by the investigations made so far, the possibility of making improved prognosis would permit a more individualised treatment of patients than practised today.

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Psychosocial Adjustment Among Husbands of Women Treated for Breast Cancer; Mastectomy vs. Breast-conserving Surgery

M. Omne-Pontén, L. Holmberg, R. Bergström, P.O. Sjödén and T. Burns

Psychosocial adjustment was measured among 56 spouses of women operated for breast cancer. Of 69 eligible husbands, 56 participated. Twenty women underwent breast-conserving surgery (BCT) and 36 had a mastectomy (MT). An interview was conducted with each woman and her husband separately, 4 and 13 months after surgery. Two instruments were used; SBAS (Social Behaviour Assessment Schedule) and a scale (TB) constructed specifically for the study. The husbands of the women in the MT group were significantly more depressed after 4 months and reported complaints related to their wives's disease more often than did those in the BCT group. After 4 months, the marital relation was assessed as more positive in the MT group. A total of 48% of the husbands in the sample expressed some emotional distress during the investigation period, which is similar to levels seen among breast cancer-operated women themselves. Overall, only marginally better scores were seen for husbands married to women who had undergone breast-conserving surgery. Few researchers have studied psychosocial reactions in the breast cancer patient's family. Since patterns of social support empirically influence the rehabilitation of the cancer patient, this field of investigation is important.
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INTRODUCTION

PSYCHOSOCIAL REACTIONS in husbands to women with breast cancer have rarely been investigated. In a controlled follow-up study, Maguire [1] found that husbands of breast cancer patients experienced significantly more distress before and after surgery than did a group of men whose wives had been treated for a benign breast disease. The results were similar in a study by Northouse [2] who performed a descriptive, longitudinal study of couples, where the women underwent a mastectomy. Northouse [2] also found that the psychosocial problems persisted over time for both the men and women (18 months postsurgery). In Maguire's study [1], 36% of the husbands still had symptoms of anxiety 1 year after their wives had been treated for breast cancer.

In a retrospective study, Baider *et al.* [3] investigated whether less mutilating breast surgery influenced the husband's own

psychosocial adjustment. In the group where the women were treated with mastectomy they found a tendency towards more anxiety in the husband's ratings. No differences were found between the two groups (mastectomy vs. lumpectomy) in regard to depression.

Social support is an important element in cancer patients' ability to cope with their situation [4–7]. Both the patients and the relatives are affected by the distress caused by a diagnosis of cancer [4–10]. Thus, it is important to study how various types of medical treatment influence the psychosocial reactions of family members and their ability to provide the social support needed by the patient.

The present study is part of a quasi-experimental, prospective, controlled interview study with consecutive patients, where the possibilities of reducing psychosocial maladjustment through breast-conserving surgery are being investigated [11]. The aim of this paper is to present the results related to two questions: (1) How does breast cancer diagnosis and treatment affect the psychosocial adjustment among husbands? (2) Is the type of operation (mastectomy or sector resection) associated with risk level of maladjustment among husbands?

SUBJECTS AND METHODS

Subjects

Consecutive patients aged 40–80 years with a newly diagnosed invasive breast cancer, histopathological pTNM stage I/II were invited to participate in an interview study. Of the 99 women who accepted, 70% (n = 69) were married and 81% (n = 56) of their husbands agreed to participate. A letter with information about the study was distributed by the surgical clinic to all patients who met the inclusion criteria. The interviewer obtained informed consent by means of a telephone call.

Couples entered the study from September 1983 to August 1986. The investigation took place in Falun County Hospital which was also part of a multicentre mammography screening project [12]. In the surgical routines during that period two thirds of all the patients underwent a mastectomy. Half of them were randomly allocated to the study, but all women who were treated with a breast-preserving technique were included.

Non-responders

Of the 69 eligible husbands, 19% (n = 13) refused or were unable to participate. The non-responders' reasons for not taking part in the study were: own disease (n = 4), busy at work (n = 4), not interested (n = 3) and wife did not allow participation (n = 2). Among the non-responders, four were married to a woman who had undergone a breast-conserving treatment. In the second interview the sample decreased by six husbands for the following reasons: nothing has changed or everything is OK (n = 3), acute medical disorder (n = 1), death of one husband and one woman.

Of the participating husbands, 20 belonged to the group with breast-conserving surgery (BCT) and 36 to the group with a mastectomy operation (MT). The distribution of demographic variables is shown in Table 1. Ten (50%) of the women in the BCT group and 14 (38%) in the MT group had received radiotherapy. Because of changed clinical routines two women (one BCT and one MT) received adjuvant systemic therapy.

