Objective: We conducted an empirical study to clarify how psychosocial factors (e.g. body image and sexuality) influence therapeutic decision-making and to identify the factors that affect post-operative mood states in Japanese women who underwent various types of surgery.

Methods: One hundred and two patients who had undergone surgical treatment for breast cancer participated in this study. Twenty-five patients had undergone mastectomy, 67 breast conserving treatment and 11 skin-sparing mastectomy and immediate breast reconstruction. The participants were evaluated based on a battery of questionnaires including value estimates of decision-making factors, a shortened version of the Profile of Mood States and self-efficacy.

Results: The patients regarded the possibility of cure and recurrence of cancer as well as the physician’s support as important, regardless of the treatments they had chosen. The patients that had immediate breast reconstruction placed significantly more importance on their body image and sexuality (i.e. physical appearance, attractiveness to partner and self-evaluation of femininity and sexuality) than the mastectomy patients. After surgery, the former group tended to have a more negative mood on the shortened version of the Profile of Mood States than the latter group. Degree of self-efficacy had a marked influence on the patients’ mood after surgery.

Conclusions: This study suggests the importance of discussing body image and sexuality that has tended to be disregarded in therapeutic decision-making situations in breast cancer patients in Japan. Self-efficacy is a crucial variable for improving mood after treatment.

Key words: breast cancer – therapeutic decision-making – sexuality – body image

INTRODUCTION

The incidence of breast cancer in Japan is about 20% of that in Western countries; however, it is increasing every year. In 1994, the age-standardized incidence of breast cancer became greater than that of any other cancers in women (1). As a possible cause for this increase, it has been suggested that the Japanese lifestyle has shifted rapidly toward that of Western countries over the last 50 years (2).

In general, psychological distress (e.g. depression, anxiety about recurrence and anger) observed in patients who are diagnosed with cancer is greater than that in any other diseases (3,4). Moreover, because breast cancer can impair quality of life (QOL), affected women experience uneasiness and conflicts through diagnosis to surgery (3).

Okamura reported that the rate of depression and adjustment disorder was up to 23% after the diagnosis of early stage breast cancer and as much as 42% after relapse of breast cancer (5). Recently, it has become more common for Japanese physicians to ask patients to choose their treatment for breast cancer by themselves (6,7). This trend has,
however, increased the psychological load and responsibility placed on patients. It is thus important to examine the process from notification to therapeutic decision-making.

Some of the psychosocial factors that predominantly affect the breast cancer patients’ therapeutic decision-making and psychological adaptation after surgery are as follows: (i) social support by physician, nurse, partner, family and colleagues (8–11), (ii) degree of involvement of patients (8,12), (iii) the patients’ expectations and values (7,8,13,14), (iv) patients’ personality, and (v) degree of patients’ satisfaction with surgical treatment (8). These issues have been studied empirically mainly in the USA and Europe. It has been found that, for the patient, having voluntarily chosen a treatment is more important than the treatment itself for psychological adjustment afterwards (8,12). Whether the treatment will meet the patient’s expectation of body image including sexuality is also important for psychological adjustment (8). For the married women, husbands are influential in decision-making and negativity from the husbands has a greater influence on these women’s well-being than his positive involvement (9). In short, the evidence shows that the process of decision-making relates to QOL after treatment.

In Japan, these issues have been qualitatively analyzed in the field of nursing with small amounts of data. Such analyses have shown that it is important to (i) help alleviate patients’ anxiety during the early stages of treatment (6,15,16), (ii) offer an appropriate support network (11,17) and (iii) address each patient’s anxieties when giving medical information (7). However, these findings are not quantitative and have not been analyzed statistically, and thus cannot be generalized.

Breast cancer threatens a woman in terms of her self-image, sexual attractiveness, fertility and motherhood (18). Okamura et al. suggested that psychiatric disorders are associated with reduced functions (e.g. body image) in women with recurrence of breast cancer (19). In discussing psychological support for patients around the time of breast surgery, it is important to consider how patients’ values, especially regarding body image and sexuality, can be related to the other aspects such as anxiety over recurrence and how patients should make their own decisions. However, in Japan, few researchers have discussed the relationship between patients’ femininity and treatment options, and much less have suggested an overall system for support. Kokuhu et al. emphasized the importance to clarify the patient’s sense of values regarding the breast and her perspectives for the post-treatment life before surgery, especially while she is deciding on surgical treatment, but no research has actually been conducted on this (15).

