The Psychosocial Morbidity of Mastectomy

- a follow up study

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APPENDICES

ABSTRACT

The aim of this study is to assess the psychosocial morbidity of mastectomy and to identify the characteristics of those women who are at high risk of having such morbidity after operation. The study also examines the effect of immediate breast reconstruction on the extent of psychosocial morbidity. The attributes of the women which predispose them to psychiatric illness in the face of stress of learning they have breast cancer are investigated.

Design and Method

The study has a prospective design. The patients were interviewed on three occasions, before mastectomy, three months postoperatively and twelve months postoperatively. The preoperative interview obtained demographic data, information about the patients' marital relationship, sexual relationship, social support system and social activities. It also assessed the patients' current mental state. Preoperatively each woman completed a 60-item General Health Questionnaire and an Eysenck Personality Inventory Form A. The two follow-up interviews assessed changes in the patients' marital relationship, sexual relationship, social activities and work status. They also assessed the current mental state. On each occasion the patient completed a 60-item General Health Questionnaire. There was a separately analysed randomly allocated breast reconstruction trial which assessed the effect of immediate breast reconstruction on the psychosocial morbidity following mastectomy. These patients were included in the main study and they were assessed as already described.

Results

The patient's psychiatric morbidity at three months was predicted by the preoperative GHQ score, the previous psychiatric history, the

marital relationship as assessed preoperatively, and the surgical treatment package received.

The patient's psychiatric morbidity at twelve months after operation was predicted by the patient's preoperative GHQ score, her score on the N subscale of the Eysenck Personality Inventory, her previous psychiatric history and the quality of her marital relationship. In the subgroup who had had previous psychiatric treatment from their GP, social supports were also important.

The immediate breast reconstruction trial demonstrated that in those women who reported unsatisfactory marriages preoperatively, immediate breast reconstruction resulted in a lower psychiatric morbidity at three months after operation but not at twelve months.

Variables found to make women vulnerable to psychiatric symptoms following the life event of being told they had breast cancer were as follows; having poor social supports, and having had previous psychiatric treatment from a general practitioner or psychiatrist.

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CHAPTER 1

Introduction

The aim of this thesis is to examine the psychosocial sequelae of the various treatment strategies for early breast cancer.

Over the last few decades there has been an increasing tendency towards less radical surgery for breast cancer starting with McWhirter (1955) who demonstrated that simple mastectomy and radiotherapy gave results which were as good as radical mastectomy. The recognition of the fact that even small tumours of the breast may already have metastasised has led to adjuvant chemotherapy and oophorectomy being used in an effort to get rid of cryptic metastases present at the time of mastectomy. As so many of the tumours may already have metastasised the removal of the breast is thrown into question except as a method of local control. This had led to recent advocation for lumpectomy or quandrantectomy rather than mastectomy, together with radiotherapy.

When radical mastectomies for breast cancer were routinely performed there was little consideration for the emotional sequelae, the "cure" of the patient was the overriding consideration. However, as long-term follow-up studies show (Langlands et al., 1979) that eventually most women with breast cancer die of distant metastases whatever local procedure is used, a mutilating operation becomes less acceptable.

My reason for doing the work to be described is that if a number of different treatments are found to be equally effective then it is sensible to try and choose the treatment which will cause the individual least distress.

Psychosocial morbidity following mastectomy may be due to fear of the cancer or distress at losing a breast. It could be that the main problem causing psychiatric morbidity is fear of cancer and not the loss of a breast. If so more conservative treatment might actually increase the psychiatric morbidity because fear that the cancer has not been removed would be intensified.

One of the ways of assessing the contribution of the loss of breast to morbidity is to look at the effect of reconstruction at the time of mastectomy on the psychiatric morbidity.

The other aim of the thesis is to try and identify pre-operatively the patients who are likely to become psychiatrically ill post-mastectomy. In recent years nurse counsellors have been used in some units and have been shown to be effective in recognising women who are psychiatrically ill (Maguire et al., 1980). It would be of considerable benefit to be able to identify pre-operatively women who are at high risk of becoming psychiatrically ill postoperatively. Counselling resources could then be concentrated on this high risk group.

CHAPTER 2

Review of Literature

Introduction

Over recent years there has been increasing interest in the quality of life procured for patients who are treated for breast cancer; previously attention has been directed mainly at survival. There are two papers published in the 1950's (Bard and Sutherland 1955; Renneker and Cutler 1952) which describe the psychological problems encountered by women who are treated for breast cancer. In the 1970's there were a number of controlled trials aimed at establishing the extent and the nature of these problems. More recently still there have been trials to establish whether or not the extra treatments (chemotherapy and oophorectomy) given as an adjuvent therapy to some women who have undergone mastectomy for breast cancer, also contribute to the psychiatric morbidity of mastectomy.

Psychological Morbidity of Mastectomy

The Renneker and Cutler (1952) paper provides a well known description of fifty women who had undergone mastectomy. The study represents the fruits of an unusual cooperation between a surgeon and psychoanalyst. They consider that the main reaction to mastectomy is due to distress at losing a breast and the threat to the woman's femininity and self-esteem that this poses. They believe that the fear of cancer and its potential threat to life do not emerge as a central problem until later. The syndrome they describe is essentially one of mourning and is similar to that described more recently by Murray Parkes (1972) following the amputation of a limb. They found depression to be a frequent reaction together with symptoms of anxiety, insomnia, occasional ideas of suicide and feelings of shame and worthlessness. Women who were post menopausal had less

frequent problems and they hypothesized that this was because their breasts had already fulfilled their sexual and reproductive function and the loss was therefore not mourned. They believed that psychological distress occurred more commonly in women who were neurotic preoperatively concluding that this was due to this group of women having ambivalent feelings towards their breasts which were reawakened by mastectomy. Although they describe different reactions in various subgroups of women their conclusions are based on theoretical considerations and no data are given to support their claims about the fifty patients on whom the paper is supposedly based.

Bard and Sutherland (1955) do describe in detail the emotional reaction of twenty women, aged 28 to 58, who were interviewed before and after radical mastectomy. They disagree with Renneker and Cutler's supposition that the loss of the breast is the universal immediate preoccupation of women with breast cancer. They found many of their patients were afraid of dying, some believing they might die during the operation, others that they might die of the cancer. The fear of losing their breast was the main worry in some women but this was by no means universally the case.

Postoperatively they describe a similar syndrome to that described by Renneker and Cutler, anxiety and depression followed by guilt, anger and resentment and lowered self esteem. They also regard sleep and appetite disturbances as common sequelae of mastectomy together with hypochondriacal fears that every ache and pain is evidence of recurrent disease.

The more recent literature concerned with the psychiatric morbidity of mastectomy is sparse and often of poor quality. Most papers comprise descriptions of a small highly biased sample of

women interviewed at a variable time post mastectomy. There are only five studies using control groups and three studies which are prospective. Very few studies have tried to identify patient characteristics which would allow the women at risk of becoming psychiatrically ill to be identified preoperatively. I shall first mention the studies which used a control group.

Morris and her colleagues (1977) studied a consecutive series of women under the age of 70 admitted for biopsy to King's College Hospital. All patients had a tumour falling within the category of $T_{0,1,2}$ $N_{0,1}$ M_0 which means either an early operable breast cancer or a benign breast lump. There were 64 in the breast cancer group (only 59 of whom had a mastectomy) and 91 in the benign disease control group. Demographic data and details of previous psychiatric history were gathered on all patients. Prior to operation all patients filled in an Eysenck Personality Inventory (EPI: Eysenck and Eysenck 1964) Form A and were rated on specially designed rating scales (social adjustment scales) for marital, sexual and interpersonal relationships and work satisfaction. The Hamilton Rating Scale (H.R.S.) was used as a measure of depression. Postoperatively at three months, twelve months and twenty-four months the HRS was repeated, as were the social adjustment scales. The mastectomy patients were questioned about their adjustment to mastectomy and their response to the diagnosis of cancer and all patients were asked if they had visited their doctor with psychiatric symptoms. They did not use any operational definitions of psychiatric illness as outcome measures; the two measures they mention are the HRS and "psychological stress". A score of 10 or more on the HRS is regarded as defining a "case". "Psychological stress" is not defined but appears to be distress about disfigurement or diagnosis.

With respect to the HRS they find no significant difference between the cancer and benign groups at three months and twelve months. At 2 years 22% of cancer patients had a score of 10 or more compared with 8% of benign patients ($p < 0.05$). They report that 46% of mastectomy patients have "psychological stress" at three months and 30% at twelve months and twenty-four months. A number of predictors of adjustment to mastectomy are examined but the outcome measure used is not indicated. No relationship is found between menopausal status, previous hysterectomy, post-operative irradiation or patient's clinical status and "psychological adjustment" to mastectomy two years postoperatively. None of the psychosocial variables predict "adjustment". However, two of the preoperative test scores did predict "adjustment" at two years; patients who scored 10+ on the HRS preoperatively were more likely to remain "stressed" by mastectomy at two years ($p < 0.05$). Also patients still stressed at two years had significantly ($p < 0.025$) higher preoperative N scores. In the discussion they say that "patients likely to experience depressive symptoms that need medical attention are those who have clinical signs of depression immediately prior to operation regardless of their previous psychiatric history". There are no data in the paper to support this statement.

This paper attempts to compare the psychiatric morbidity of mastectomy for breast cancer with a benign control group and to establish what preoperative factors might be useful in predicting a poor psychiatric outcome. Unfortunately no operational definition of a "case" is used as an outcome measure. The HRS was not designed to be used as a diagnostic tool (Hamilton, 1967); it is recommended for use in patients already diagnosed as "depressed". Although 23% of cancer patients scored 10 or more on the HRS at twelve months and

twenty-four months postoperatively we cannot be sure what psychiatric "case" rate this is describing. Similarly the knowledge that 30% were "stressed" at two years does not indicate how many were psychiatrically ill. In the discussion there is some confusion about whether the predictors mentioned are predicting the likelihood of "stress" or of an HRS score of 10+; the discussion disagrees with the text in this respect.

Maguire and his colleagues (1978) also studied consecutive patients attending a breast clinic who were to undergo breast biopsy for suspected cancer. They did not limit the sample to women with early tumours as did the previously described study. As well as biopsy patients they also included a 1:5 sample of the remaining attenders. Their control group appeared to be a mixture of this 1:5 sample (who did not have a biopsy) and women who had had a biopsy but whose tumour was non malignant. Their original sample was of 117 who had breast cancer and 84 who had benign breast disease. They reinterviewed 96 of the cancer group at four months and twelve months but then selected a subsample of 75 who were 65 or under and who had no recurrent disease. Eighty of the 84 benign group were reinterviewed. Fifty of these were used because they match the cancer group for age, social class and marital status. Maguire and his colleagues do not indicate how the matching was done. It could have been in pairs with 25 of the cancer group remaining; they use all 75 cancer patients in their analysis.

Twenty-six were not interviewed before admission but soon after discharge. It is not stated how many of these were included in the trial sample, how many cancer patients, how many benign.

Again no operational definition of psychiatric illness is used in this study. Anxiety and depression are rated on a 4 point rating

scale as are sexual problems. At the initial interview which took place after the clinic visit the interviewers appear to have rated anxiety and depression for three time periods (1) before discovery or seeking advice (2) after discovery or seeking advice and (3) after attending the clinic. Anxiety and depression were re-assessed four months and twelve months after surgery.

They find that significantly less women in the cancer group have no symptoms compared with some symptoms after attending the clinic for the first time ($p < 0.05$) and at four months ($p < 0.05$) and twelve months ($p < 0.01$) following operation. One year after operation nineteen (25%) mastectomy patients had "moderate" or "severe" anxiety or depression or both compared with 10% of controls. This difference is not significant according to my calculations ($x^2 = 3.6$). Eight of these nineteen mastectomy patients had consulted their general practitioners. My conclusionsfrom these data are that the mastectomy group had an increased number of women with minor symptoms compared with the control group. However there was not a significant increase in women with what they term "clinically important symptoms" in the mastectomy group.

No preoperative predictors of psychiatric outcome following mastectomy are examined. It is said that radiotherapy "may have contributed to psychiatric morbidity" (sixty-two of the 75 had radiotherapy) but no supportive data are offered.

Although 25% of patients reported as having moderate or severe anxiety and/or depression compared with 10% of controls it is not clear whether these patients were suffering from a psychiatric illness or merely an isolated mood disturbance. The data necessary to make such a distinction are not given in the paper.

A more recent study (Hughes, 1982) does attempt to find factors which will enable a clinician to identify, preoperatively, patients who are likely to become psychiatrically ill post mastectomy. As in the previously mentioned studies no operational definition of psychiatric illness is used. The sample comprised women who were admitted for biopsy with small breast lumps (T_{1a} T_{2a}, N_0 N_{1a}, N_{1b} and M_0) and who were under the age of 70. Those who turned out to have benign lesions were excluded, as were women who had recurrences during the follow-up period. There were 44 women in the trial and they were seen before surgery and at three, six and nine to twelve months later. On each occasion they were given a semi-structured interview which included the recording of symptoms of depression or anxiety, their duration, severity and associated impairment of functioning. Each patient also completed a 60-item General Health Questionnaire (GHQ: Goldberg 1972).

The author reports psychiatric symptomatology and adverse reactions to some aspect of the illness separately although they are stated as often occurring together. There was sustained emotional distress (not defined) in 80% of cases and this was severe in 8 cases (18%). Eight patients (18%) had psychiatric symptoms severe enough to cause marked impairment of functioning for at least one month during the follow-up period. Six were interviewed fully (presumably to establish what other symptoms were present) and found to have a depressive illness. All developed the illness within the first six months and all were "much improved by the end of the follow-up period". (It is not stated whether they were still considered to be psychiatrically ill at that time). Eighteen (36%) developed mild depressive symptoms which did not impair functioning and were not associated with "the symptoms of

formal depressive illness".

The only preoperative features mentioned which predicted the likelihood of psychiatric illness (we are not told how many were examined) were the preoperative GHQ score (5 of the 8 cases were high scorers preoperatively) and the patients description of their previous personality. All of those who were not depressed at all postoperatively (n=20) had described their previous personality as happy, stable and calm. Half of those who were severely depressed postoperatively (n=8) had described their previous personality as being habitually anxious or oversensitive when interviewed preoperatively.

Five of the eight patients who became severely depressed regarded the loss of their breast as the main reason for distress, regarding themselves as "deformed" or a "freak". Twenty-three patients (52%) were persistently worried about the diagnosis of cancer postoperatively. The paper doesn't state how many of the depressed patients continued to be worried about their cancer. The conclusion of this paper is that the effects of mastectomy have been exaggerated and that most patients make an excellent physical and mental recovery within a few months of their diagnosis.

The other two controlled studies used non breast disease control groups. Ray (1977) used cholecystectomy patients and Worden and Weissman (1977) other types of cancer patients as a control group.

The Ray (1977) study is a retrospective study of women aged 55-65 eighteen months to five years after operation. Each of the thirty mastectomy patients was matched for age and time since surgery with cholecystectomy controls. She measured depression and anxiety by using self rating scales devised by Costello and Comfrey

(1967), an adjective check list and Rosenberg's (1965) self esteem measures. The mastectomy patients were found to have higher anxiety and depression scores ($p < 0.05$) were more introverted ($p < 0.05$) and had a lower self esteem ($p = 0.11$) than the control patients. Predictors of psychiatric outcome were examined in the mastectomy group and no effect found of time since surgery, age or social class. The study demonstrates that there is more morbidity following mastectomy than following a major operation for a benign disease. It does not help to disentangle whether or not the mutilation or the fact of having cancer is what gives mastectomy a worse prognosis from the psychological point of view. Those who were concerned about their physical appearance were more likely to be depressed, but this could have been a symptom of depression rather than a cause.

The Worden and Weisman (1977) study is based on 40 consecutive admissions of women with newly diagnosed breast cancer. Fifty consecutive admissions of women with Hodgekins disease, malignant melanoma or cancer of the colon were used as the control group. They were all interviewed at 4 - 6 week intervals until 6 - 8 months had elapsed. At each interview the patients were rated on a 4 point scale for 13 varieties of emotional and psychological distress. They were also given a Profile of Mood Status (POMS; McNair and Lorr, 1964) to rate. This is a self report instrument measuring tension, depression and other affective symptoms. The interviewer assessed self esteem on the basis of the answer to a set of semistructured questions.