Methods

Semi-structured interviews were conducted with each patient and her husband separately on two occasions; 4 and 13 months after surgery. Different instruments were used for men and women [11]. All interviews were carried out by the same interviewer and they were tape-recorded if the participant agreed. Because of technical problems or refusals 12% of the interviews were not tape-recorded.

The scoring was done by the interviewer on the basis of the husbands' replies during the interview. All questions concerned the preceding 2 months. The interviews had a mean duration of 60 min and 96% of them took place in the hospital.

Instruments

Social Behaviour Assessment Schedule (SBAS). The Social Behaviour Assessment Schedule (SBAS) [13] measures the impact of psychiatric disorder or chronic illness on significant others. The English version of the SBAS instrument has documented reliability and validity [14].

SBAS includes six sections and in this study we performed analysis from three of these sections:

(1) Section B has 12 items (see Table 1) where the husband rates if his wife has shown any changes in her behaviour (further named the score of objective/B) and to what degree this has influenced the husband himself (named distress/B).
(2) Section C has seven items where the husband denotes his wife's interest and abilities to take part in work, leisure activities, and how she handles the marital relation. The scoring is made in the same dimensions as in section B (objective/C and distress/C).
(3) In section D the husband assess how he himself experienced his physical and psychological health, his ability to take part in social activities and changes in his work capacity. In this section there are three scores; the two dimensions as in section B and D (objective/D, distress/D) and a score of the perceived association between the wife's disease and the change for the husband (assoc/D).

The scoring uses a scale with three different levels, from 0 (no problems) to 2 (severe change/assoc/distress).

Table 1. Distribution of demographic variables in the sample

	Breast-conserving surgery (n = 20)	Mastectomy (n = 36)
Mean age (range)	58.05 (40–76)	58.15 (40–81)
Work		
Skilled worker	11	19
Civil servant	7	15
University graduate	2	2
Retired	10	15
Physical status		
Healthy	12	22
Chronic illness	8	13
Children living at home	5	7

Correspondence to L. Holmberg at the Department of Surgery, University Hospital, S-751-85 Uppsala, Sweden.
M. Omne-Pontén is at Falun College for the Health Professions, Falun; L. Holmberg is also at the Cancer Epidemiology Unit, Uppsala, R. Bergström is at the Department of Statistics, University of Uppsala; P.O. Sjödén is at the Centre for Caring Sciences, University of Uppsala, Sweden; and T. Burns is at the St. George's Hospital School, London, U.K.
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The three sections of SBAS which have not been used in this analysis cover background information (section A), concurrent events (section E) and support to informant/informant's housing situation (section F). The present data do not include those items from section B that are specific for patients with chronic psychiatric diseases. We have also excluded the scale for reporting dates of changes (all sections) because of no variation in the sample.

Instrument to measure anxiety and depression (TB). The second instrument was constructed by the research team psychiatrist (TB) and covered symptoms of anxiety, depression, marital relation, sexual relation and the social network. The ratings differ between the types of items within a range of three to five response classes (see Table 1). The three items concerning marital, sexual relations and social network have three different categories of answers: improvement, worse or no change. The following scoring were used to measure the presence of depression and anxiety: nothing (1), more than normal (2) or severe (3).

Statistical analysis

On the basis of the SBAS instrument five different variables were constructed (objective/B, distress/B, objectiveD, assoc/D, and distress/D). Each variable obtained was the average of 10–12 individual items. Each such item has three to four scale steps. Obviously, each individual item cannot be normally distributed. However, the sum and average of as many items as 10–12 is often reasonably normally distributed. In addition, the number of patients in each group is large enough for the difference between two means to be approximately normally distributed. From the TB instrument four variables were used. We have neither normal distribution nor an exact interval scale in the variables from the TB instrument; *a priori* results based on normality assumption should be treated with caution. In view of the discussion above, we used the non-parametric Mann–Whitney test as our main test for analysing the individual variables. This test requires neither an assumption of normality nor an interval scale. To complement the non-parametric tests we also performed two-tailed standard *t*-tests. The results of the two approaches were very similar which implies that imposing assumptions of normality and interval scales hardly affects the result at all. The data include observations at two points in time. In order to use the data more fully and test for possible changes over time, we also employed a repeated measurement model (only including those 50 husbands who attended both interviews). To save space, results are presented as mean values and standard deviations rather than full distributions, even in the case of variables that are not necessarily interval-scaled.

RESULTS

After 4 months there were no statistically significant differences between the two groups of husbands on the SBAS instrument (Table 2). At the second interview, husbands in the MT group stated more often than those in the BCT group that their disturbances were related to their wife's disease (assoc/D in SBAS).