In a study of 23 patients with breast cancer who underwent surgery, we investigated the relative value they gave to various factors when deciding on treatment (14). As a result, the patients relatively put more importance on ‘cancer cure and recurrence’ ($M = 4.60$; 5-point scale) and ‘physician’s judgment’ ($M = 4.56$), than on ‘physical appearance’ ($M = 2.82$; 5-point scale), ‘self-evaluation of femininity and sexuality’ ($M = 2.47$), and ‘attractiveness to partner’ ($M = 2.30$). However, this study raised several issues. First, the sample size was relatively small from which insufficient statistical power may have resulted. Second, the mean age was relatively high (60.5 ± 9.2; $M ± SD$). Stanton et al. found that older women placed less importance on maintenance of attractiveness, femininity and sexuality than younger women (8), and therefore we should not conclude that breast cancer patients in Japan less appreciate the importance of femininity. Third, the treatment options were limited to mastectomy and breast-conserving treatments. The number of patients who hope for the breast reconstruction after mastectomy is increasing also in Japan (18). Wilkins et al. showed that both immediate and delayed breast reconstructions provide substantial psychosocial benefits for mastectomy patients (20). In particular, Dean et al. reported that immediate reconstruction reduced the psychiatric morbidity assessed 3 months after the operation (21). Breast reconstruction is an effective treatment option to support the patients’ sense of femininity.

We therefore carried out a large scale study of Japanese women diagnosed with breast cancer to examine the factors affecting their decision-making and mood state after surgical treatment. The aims of the study were: (i) to clarify the factors affecting the choice of one of three treatments (mastectomy, breast-conserving treatments, and skin-sparing mastectomy and immediate breast reconstruction). In particular, when skin-sparing mastectomy and immediate breast reconstruction is added to the therapeutic options, the effect of body image and the sexuality (physical appearance, self-evaluation of femininity and sexuality, and attractiveness to partner) should be re-examined; (ii) to examine how these three treatment modes relate to physical condition and mood state after treatment and the degree of satisfaction with treatment; (iii) to elucidate the factors influencing psychological adaptation after surgery. This includes not only factors at the time of therapeutic decision-making but also those such as pre-operative information from physicians, satisfaction with treatment and degree of social support after treatment, which can all relate to psychological adaptation after surgery. We also discuss self-efficacy as a personality variable affecting psychological adaptation, because it has been suggested that self-efficacy is one of the major personality variables contributing to anxiety and depression (22,23).

**METHODS**

**PARTICIPANTS AND PROCEDURES**

To recruit participants for this study, we sent sealed documents containing the investigation manual and reply postcards to 202 Japanese outpatients who had undergone surgical treatments at Ueo Breast Cancer Hospital (Oita, Japan). At the time of the study, all patients were receiving outpatient treatment at the same hospital. One hundred and eighty-six expressed their wish to participate or wanted to read the investigation forms: they were sent the consent form...
and the investigation forms and were asked to complete and return them. One hundred and two women consented to participate, 54 declined and 30 consented but did not complete the questionnaire, representing a 50% participation rate.

The average age of the examinees was 53.0 years (SD = 9.8; range = 28–75), and the average number of years since surgery was 1.4 (SD = 0.9). Before making treatment decisions, the physicians of patients with small breast cancers (less than 3.0 cm) proposed breast-conserving treatment (BCT). Skin-sparing mastectomy and immediate breast reconstruction (IBR) were proposed to patients with breast cancer that had not invaded the nipple–areola complex or the skin. Of the participants, 24.5% (n = 25) had selected mastectomy (MAS), 64.7% (n = 66) BCT and 10.8% (n = 11) IBR. Further, 39.2% (n = 40) had been diagnosed with stage I, 46.0% (n = 47) stage II, 8.8% (n = 9) stage III or IV and 5.8% (n = 6) stage 0. Among the patients, 34.7% (n = 35) attended hospital once or more per month; 78.4% (n = 80) were currently married; and 32.3% (n = 33) were currently in full or part-time work. This study was approved by the Ethical Committee of Epidemiologic Study (Oita University Faculty of Medicine).

MEASURES

VALUE ESTIMATES OF DECISION-MAKING FACTORS

Based on the Breast Cancer Decision-Making Questionnaire (8), an eight-item questionnaire was constructed for this study as a measure of participants’ value estimates of decision-making factors. The items (‘cancer cure and recurrence’, ‘physical appearance’, ‘positive relationship with physician’, ‘physician’s judgment’, ‘self-evaluation of femininity and sexuality’, ‘attractiveness to partner’, ‘positive relationship with partner’, and ‘partner’s judgment’) were rated on 5-point scales (i.e. ‘What degree of importance did you attach to each item when you made treatment decisions?’) ranging from not at all important (1) to extremely important (5).

INFORMATION FROM PHYSICIAN

The participants were asked the extent to which they received surgical information from physicians before therapeutic decision-making (1 = not at all; 5 = sufficiently).

DEGREE OF CONTROL OVER DECISION

The participants were asked the extent to which they gave regard to their own feelings when they chose the treatment (1 = no choice at all; 5 = total control of choice).