They found no significant differences on any of their measures between women with breast cancer (who had had a mastectomy) and controls and no difference in self esteem between the two groups. In fact 80% of both groups had no problem with self esteem nor any

significant symptoms relating to body image. They query the findings of the early descriptive studies which suggest that a post mastectomy syndrome predetermined by the emotional significance of the breast is an almost universal sequel to mastectomy. The only difference they found between breast cancer and other cancer patients was in the peak time of distress; in breast cancer this was 8 - 10 weeks after first being diagnosed whereas in the control patients the peak tended to be around the time of diagnosis and staging.

The conclusions from this study are clear, that there is nothing specific about the aftermath of the treatment for breast cancer. It implies that the psychological distress following mastectomy is due to the fact of having cancer and that the loss of a breast makes no significant contribution to the psychological morbidity. These findings differ from those of Winick and Robbins (1977) who found that the more extensive the surgical procedure for breast cancer the greater the number of women who experienced moderate or severe emotional distress. This seems to indicate that the mastectomy itself is a main cause of distress.

Silberfarb and his colleagues (1980) have written a good descriptive study of three groups of breast cancer patients; those who are having "curative" treatment (mastectomy), those who are experiencing their first recurrence, those who have previously experienced recurrent disease and are now being treated with palliative chemotherapy. There were 50 patients in the mastectomy group; they were consecutively diagnosed patients. They were interviewed four months after mastectomy and the Psychiatric Status Schedule (PSS: Spitzer et al., 1970) was used to assess psychiatric symptoms. Ten percent of mastectomy patients were found to have

depression and anxiety. It is noted that vegetative symptoms of depression, sleep and appetite disturbance and tiredness are common but that these could well be due to the somatic manifestations of the cancer. Symptoms like guilt, feelings of inadequacy, obsessions and social withdrawal, were uncommon. They felt they could not confirm the prominence of post mastectomy depression or loss of self esteem.

The other papers which have been published about the psychological morbidity following mastectomy are mainly anecdotal. In spite of their deficiences two are worth a mention. Goin and Goin (1981) studied a small group of women who were consulting a plastic surgeon for breast reconstruction. This method of obtaining a sample is obviously heavily biased in favour of women who are still distressed about their physical appearance following mastectomy. It is not surprising therefore that they found that the twelve women between the ages of 45 and 65 were distressed at the loss of their breast even though they were middle aged and fell into the post menopausal group which Renneker and Cutler hypothesized should have no problems. Jamison et al (1978) also report on a very biased sample of forty-one women who were members of a post mastectomy self help group. The only reason for mentioning the study is the fact that they report that 2.5% of these women had suicidal ideas following mastectomy, 35% had an increased use of tranquilisers and 15% an increased alcohol consumption. These assessments were not made in any of the controlled studies and as the sample is so biased in favour of women who were distressed and in need of help it is difficult to interpret the findings.

Women who reported a better emotional adjustment had significantly lower scores on the EPI neuroticism subscale, a more external locus of control, had been married longer, were older, and perceived significantly more understanding and emotional support from their surgeons, spouses and nursing staff. However as these assessments were made at the same time as the psychiatric assessment and not prior to operation it is impossible to evaluate to what extent these associations were due to the current mental state.

To summarise the findings of the studies reviewed. No study used an operational definition of psychiatric illness. Three studies found mastectomy patients had more anxiety and depression than benign controls (Maguire et al., 1978; Morris et al., 1977; Ray, 1977), whereas the one study (Worden and Weisman, 1977) which used cancer controls found no difference. Silberfarb and his colleagues also questioned whether loss of the breast was responsible for depressive illness following mastectomy. There have been few attempts to identify the features which make patients more likely to develop psychological problems postoperatively. Morris (1977) found no association with psychosocial variables although she found a tendency for women who were married or co-habiting to do worse than those who were not. Renneker and Cutler assumed that older women were less likely to develop problems but Hughes (1982) found the mean age of the psychiatrically ill tended to be higher than the sample as a whole. With respect to preoperative measures Morris and colleagues (1977) found that the preoperative HRS score and the EPI neuroticism subscore predicted those who had poor psychological adaptation to mastectomy and Hughes (1982) found that the preoperative GHQ score and the patient's previous personality were good predictors.

Sexual Morbidity of Mastectomy

The earlier descriptive papers make much of the importance of the breasts as symbols of sexuality and femininity. Renneker and Cutler state "to threaten the breast is to shake the very core of her feminine orientation". They describe the problems experienced by the women, loss of libido, fear that their husband may find them repulsive, no longer feeling sexually attractive and missing their breasts because they played an important part in their sexual relationship.

Some of the more recent studies have assessed the sexual morbidity experienced following mastectomy. Morris and colleagues (1977) found that 18% (8/36) of cancer patients compared with 6% (4/61) of benign patients ($p < 0.01$) reported sexual deterioration three months after operation. Of the eight patients 4 were perimenopausal and a further two were close to the age of 50. At two years postoperatively there was an increase in patients reporting deterioration in their sexual relationship in both benign and cancer groups (27% in the benign group and 32% in the cancer group).

Maguire (1978) found that one third of patients had moderate or severe sexual problems a year after mastectomy compared with 8% of controls ($p < 0.05$). The other controlled studies don't report on sexual morbidity.

Changes in the Marital Relationship

The only controlled study which mentions the marital relationship is the Morris (1977) study. Six per cent of their cancer patients compared with 18% of those with benign lesions reported an improvement in their marriage at 2 years postoperatively. Eleven percent of cancer patients compared with 6% benign reported a worsening at

2 years. Hughes (1981) reports that 23 of the 30 married patients in the study said their marriage was entirely unaffected by the mastectomy. Four patients considered their marriage had improved because the amount of communication and displayed affection between the couple had increased. Two reported marked deterioration in their marriage.

It appears from the limited information available that the mastectomy patients' marital relationship is not frequently adversely affected and sometimes actually improved.

Work Morbidity

The data on work morbidity is conflicting. Silberfarb and his colleagues (1980) report that only 13 of the 24 mastectomy patients employed before treatment had returned to work at 4 months. Twenty-two (of 50; 44%) needed some help with household chores. An English study (Morris, 1977) found only 54% of patients maintained their preoperative adjustment at three months postoperatively but that this had increased to 71% by 2 years postoperatively. McCardle and his colleagues (1981) report that the majority of their patients had started work within three months of starting chemotherapy (i.e. four months after mastectomy). Only 13% had given up their jobs or were unable to run their homes at this time. The reason for this Scottish study showing more women returning to normal work functioning soon after operation may well be due to cultural expectations with respect to work, in Scotland.

Psychosocial Morbidity of Adjuvant Therapy

Chemotherapy

One of the problems with the treatment of breast cancer is that no matter how vigorous the local treatment (mastectomy, radiotherapy) patients still frequently relapse and die of metastases. This is particularly true of women who have positive axillary lymph nodes at the time of mastectomy. The conclusion to be drawn from this clinical finding is that, in a large number of patients, at the time of treatment the tumour has already metastasized, even though clinically there is no evidence of metastases. This is the rationale for using adjuvant chemotherapy at the time of the initial local treatment in the hope that any cancer cells which have been disseminated will be destroyed. Recent studies (Bonnadona et al., 1979) have demonstrated that adjuvant CMF (cyclophosphamides methotrexate and 5-fluorouracil) significantly increases relapse-free survival and total survival at 5 years postoperatively in premenopausal women but not in post menopausal women. However these results are very preliminary and are being replicated all over the world. A much longer follow-up will be required before conclusions are finally reached.

In the meantime there has been some concern (Palmer et al., 1980) that adjuvant chemotherapy will be increasingly used before its value has been fully assessed and that any increased psychological and physical morbidity will be unacceptable until the treatment is of proven value.

There are even fewer studies which examine the effect of adjuvant chemotherapy than there are ones reporting the psychological sequelae of mastectomy. I have only been able to find one descriptive study and three controlled trials. One study (Meyerowitz et al., 1979)

describes 50 patients all of whom had had a mastectomy and were on a CMF programme. The effect on five areas of the patient's life were examined, "marital/family", "sexual", "financial", "general level of activity" and "level of work related activity".

Every woman on the programme reported that it had resulted in adverse changes in her life and 94% found these changes emotionally upsetting. Twenty-three percent reported increased disruption in their marital and family relationships, forty percent a worsening of their sexual relationship, fifty-four percent an increased financial burden, thirty-eight percent a decrease in general activities and thirty-two percent a decrease in work related levels of activity. Almost all reported adverse side effects of treatment, fatigue being particularly troublesome. Eighty-eight percent reported feeling sick. Sixty-two percent had unexplained nervousness, irritability and/or tearfulness. No relationship was found between the number of side effects and disruption or distress. This descriptive study admits its limitations in making no effort to disentangle the effects of having cancer and the chemotherapy itself but the morbidity described is considerable and doesn't confirm Bonadonna's optimistic "various forms of combination chemotherapy do not seem to be associated with important acute toxicity". His main concern was with physical toxicity like myelosuppression, infection and drug induced fatalities which probably accounts for the difference in opinion.

Palmer and his colleagues (1980) did a controlled trial of a five-drug combination, chlorambucil, methotrexate, fluorouracil, vincristine and adriamycin compared with the single agent chlorambucil. They report mainly physical side effects and find 42% of the chlorambucil control group had side effects sufficient to interfere

with their lifestyle (nausea, vomiting, malaise and alopecia) compared with 79% of those receiving the five drug combination. Twenty-nine percent of those who had received the multiple drug schedule voluntarily said that the treatment had been "unbearable" or "could never be gone through again".

McCardle and his colleagues (McCardle et al., 1981) report a controlled study of 107 patients with Stage II breast cancer who were randomly allocated to receive radiotherapy alone, chemotherapy alone, or radiotherapy following mastectomy. The toxic side effects were recorded by a clinician and the psychological morbidity was assessed by two self rating scales, the General Health Questionnaire (GHQ: Goldberg, 1972) and the Leeds self-assessment Scales of Depression (LSD) and Anxiety (LSA: Snaith et al., 1976). These were repeated at one, three, six, twelve and eighteen months after mastectomy. There were no differences between the treatment groups at one month, three months and six months after mastectomy. But an assessment of disease-free survivors at twelve months post-operatively did show a difference. Thirteen of the 34 (38%) who received chemotherapy with or without radiotherapy were high scorers on the GHQ, compared with one out of the 18 (6%) of those who had radiotherapy alone ($p < 0.05$). There was a nonsignificant tendency for there to be more cases of depression as measured by the LSD in the chemotherapy group. Eighteen months after mastectomy the rates had fallen in both groups but the trend was the same. Three out of 27 of the chemotherapy group were high scorers on the GHQ compared with 0 out of 13 of the radiotherapy alone group. No explanation is given for the number being so small; the original sample size was said to be 107. The other weakness of the study is that it relies entirely on self rating scales. There are no

interview data. As the 60 item GHQ contains many items which are concerned with physical symptoms like tiredness and appetite disturbance the difference reported may be entirely due to the greater physical toxicity of the chemotherapy.

Maguire and his colleagues (1980) report a study comparing the effect of mastectomy alone with mastectomy and chemotherapy. Sixty-three women whose lymph nodes were invaded by cancer at the time of mastectomy were randomly allocated to receive CMF (cyclophosphamide, methotrexate and 5-fluorouracil) or melphalan or no treatment. The Present State Examination (PSE: Wing et al., 1974) given by trained interviewers was used to assess psychiatric symptomatology. The patients were interviewed shortly after operation and at three and 12 to 18 months later. Of the sixty-three in the trial 59 completed all assessments. The outcome variables used were diagnoses of anxiety or depression. There are no operational definitions for these diagnoses and they are not mutually exclusive so that the same patient can have both disorders simultaneously. Seventy-seven percent (20/26) of CMF patients compared with 27% (4/15) of melphalan patients and 50% (9/18) of controls received a label of anxiety state. (This is said to be significant at $p < 0.01$ but the difference between CMF and non treatment controls <u>does not</u> seem to be significant, 20/26 cf 9/18; $x^2 = 2.34$ n.s.) There are similar results for depression, 77% (20/26) CMF cf 33% (5/15) melphalan cf 50% (9/18) controls.

They also report on the sexual morbidity of their subjects 14/20 (70%) CMF patients compared with 3/5 (38%) melphalan patients and 5/10 (50%) controls had "severe loss of sexual interest". There is no indication of the point in time at which this morbidity

was assessed or whether the "loss of sexual interest" was always in association with depression.

There was a strong association between those rated as psychiatrically ill and those with severe toxic side effects. Twenty of the 26 CMF patients had moderate or severe side effects and of these 18 (90%) were psychiatrically ill compared with 2 of the 6 who had milder side effects. Although the interviewers did a PSE at three, twelve and eighteen months these data are not reported in the paper. No time period is given for the psychiatric data reported.

The conclusion to be reached from these data is that the CMF group does not have a significantly greater morbidity than the mastectomy alone control group. No explanation is offered for the unexpectedly low rate in the melphalan group.

To summarise the findings of the studies reviewed; the physical toxicity of chemotherapy and the adverse effect it has on the patient's behaviour are almost universal. Neither of the controlled studies used an operational definition of psychiatric disorder. Both studies found more psychiatric morbidity in patients receiving CMF than in control groups. However, there were snags in both studies which make this finding questionable.

CHAPTER 3

Hypotheses based on previous mastectomy literature

1. That patients who have high scores on the N subscale of the EPI will be more likely to be psychiatrically ill postoperatively.
2. That patients who are psychiatrically ill preoperatively as measured clinically and by the GHQ are more likely to be psychiatrically ill postoperatively.
3. That younger women are more likely to become psychiatrically ill than older, premenopausal than postmenopausal.
4. That women who are proud of their breasts and pleased with their physical appearance will have a higher psychiatric morbidity postoperatively.
5. That patients receiving extra treatment (radiotherapy, oophorectomy, chemotherapy) in addition to mastectomy are more likely to become psychiatrically ill.

Hypotheses based on other literature

6. That patients who have poor social supports are more likely to become psychiatrically ill. This hypothesis is based on the work of Henderson and his colleagues (1978) who found an association between psychiatric morbidity and social bonding.
7. That patients with poor marriages, no confidant, no job, children under the age of 14 and who lost their mother before the age of 11 are more likely to become psychiatrically ill postmastectomy. This hypothesis is based on the work of Brown and his colleagues (1978) who found these factors made women more vulnerable to becoming psychiatrically ill in the face of stress. In addition Brown and his colleagues found that women of lower social class had a higher prevalence than women of higher social class, married women a higher

prevalence than single women. An additional hypothesis is therefore that women of lower social class who are married, divorced, separated, cohabiting or widowed are more vulnerable to stress.

8. That patients with severe stress, like the death of a close relative, loss of a job, in the six months prior to mastectomy are more likely to be psychiatrically ill postoperatively.
9. That patients with previous psychiatric illness are more likely to become psychiatrically ill when stressed.
10. That immediate breast reconstruction at the time of mastectomy will reduce the psychiatric, sexual, social, marital and work morbidity which are reported to follow mastectomy.
11. That women who receive an implant will be better pleased with the cosmetic result than those who don't.
12. That women who have breast reconstruction will be more able to wear any kind of clothes without embarrassment and will have less limitation of clothing than those who do not have reconstruction.

METHOD

PILOT STUDY

Interview Sample

In order to get first-hand experience of the kinds of problems and difficulties expressed by women who had had a mastectomy I began by interviewing 5 women who had had a mastectomy, using an unstructured interview. These interviews lasted about an hour. I introduced myself as a psychiatrist who was interested in the kind of problems experienced by mastectomy patients and said I hoped the research I was doing would benefit mastectomy patients in the future.

The problems experienced by these women can be classified under a number of headings.

1. Fear of recurrence

Some women were constantly fearing a local recurrence and frequently examined the scar or the other breast. They also imagined that every little ache and pain they experienced meant that they had a recurrence of their cancer. Fear of dying was another preoccupation.

2. Selfconsciousness about appearance

This could be both when dressed or undressed and resulted in the following difficulties - not being able to walk down the bingo hall for a card, being embarrassed taking a sauna or being on a beach, needing to undress in the bathroom instead of in front of their husband.

3. Emotional Disturbance

The sorts of description relating to this problem were "feeling depressed and weepy", "being more easily hurt, not laughing as much", "feeling mutilated and deformed". Three patients also reported taking tranquilisers for the first time after their operation.