On the TB instrument, we found differences between the groups relating to depression and marital relations. Depression occurred more often in the MT group (Table 3) and this tendency was seen in both interviews, although it was not statistically significant at 13 months. After 4 months, husbands in the MT group considered the marital relation to be better than those in the BCT group ($P < 0.05$). Neither in the MT nor in the BCT group did any single husband report a change for the worse regarding the marital relation.

Since we made observations at two different points in time we used a repeated measurement model to test for possible interactions between the type of treatment, the time-point of interview and the measurements ($n = 50$). We thus considered three factors and their association with the SBAS and TB variables: (1) type of operation, (2) influence of time and (3) interaction between the time and the operation. An increased statistical power as compared to the univariate analyses was noticeable. There were statistically significant differences between the MT and BCT groups in some of the variables. Thus husbands in the MT group were more negatively affected by their wife's disease than those in the BCT group (assoc/D in

Table 2. Mean values for the SBAS instrument (sections B and D) with Mann–Whitney test of statistical significance*

Variable	BCT group			MT group			Mann–Whitney test
	n	Mean	S.D.	*n*	Mean	S.D.	
4-month interview							
Objective/B	20	0.304	0.343	36	0.267	0.189	ns
Distress/B	15	1.020	0.404	32	1.006	0.277	ns
Objective/D	20	0.206	0.220	36	0.169	0.168	ns
Assoc/D	14	0.917	0.787	25	1.344	0.729	ns
Distress/D	13	1.058	0.936	25	1.528	0.476	ns
13-month interview							
Objective/B	19	0.294	0.303	31	0.306	0.356	ns
Distress/B	14	1.207	0.347	21	1.216	0.431	ns
Objective/D	19	0.167	0.176	31	0.128	0.161	ns
Assoc/D	11	0.667	0.699	16	1.458	0.940	0.01
Distress/D	10	1.333	0.991	15	1.711	0.637	ns

BCT = breast-conserving surgery, MT = mastectomy, ns = not significant.

* Section B/SBAS: husband's assessment of changes in his wife's behaviour; section D/SBAS: husband's assessment of his own psychosocial reaction. A higher value indicates a worse outcome.

Table 3. Mean values from the TB instrument with Mann–Whitney test of statistical significance*

Variable	BCT group			MT group			Mann–Whitney test
	n	Mean	S.D.	*n*	Mean	S.D.	
4-month interview							
Anxiety	20	1.200	0.410	36	1.306	0.467	ns
Depression	20	1.050	0.223	36	1.278	0.454	0.04
Marital	20	1.950	0.224	36	1.638	0.487	0.01
Social	20	2.000	0.333	36	1.944	0.333	ns
13-month interview							
Anxiety	19	1.105	0.315	31	1.032	0.180	ns
Depression	19	1.052	0.229	31	1.258	0.445	ns
Marital	19	2.000	0.471	31	1.935	0.442	ns
Social	19	1.947	0.524	31	2.065	0.359	ns

BCT = breast conserving surgery, MT = mastectomy, ns = not significant.
* TB score: anxiety and depression: nothing = 1, more than normal = 2, severe = 3; social network, marital and sexual relation: improvement = 1, no change = 2, worse = 3.

SBAS; $P = 0.04$ and distress/D in SBAS; $P = 0.03$), had more depression (TB; $P = 0.03$) and reported that the marital relation was improved (TB; $P = 0.04$). With regard to the influence of time, the degree of anxiety decreased statistically significantly in the total group (TB; $P = 0.01$). The marital relation showed statistically significantly less reported improvements (TB; $P = 0.01$) over time. There were no significant interactions between time and type of operation found in the data.

In Table 4 the data from the husband's assessment of his wife's behaviour (section B in SBAS) is shown. The most common changes among the women were an increased mood of worrying, irritation, misery and overdependence. Also, half of the women expressed complaints about pain and fatigue. There were no statistically significant differences between the two groups related to section B in SBAS.

In the total sample, 48% of the husbands (27 of 56) reported some emotional distress during the investigation period. As 17 husbands (7 BCT and 10 MT) reported no active sexual life in terms of intercourse, this variable was left out from the statistical analysis. Among the couples with sexual activity, 38% (15 of 39) considered the relation to be disturbed. However, some husbands also reported improvements in the sexual relation: two in the BCT group and five in the MT group. Three of the husbands reported disturbances in their work outside the home during the first year after the operation. Twelve couples had children living at home and four of the children showed some sort of distress, according to the husband.