DEGREE OF SATISFACTION WITH SURGICAL TREATMENT

The participants were asked about the degree of satisfaction with their surgical treatment (1 = not at all satisfied; 5 = extremely satisfied).

PRESENT PHYSICAL CONDITION

The participants were asked about their present physical conditions (1 = very bad; 5 = very good).

PRESENT MOOD STATE

Present mood state was assessed with a shortened version of the Profile of Mood States (SV-POMS) (24). Coefficient alphas for SV-POMS subscales ranged from 0.57 to 0.88 (24). We constructed a negative mood index by summing items on the anger–hostility, depression, tension–anxiety, fatigue and confusion subscales. The vigor subscale was used to indicate positive mood.

SELF-EFFICACY

We constructed an eight-item scale for this study to assess participants’ current self-efficacy based on the General Self-Efficacy Scale (GSES) (25). Three items were from the GSES aggressiveness of action subscale, three items from the anxiety to failure subscale and two items from the social position of ability subscale. Items were rated on a 2-point scale of No (0) or Yes (1). For the current sample, coefficient alpha was equal to 0.86.

EXTENT OF PRESENT SOCIAL SUPPORT

The participants were asked to list the people in their environment from whom they could expect acceptance and comfort when their feelings and physical condition were poor. In this study, the number of listed people was used as an index of perceived present social support.

RESULTS

EVALUATION OF THE FACTORS AFFECTING THERAPEUTIC DECISION-MAKING

Preliminary analysis was conducted to determine whether there was a difference in the information received from physicians among the three treatment groups (the MAS, BCT and IBR patients). It was confirmed that patients in all treatment groups were sufficiently informed before making treatment decisions (MAS, M = 4.64; BCT, M = 4.54; IBR, M = 4.72; all range = 1–5) and that no difference was recognized in the information given to these groups (F(2, 102) = 1.13, ns).

One way analysis of variance (ANOVA) analyses were conducted to determine whether there were any differences among the three treatment groups in the value estimates of decision-making factors (Table 1). Regardless of the group, the participants relatively valued cancer cure and recurrence, and the physician’s judgment.

We found that the groups differed significantly in value estimates of physical appearance (F(2, 102) = 7.17), self-evaluation of femininity (F(2, 102) = 3.68), attractiveness to partner (F(2, 102) = 3.45), positive relationship with
The factors with significantly negative influence on negative mood were present physical condition, self-efficacy, age at surgery, and extent of present social support. Degree of control over one’s decision was marginally significant as a negative predictor. On positive mood, self-efficacy was a positive predictor and number of months since surgery was a negative predictor. Another negative predictor on positive mood, present physical condition, was marginally significant.

### DISCUSSION

**Evaluation of the Factors Affecting Therapeutic Decision-making**

One of the major purposes of this study was to determine the relationship between body image and sexuality issues that reflect femininity (feminine image) and therapeutic decision-making in Japan. In our previous research, we found that these factors are not highly valued when treatments are chosen, and that more highly valued were the physicians’ judgment as a means of reduction of anxiety over recurrence and cure of the cancer (14). Our study shows that the possibility of cancer cure and recurrence and the physician’s judgment are highly valued in therapeutic decision-making for all three treatment options. In the study of Stanton et al., cancer cure and recurrence and physician’s support received high scores, of $M = 6.91$ and $M = 6.07$, respectively, on 7-point scales (8).

Moreover, Stanton et al. reported that women placed a relatively high importance on attractiveness to their partner ($M = 5.73$; range $= 1–7$) and self-evaluation ($M = 5.14$;
range = 1–7) (8). In the current study, we found that although the MAS and BCT patients put relatively low importance to sense of femininity, the IBR patients rated this as of relatively high importance. Thus, body image and sexuality should not be ignored in therapeutic decision-making situations. This finding is significant in that it shows the importance of patients’ body images and sexuality which was difficult to recognize in the MAS or BCT patients in Japan.

As Yalom describes, breasts for women are not just body parts, but have a symbolic value that reflects their own desires (26). Breast cancer is a disease that threatens the patient’s femininity. In cancer treatment, survival of the patient should be the first priority when decisions are made. However, the current findings suggest that psychological intervention by medical professionals taking account of patient’s femininity is important in supporting her through all stages of treatment.