4. Radiotherapy

Without exception the women complained that the adverse effects of radiotherapy were "worse than the operation"; complaints were of depression, exhaustion and skin peeling. They felt they were given no advance warning of these side effects of treatment.

5. Pain

Pain and discomfort when lying on the operated side and tingling and pains coming from the "phantom breast" were mentioned.

6. Change of Personality

The women reported feelings of inadequacy, feeling less confident and not being back to their normal self.

7. Change in ability to work

Some of the women spontaneously said that they were not able to cope with their job or household tasks and that they needed more help in the home from their family.

I used the information I obtained from these structured interviews to devise the postoperative structured interview.

Piloting preoperative and postoperative interviews

Before starting the main study I piloted the package I hoped to use, including the structured interviews. Initially I had intended to use preoperatively the following self-rated questionnaires along with the interview that I designed.

1. Holmes and Rahe Life Events Schedule (Holmes & Rahe, 1967)

As life events have been shown to be associated with the onset of psychiatric illness (Brown et al., 1973) I felt it was necessary to record other life events which had occurred in the six months before mastectomy as events during this period were likely to influence the mental state recorded pre and postoperatively.

2. Social Adjustment Scale

I intended to use this preoperatively and at three and twelve months postoperatively in order to assess the baseline social functioning and any changes postmastectomy.

3. Eysenck Personality Inventory - Form A (Eysenck and Eysenck, 1964)

This has been used in a number of previous mastectomy studies and I wanted to replicate them.

4. General Health Questionnaire (GHQ) 60 item version (Goldberg, 1972)

This has also been used in a number of mastectomy studies. It is a self-rating questionnaire which gives a measure of the general level of psychiatric morbidity rather than of any specific illness. A score of 12 or above is normally regarded as indicating a "probable" case.

5. Maudsley Marital Questionnaire

This questionnaire was being used at the Maudsley and although its reliability and validity were not known when I began my study I decided to use it as no other suitable marital self-rating scale was available. (The other available rating scales were too intrusive with respect to details about the patient's sexual practices to be acceptable to women just about to undergo mastectomy.) Its reliability has subsequently been shown to be poor (0.68 split half reliability coefficient for the marital section and 0.51 for sexual section - personal communication with Susan Golombok).

6. Middlesex Hospital Questionnaire (Crown and Crisp, 1966)

This is another self-rating scale but unlike the GHQ this one gives subscores for anxiety, depression, obsessions, somatic symptoms, hysteria and phobias. I thought this would usefully categorize the kind of psychiatric symptoms experienced by the patient as an adjunct to the clinical interview. The devisers of the instrument published additional information after I had started my study (Crown and Crisp, 1979) which provided evidence that the instrument is sensitive to change particularly the anxiety, somatic and depression subscales. However the new publication also indicated that the instrument was not sensitive enough to be able to distinguish between the different diagnostic groups (e.g. anxiety and depression or schizophrenics and normals).

7. Semantic Differentials

These were a modification of those originally described by Osgood et al (1957) and were designed to assess the women's self concept and body image before and after operation and in the different treatment groups.

It was intended to repeat 2, 4, 5, 6 and 7 at three months and twelve months postoperatively.

Interviews designed for the study

Immediate Postoperative Questionnaire

This was a questionnaire intended to be given whilst the patient was still in hospital following her mastectomy. It comprised a small number of open questions relating to how the patient felt, whether she had looked at the area which had been operated on and if so her reaction to it.

Preoperative and Postoperative Questionnaires

The preoperative questionnaire was piloted on fifteen patients and the postoperative questionnaire on seven. As a result of this piloting several modifications were made, mostly the ordering of the questions and additional coding categories for responses I had not anticipated. The details of both these structured questionnaires are discussed below and they appear in the Appendix 1 and 2.

During the pilot stage I found that many of the women were distressed during the interview, particularly the preoperative one. In view of this experience I decided that the interview in the main study must, for ethical reasons, be to some extent therapeutic. Although the interview is structured I allowed time for the patient to talk freely if this was thought to be necessary. I also decided

that if patients were seriously depressed I would ask their permission to contact their G.P. with suggestions for treatment.

During the pilot stage I found that the number of questionnaires I had hoped to use was too ambitious. The structured interview took about one hour, sometimes longer. I then had to demonstrate how to fill in 7 forms and leave a packet of questionnaires to be filled in after I'd gone. Leaving patients with the forms led to problems; they showed them to the nurses and asked them to help, sometimes two or three patients joined forces to help each other. This led me to adopt a different regime in the main study, either leaving the patient in the interview room to complete the questionnaires or, if this were impossible, making sure the patient and the nurses understood that the forms had to be completed by the patient alone and in complete privacy.

In the main study I cut down the number of self-rating schedules and only used 1, 3, 4, 5 and 6 preoperatively and 4, 5 and 6 postoperatively.

Construction of the preoperative questionnaire

I decided to devise a structured questionnaire to assess the patient preoperatively. Each section had a number of questions with answers already coded. The way I conducted the interview was to ask each question and, on the basis of the information gleaned from the reply, code the response. If the coding was not clear cut then I proceeded with further probes until the category for a question was firm. The patient was not shown the coding alternatives. I decided beforehand rules to help me code each answer although in most instances this was not necessary because the coding was clearcut.

The exercise was aided greatly by the fact that I was the only interviewer. This gave a degree of consistency across the interviews and there were no problems of inter-rater reliability. The Questionnaire appears in Appendix 1. It is divided into a number of sections.

1. Timing and method of entry into treatment

This partly involved enquiry into the pathway into treatment, either via the screening clinic to the surgeon or via the general practitioner, and partly an enquiry into the length of time the patient had had to wait before being seen at surgical outpatients and the length of the wait between surgical outpatient consultation and admission to hospital. It seemed possible that lengthy waits might increase psychiatric morbidity or, on the other hand, that patients admitted via the screening clinic might not have enough time or opportunity to adjust to a diagnosis of breast cancer.

2. Anticipated effects of mastectomy

This section contained questions to establish the patient's main worry - mastectomy or the cancer - prior to operation, and also a question asking the patient to predict the effect the mastectomy would have on them. They were asked to indicate whether or not they worried about their husband's reaction to them after their mastectomy.

3. Attitudes to medical and nursing staff

This section assessed whether or not the surgeons and nurses were perceived as being sympathetic. The reasons for encorporating these questions was to replicate Jamieson's work, referred to previously. In his retrospective study of a biased sample of post-mastectomy patients he found that women who experienced the surgeons

and nurses as sympathetic had a lower psychiatric morbidity. However negative feelings about staff may have been a symptom of illness rather than a cause and I had the opportunity to test his hypothesis prospectively.

4. Previous "breast" attitudes

This included questions about whether relatives or friends of the patient had had breast cancer or breast disease and, if so, their outcome. There were also questions about the patient's previous attitude to her breasts, their size, whether or not she had breastfed and whether or not she experienced premenstrual changes in her breasts.

5. Demographic information

The usual demographic information was obtained, marital status, (married, married but separated, divorced, widowed or single), social class (Registrar General classification based on husband's occupation if the patient lived with him and on her own occupation if she were single, separated or divorced or widowed). In the few cases where the women had a longstanding cohabitee the cohabitee's occupation was used, and employment status (unemployed, employed full-time, or employed part-time). I also established the educational achievements of the women ranging from no certificates to professional graduate.

6. Childhood losses

The loss of either parent by divorce or separation in childhood was asked for together with the age at which this took place.

7. Children

The women were asked about the number of children they had and their ages.

8. Previous psychiatric history

This section established details about any previous psychiatric history and about any previous or current treatment for psychiatric illness. It also contained questions about alcohol intake and alcohol problems.

9. Assessment of current mental state

As my interview covered a large number of areas I didn't feel that time would allow me to do a full P.S.E. I therefore inserted 20 items which dealt with symptoms of anxiety and depression. These symptoms were enquired for and rated in the standard P.S.E. fashion and ratings were based on symptoms occurring during the previous four weeks.

10. Marital assessment

There were eight questions relating to the patient's marital relationship. These questions were partly derived from a self-rating questionnaire (Frenken and Vennix, 1981) which has since been published. The last two questions relating to the patient's negative feelings towards her husband and a description of his good and bad points were dropped after the pilot study. The former was unsatisfactory as the patients found it impossible to answer, the latter because the replies were too numerous to code and I did not think the information was going to be useful. The next 5 items of the marital relationship were concerned with the more functional aspects of the marriage; decision making, earning the money and paying the bills, and household chores.

For some analyses the patient's marriage had to be categorised as good or bad and for this purpose scores on 5 of the marital relationship items were summed together. These items dealt with

the following areas in the marriage:

a) the confiding nature of the relationship (5 point scale)

b) the sympathy of the husband (5 point scale)

c) the amount of quarrelling in the marriage (5 point scale)

d) the overall happiness of the marriage (4 point scale)

e) the amount of warmth and affection between husband and wife (5 point scale)

The cut off points for the 2 point and 4 point scale were decided in the following way. When the frequencies of the scores on the 5 items added together were known the patients were divided into two equal halves (or/as near as was possible) and the score at which this division took place was used as the cut off point. The 2 groups were then broken down into two further equal parts to provide a 4 point scale for the marital relationship.

11. Sexual relationship assessment

Initially I had 12 questions concerned with the patient's sexual relationship. These were concerned with the frequency and enjoyment of intercourse and also with the woman's initiative in the sexual relationship and whether or not she experienced a climax. The last two questions of the section were concerned with the part played by the breasts in the sexual relationship, both from the woman's point of view and her husbands.

I found that this section was unacceptable to most patients. Prior to their operation it was obviously very difficult to talk about their previous sexual relationship and the older women were particularly unwilling to talk about their own sexual enjoyment.

Because of these difficulties I eventually limited my enquiry to a smaller number of questions which dealt with the frequency of intercourse, the proportion of times it was found to be a pleasant experience, the importance to both partners of the breast in love-making and details about bedroom sharing and usual undressing behaviour.

12. Social adjustment

This section was designed to assess the frequency with which the patient went out socially and entertained at home, prior to operation. It also assessed her confidence, socially, before becoming ill. There were two questions enquiring about informal social contacts and one about the patient's assessment of the adequacy of her friendships. I also asked if the patient had a confidant and if so enquired about the number of people in whom she could confide freely. Henderson and his colleagues (1978) found an association between poor social bonding and psychiatric illness. My study, being prospective, seemed an ideal opportunity to see if poor social bonding increased the risk of becoming psychiatrically ill postoperatively.

13. Appearance and clothing

Firstly I enquired about the patient's attitude to her appearance, whether she was particular about it or not. Next I enquired about the frequency with which she wore a low neckline and finally asked how attractive she felt compared with other women and whether she enjoyed buying clothes. As well as asking her about her appearance, I did my own assessment of her dress, her make-up and her hairstyle.

14. Method of coping

Greer and his colleagues (1979) assessed the patient's method of coping with their breast cancer. This was divided into a number of categories: denial, fighting spirit, stoic acceptance, anxious/depressed and helpless/hopeless. Subsequently this team have demonstrated an association between coping strategy and relapse-free survival. Although they provide no operational definitions for these categories I tried to replicate them in my study. Unfortunately there was one major difference between the two studies; in the Greer study the word "cancer" was not used unless the patient used it herself whereas in the present study all the patients were told they had cancer. This obviously made "denial" a more difficult response to maintain. I did not always find the patients easy to classify, they often had a mixture of responses.

Postoperative Questionnaire

This questionnaire was given at three and twelve months post-operatively and its main aim was to assess any changes which had occurred in the patient since operation. It was divided into a number of sections and appears in Appendix 2.

1. Adjuvant Treatment

In this section I enquired about any adjuvant treatment that the patient had received postoperatively. I also enquired about the extent of the side effects of radiotherapy in those who had received it, as this had been a major preoccupation of my pilot interview sample.

2. Physical Symptoms

This section covered symptoms like pain in the shoulder and over the operated area, stiffness or weakness in the arm, phantom

breast and lack of energy.

3. Satisfaction of Cosmetic Result

Several questions were asked both of women who had had an implant and women who had not. These were concerned with self-consciousness about the bust, satisfactoriness of the matching of the breasts when dressed, and cleavage. There were then a number of questions relating to women who had no implant, questions about the external prosthesis and its satisfactoriness and a number relating to the implant, any snags experienced or regrets about having had it done.

4. Work

The patient was asked if they had returned to work and, if so, if they were working as many hours and were as competent and confidant as before their operation.

5. Psychiatric Treatment since Operation

The women were asked about consultation behaviour, current psychotropic medication and any change in alcohol consumption since operation.

6. Current Psychiatric State

Again, as in the preoperative questionnaire, the patients were asked about the PSE symptoms relating to a diagnosis of anxiety and depression. Symptoms were rated which had been present during the previous month.

7. Marital Relationship

I had intended to ask the patient about each aspect of their marriage as in the preoperative questionnaire and then for each item ask if that was a change since before the operation. During the pilot study I found this to be too repetitive and laborious and

so in the main study tended to run the two questions together and only rated whether or not the aspect of the marriage had changed, e.g. to what extent do you and your husband tend to talk over problems and worries with each other? Has that changed at all since your operation? In this section questions were also asked about any of the practical aspects of the marriage including any changes in the sharing of the household tasks and whether or not the patient was able to do her normal household chores or whether she needed extra help.

8. Sexual Relationship

As with the marital relationship I asked only about changes in the relationship. I asked whether or not intercourse was still continuing since the operation and, if so, whether there was any change in frequency, enjoyment or caressing. The patient was also asked whether the operation had made any difference to the way she felt about making love by reason of selfconsciousness or pain. She was asked if she still shared the same bedroom with her husband and whether or not she was able to undress freely in front of him.

9. Social Adjustment

Any changes in the frequency of going out were noted and also any changes in the social interactions with family or friends and in social confidence.

10. Appearance and Clothing

Any changes in the patient's attitude and appearance since operation were recorded.

11. Interviewer Rating of Appearance

As in preoperative questionnaire.

12. Method of Coping

As in the preoperative questionnaire.

Interviewing the Patient Preoperatively

Patients who are regarded clinically at the breast clinic as having breast cancer are admitted to Longmore Hospital, Edinburgh, for assessment. The protocol of this assessment is included in Appendix 7. I saw the patients during this admission, usually about a week before operation. At the time I saw them the patients had been told they probably had cancer and were likely to need a mastectomy. I approached each patient by telling her that I was a psychiatrist who was interested in the problems and difficulties of women who were undergoing investigation and treatment for breast problems and asked them if they would be willing to be involved in my research which would involve being interviewed by me and the filling-in of some questionnaires.

The interview took approximately one hour and the patient was then given an envelope containing questionnaires for her to complete. She was shown how to fill them in and then instructed to do so quietly by herself without help from, or discussion with, the nurses or any other patients. After completing the forms she was asked to return them to the envelope, which was addressed to me, and to give it to one of the nurses for me to collect later.

In the main this worked very well but there were rare occasions when the patient took the envelope home with them after their pre-operative assessment and needed to be contacted at home in order to retrieve it.

Before parting from the patient preoperatively I asked her permission to contact her at three months and twelve months post-

operatively and took down details of her address and telephone number.

Postoperatively

For all patients I recorded a three month and twelve month postoperative date. About 2 weeks before the due date I would contact the patient, preferably by telephone and, if not, by letter (a sample appears in Appendix 8). If the patient was due at the hospital to see the surgeons around the time of the due date then I would arrange to see her at the same visit, either at Longmore Hospital or at the Edinburgh Royal Infirmary. If not, she was asked to make a special trip to Longmore Hospital to see me. Very rarely I visited the patient at home because other arrangements were impossible.

Ninety-five percent of patients were seen within two weeks of their due date. The structured interview took about three quarters of an hour. As at the preoperative interview, the patient was given an envelope containing the self-rating questionnaires. They were asked to complete them and return them to me within a week of the interview (the envelope was stamped and addressed to me). Most women did return them immediately. If they did not, then I sent them a letter to remind them and if that failed I sent another set of questionnaires with a letter saying that I assumed the original set had been mislaid. Even so, 8% (10/120) failed to return them at three months and 7.6% (9/118) at twelve months postoperatively. More details about incomplete data are given in the results section.

