status did not seem to affect rates of reconstruction. Of the reconstruction procedures performed, 42% were autologous tissue, 24% were implants, and 12% were combined flap/implant procedures (the remaining 22% of reconstructions did not have the type specified). Interestingly, African-American women were significantly more likely to receive autologous reconstruction than Caucasian women. In addition, women younger than 35 and between 65 and 74 were significantly less likely to have autologous procedure compared with women 45 to 54 years.

A study by Taylor and colleagues⁴³ assessed the effect of different treatment procedures (both surgery and chemotherapy) on sexual attractiveness concerns and the impact of sexual attractiveness concerns on current and subsequent psychological adjustment among a sample of African-American women with breast cancer (3 and 7 months after surgery). There were demographic differences between this sample of African-American women and participants in previous studies. For example, only 45% of the women were married or living with their partner compared with 65 to 80% in many other studies.^{6,13,18,20} Sexual attractiveness concerns were negatively associated with age and psychological well-being and greater among women with poorer physical functioning but did not differ between women who had mastectomy or BCT. For women who had mastectomies, having chemotherapy did not influence feelings of sexual attractiveness, whereas undergoing chemotherapy was associated with feelings of attractiveness among women who had BCT. Among women who had not had chemotherapy, mastectomy patients reported greater sexual attractiveness than BCT patients. Whether women had radiation or not did not affect these findings. These results highlight the importance of considering the effects of other treatments when evaluating the effects of surgery. A significant limitation of this study is that they did not compare this cohort of patients to a

comparison group (e.g., Caucasian patients) to examine whether the patterns differ. However, it represents an important step in evaluating the effects of treatment in non-Caucasian samples.

INFLUENCE OF INFORMATION AND DECISION MAKING ON PSYCHOSOCIAL ADJUSTMENT

Physician–patient communication is critically important when a breast cancer diagnosis is made because the patient must deal simultaneously with a potentially life-threatening diagnosis and the loss of a breast or altered physical appearance^{44,45} as well as with unfamiliar procedures and the presentation of treatment options,⁴⁶ which generally must be considered in a short time period. Clear, tailored, and sensitive delivery of information, involvement of the patient, if desired, in treatment decisions, and a sensitive response to emotional distress have been shown to reduce psychological morbidity in cancer patients and to aid informed decision making and treatment choices.^{45,47} Various empirical studies in cancer and other chronic illnesses confirm that patients who have higher perceptions of self-efficacy and competence are more likely to succeed in self-care activities and report better health outcomes.^{48,49} Patients who are active in managing their health and illness are also active in managing the relationship with their doctors.⁵⁰

The women's involvement in the decision-making process and the information provided about the options has been found to be associated with psychosocial adjustment following surgery. In a study by Baker and colleagues,⁵¹ for example, comments from women not offered reconstruction reinforce the importance of informing patients of all options: "It would have been nice if it were offered even though I probably wouldn't have done it."⁵¹ Seventeen percent of the women over 60 years in one study indicated they were not offered reconstruction.⁵¹

In the context of breast cancer and surgical treatment, an important dimension of personal control is decision control, which is an individual's perception of the extent to which he or she has control over health-related decisions (a treatment regimen, elective surgery, dietary change). Patients may experience better outcomes (faster recovery, less pain, better psychological adjustment) when they either participate in medical decision making or believe they have had some control over therapeutic decisions.⁴⁹ A fairly recent model that, at least conceptually, is used to guide patient–physician communication is the shared decision model in which physicians and their patients work together to make treatment decisions.⁵² However, patients often need help learning how to make decisions. When older women in one study were asked about the kinds of

help with treatment decision making that they did not have but wished they had, 60% wished that they had someone with them at appointments when treatment options were discussed; and 39% wished that they had help with knowing what questions to ask.⁵³ It is important to strike a balance between the amount of information provided and the amount that patients request/need to make appropriate treatment decisions.⁵⁴ Helping patients to organize and order information and to communicate with their physicians has recently been suggested to be of particular value.⁵⁵

Polsky and colleagues⁵⁶ examined the impact of breast cancer patients' perceptions of whether they had a treatment choice on their perceived health status up to 2 years postsurgery. The women who indicated that they had a choice of treatments reported significantly better after-surgery health status compared with women who reported they did not have a choice. These effects, however, may be short term as they were present at 5 months postsurgery but disappeared within 1 to 2 years.

Keating and colleagues⁵⁷ compared patients' and their physicians' reports of their discussion of treatment options for early stage breast cancer treatments ~3 months after primary surgery. Seventy-one percent of women reported that their surgeon discussed both mastectomy and BCT before their decision about the type of surgery was made, whereas surgeons reported discussing both options with 82% of patients. Of the 213 patients who reported that their surgeon did not discuss both treatment options, their surgeons reported discussing both treatments with 75% of these women. This may have been the result of poor recall or poor communication between the surgeons and their patients.

Wanzel and associates⁵⁸ investigated physicians' knowledge and attitudes about breast reconstruction procedures, hypothesizing that this is one reason why reconstruction rates are relatively low. When asked about the information available to them about reconstructive breast surgery, 64% of oncologists, 39% of general surgeons, and 68% of primary care physicians indicated they lacked information and one third to one half of physicians believed that inadequate knowledge was a significant reason why patients were not offered referrals for reconstruction. The physicians also had some misinformation about breast reconstruction. For example, more than one third indicated a belief that breast reconstruction would adversely delay the detection of local cancer recurrences, and many thought that reconstruction would adversely interfere with adjuvant treatments.