Age should not be disregarded as a background to the differences seen with treatment selection. In this study, the average age of the MAS patients was $M = 55.20$ (SD = 8.78); BCT, $M = 52.08$ (SD = 9.74); and IBR, $M = 40.64$ (SD = 6.68). Stanton et al. mentioned that older women considered maintenance of attractiveness, femininity and sexuality less important than the younger ones (8). Shapiro et al. suggested that as the rate of breast cancer has increased in younger women, the issue of femininity arising from the impact of disease on fertility is becoming increasingly important (3). Our finding that the IBR patients placed a higher value on physical appearance, attractiveness to partner and self-evaluation of femininity and sexuality than the MAS and BCT patients might be partially related to the participants’

### Table 3. Stepwise multiple regression analysis examining the effect of factors on positive and negative mood

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Independent variable</th>
<th>$R^2$</th>
<th>$\beta$</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive mood (SV-POMS)</td>
<td>Number of months since surgery</td>
<td>0.16*</td>
<td>&lt;-0.19</td>
<td>0.04</td>
</tr>
<tr>
<td></td>
<td>Present physical condition</td>
<td></td>
<td>0.17</td>
<td>0.06</td>
</tr>
<tr>
<td></td>
<td>Self efficacy</td>
<td></td>
<td>0.28</td>
<td>0.00</td>
</tr>
<tr>
<td>Negative mood (SV-POMS)</td>
<td>Age at surgery</td>
<td>0.43*</td>
<td>-0.24</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Degree of control over her decision</td>
<td></td>
<td>-0.14</td>
<td>0.08</td>
</tr>
<tr>
<td></td>
<td>Extent of present social support</td>
<td></td>
<td>-0.24</td>
<td>0.01</td>
</tr>
<tr>
<td></td>
<td>Present physical condition</td>
<td></td>
<td>-0.35</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Self efficacy</td>
<td></td>
<td>-0.35</td>
<td>0.00</td>
</tr>
</tbody>
</table>

SV-POMS, shortened version of the Profile of Mood States; Positive mood = Vigor scale; Negative mood = sum of five negative SV-POMS scales. $\beta$, standardized partial regression coefficient; *$P < 0.01$.

The treatment methods selected by the participants were not related to their satisfaction with the treatment received or their physical conditions after surgery. However, the IBR patients had a more negative mood after surgery than the MAS patients. This finding might be related to their perception of the therapeutic gain of the selected treatment.

It was recently shown that there is no difference in the survival rate between MAS and BCT in Japan (27). However, Sato showed that Japanese breast cancer patients still think that, if they put more importance on radical cure, they should select MAS, whereas if they appreciate the importance of maintaining QOL more than radical cure, they should select BCT (28). In other words, breast cancer patients in Japan tend to think that only MAS leads to radical cure. IBR in this study was immediate breast reconstruction after skin-sparing mastectomy, so IBR patients might think that neither IBR nor BCT is sufficiently effective to provide radical cure. These differences in the perception of breast cancer treatments might be related to the mood states after treatment. However, younger patients perceive breast cancer to be a greater threat to their lives than older patients (29). Life cycle factors according to age may play a role.

### Factors Contributing to Present Mood State

In this study, present physical condition, self-efficacy, age at surgery, extent of present social support and the degree of control over one’s decision contributed to present negative mood states, while self-efficacy, present physical condition and number of months since surgery contributed to present positive mood states. Decision-making factors (e.g. recurrence and cancer cure, physician’s judgment and physical appearance) and satisfaction with treatment were not related to present mood states. These findings suggest that all the factors in the post-surgery period, except degree of control over one’s decision and age at surgery, contribute to the present mood state. In general, a woman’s perception that she can make an autonomous decision is more important than the treatment itself and has a positive influence on her mood after surgery (8,12). Our finding that age at surgery had a negative influence on mood is equivalent to the finding that greater age is associated with better mental health and well-being (30).

It has been shown that physical condition after surgery relates to both positive and negative mood states. Breast cancer patients feel psychological distress whenever they face a new phase of diagnosis, treatment or relapse (18), and physical discomfort may cause anxiety. We can conclude that physical condition is an important factor in enabling patients to control their mood states. Our finding that current social support reduces negative mood after treatment is
consistent with previous research in which social support was emphasized as a potential moderator of the relationship between stress and breast cancer progression (29).

We found that self-efficacy as a personality variable was the strongest predictor of negative and positive mood states (negative mood; β = −0.35, positive mood; β = 0.28). It has been suggested that self-efficacy is one of the major personality variables controlling anxiety and depression (22,23), and self-efficacy helps breast cancer patients overcome psychological distress after treatment. Kohler et al. showed that self-efficacy was a mediator of biomedical factors and QOL in patients with chronic obstructive pulmonary disease (31). Self-efficacy may thus be a mediator of physical change after treatment and the psychological adaptation of patients with breast cancer.

Not only medical professionals but also family member (e.g. spouse and parents), friends, and/or colleagues can improve patients’ feelings of self-efficacy after treatment.

CONCLUSION

This study suggests, with IBR as a treatment option, the importance of discussing body image and sexuality that has its mechanism. Tokyo; Tentacle 2001 (in Japanese).

Conflict of interest statement
None declared.

References