Other Information Obtained

As well as the information obtained from the patient I also

obtained information from the surgeons, either from the case notes or from the data collected on computer. I noted the TNM staging (tumour size, node status and presence of metastases) recorded prior to operation, the treatment options planned for the patient, the lymph node status as determined at operation, and the oestrogen receptor status.

Scottish Breast Trials (Stewart, 1982)

During the time of my study a number of Scottish Breast trials were in progress and a description of these follows.

Trial I

During 1978 until December 1979 all women in Edinburgh with Stage I and II Breast Cancer, who were under the age of 70 and in whom the axillary nodes were found to be uninvolved (node negative) at the time of mastectomy, or no axillary nodes were found, were randomly allocated to radiotherapy or to observation.

Pilot Trial B

Also during 1978 until December 1979, there was a trial for postmenopausal women with operable breast cancer whose axillary nodes were found to be involved (node positive) at the time of mastectomy. They were treated with simple mastectomy and axillary biopsy and then randomly allocated to receive Tamoxifen either immediately after mastectomy or at the time of first recurrence. The Tamoxifen was given in a dose of 20 mg daily, in either single or divided doses.

Implant Trial

Between November 1978 and August 1980 all women with operable breast tumours ($T_{1,2}$ $N_{0,1}$ M_0) who were under the age of 60 were invited to enter a breast reconstruction trial and if they agreed

were randomly allocated to either immediate breast reconstruction or reconstruction at one year postoperatively.

Between December 1979 and March 1980 the only ongoing trial was the breast reconstruction trial.

From March 1980 there were 4 trials (A B C & D) in addition to the breast reconstruction trial. There was also a sample clearance trial with all women being randomly allocated to axillary clearance using the Patey technique or axillary sample (Forrest et al., 1976) with radiotherapy if the sampled nodes turned out to be positive.

Trial A

Women who had operable breast cancer and who were premenopausal were entered into this trial and were randomly allocated to either CMF (cyclophosphamide, methotrexate and 5 fluouracil) or oophorectomy. Both the CMF and oophorectomy groups were randomly allocated to receive prednisolone as well or not. The dose of prednisolone was 7.5 mg a day in divided doses.

As well as the adjuvant treatment the women were also randomly allocated to either an axillary sample or an axillary clearance. Those who drew axillary sample were treated in addition with radiotherapy. The chemotherapy (CMF) was to be started within 8 weeks of beginning radiotherapy. If the radiotherapy was delayed (for instance because of delayed healing) then the chemotherapy had to start at the latest within 12 weeks of mastectomy.

The CMF was to be given by intravenous injection. Antiemetics could be given orally or parentally as required. The dose of CMF

was calculated on the basis of surface area. If the surface area of the patient was more than 2 square metres it was regarded as 2 square metres. Cyclophosphamide was given in a dose of 750 mg / square metre; methotroxate in a dose of 50 mg / square metre and 5 fluouracil in a dose of 600 mg / square metre. The patients received 8 doses at intervals of 21 days, provided the white blood count was 3 or more x 10^9 per litre and the platelets 100 or more x 10^9 per litre. If the blood levels were lower than those recommended above then the CMF was delayed for a week. If such a delay was necessary on two consecutive occasions then on the third occasion the dose of CMF was reduced to 75% of the original dose.

Trial B

This trial, like pilot trial B, was for postmenopausal women with operable breast cancer who were node positive at the time of mastectomy. They were randomly allocated to immediate tamoxifen or tamoxifen for first recurrence. The women were also included in the sampling/clearance trial so that in addition the women were randomly allocated to axillary clearance or axillary sample and radiotherapy.

Trial C

All women (pre and post menopausal) with operable breast cancer who were node negative, and under the age of 80, were entered into this trial and randomly allocated to immediate tamoxifen or tamoxifen for first recurrence.

Trial D

Women with operable breast cancer in whom no axillary nodes were found at the time of mastectomy were randomly allocated to

one of four options (1) radiotherapy and tamoxifen,

(2) radiotherapy and tamoxifen for first recurrence,

(3) immediate tamoxifen and no radiotherapy, and

(4) simple mastectomy and a watching policy.

Choice of Psychiatric Outcome Variables

For the purpose of this study I decided to use two measures of psychiatric outcome; one clinical and one based on a self-rating questionnaire.

1. As mentioned previously, each patient filled in a self-rating scale, the General Health Questionnaire on three separate occasions. Goldberg (1972) in his original description of the questionnaire used a cut off of 11 such that patients with a score $>$ 12 were regarded as probable cases. In his sample, using this cut off, the questionnaire gave a sensitivity of 91% and a specificity of 94% when compared with the psychiatric "caseness" achieved from a structured interview administered by a psychiatrist. In the current study patients with a score of $>$ 12 were regarded as "GHQ cases".
2. The clinical definition of a case I decided to use was that the patients fulfilled the criteria for either an RDC major depressive disorder (Spitzer et al., 1978) or a Feighner (Feighner et al., 1972) case of anxiety or depression (Appendix 5). I have not regarded patients fulfilling the criteria for an RDC generalised anxiety disorder or an RDC minor depressive disorder as cases; these diagnoses are achieved on the basis of very few symptoms (see Appendix 6) and clinically I do not regard such patients as psychiatrically ill. The purpose of my present study is to identify factors which contribute to patients becoming psychiatrically ill rather than understandably distressed and this was a further reason for excluding the above diagnostic categories.

My decision has received some recent support in that neither RDC minor depressive disorder or RDC generalised anxiety disorder appear in (DSM-III 1980) whereas RDC major depressive disorder does. For the sake of simplicity I have referred in the text and tables to patients fulfilling my chosen diagnostic criteria as "clinical cases".

Throughout the analysis three case criteria are used

(1) GHQ cases [as defined in (1) above]

(2) "clinical" cases as defined in (2) above and

(3) RDC cases - patients fulfilling the criteria for RDC minor depressive disorder, major depressive disorder or generalised anxiety disorder.

I decided not to use the Middlesex Questionnaire data I had collected. It would have given me another set of self-rating data. When it came to doing the analysis I felt that 2 outcome variables, one self-rating and one clinical were adequate and I had not the resources to do a further set of analyses. I chose the GHQ rather than the Middlesex because it is easy to use both as a continuous outcome variable and as a categorical (case/non case) variable. It has also been used in a number of previous mastectomy studies and is known to be sensitive to change. The one advantage I had hoped for with the Middlesex was that it would give a diagnostic profile. However the more recently published data on the instrument demonstrated the instrument's inability to distinguish between diagnostic groups (see Page 26). I therefore decided to use my clinical assessment as a means of obtaining information about the diagnosis of the patients who were cases rather than the Middlesex self-rating scale.

CHAPTER 4

Sample

During the period October 1978 to July 1980 125 women with operable breast cancer were interviewed by me. They were consecutive admissions of women aged 60 and under to Longmore Hospital with operable breast cancer. [In other words they had the following characteristics; their tumours were not more than 5cms ($T_{0,1,2}$), they either had no palpable home lateral axillary nodes or nodes which were mobile ($N_{0,1}$) and they had no evidence of metastases (M_0).] I missed interviewing three women pre-operatively whilst on holiday but as these were entered into the breast reconstruction trial in my absence I still included them in my sample even though I didn't see them preoperatively. In addition I saw 4 women over the age of 60. As I was the only interviewer I felt I could only cope with consecutive admissions of women 60 and under but decided I would see women over 60 whenever I had an interview space free. In the event this didn't happen very often so that the over 60's sample is disappointingly small. As the numbers are so small I excluded this group from most analyses. I in fact did an initial interview on 138 women but thirteen of them were excluded from the study for the following reasons; 5 women turned out not to have breast cancer, 7 had inoperable breast cancer and one had cancer of the lung.

Treatment received

The patients in the study were in the Scottish breast trials mentioned previously. The actual treatment the 129 patients received is shown in Table 4.1. Seventy-seven had mastectomy alone and thirty-one had mastectomy and radiotherapy. Two had mastectomy

and oophorectomy, 1 mastectomy and chemotherapy, 10 mastectomy plus radiotherapy and oophorectomy, 5 mastectomy plus radiotherapy and chemotherapy. Two patients had a lumpectomy and radiotherapy and one a bilateral mastectomy.

Missing Data

See Table 4.2.

Interview Data

Two patients were not seen preoperatively due to a breakdown in communication, nine were not seen at three months postoperatively (2 refused, 5 moved away from Edinburgh or had moved house and were not contacted in time, one woman was at sea with her husband and one who had not been seen preoperatively was still unknown to me; 93% were interviewed).

Eleven were not seen at twelve months postoperatively (6 refused and the 5 who had moved away by three months were still not contacted); 91% were interviewed. Altogether interview data were incomplete on 16/129 (12.4%) of patients.

General Health Questionnaire Data

Wherever interview data were missing there were GHQ data missing and in addition some GHQ's were not returned; 5 preoperatively (96% returned), 10 at three months postoperatively (92% returned), and 9 at twelve months postoperatively (92% returned). Altogether there were incomplete GHQ data on 35 patients (27%). In other words only 94 patients had preoperative, three month postoperative and twelve month postoperative data returned.

As the GHQ data has been used quite extensively in my analysis I did examine whether those who returned their GHQ's were representative of the sample as a whole in terms of their "interviewer caseness". Preoperatively there were 5 cases where a GHQ was not returned but

where an interview had been obtained. Of these one fulfilled the clinical case criteria (i.e. 1/5, 20%) compared with twelve out of 62 (19.4%) of the trial sample as a whole.

At three months postoperatively ten who failed to return GHQ's had interviews. Out of these two fulfilled clinical case criteria (20%) compared with 8 out of 61 (13%) of the whole trial group. At twelve months postoperatively nine who failed to return GHQ's had interviews; one of these fulfilled clinical case criteria at interview (11%) compared with one out of 61 of the whole trial group (1.5%).

These data indicate that those who did not return their GHQ's but did attend for interview did not differ from the point of view of interviewer case rate from those who did return their GHQ's. Nothing of course can be said about the mental state of patients who neither attended for interview or returned GHQ's.

Preoperative Characteristics

The ages of the women ranged between 20 and 64 with a mean age of 49 (S.D. 8.567). For the reason stated above very few women were over the age of 60 and there were also very few below the age of 30. (See Table 4.3).

Each patient was assigned to a social class according to the Registrar General Classification (1970). The women were classified according to their husband's occupation if they were married and living with him, or were widowed. If they were single, separated or divorced, they were classified according to their own occupation. In the few instances where the woman had a longstanding cohabitee regarded as her husband she was classified according to her cohabitee's occupation. The social class distribution is shown in Table 4.4; 63% were social class 3 or 4.

The marital status of the patients is shown in Table 4.5. Seventy-six percent of the patients were married and living with their husbands, 12% were single, 7% were widowed and 5% were divorced, separated or cohabiting. Of those who were married 50% had been married for more than 20 years.

Seventy-eight percent of the women were working prior to admission to hospital; half of them full time and half part time (Table 4.6).

Fifty-one percent of the women were post menopausal, 38% pre-menopausal and 11% were perimenopausal. Eighty-one percent of women still had an active heterosexual relationship.

Many of the women had had treatment for psychiatric symptoms before coming into treatment for breast cancer; 34% had had treatment from their G.P. and 12% had had inpatient or outpatient psychiatric treatment.

The Eysenck Personality Inventory Scores recorded preoperatively were as follows; mean extraversion score 10.9 (S.D. 4.2), mean neuroticism score 8.5 (S.D. 5) and mean lie score 4.2 (S.D. 1.9). The extraversion and neuroticism scores are both low compared with those quoted for the general population E = 12.1 (S.D. 4.4) N = 9.1 (S.D. 4.8). The lie score is high (normal population 2.3, S.D. 1.6) and other workers have reported high lie scores in breast cancer patients (Greer and Morris, 1975). This may be related to denial of the cancer or it could conceivably indicate a particular breast cancer personality type.

Case rate preoperatively

Thirty-eight of the one hundred and twenty-two patients (31%) scored twelve or more on the 60 item GHQ and were regarded as GHQ cases. Nineteen of 127 (15%) fulfilled the clinical case criteria

previously described. Fifty-nine out of 127 (46.5%) fulfilled RDC criteria. On the whole patients who fulfilled the criteria for generalised anxiety disorder also fulfilled the criteria for major or minor depression so that the final diagnosis was one of depression. Two patients had generalised anxiety disorder, 37 (29%) had minor depressive disorder, 19 (15%) had major depressive disorder and one had agoraphobia.

In view of the previous literature it is interesting to note the main worry of the mastectomy patients when they were asked about it prior to mastectomy. Sixty-nine percent of patients said that their main worry was the cancer and only 13.4% that the actual losing of the breast was their main worry. Seventeen percent had some other main worry when I asked, like fear of the anaesthetic, fear of the actual surgery, or worry about being in hospital. These findings are in disagreement with Renneker and Cutler who believed that the main reaction to breast cancer, initially, was distress about losing a breast and confirms Bard and Sutherland's observations that different women have different worries.

TABLE 4.1

TREATMENT RECEIVED BY THE PATIENTS WITH OPERABLE BREAST CANCER (N=129)

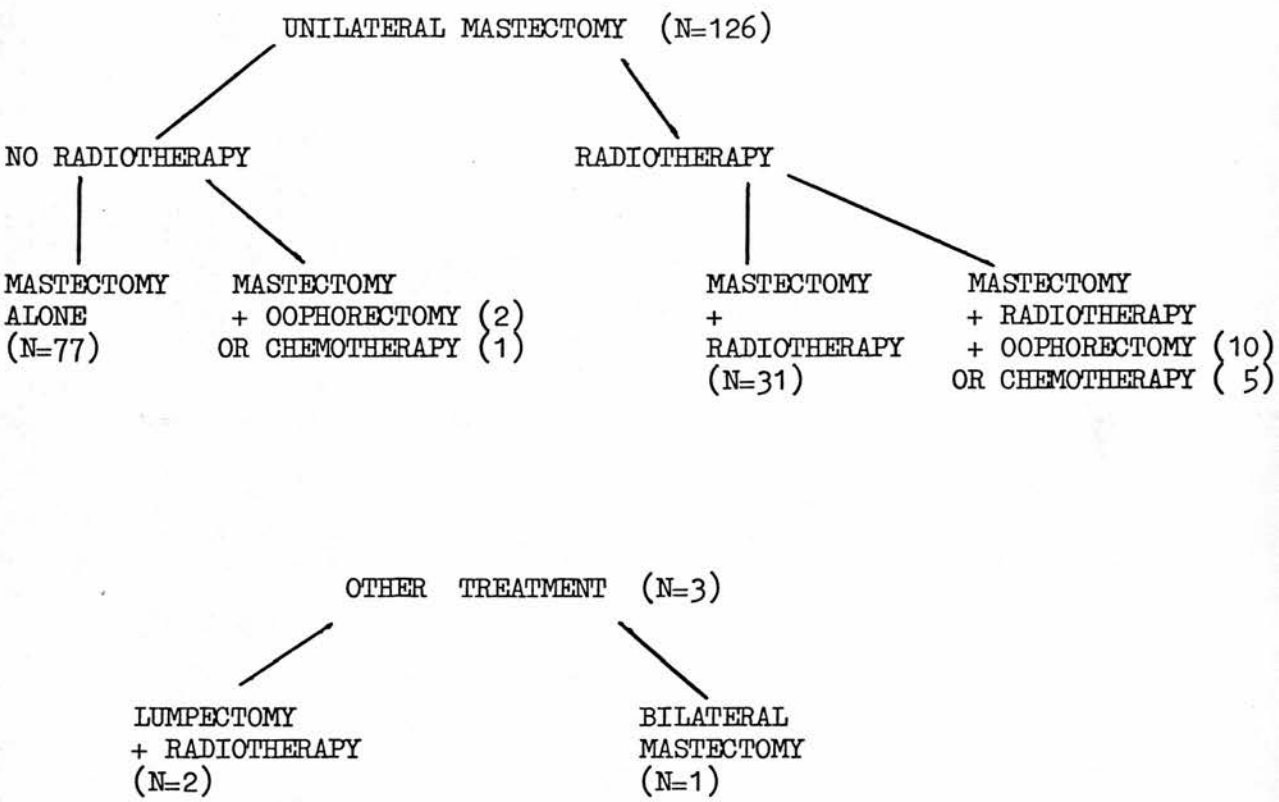


TABLE 4.2

MISSING DATA

INTERVIEW DATA (N=129)

REASON FOR FAILURE	PREOPERATIVE	THREE MONTHS POSTOPERATIVE	TWELVE MONTHS POSTOPERATIVE
Failure of communication	2	1	-
Patient refused	-	2	6
Patient moved house or at sea	-	6	5
TOTAL	2	9	11

GHQ DATA (N=129)

REASON FOR FAILURE	PREOPERATIVE	THREE MONTHS POSTOPERATIVE	TWELVE MONTHS POSTOPERATIVE
Associated with missing interview	2	9	11
Failure to return GHQs	5	10	9
TOTAL	7	19	20

TABLE 4.3

AGE DISTRIBUTION

AGE RANGE (YEARS)	ALL PATIENTS	IMPLANT TRIAL
20 - 30	1	0
31 - 40	19	10
41 - 50	49	25
51 - 60	56	29
60+	4	0
TOTAL	129	64
MEAN AGE	49	48.8

TABLE 4.4

SOCIAL CLASS DISTRIBUTION

SOCIAL CLASS	ALL PATIENTS	IMPLANT TRIAL
1	15	7
2	27	9
3	66	35
4	15	10
5	6	3
TOTAL	129	64

TABLE 4.5

MARITAL STATUS

MARITAL STATUS	ALL PATIENTS	IMPLANT TRIAL
MARRIED	98	49
SINGLE	15	9
WIDOWED	10	3
DIVORCED/SEPARATED COHABITING	6	3
TOTAL	129	64

TABLE 4.6

WORK STATUS

WORK STATUS	ALL PATIENTS	IMPLANT TRIAL
UNEMPLOYED	28	10
WORKING FULL-TIME	50	23
WORKING PART-TIME	51	31
TOTAL	129	64

CHAPTER 5

Preoperative variables associated with mental state preoperatively

At the time of the preoperative interview the only set of hypotheses which could be tested were the 1 2 3 and 6 7 8 and 9, those concerned with vulnerability to stress. In this case the stress being the stress the patient experienced on being told she had cancer.