Table 4. Percentages (n) *of husbands in BCT and MT group reporting changes in their wife's behaviour on the Social Behaviour Assessment Schedule/section B*

	4 months		13 months	
	BCT $n = 20$	MT $n = 36$	BCT $n = 19$	MT $n = 31$
Section B				
Misery	30 (6)	47 (17)	21 (4)	35 (11)
Withdrawal	15 (3)	11 (4)	21 (4)	13 (4)
Slowness	35 (7)	5 (2)	21 (3)	6 (2)
Forgetfulness	25 (5)	25 (9)	36 (7)	22 (7)
Underactivity	25 (5)	8 (3)	21 (4)	16 (5)
Overdependence	40 (8)	36 (13)	26 (5)	32 (10)
Indecisiveness	20 (4)	8 (3)	26 (5)	22 (7)
Worrying	25 (5)	44 (16)	47 (9)	38 (12)
Fearfulness	25 (5)	16 (6)	15 (3)	12 (4)
Irritability	40 (8)	44 (16)	42 (8)	38 (12)
Parasuicide	10 (2)	—	5 (1)	3 (1)
Complaints	60 (12)	47 (17)	68 (13)	51 (16)

DISCUSSION

In general the findings in our study were somewhat more favourable for the BCT group with less distress, anxiety and depression among those husbands. In the MT group we found higher ratings for depression after 4 months and more of those husbands also reported that their own disturbances were related to their wife's disease.

The husband's psychosocial adjustment did not change appreciably over time. There was little indication that the degree of distress diminished with time, instead the values for distress (SBAS section B/D) for both groups of husbands increased after 13 months (Table 2). The degree of emotional distress among the husbands was generally high: in total 48% expressed some emotional distress. This level is similar to the degree of disturbances seen among breast cancer-treated women themselves [11]. This supports the notion that breast cancer creates psychosocial disturbances in a Western population—for patients as well as spouses—which demands attention from the health care system.

The population from which the sample was chosen consisted of all women in a well-defined geographical area. The diagnostic and other medical procedures before and after the operation were uniform. The inclusion criteria for the study were well-defined. The interviews were conducted by a single, trained interviewer and the patient was always interviewed before the husband. The points in time for the interviews were controlled. The reasons given for non-participation were recorded and did not seem to introduce any differences between the groups with respect to the aims of the study. It is unlikely that the statistically significant intergroup differences can be explained by any bias.

It should, however, be kept in mind that although the number of variables is not very great, we performed a large number of tests. Some statistically significant results could occur due to chance alone.

However, there are three reasons why clinically important differences between the two groups could have been missed. The first relates to the sample size. The second relates to the possibility that the couples willing to participate were those who had a stable and mature relationship that might provide a better base for social support as compared to the population in general. It should be noted that almost all marriages in our sample had lasted for 10 years or more. The third reason concerns the sensitivity of the instruments used; measurement of psychosocial support have yet to be developed [4].

Two studies [1, 2] give information about the degree of distress among husbands of breast cancer-treated women. In the study by Maguire [1], 56% of the husbands reported that the disease and its treatment had an adverse affect on their lives. After 1 year 36% still had symptoms of anxiety. In a longitudinal study of 41 couples, Northouse [2] found that 24% of the husbands expressed moderate to severe distress after 18 months. We found no indication that the distress was confined to a special group of vulnerable husbands, as suggested by Ell *et al.* [8] in a longitudinal study.

Surprisingly, the husbands in our study reported few disturbances related to their work; two husbands in the BCT group and one in the MT group. In other studies [1, 9] a range of 6 to 42% of husbands reported such disturbances. The discrepancy between these studies and the present one may be due to differences in cultural values. The finding of a positive change in the marital relation is in accordance with other studies [1, 10].

Baider's controlled study [3] with matched couples showed that the type of operation was not a determinant of the psychosocial well-being among the husbands of breast cancer-treated women. Contrary to our results, they found more anxiety in the BCT group and no differences with regard to depression. However, the couples were interviewed on widely spaced occasions after the treatment (5–37 months).

Few researchers have studied the psychosocial reactions in the breast cancer patients' family. Since patterns of social support empirically influence the rehabilitation of the cancer patient [4–9, 16–19], this field of investigation is important. One important hypothesis to investigate is if social support can be increased by involving the family in decision-making concerning the patient's treatment. Anecdotal information from the present study suggests that the husbands often felt disregarded by the medical staff and missed information about their wife's disease and its treatment. Morris [15] found that offering patient and spouse an active role in the choice of operation reduced the psychosocial maladjustment among both patients and husbands.

The data in this study indicate that the degree of emotional distress among the husbands is of the same order of magnitude as among the women themselves. We found only weak support for the notion that the type of operation can reduce the occurrence of maladjustment and it does not appear to be a major determinant of the psychosocial outcome for the breast cancer patient's spouse.

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