LIMITATIONS AND FUTURE DIRECTIONS

The primary questions that have been answered to date have been to compare the psychosocial adjustment of

women undergoing breast reconstruction with those who do not undergo reconstruction and those who receive BCT. Despite the great deal that is known about the psychosocial adjustment and QOL of women undergoing breast reconstruction, several critical questions remain unanswered. First, most of the studies of breast reconstruction to date have focused on younger women and few have examined whether findings are similar with older women. Further, many studies fail to report the demographic characteristics of the samples nor do they consider their possible impact on adjustment and QOL in their analyses. This is despite the fact that certain demographic variables such as age, culture, ethnicity, and socioeconomic status have been demonstrated to be associated with the type of reconstruction women choose as well as on women's QOL. It is known, for example, that there are racial disparities in breast cancer incidence, mortality, and stage of disease at diagnosis. African-American women, for example, have lower incidence rates of breast cancer compared with Caucasian women, but higher mortality rates, largely because at diagnosis the cancer is later stage.⁵⁹ Future work is needed to better understand these different rates of reconstruction as well as the possible effects of ethnicity and culture on women's psychosocial adjustment and QOL following reconstruction.

Another factor that many studies have failed to consider is the impact of physical symptoms or other medical conditions that may be associated with patients' adjustment such as lymphedema and pain, which have been shown to be associated with poorer adjustment and QOL in breast cancer patients.^{60,61} It may also be that the preexisting characteristics of women prior to whatever surgical procedure they have are more highly associated with outcome than the type of surgical procedure. That is, women who have higher levels of distress, poorer coping strategies, or poorer QOL prior to the surgery may be the ones who have poorer adjustment following surgery. Consistent with this idea, a study by Stanton and colleagues⁶² found that among women who underwent any type of surgical procedure for breast cancer, those who actively accepted their cancer diagnosis prior to surgery experienced less distress and had more vigor 1 year later compared with women who were low on acceptance. There was an interaction between religious coping and hope on fear of recurrence and level of distress such that high turning to religion was associated with better adjustment for women low in hope, whereas low turning to religion was associated with better adjustment for those high in hope. Avoidance coping prior to surgery was associated with less distress at 3 months but greater fear of recurrence at 1 year. Thus, avoidance may be beneficial in the short term, but detrimental to long-term adjustment.⁶²

A major challenge with answering these types of questions related to prior adjustment and QOL is that

women are typically identified and enrolled in studies after their breast cancer is diagnosed. Therefore, their reactions and experiences related to the diagnosis may be affecting the baseline reports. These questions can best be answered by studies that begin assessing women earlier in the process before breast cancer diagnosis, perhaps by beginning at the time of breast cancer screening. If psychosocial adjustment and QOL measures are collected at that time, those women who develop breast cancer could be evaluated at the time of diagnosis and again after reconstruction or other surgery. Thus, it would be possible to examine these preexisting characteristics. In addition, this design would make it possible to have a comparison group of women who do not have breast cancer.

Breast reconstruction techniques are constantly being modified and refined and new procedures are being developed, which has led to improvements in cosmetic outcome. These changes and advances may have a dramatic effect on women's body image, sexuality, and psychosocial functioning. Thus, despite the earlier robust findings of the general equality of surgical procedures, as methods and technology change, additional studies are needed to evaluate the effects of these newer procedures on women's adjustment and QOL.

In terms of decision making, it is important not only to evaluate women who made a particular treatment decision (e.g., reconstruction or not) but also to assess women who chose not to undergo a particular procedure. This would help elucidate some of the factors that influence the decision-making process. More work is also needed in the area of the knowledge and attitudes of both patients and physicians with regard to reconstruction, as these factors may not only influence who has reconstruction but also how it affects QOL.

Rather than focusing research efforts on which procedure may lead to better outcomes in general, it may be preferable to focus on the characteristics of the individual woman and her environment, history, health status, knowledge, preferences, and so on to determine the best surgical treatment for her breast cancer. In this respect, the communication between the health care providers and the patients is critical. A more thorough examination of the nature of the communication is needed as is the development and evaluation of interventions designed to improve the communication between physicians and patients.

Finally, another area that warrants further study is to more fully examine the effect of mastectomy and reconstruction on women's partners as well as the quality of the relationship. It would be beneficial to not only assess the women undergoing surgery but also their partners to more comprehensively evaluate how reconstruction affects adjustment.

CONCLUSION

Breast reconstruction techniques for women with breast cancer have been shown to be safe procedures and are generally associated with high satisfaction.⁷ Though BCT and mastectomy have generally been found to be associated with comparable psychosocial adjustment and QOL, there are many times when women choose mastectomy or when mastectomy is recommended based on tumor size, location, or other factors. For these women, reconstruction should be discussed with them and offered. Although a great deal is known about how these procedures influence women's psychosocial adjustment and QOL following surgery, there are many questions that remain unanswered. Additionally, as reconstructive procedures for women with breast cancer change and advance, additional studies are needed to determine the impact they have on women's short- and long-term psychosocial adjustment.

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