Demographic variables

There was no relationship between age or marital status and mental state preoperatively as measured by the GHQ or the clinical case criteria (Tables 5.1 and 5.2). There was a tendency for the case rate to be higher in social class III, IV and V but this tendency was not significant (Table 5.3). The difference was almost entirely accounted for by the women in Social Class V. There were only 5 women in Social Class V and they were all 'cases' according to the GHQ compared with 39% of the rest.

Vulnerability factors reported by Brown

Seventy-seven percent of the women had children but only 35 (28%) had children under the age of 14 and only 4 had 3 or more children under the age of 14. I therefore divided the women into two groups; those with children under 14 and those without. Table 5.4 shows that there was no significant difference in case rate between these two groups. However this hypothesis has not been adequately tested because the numbers are too small.

Confidant

There were two ways in which I measured whether or not the women had an adequate confidant. George Brown and his colleagues found that it is the lack of a confiding relationship with the husband which acts

as a vulnerability factor in the face of stress. I did measure the satisfactoriness of the woman's confiding relationship with her husband. I also enquired in a more general way whether the women had anyone they could confide in and established how many confidants they had.

Sixty of the 102 (59%) women who were married or cohabiting felt they had a confiding relationship with their husband, 29 (28%) could confide in their partners to some extent and 13 (13%) said they couldn't confide in them at all. Table 5.5 shows the relationship between a confiding relationship with the husband and clinical caseness preoperatively. There was no statistically significant relationship.

Eight women (out of 125; 6.5%) had no confidant, 47 (37.5%) had one, 54 (43%) had 2 or 3, 16 (13%) had 4 or more. Table 5.6 shows that there is a significant relationship between the number of confidants a woman has and the clinical "caseness" preoperatively ($p < 0.025$). However the number of confidants reported may be here a measure of personality or extraversion rather than demonstrating the importance of a confidant. It seemed important therefore to see if those women with no confidant had a higher case rate than the rest. Those with no confidant did have a significantly higher clinical case rate ($x^2 = 4.4$ $p < 0.05$) but although the GHQ case rate of those with no confidant was double that of the rest this was not significant ($x^2 = 2.1$ n.s.)

The correlation between EPI extraversion and the number of confidants was 0.42 ($p < 0.01$). Although the correlation is significant it is not very striking. The reported number of confidants is obviously a measure of something different from extraversion. It may still of course be a personality variable that is important such that a patient who can talk freely to people is also able to cope well with stress rather than the actual confiding in people being the ingredient which

is protective.

These data do not uphold the hypothesis that the lack of a confiding relationship with the husband makes women more vulnerable to the stress of being told they have cancer. However there is a suggestion that having no confidant at all does make women more vulnerable.

Women who had lost their mother before age 11

There were only 10 women who had lost their mother before the age of 11. Table 5.7 shows that there is no significant relationship between loss of mother and psychiatric "caseness" preoperatively.

Employment

There was no relationship between employment and "caseness" preoperatively (Table 5.8).

Patients with poor marriages

One of my own personal hypotheses was that having a poor marital relationship would make the women more susceptible to stress. The way in which the marital assessment was devised is described in Chapter 3. Patients with a poor marital relationship tended to have a higher clinical case rate than those with better marriages. The same was true for GHQ "caseness" and the trend just failed to reach significance ($x^2 = 7.73$; Table 5.9).

Patients with poor social supports

There were two ways in which I assessed social bonding (defined as being relationships other than the marital relationship). One was by assessing the patient's living group and the other by assessing the number of people who informally dropped in on the patient or who were visited by them.

Sixteen patients lived on their own, the rest lived with up to five other people. There was no difference in case rate between those living alone and those who had someone living in the house with them (Table 5.10).

Seventeen women said that no one ever dropped in on them and 19 said that they had no one they ever called on informally.

There was a significant relationship between the number of people who were said to informally drop in on the patient and the psychiatric case rate (Table 5.11; GHQ cases $p < 0.01$, clinical cases $p < 0.05$). It seemed important to look at the effect of having no one visiting. Sixty-five percent of women who had no one dropping in were GHQ cases compared with 20-30% of the rest; 40% were clinical cases compared with 11-14% of the rest.

There was also a relationship between the number of people the patient said she could drop in on informally and the GHQ case rate (Table 5.12; $x^2 = 7.9$ $p < 0.05$). There was the same tendency with the clinical case rate but this was not significant. Again I felt it important to look at those who had no one to drop in on. Fifty-eight percent of women who had no one to drop in on were GHQ cases compared with 20-30% of the rest ($x^2 = 5.95$ $p < 0.025$); 32% were clinical cases compared with 10-17% of the rest ($x^2 = 2.36$ n.s.).

It does seem, therefore, as if women who report poor social contacts are more likely to be psychiatrically ill preoperatively. However, this does not necessarily mean that poor social contacts make the patient more vulnerable. It could be that because they are already psychiatrically ill they have reduced their social contacts or perceive them to be poor. Alternatively what is being measured here could be a personality characteristic which makes the women more vulnerable to stress.

Patients with previous psychiatric illness

As mentioned previously 34% of patients had had psychiatric treatment from their GP and 12% had had inpatient or outpatient psychiatric treatment. Patients who had had no previous treatment had lower case rates (16% GHQ case rate, 10% clinical case rate) than those who had had previous psychiatric treatment (70-85% GHQ case rate, 37-42.8% clinical case rate). This difference was significant (GHQ case rate $X^2 = 21$, $p < 0.001$, clinical case rate $X^2 = 7.82$ $p < 0.05$), Table 5.13.

Personality variables

Unfortunately it was not possible to assess the patients' personalities before they knew about their breast trouble and personality measures do appear to be influenced by current mental state (Kendell and Discipio, 1968). However, I did use the EPI preoperatively. Those who were a case preoperatively did have a significantly higher mean N score preoperatively than those who were non cases (GHQ cases $t = -6.1$ $p < 0.001$; clinical cases $t = -3.07$ $p < 0.005$; Table 5.14). There were no differences in mean E scores between cases and non cases (Table 5.15).

Recent stresses

Forty-nine women (38%) reported a stressful life event within the 6 months prior to operation. The stresses recorded were limited to events like death or serious illness of a close relative, retirement, loss of a job, loss of a child through marriage etc. The case rate amongst the 49 women who had had stresses was no higher than amongst the rest of the women who had not, (Table 5.16).

Perceiving the surgeons and nurses as sympathetic

Seventy women (57%) perceived their surgeon as very sympathetic, 32 (26%) as sympathetic, 14 (11.5%) as neutral, and 6 (5%) as unsympathetic.

Eighty-six women (72%) perceived the nurses as very sympathetic, 30 (25%) as sympathetic, 4 (3%) as neutral. None regarded them as unsympathetic.

No relationship was found between perceiving the nurses and surgeons as sympathetic and psychiatric case rate preoperatively. Table 5.17 shows the relationship with respect to clinical case rate.

SUMMARY OF VARIABLES AFFECTING PSYCHIATRIC CASE STATUS PREOPERATIVELY

1. The number of confidants (Clinical case status).
2. The number of people who informally dropped in on the patient (GHQ and Clinical case status).
3. The number of people the patient could informally visit (GHQ case status).
4. The previous psychiatric history of the patient (GHQ and Clinical case status).

An analysis of variance was performed using the raw pre-operative GHQ score as the outcome variable and confidant (2 point scale), the number of people who informally visited the patient (2 point scale), previous psychiatric treatment (3 point scale; none, GP treatment, psychiatric treatment). (3) (of the above list) was not included as it would have meant that there were too many factors for the analysis. (3) and (4) anyway are highly correlated. Marital relationship (2 point scale) was also included as it only just failed to reach significance. The results of this analysis are shown in Table 5.18. It will be seen that after adjusting for all other main effects previous psychiatric treatment ($p < 0.001$) and social support ($p < 0.05$) are significantly related to the pre-operative GHQ score. There is an interaction between previous psychiatric treatment and the patients marital relationship ($p < 0.1$) and between previous psychiatric treatment and social support ($p < 0.1$). As both these interactions involved the patients previous psychiatric treatment status a separate analysis was performed for each of the three types of treatment status; no previous treatment, GP treatment for psychiatric symptoms, psychiatric inpatient or out-patient treatment (see Tables 5.19 - 5.20).

The analysis of the scores of women who had had no previous psychiatric treatment demonstrated no factor significantly related to the dependent variable (Table 5.19).

The analysis of the scores of women who had had previous GP treatment for psychiatric symptoms is shown in Table 5.20. The relationship between social support and the preoperative GHQ score is significant in this group ($p < 0.005$). The numbers in the third group (previous psychiatric inpatient or outpatient group) look too small for analysis (n=13).

TABLE 5.1

RELATIONSHIP BETWEEN AGE AND PSYCHIATRIC 'CASENESS' PREOPERATIVELY

GHQ 'CASENESS'

AGE	CASE	NON CASE	TOTAL	
20–30	0	1	1	*
31–40	8	11	19	*
41–50	12	33	45	
51–60	17	37	54	*
60+	1	3	4	*

$X^2 = 0$ 2df n.s.

CLINICAL 'CASENESS'

AGE	CASE	NON CASE	TOTAL	
20–30	0	1	1	*
31–40	5	14	19	*
41–50	7	41	48	
51–60	9	46	55	*
60+	0	4	4	*

$X^2 = 1.2_{2df}$ n.s.

* These categories were collapsed prior to performing the X^2 test.

TABLE 5.2

RELATIONSHIP BETWEEN MARITAL STATUS

AND PSYCHIATRIC 'CASENESS' PREOPERATIVELY

GHQ 'CASENESS'

MARITAL STATUS	CASE	NON CASE	TOTAL
Married	30	63	93
Divorced Separated Cohabiting Widowed	5	10	15
Single	3	12	15

$X^2 = 0.96$ 2df n.s.

CLINICAL 'CASENESS'

MARITAL STATUS	CASE	NON CASE	TOTAL
Married	17	79	96
Divorced Separated Cohabiting Widowed	2	14	16
Single	2	13	15

TABLE 5.3

RELATIONSHIP BETWEEN SOCIAL CLASS AND PSYCHIATRIC 'CASENESS' PREOPERATIVELY

GHQ 'CASENESS'

SOCIAL CLASS	CASE	NON CASE	TOTAL	
1	3	11	14	
2	9	17	26	
3	18	45	63	
4	3	12	15	Z
5	5	0	5	Z

$X^2 = 1.69$ 3df n.s.

CLINICAL 'CASENESS'

SOCIAL CLASS	CASE	NON CASE	TOTAL	
1	1	14	15	*
2	2	24	26	*
3	14	51	65	
4	2	13	15	Z
5	2	4	6	Z

$X^2 = 3.82$ 2df n.s.

* Z These categories were collapsed to perform the X^2 test

TABLE 5.4

RELATIONSHIP BETWEEN CASENESS PREOPERATIVELY AND THE HAVING OF CHILDREN UNDER THE AGE OF 14

GHQ 'CASENESS'

NO. OF CHILDREN UNDER AGE 14	CASE	NON CASE	TOTAL
No children under age 14	25	63	88
One or more children under age 14	11	21	32

$X^2_y = 0.16$ 1df n.s.

CLINICAL 'CASENESS'

NO. OF CHILDREN UNDER AGE 14	CASE	NON CASE	TOTAL
No children under age 14	12	78	90
One or more children under age 14	9	22	31

$X^2_y = 2.17$ 1df n.s.

TABLE 5.5

RELATIONSHIP BETWEEN CONFIDING RELATIONSHIP WITH HUSBAND AND MENTAL STATE PREOPERATIVELY

GHQ 'CASENESS'

RELATIONSHIP WITH HUSBAND	CASE	NON CASE	TOTAL	
Confiding	16	43	59	
Confiding - qualified	10	17	27	
Not confiding	4	3	7	*
Definitely not confiding	2	3	5	*

$X^2 = 2.66$ 2df n.s.

CLINICAL 'CASENESS'

RELATIONSHIP WITH HUSBAND	CASE	NON CASE	TOTAL	
Confiding	7	53	60	
Confiding - qualified	5	23	28	*
Not confiding	2	5	7	*
Definitely not confiding	3	3	6	*

$X^2_y = 1.98$ 1df n.s.

* These categories were collapsed before performing the X^2 test

TABLE 5.6

RELATIONSHIP BETWEEN NUMBER OF CONFIDANTS AND PSYCHIATRIC 'CASENESS' PREOPERATIVELY

GHQ 'CASENESS'

NO. OF CONFIDANTS	CASE	NON CASE	TOTAL	
None	4	2	6	Z
One	15	31	46	Z
2-3	14	39	53	
A lot 4+	5	11	16	

$X^2_{2df} = 0$ n.s.

CLINICAL 'CASENESS'

NO. OF CONFIDANTS	CASE	NON CASE	TOTAL	
None	4	4	8	Z
One	12	35	47	Z
2-3	5	49	54	*
A lot 4+	0	16	16	*

$X^2_{y\ 1df} = 9.1$ $p < 0.025$

Z * these categories were collapsed before performing the X^2 test.

TABLE 5.7

RELATIONSHIP BETWEEN LOSS OF MOTHER BEFORE THE AGE OF 11 AND 'CASENESS' PREOPERATIVELY

GHQ 'CASENESS'

LOSS OF MOTHER	CASE	NON CASE	TOTAL
Loss of mother before age 11	3	7	10
No loss of mother before age 11	35	75	110

n.s.

CLINICAL 'CASENESS'

LOSS OF MOTHER	CASE	NON CASE	TOTAL
Loss of mother before age 11	1	9	10
No loss of mother before age 11	21	94	115

n.s.

TABLE 5.8

RELATIONSHIP BETWEEN EMPLOYMENT STATUS AND PSYCHIATRIC 'CASENESS' PREOPERATIVELY

GHQ 'CASENESS'

EMPLOYMENT STATUS	CASE	NON CASE	TOTAL
Unemployed	8	17	25
Full-time Employed	12	36	48
Part-time Employed	18	32	50

$X^2 = 1.41_{2df}$ n.s.

CLINICAL 'CASENESS'

EMPLOYMENT STATUS	CASE	NON CASE	TOTAL
Unemployed	5	23	28
Full-time Employed	4	44	48
Part-time Employed	12	39	51

$X^2 = 4.1828_{2df}$ n.s.

TABLE 5.9

RELATIONSHIP BETWEEN MARITAL RELATIONSHIP AND PSYCHIATRIC 'CASENESS' PREOPERATIVELY

GHQ 'CASENESS'

MARITAL RELATIONSHIP	CASE	NON CASE	TOTAL
1 'Good'	3	20	23
2	9	16	25
3	8	19	27
4 'Bad'	8	7	15

$X^2_{3df} = 7.727$ n.s.

CLINICAL 'CASENESS'

MARITAL RELATIONSHIP	CASE	NON CASE	TOTAL	
1 'Good'	3	21	24	*
2	3	22	25	*
3	4	24	28	Z
4 'Bad'	7	9	16	Z

$X^2_{y\ 1df} = 1.7$ n.s.

*
Z These categories were collapsed before the X^2 was performed.

TABLE 5.10

RELATIONSHIP BETWEEN LIVING ALONE AND PSYCHIATRIC 'CASENESS' PREOPERATIVELY

GHQ 'CASENESS'

LIVING GROUP	CASE	NON CASE	TOTAL
Living alone	4	12	16
Not living alone	34	71	105

$X^2_y = 0.09$ 1df n.s.

CLINICAL 'CASENESS'

LIVING GROUP	CASE	NON CASE	TOTAL
Living alone	2	14	16
Not living alone	19	90	109

$X^2_y = 0.018$ 1df n.s.

TABLE 5.11

SOCIAL BONDING

RELATIONSHIP BETWEEN THE NUMBER OF PEOPLE WHO INFORMALLY DROP IN ON THE PATIENT AND PSYCHIATRIC 'CASENESS'

GHQ 'CASENESS'

NO OF FRIENDS WHO VISIT INFORMALLY	CASE	NON CASE	TOTAL
None	11	6	17
1 - 2	9	24	33
3 - 5	7	29	36
6+	11	24	35

$X^2_{3df} = 11.4 \quad p < 0.01$

CLINICAL 'CASENESS'

NO OF FRIENDS WHO VISIT INFORMALLY	CASE	NON CASE	TOTAL
None	7	10	17
1 - 2	5	31	36
3 - 5	5	31	36
6+	4	32	36

$X^2_{3df} = 8.5 \quad p < 0.05$

TABLE 5.12

SOCIAL BONDING

RELATIONSHIP BETWEEN THE NUMBER OF PEOPLE THE PATIENT CAN INFORMALLY DROP IN ON AND PSYCHIATRIC 'CASENESS'

GHQ 'CASENESS'

NO OF FRIENDS THE PATIENT CAN VISIT INFORMALLY	CASE	NON CASE	TOTAL
None	11	8	19
1 - 2	11	25	36
3 - 5	8	28	36
6+	8	22	30

$X^2_{3df} = 7.9 \quad p < 0.05$

CLINICAL 'CASENESS'

NO OF FRIENDS THE PATIENT CAN VISIT INFORMALLY	CASE	NON CASE	TOTAL
None	6	13	19
1 - 2	6	33	39
3 - 5	6	30	36
6+	3	28	31

$X^2_{3df} = 4.2 \quad$ n.s.

TABLE 5.13

RELATIONSHIP BETWEEN PREVIOUS PSYCHIATRIC TREATMENT AND PSYCHIATRIC 'CASENESS' PREOPERATIVELY

GHQ 'CASENESS'

	CASE	NON CASE	TOTAL
NO PREVIOUS TREATMENT	11	53	64
PREVIOUS G.P. PSYCHIATRIC TREATMENT	14	27	41
PREVIOUS INPATIENT OR OUTPATIENT PSYCHIATRIC TREATMENT	11	3	14

$X^2 = 20.96$ 2 df $p < 0.001$

CLINICAL 'CASENESS'

	CASE	NON CASE	TOTAL
NO PREVIOUS TREATMENT	7	60	67
PREVIOUS G.P. PSYCHIATRIC TREATMENT	8	33	41
PREVIOUS INPATIENT OR OUTPATIENT PSYCHIATRIC TREATMENT	6	9	15

$X^2 = 7.82$ 2 df $p < 0.05$

TABLE 5.14

RELATIONSHIP BETWEEN SCORES ON THE NEUROTICISM SUBSCALE OF THE EYSENCK PERSONALITY INVENTORY AND PSYCHIATRIC 'CASENESS' PREOPERATIVELY

GHQ 'CASENESS'

GHQ 'CASENESS'	MEAN SCORE	STANDARD DEVIATION	STANDARD ERROR
Case	12.3939	4.782	0.833
Non Case	6.7973	4.181	0.486

$t = -6.11 \quad p < 0.001$

CLINICAL 'CASENESS'

CLINICAL 'CASENESS'	MEAN SCORE	STANDARD DEVIATION	STANDARD ERROR
Case	11.7222	4.873	0.514
Non Case	7.8778	4.775	1.125

$t = -3.07 \quad p < 0.005$

TABLE 5.15

RELATIONSHIP BETWEEN SCORES ON THE EXTRAVERSION SUBSCALE OF THE EYSENCK PERSONALITY INVENTORY AND PSYCHIATRIC 'CASENESS' PREOPERATIVELY

GHQ 'CASENESS'

GHQ 'CASENESS'	MEAN	STANDARD DEVIATION	STANDARD ERROR
Case	10.6364	4.554	0.793
Non Case	11.0946	4.075	0.474

t = 0.52 n.s.

CLINICAL 'CASENESS'

CLINICAL 'CASENESS'	MEAN	STANDARD DEVIATION	STANDARD ERROR
Case	9.6667	4.899	1.155
Non Case	11.2111	4.018	0.424

t = 1.43 n.s.

TABLE 5.16

RELATIONSHIP BETWEEN RECENT STRESSES AND PSYCHIATRIC 'CASENESS' PREOPERATIVELY

GHQ 'CASENESS'

STRESS PREOPERATIVELY	CASE	NON CASE	TOTAL
NO STRESSES IN THE 6 MONTHS BEFORE OPERATION	18	54	72
REPORTED STRESS IN THE 6 MONTHS BEFORE OPERATION	18	30	48

$X^2_y = 1.59$ 1df n.s.

CLINICAL 'CASENESS'

STRESS PREOPERATIVELY	CASE	NON CASE	TOTAL
NO STRESSES IN THE 6 MONTHS BEFORE OPERATION	11	64	75
REPORTED STRESS IN THE 6 MONTHS BEFORE OPERATION	10	39	49

$X^2_y = 0.34$ 1df n.s.

TABLE 5.17

PERCEPTION OF THE SURGEONS AS SYMPATHETIC AND PSYCHIATRIC CASE RATE PREOPERATIVELY

CLINICAL CASE RATE

	CASE	NON CASE	TOTAL	
SURGEONS VERY SYMPATHETIC	8	61	69	
SURGEONS SYMPATHETIC	5	26	31	*
SURGEONS NEUTRAL	2	11	13	*
SURGEONS UNSYMPATHETIC	1	5	6	*

$X^2_y = 0.5$ 1df n.s.

PERCEPTION OF THE NURSES AS SYMPATHETIC AND PSYCHIATRIC CASE RATE PREOPERATIVELY

CLINICAL CASE RATE

	CASE	NON CASE	TOTAL	
NURSES VERY SYMPATHETIC	12	68	80	
NURSES SYMPATHETIC	6	23	29	*
NURSES NEUTRAL	1	6	7	*

$X^2_y = 0.107$ 1df n.s.

* These categories were collapsed before performing the X^2 test.

TABLE 5.18

ANALYSIS OF VARIANCE -

PREOPERATIVE GHQ SCORE AS DEPENDENT VARIABLE (N = 113)

SOURCE OF VARIATION		SUM OF SQUARES	df	MEAN SQUARE	F	SIGNIFICANCE OF F
Main Effects *						
Previous Psychiatric Treatment (TREAT)		1206.48	2	603.24	7.80	.001
Confidant (CONFID)		26.47	1	26.47	.34	.560
Marital Relationship (MR)		197.2	1	197.2	2.55	.114
Social Support (SOC)		413.76	1	413.76	5.35	.023
2 way interactions						
TREAT	CONFID	222.43	2	111.21	1.44	.243
TREAT	MR	429.46	2	214.73	2.78	.067
TREAT	SOC	431.94	2	215.97	2.79	.066
CONFID	MR	32.80	1	32.80	.42	.516
CONFID	SOC	92.44	1	92.44	1.20	.277
MR	SOC	113.66	1	113.66	1.47	.228
Explained		4197.38	20	209.87	2.71	.001
Residual		7111.75	92	77.30		

* All other main effects adjusted for prior to the assessment of each main effect.

TABLE 5.19

ANALYSIS OF VARIANCE OF PATIENTS WHO HAD NO PREVIOUS PSYCHIATRIC TREATMENT WITH THE PREOPERATIVE GHQ SCORE AS THE DEPENDENT VARIABLE (N = 57)

SOURCE OF VARIATION	SUM OF SQUARES	df	MEAN SQUARE	F	SIGNIFICANCE OF F
Main Effects *					
Confidant (CONFID)	58.64	1	58.64	.86	.357
Marital Relationship (MR)	.91	1	.91	.013	.908
Social Support (SOC)	.005	1	.005	.00	.993
2 way interactions					
CONFID MR	.600	1	.600	.009	.925
CONFID SOC	43.79	1	43.79	.65	.425
MR SOC	29.95	1	29.95	.44	.509
Explained	212.82	7	30.40	.45	.867
Residual	3459.69	51	67.84		

* Each main effect adjusted for all other factors and interactions

TABLE 5.20

ANALYSIS OF VARIANCE OF PATIENTS WHO HAD PREVIOUS GP TREATMENT WITH THE PREOPERATIVE GHQ SCORE AS DEPENDENT VARIABLE (N = 41)

SOURCE OF VARIATION	SUM OF SQUARES	df	MEAN SQUARE	F	SIGNIFICANCE OF F
Main Effects *					
Confidant (CONFID)	17.99	1	17.99	.20	.658
Marital Relationship (MR)	2.20	1	2.20	.02	.877
Social Support (SOC)	905.99	1	905.99	10.04	.003
Explained	1243.5	3	414.5	4.59	.008
Residual	3338.26	37	90.22		

* Each main effect adjusted for all other effects and interactions

CHAPTER 6

Results of the assessment done at three months postoperatively

Psychiatric case rate

At three months postoperatively the one month prevalence of psychiatric disorder according to the clinical case criteria was 10% (12 cases out of 120 women). The GHQ case rate was 19% (21 cases out of 110 women). Twenty-nine percent (35 cases out of 120 women) fulfilled RDC criteria. Twenty-one (17.5%) fulfilled the criteria for a minor depressive disorder, 12 (10%) for a major depressive disorder and 2 for generalised anxiety disorder.

Change in the marital relationship

Thirteen percent (12/94) of women reported that their marital relationship was more confiding since their operation, 4% (4/94) reported it to be less confiding and 83% (76/94) reported it to be the same. Thirty-seven percent said their husbands were more sympathetic, 61% the same and only one that her husband was less sympathetic. Twenty-four percent of women said there were less quarrels between themselves and their husband, 73% the same number, and 3% more. Nineteen percent of women felt that there was more affection between themselves and their husband, 75% the same amount and 6% less.

When asked, 36% of women thought their marital relationship had changed for the better, 6% for the worse and 58% that their relationship was unchanged. Overall 55% reported an improvement in some aspect of their marriage and 8% reported a worsening.

Change in the sexual relationship

Twenty-eight percent of the women said the frequency of sexual intercourse had decreased, 8½% said that it had increased and 63½% that it was the same. Twenty percent of women said their enjoyment of their sex life had decreased, 78% said it was the same and one woman said it had improved. Forty-one percent of women said that the amount of caressing in their sexual relationship had decreased, 55% said it was the same and 4% said it had increased. Where caressing had decreased it was either because the woman did not allow the touching of the remaining breast or that the husband didn't touch any more.

Overall the sexual relationship was reported to have worsened in some way in 51% of women, and to be better in some way in 9.6%.

Change in social relationship

Seventeen percent of women said they went out less with their husband than they did before their operation, 8% more and 75% the same. Eighteen percent said they went out less with friends or on their own than before, 8% more and 74% the same.

Overall 26% were going out less than before.

Change in work competence

At three months postoperatively 37% of the women who worked before their operation had not returned to work, 12% were doing less hours, 51% were back to work as normal.

With respect to household tasks, 9% said their ability was much impaired, 44% said it was impaired for some tasks, and 46% said they were coping with their household tasks as usual.

Back to normal self

Thirty-four percent said they were back to normal by three months postoperatively.

Phantom breasts

Thirty-nine percent of women experienced a phantom breast; 28% of women experienced a tingling of the non existent nipple and 15% pain in the absent breast.

Worries about cancer

Seventeen percent of women expressed the worry that any little ache and pain they had meant that the cancer had spread. Twenty-six percent of women examined their remaining breast constantly (at least once a day). Forty-six percent of women had worry about cure from cancer always at the back of their mind, and 8% of women were constantly worried about spread or recurrence.

Changes in attitude to appearance

Eighteen percent of women said they were more particular about their appearance than before their operation and only 2% said they paid less attention to their appearance than previously.

CHAPTER 7

Variables associated with psychiatric case rate at three months postoperatively

The same hypotheses as were tested preoperatively can be tested now. In addition to the stress of knowing they have cancer the patients have by this time experienced the stress of a variety of treatments, mastectomy, chemotherapy, radiotherapy, oophorectomy - as shown in Table 7.1. Hypotheses 1 - 9 are tested in this section. Those relating to breast reconstruction are discussed in a separate section.

Demographic variables

There was no relationship between marital status, age or social class and mental state at three months postoperatively. (Tables 7.1 - 7.3).

Vulnerability factors reported by Brown

Women with 3 children under the age of 14

As explained earlier, only an approximation to this hypothesis could be tested; to see if women with any children under the age of 14 had a higher case rate. There was no difference in case rate between women with and without children under the age of 14. (Table 7.4)

Confidant

There was a significant relationship between having a confiding relationship with the husband and the clinical and GHQ case rate ($p < 0.05$ and $p < 0.001$ respectively; Table 7.5). This meant that the less confiding the relationship reported by the women preoperatively the higher the case rate at three months postoperatively. The clinical case rate increased from 5% in those with a very confiding relationship

with their husband to a case rate of 50% in those with a poor confiding relationship (categories 3 & 4; Table 7.5). The GHQ case rate increased from 10% to 70% in a similar way. There was also a relationship between the number of confidants reported pre-operatively and the case rate at three months (Table 7.6). Forty-three percent of women who had reported no confidant were psychiatrically ill according to the GHQ at three months compared with 26% of those who reported one confidant, 12% of those who reported two or three confidants and 8% of those who reported 4 or more confidants ($X^2 = 4.3$, $p < 0.05$). The same was true for the clinical case rate with the rates of 38%, 13%, 6.5% and 0% ($X^2 = 3.1$, n.s.). As previously it was thought important to test whether or not having no confidant increased the likelihood of becoming a case. The difference in case rate between those with no confidant and the rest was significant for the clinical case rate ($X^2 = 3.9$, $p < 0.05$) but not the GHQ case rate ($X^2 = 1.38$ n.s.). These data confirm the hypothesis that not only is having a confiding relationship with the husband protective in the face of the stress of having a mastectomy but having any confiding relationship at all is protective.

Women who had lost their mother before the age of 11

There was no relationship between loss of mother before the age of 11 and psychiatric "caseness" at three months postoperatively, (Table 7.7).

Employment

The result with respect to employment was rather surprising. Twenty-four percent of women who were unemployed were GHQ cases and 25% of women who worked part-time, whereas only 6% of women who worked full time at the time of their operation were GHQ cases. This just

failed to be significant ($X^2 = 5.8$ $p = 0.055$; Table 7.8). The clinical case rate had the same tendency but the difference was not so striking (12% for unemployed and part-time cf 7% for full time workers).

Patients with poor marriages

The patients' marriages were assessed on a 4 point scale when seen preoperatively (See Chapter 3). There was a relationship between the preoperative assessment of the marriage and the GHQ case rate three months after operation ($p < 0.01$; Table 7.9). There was the same tendency for a relationship with the clinical case rate but this was not significant. Those with a score of 1-3 on the marital scale had a GHQ case rate between 5-17% and a clinical case rate between 4-10%. Those with a score of 4 on the marital scale had a GHQ case rate of 69% and a clinical case rate of 46%.

These findings support the hypothesis that women with poor marriages are more likely to become ill in the face of stress. However this finding may relate only to this particular stress.

Patients with poor social support

Social bonding was assessed as mentioned previously (see Chapter 5). There was no relationship between the size of the patient's living group and the psychiatric case rate at three months. More particularly patients who lived alone did not have a higher case rate than the rest (Table 7.10).

With respect to informal social contacts there was a tendency for those with no informal social contacts to have a higher case rate than those with some informal contacts. For instance, 37.5% of those who had no one to drop in on were GHQ cases compared with 15% of the rest (Table 7.11 and 7.12).

The same tendency occurred with respect to clinical caseness. However this tendency was not significant for either GHQ or clinical caseness.

On the basis of these data I have to conclude that poor social bonding as measured by me does not make women more likely to develop psychiatric illness in the face of the stress of mastectomy.

Patients with previous psychiatric illness

There was a significant relationship between having had previous psychiatric treatment and the psychiatric case rate at three months postoperatively (Table 7.13). Nine percent of those who had had no previous treatment were GHQ cases compared with 26% of those who had received GP treatment and 46% of those who had had psychiatric inpatient or outpatient treatment ($X^2 = 11$, $p < 0.005$). The same was true of the clinical case rates (5% - 36%, $X^2 = 3.38$ n.s.), but the tendency was not significant. However, patients who had had previous psychiatric inpatient or outpatient treatment did have a higher clinical case rate than the rest ($X^2 = 8.39$, $p < 0.025$). The hypothesis that women with a previous psychiatric history are more likely to become psychiatrically ill as the result of the stress of mastectomy is upheld.

Personality variables

The Eysenck Personality Inventory was completed by patients preoperatively in order to obtain an assessment of their personality prior to operation. At three months postoperatively the women were divided into two groups, those who were three month cases and those who were not. The mean neuroticism score of those who were cases was not significantly higher than those who were not cases (Table 7.14). Similarly those who were cases at three months had mean extraversion

scores not significantly different from those who were non cases. However there was a non significant tendency for the non cases to have higher extraversion scores (Table 7.15). Another way of examining the data is to divide the women preoperatively into two equal groups, those with high and low neuroticism scores and examine whether or not the third month case rate differs in either group. Similarly with extraversion. Twenty-seven percent of the women in the low extraversion score group were GHQ cases compared with 8% of the high extraversion score group ($X^2 = 4.6$, $p < 0.05$; Table 7.16). The same tendency occurred with the clinical cases, (12.7% cf 6%, $X^2 = 0.9$ n.s; Table 7.16). When the women were divided into two groups with respect to their neuroticism score there was no difference in case rate between those who had high neuroticism scores and those who had low scores (Table 7.17).

Stress

Women who had experienced other stresses in the six months preoperatively tended to have a higher clinical case rate at three months postoperatively (17.8% cf 5.6%, $X^2 = 3.2$, n.s; Table 7.18). This tendency was not significant. There was no such tendency with respect to GHQ case rate.

Perceiving the surgeons and nurses as sympathetic

There was no relationship between perceiving the surgeons and nurses as sympathetic and psychiatric case rate at three months postoperatively (Table 7.19).

Women proud of their breasts and appearance preoperatively

Preoperatively the women were asked about their attitude to their breasts. Twenty-seven percent (34/124) reported they were pleased and proud of their breasts, 8% (10/124) said they were reasonably pleased with them, 29% (36/124) were not pleased with their breasts because they were too large or too small or for some other reason, 35% (44/124) were not bothered about their breasts at all.

My hypothesis was that the more the patient prized her breasts preoperatively the greater the risk of psychiatric sequelae after operation.

There was no difference in clinical case rate between the four groups. With respect to the GHQ case rate there was a non-significant tendency for those who were pleased with the appearance of their breasts before operation to have a higher case rate ($X^2 = 4.9$ n.s.) three months after mastectomy (Table 7.20).

The hypothesis was therefore not upheld.

The other way that I tested the hypothesis, that the more narcissistic the women the higher the case rate, was to look at the womens' attitudes to their appearance. The women who were very particular about their appearance did not have a higher case rate at three months postoperatively. The hypothesis was therefore not upheld.

Patients who are psychiatrically ill preoperatively

Patients who were psychiatric cases preoperatively had a higher case rate three months postoperatively (Tables 7.21 and 7.22). As the GHQ is an easily administered selfrating scale and could therefore be used as a screening procedure, the relationship between preoperative GHQ case status and clinical caseness at three months postoperatively is of most interest. Of the 12 women who were clinical cases at three months postoperatively, 8 were GHQ cases preoperatively, 3 were not and GHQ data were missin on one ($X^2 = 7.69$, $p < 0.01$; Table 7.21). There was also a significant relationship between the preoperative GHQ case status and the three month postoperative GHQ "caseness" ($X^2 = 7.99$, $p < 0.005$; Table 7.21). The preoperative clinical case status is significantly related to the three month clinical and GHQ status (Table 7.22).

Extra Treatments

The surgical treatment received by the various patients is shown in Table 4.1. For each individual patient a treatment decision was made on the basis of the axillary node status found at operation and of the option drawn for her in the Scottish Breast Trials already described. Seventy-seven patients were treated by mastectomy alone, 31 had a mastectomy and radiotherapy, 15 had a mastectomy and radiotherapy together with an oophorectomy (10) or chemotherapy (5), 3 patients had a mastectomy and oophorectomy (2) or chemotherapy (1), 1 patient had a bilateral mastectomy and 2 patients had a lumpectomy and radiotherapy. The number of patients who received breast reconstruction are detailed in the chapter dealing with the implant trial.

In order to test the hypothesis that the more treatment the patient received the higher case rate I divided the patients into 3 groups; mastectomy alone, mastectomy and radiotherapy, mastectomy and radiotherapy and chemotherapy or oophorectomy.

The three women who had had an axillary clearance and therefore had a mastectomy and oophorectomy or chemotherapy without radiotherapy were excluded as were the two women who had a lumpectomy and radiotherapy and the one who had a bilateral mastectomy. The results are shown in Table 7.23. The GHQ case rate was higher the more treatment the patient received (11.4%, 22.7%, 41.6%). Those who had treatment in addition to mastectomy had a significantly higher GHQ case rate than those who had mastectomy alone ($X^2 = 3.99$, $p < 0.05$). The clinical case rate was lower in the mastectomy plus radiotherapy group than in the mastectomy alone group (3.7% cf 8.3%). However, the GHQ and clinical case rate were higher in the mastectomy plus radiotherapy plus oophorectomy group (41% were GHQ cases and 27% were clinical cases) when compared with the rest (14% GHQ and 7% clinical cases). The difference was significant for GHQ caseness ($X^2_y = 3.86$, $p < 0.05$) but not clinical caseness ($X^2 = 3.7$).

All that can be said on the basis of these data is that the hypothesis that the more treatment the patient received the higher the case rate is upheld. However there is no evidence to suggest that the addition of radiotherapy alone affects the case rate.

Summary of variables affecting psychiatric case status at three months postoperatively

The variables which were significantly related to psychiatric case status at three months postoperatively were as follows:-

1. The preoperative GHQ and clinical case status (clinical and GHQ case status).
2. The quality of the confiding relationship with the husband (clinical and GHQ case status).
3. The number of confidants or having a confidant (GHQ and clinical case status).
4. The quality of the marriage (GHQ case status).
5. The EPI extraversion score assessed preoperatively (GHQ case status).
6. The previous psychiatric history of the patient (clinical and GHQ case status).
7. The surgical treatment received (GHQ case status).

An analysis of covariance was performed with the GHQ score as the dependent variable, confidant (2 point scale), the quality of the marriage (2 point scale), previous psychiatric history (none, GP or psychiatrist - 3 point scale) and surgical treatment received (2 point scale) as independent variables. The preoperative GHQ score and the EPI extraversion and neuroticism scores were covariates (see Table 7.24).

The patient's marital relationship as assessed preoperatively ($p < 0.02$), the previous psychiatric history ($p < 0.01$) and the surgical treatment received ($p < 0.001$) were all significantly related to the GHQ score at three months after operation after adjustment for the other factors and covariates. The preoperative GHQ score was also

significantly ($p < 0.001$) related to the dependent variable after adjustment for the other covariates. However there were significant interactions between the marital relationship, the confidant rating, the surgical treatment package and the patient's previous psychiatric treatment status. As all of these interactions involved the patient's previous psychiatric treatment status I decided to do a separate analysis for each of the three types of treatment status; no previous treatment, GP treatment for previous psychiatric symptoms, psychiatric inpatient or outpatient treatment. (See Tables 7.25 - 7.26).

The analysis of the scores of women who had had no previous psychiatric treatment demonstrated that the only factor significantly related to the dependent variable in this group was the patient's marital relationship as assessed preoperatively ($p < 0.02$). There was no significant relationship between the surgical treatment received by the patient and outcome in this group. The preoperative GHQ was still significantly related to the GHQ score at three months after operation ($p < 0.01$). There were no significant interactions.

The analysis of the scores of women who had had previous GP treatment for psychiatric symptoms is shown in Table 7.26. The relationship between the quality of the patient's marital relationship ($p < 0.02$) and the surgical treatment she received ($p < 0.02$) and the GHQ score at three months is significant in this group. Of the covariates, the preoperative GHQ is significantly related to the psychiatric outcome at three months ($p < 0.01$). There were no significant interactions.

The third group was too small for analysis but from the raw data the surgical treatment appears to have an effect on this group as well (mean GHQ of 5.43 for the mastectomy alone group and 30.67 for the mastectomy together with extra treatment group).

The third group (those who had had previous psychiatric inpatient or outpatient treatment) was too small for analysis (n=10). However from the raw scores there is a tendency for the patient's marital relationship to have the opposite effect in this subgroup; those with good marriages had a mean score of 15.4 (n=7) compared with a mean score of 7.3 for those with bad marriages (n=3). Similarly those with a poor confidant rating had a lower mean score than those with a good confidant rating (5.17, n=6 cf 24.75, n=4). This group did very badly with extra surgical treatment (mean score 30.67, n=3 cf 5.43, n=7).
The surgical treatment received, therefore, only has an effect on psychiatric outcome in women who have had previous GP or hospital psychiatric treatment.

TABLE 7.1

RELATIONSHIP BETWEEN MARITAL STATUS AND PSYCHIATRIC 'CASENESS' AT THREE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

MARITAL STATUS	CASE	NON CASE	TOTAL	
Married	16	64	80	
Divorced Separated Cohabiting Widowed	4	8	12	Z
Single	0	15	15	Z

$X^2_y = 0.1$ 1df n.s.

Z These categories were collapsed before performing the X^2 text.

CLINICAL 'CASENESS'

MARITAL STATUS	CASE	NON CASE	TOTAL	
Married	12	77	89	
Divorced Separated Cohabiting Widowed	0	13	13	*
Single	0	15	15	*

$X^2_y = 2.87$ 1df n.s.

* These 2 categories were collapsed before performing the X^2 test

TABLE 7.2

RELATIONSHIP BETWEEN AGE AND PSYCHIATRIC 'CASENESS' AT THREE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

AGE	CASE	NON CASE	TOTAL	
20-30	0	1	1	*
31-40	4	12	16	*
41-50	8	32	40	
51-60	6	40	46	Z
60+	2	2	4	Z

$X^2 = 4.24_{2df}$ n.s.

CLINICAL 'CASENESS'

AGE	CASE	NON CASE	TOTAL	
20-30	0	1	1	*
31-40	1	15	16	*
41-50	5	41	46	
51-60	6	44	50	Z
60+	0	4	4	Z

$X^2 = 1.034_{2df}$ n.s.

*
Z These categories were collapsed before performing the X^2 test.

TABLE 7.3

RELATIONSHIP BETWEEN SOCIAL CLASS AND PSYCHIATRIC 'CASENESS' AT THREE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

SOCIAL CLASS	CASE	NON CASE	TOTAL	
1	3	10	13	*
2	4	19	23	*
3	9	44	53	
4	3	9	12	Z
5	1	5	6	Z

$X^2 = 0.52_{2df}$ n.s.

CLINICAL 'CASENESS'

SOCIAL CLASS	CASE	NON CASE	TOTAL	
1	2	11	13	*
2	2	22	24	*
3	6	54	60	Z
4	2	12	14	Z
5	0	6	6	Z

$X^2 = 0.04_{1df}$ n.s.

*Z These categories were collapsed before performing the X^2 test

TABLE 7.4

RELATIONSHIP BETWEEN HAVING CHILDREN UNDER THE AGE OF 14 AND PSYCHIATRIC 'CASENESS' AT THREE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

NO. OF CHILDREN UNDER AGE 14	CASE	NON CASE	TOTAL
No children under age 14	14	59	73
One or more children under age 14	6	28	34

$X^2_y = 0$ 1df n.s.

CLINICAL 'CASENESS'

NO. OF CHILDREN UNDER AGE 14	CASE	NON CASE	TOTAL
No children under age 14	8	52	60
One or more children under age 14	1	32	33

$X^2_y = 1.5_{1df}$ n.s.

TABLE 7.5

RELATIONSHIP BETWEEN CONFIDING RELATIONSHIP WITH HUSBAND AND MENTAL STATE AT THREE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

CONFIDING RELATIONSHIP	CASE	NON CASE	TOTAL	
1 'Good'	5	44	49	
2	6	18	24	
3	4	2	6	*
4 'Poor'	3	1	4	*

$X^2 = 17.8$ 2df $p < 0.001$

CLINICAL 'CASENESS'

CONFIDING RELATIONSHIP	CASE	NON CASE	TOTAL	
1 'Good'	3	51	54	
2	3	23	26	*
3	4	3	7	*
4 'Poor'	2	3	5	*

$X^2 = 4.96$ 1df $p < 0.005$

* These categories were collapsed before performing the X^2 test.

TABLE 7.6

RELATIONSHIP BETWEEN NUMBER OF CONFIDANTS AND 'CASENESS' AT THREE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

NO OF CONFIDANTS	CASE	NON CASE	TOTAL	
None	3	4	7	*
One	11	32	43	*
2-3	5	38	43	@
4+	1	12	13	@

$X^2_y = 4.3$ 1df $p < 0.05$

CLINICAL 'CASENESS'

NO OF CONFIDANTS	CASE	NON CASE	TOTAL	
None	3	5	8	*
One	6	39	45	*
2-3	3	43	46	@
4+	0	15	15	@

$X^2_y = 3.105$ 1 df n.s.

*
@ These categories were collapsed before performing the X^2 test

TABLE 7.7

RELATIONSHIP BETWEEN LOSS OF MOTHER BEFORE AGE 14 AND PSYCHIATRIC 'CASENESS' AT THREE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

LOSS OF MOTHER	CASE	NON CASE	TOTAL
Loss of mother before age 14	6	28	34
No loss of mother before age 14	14	59	73

$X^2_y = 0.01_{1df}$ n.s.

CLINICAL 'CASENESS'

LOSS OF MOTHER	CASE	NON CASE	TOTAL
Loss of mother before age 14	1	34	35
No loss of mother before age 14	11	71	82

$X^2_y = 0.2_{1df}$ n.s.

TABLE 7.8

RELATIONSHIP BETWEEN EMPLOYMENT STATUS PREOPERATIVELY AND 'CASENESS' AT THREE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

EMPLOYMENT STATUS	CASE	NON CASE	TOTAL
Unemployed	6	19	25
Employed full time	2	33	35
Employed part time	12	35	47

$X^2 = 5.8$ 2 df n.s.

CLINICAL 'CASENESS'

EMPLOYMENT STATUS	CASE	NON CASE	TOTAL
Unemployed	3	24	27
Employed full time	3	38	41
Employed part time	6	43	49

TABLE 7.9

RELATIONSHIP BETWEEN MARITAL RELATIONSHIP AND PSYCHIATRIC 'CASENESS' THREE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

MARITAL RELATIONSHIP	CASE	NON CASE	TOTAL	
1 'Good'	1	20	21	*
2	2	17	19	*
3	4	20	24	@
3 'Bad'	9	4	13	@

$X^2_y = 7.3$ 1df $p < 0.01$

CLINICAL 'CASENESS'

MARITAL RELATIONSHIP	CASE	NON CASE	TOTAL	
1 'Good'	2	20	22	*
2	1	19	20	*
3	1	26	27	@
4 'Bad'	7	8	15	@

$X^2_y = 1.65$ 1df n.s.

* @ These categories were collapsed before performing the X^2 test

TABLE 7.10

RELATIONSHIP BETWEEN LIVING ALONE AND PSYCHIATRIC 'CASENESS' AT THREE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

LIVING GROUP	CASE	NON CASE	TOTAL
Living alone	2	13	15
Not living alone	18	73	91

$X^2_y = 0.05_{1df}$ n.s.

CLINICAL 'CASENESS'

LIVING GROUP	CASE	NON CASE	TOTAL
Living alone	0	16	16
Not living alone	12	95	107

$X^2_y = 0.9_{1df}$ n.s.

TABLE 7.11

RELATIONSHIP BETWEEN THE NUMBER OF FRIENDS THE PATIENT CAN VISIT INFORMALLY AND PSYCHIATRIC 'CASENESS' AT THREE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

NO. OF FRIENDS	CASE	NON CASE	TOTAL	
NONE	6	10	16	*
1 - 2	7	27	34	*
3 - 5	5	28	33	
6+	2	21	23	

$X^2 = 3.5_{2df}$ n.s.

CLINICAL 'CASENESS'

NO. OF FRIENDS	CASE	NON CASE	TOTAL	
NONE	3	13	16	*
1 - 2	4	33	37	*
3 - 5	3	32	35	
6+	2	25	27	

$X^2 = 0.6_{2df}$ n.s.

* These categories were collapsed before performing the X^2 test.

TABLE 7.12

RELATIONSHIP BETWEEN THE NUMBER OF FRIENDS WHO VISIT PATIENT INFORMALLY AND PSYCHIATRIC CASENESS AT THREE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

NO. OF FRIENDS	CASE	NON CASE	TOTAL
NONE	4	10	14
1 - 2	8	23	31
3 - 5	5	28	33
6+	3	25	28

$X^2 = 3.4$ $_{3df}$ n.s.

CLINICAL 'CASENESS'

NO. OF FRIENDS	CASE	NON CASE	TOTAL	
NONE	4	11	15	*
1 - 2	1	32	33	*
3 - 5	3	32	35	Z
6+	4	28	32	Z

$X^2_y = 0.1$ $_{1\,df}$ n.s.

* These categories were collapsed before performing
Z the X^2 test.

TABLE 7.13

RELATIONSHIP BETWEEN PREVIOUS PSYCHIATRIC TREATMENT AND PSYCHIATRIC 'CASENESS' AT THREE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

PREVIOUS PSYCHIATRIC TREATMENT	CASE	NON CASE	TOTAL
No previous treatment	5	52	57
GP Treatment	10	29	39
Psychiatric inpatient or outpatient treatment	6	7	13

$X^2 = 11$ $p < 0.005$

CLINICAL 'CASENESS'

PREVIOUS PSYCHIATRIC TREATMENT	CASE	NON CASE	TOTAL	
No previous treatment	3	61	64	
GP Treatment	4	36	40	*
Psychiatric inpatient or outpatient treatment	5	9	14	*

$X^2_y = 3.38$ 1df n.s.

* These categories were collapsed before performing the X^2 test

TABLE 7.14

RELATIONSHIP BETWEEN THE SCORE ON THE NEUROTICISM SUBSCALE OF THE EYSENCK PERSONALITY INVENTORY AND PSYCHIATRIC 'CASENESS' AT THREE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

CASE STATUS	MEAN SCORE	STANDARD DEVIATION	STANDARD ERROR	NUMBER OF CASES
Case	9.7222	4.909	1.157	18
Non case	8.2073	5.113	0.565	82

t = -1.15 n.s.

CLINICAL 'CASENESS'

CASE STATUS	MEAN SCORE	STANDARD DEVIATION	STANDARD ERROR	NUMBER OF CASES
Case	11.00	4.570	1.445	10
Non case	8.2316	5.106	0.524	95

t = -1.65 n.s.

TABLE 7.15

RELATIONSHIP BETWEEN THE SCORE ON THE EXTRAVERSION SUBSCALE OF THE EYSENCK PERSONALITY INVENTORY AND PSYCHIATRIC 'CASENESS' AT THREE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

CASE STATUS	MEAN SCORE	STANDARD DEVIATION	STANDARD ERROR	NUMBER OF CASES
Case	9.3333	4.446	1.048	18
Non case	11.3537	4.252	0.470	82

t = 1.81 n.s.

CLINICAL 'CASENESS'

CASE STATUS	MEAN SCORE	STANDARD DEVIATION	STANDARD ERROR	NUMBER OF CASES
Case	9.6000	4.326	1.368	10
Non case	11.1053	4.226	0.434	95

t = 1.07 n.s.

TABLE 7.16

RELATIONSHIP BETWEEN EXTRAVERSION SCORE PREOPERATIVELY AND PSYCHIATRIC 'CASENESS' AT THREE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

	CASE	NON CASE	TOTAL
LOW EXTRAVERSION SCORE	14	38	52
HIGH EXTRAVERSION SCORE	4	44	48

$X^2_y = 4.65_{1df}$ $p < 0.05$

CLINICAL 'CASENESS'

	CASE	NON CASE	TOTAL
LOW EXTRAVERSION SCORE	7	49	56
HIGH EXTRAVERSION SCORE	3	46	49

$X^2_y = 0.9_{1df}$ n.s.

TABLE 7.17

RELATIONSHIP BETWEEN NEUROTICISM SCORE PREOPERATIVELY AND CASENESS THREE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

NEUROTICISM SCORE	CASE	NON CASE	TOTAL
Low Neuroticism Score	6	46	52
High Neuroticism Score	12	36	48

$X^2_y = 2.2$ 1df n.s.

CLINICAL 'CASENESS'

NEUROTICISM SCORE	CASE	NON CASE	TOTAL
Low Neuroticism Score	2	52	54
High Neuroticism Score	8	43	51

$X^2_y = 3.09$ 1df n.s.

TABLE 7.18

RELATIONSHIP BETWEEN RECENT STRESSES AND PSYCHIATRIC 'CASENESS' AT THREE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

STRESS PREOPERATIVELY	CASE	NON CASE	TOTAL
NO STRESSES IN THE 6 MONTHS PRIOR TO OPERATION	12	54	66
REPORTED STRESS IN THE 6 MONTHS PRIOR TO OPERATION	8	32	40

$X^2_y = 0$ 1df n.s.

CLINICAL 'CASENESS'

STRESS PREOPERATIVELY	CASE	NON CASE	TOTAL
NO STRESSES IN THE 6 MONTHS PRIOR TO OPERATION	4	67	71
REPORTED STRESS IN THE 6 MONTHS PRIOR TO OPERATION	8	37	45

$X^2_y = 3.2$ 1df n.s.

TABLE 7.19

RELATIONSHIP BETWEEN PERCEIVING THE SURGEONS AS SYMPATHETIC AND PSYCHIATRIC 'CASENESS' AT THREE MONTHS POSTOPERATIVELY

GHQ CASE RATE

SURGEONS PERCEIVED SYMPATHY	CASE	NON CASE	TOTAL	
Surgeons very sympathetic	8	50	58	
Surgeons sympathetic	7	18	25	*
Surgeons neutral	2	10	12	*
Surgeons unsympathetic	0	6	6	*

$X^2_y = 0.46$ 1df n.s.

CLINICAL CASE RATE

SURGEONS PERCEIVED SYMPATHY	CASE	NON CASE	TOTAL	
Surgeons very sympathetic	4	58	62	
Surgeons sympathetic	4	26	30	*
Surgeons neutral	1	12	13	*
Surgeons unsympathetic.	0	6	6	*

$X^2_y = 0.136$ 1df n.s.

* These categories were collapsed before performing the X^2 test.

TABLE 7.20

RELATIONSHIP BETWEEN BEING PROUD OF HER BREASTS AND PSYCHIATRIC CASE RATE AT THREE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

ATTITUDE TO BREASTS	CASE	NON CASE	TOTAL	
Pleased and proud	8	23	31	*
Pleased	3	5	8	*
Too large / small / droopy etc	3	24	27	
Not bothered	5	34	39	

$X^2 = 4.9$ 2df n.s.

CLINICAL 'CASENESS'

ATTITUDE TO BREASTS	CASE	NON CASE	TOTAL
Pleased and proud	3	29	32
Pleased	1	7	8
Too large / small / droopy etc	2	28	30
Not bothered	5	38	43

* These categories were collapsed before performing the X^2 test.

TABLE 7.21

RELATIONSHIP BETWEEN PREOPERATIVE GHQ AND PSYCHIATRIC 'CASENESS' AT THREE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

PREOPERATIVE GHQ 'CASE' STATUS	CASE	NON CASE	TOTAL
'CASE'	12	21	33
'NON CASE'	8	65	73

$X^2_y = 7.99_{1df}$ $p < 0.005$

CLINICAL 'CASENESS'

PREOPERATIVE GHQ 'CASE' STATUS	CASE	NON CASE	TOTAL
'CASE'	8	28	36
'NON CASE'	3	76	79

$X^2_y = 7.69_{1df}$ $p < 0.01$

TABLE 7.22

RELATIONSHIP BETWEEN PREOPERATIVE CLINICAL 'CASENESS' AND PSYCHIATRIC 'CASENESS' AT THREE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

PREOPERATIVE CLINICAL 'CASENESS'	CASE	NON CASE	TOTAL
'CASE'	8	11	19
'NON CASE'	13	77	90

$X^2_y = 6_{1df}$ $p < 0.05$

CLINICAL 'CASENESS'

PREOPERATIVE CLINICAL 'CASENESS'	CASE	NON CASE	TOTAL
'CASE'	7	13	20
'NON CASE'	5	94	99

$X^2_y = 13.3_{1df}$ $p < 0.001$

TABLE 7.23

RELATIONSHIP BETWEEN THE SURGICAL TREATMENT PACKAGE RECEIVED AND PSYCHIATRIC 'CASENESS' AT THREE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

SURGICAL TREATMENT	CASE	NON CASE	TOTAL	
Mastectomy Alone	8	62	70	
Mastectomy and Radiotherapy	5	17	22	*
Mastectomy and Radiotherapy and Oophorectomy or Chemotherapy	5	7	12	*

$X^2_y = 3.99$ 1df $p < 0.05$

CLINICAL 'CASENESS'

SURGICAL TREATMENT	CASE	NON CASE	TOTAL	
Mastectomy Alone	6	68	74	
Mastectomy and Radiotherapy	1	24	25	*
Mastectomy and Radiotherapy and Oophorectomy or Chemotherapy	4	11	15	*

$X^2_y = 0.1$ 1df n.s. .

Fisher Exact p = 0.032

* These categories were collapsed before performing the X2 test.

TABLE 7.24

ANALYSIS OF COVARIANCE WITH THE GHQ SCORE AT THREE MONTHS POSTOPERATIVELY AS THE DEPENDENT VARIABLE (n=96)

SOURCE OF VARIATION		SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIFICANCE OF F
Covariates *						
GHQ Score preop		809.82	1	809.82	26.276	.001
E Subscore of EPI		64.24	1	64.24	2.084	.153
N Subscore of EPI		.03	1	.03	.001	.975
Main Effects Z						
Confidant (confid)		25.73	1	25.73	.835	.364
Previous Psychiatric Treatment (Treat)		335.8	2	167.9	5.45	.006
Surgical Treatment (T)		659.95	1	659.95	21.4	.001
Marital Relationship (MR)		203.15	1	203.15	6.6	.012
2-way Interactions +						
Confid	Treat	230.76	2	115.38	3.74	.028
Confid	T	15.18	1	15.18	.49	.485
Confid	MR	3.47	1	3.47	.113	.738
Treat	T	670.08	2	335.04	10.87	.001
Treat	MR	544.9	2	272.48	8.84	.001
T	MR	83.2	1	83.2	2.7	.105
Explained		4827.5	24	201.15	6.53	.001
Residual		2188.2	71	30.82		

* Each adjusted for all other covariates

Z Each adjusted for all other factors and covariates

+ Each adjusted for other interactions, factors and covariates

TABLE 7.25

ANALYSIS OF COVARIANCE OF PATIENTS WHO HAD NO PREVIOUS PSYCHIATRIC TREATMENT WITH THE GHQ SCORE AT THREE MONTHS AS THE DEPENDENT VARIABLE (n=51)

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIFICANCE OF F
Covariates *					
GHQ Score Preop	158.9	1	158.9	9.05	.005
E Subscore of EPI	14.4	1	14.4	.82	.37
N Subscore of EPI	11.66	1	11.66	.66	.42
Main Effects Z					
Confidant (Confid)	.04	1	.04	.002	.962
Surgical Treatment (T)	27.12	1	27.12	1.54	.221
Marital Relationship (MR)	109.9	1	109.9	6.26	.017
2-way Interactions +					
Confid T	1.6	1	1.6	.09	.765
Confid MR	24.3	1	24.3	1.38	.247
T MR	3.2	1	3.2	.18	.67
Explained	460.13	10	46.01	2.62	.015
Residual	702.57	40	17.56		

* Each adjusted for all other covariates

Z Each adjusted for all other factors and covariates

\+ Each adjusted for all other interactions, factors and covariates

TABLE 7.26

ANALYSIS OF COVARIANCE OF PATIENTS WHO HAD PREVIOUS GP TREATMENT WITH THE GHQ SCORE AT THREE MONTHS AS THE DEPENDENT VARIABLE (n=35)

SOURCE OF VARIATION		SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIFICANCE OF F
Covariates *						
GHQ Score Preop		459.48	1	459.48	7.9	.01
E Subscore of EPI		.30	1	.30	.005	.943
N Subscore of EPI		.23	1	.23	.004	.950
Main Effects Z						
Confidant (Confid)		47.74	1	47.74	.82	.37
Surgical Treatment (T)		397.52	1	397.52	6.84	.015
Marital Relationship (MR)		430.16	1	430.16	7.16	.012
2-way Interactions +						
Confid	T	7.58	1	7.58	.130	.721
Confid	MR	1.63	1	1.63	.028	.868
T	MR	169.54	1	169.54	2.92	.101
Explained		1609.5	10	160.945	2.77	.020
Residual		1395.3	24	58.14		

* Each adjusted for all other covariates

Z Each adjusted for all other factors and covariates

\+ Each adjusted for all other interactions, factors and covariates

CHAPTER 8

Variables associated with sexual, social and marital deterioration at three months postoperatively

Association with current mental state

It seems reasonable to suppose that deterioration in sexual, social and marital functioning may be associated with current mental state. Indeed there was a significant correlation between being a case at three months postoperatively and reporting sexual deterioration at that time. All those who were clinical cases and all those who were GHQ cases reported sexual deterioration compared with only 48% of those who were not cases. (Tetrachoric correlation coefficient $^{r}t = 1.00$ $p < 0.001$; Table 8.1). There was also a significant correlation between being a GHQ case at three months and reporting social deterioration at that time (Tetrachoric correlation coefficient $^{r}t = 0.35$ $p < 0.01$; Table 8.2). The correlation between clinical caseness and social deterioration was not significant. There was a significant correlation between marital deterioration at three months after operation and current GHQ ($^{r}t = 0.37$ $p < 0.01$) and clinical ($^{r}t = 0.35$ $p < 0.01$; Table 8.3) 'caseness'.

Preoperative predictors

Preoperative mental state

There was a significant relationship between preoperative 'caseness' (clinical and GHQ) and sexual deterioration at three months postoperatively. Eighty-six percent of women who were clinical cases preoperatively reported sexual worsening at three months compared with 46% of those who were not clinical cases preoperatively ($X^2 = 5.74$ $p < 0.02$; Table 8.4). Seventy-six percent of those who were GHQ cases preoperatively had sexual worsening at three months compared with 43%

of those who were not ($X^2 = 5.3$ $p < 0.05$; Table 8.4). There was no significant relationship between preoperative 'caseness' and social deterioration. There was a non significant tendency for those who were GHQ cases preoperatively to have marital deterioration at three months after operation. Twenty per cent of those who were cases before operation reported marital deterioration at three months after operation compared with 5% of the rest ($X^2 = 2.5$ n.s.; Table 8.5).

Preoperative personality assessment

Twenty-one percent of women (7/34) who had a high neuroticism score preoperatively reported marital deterioration compared with 2% (1/43) of those who had a low neuroticism score preoperatively ($X^2 = 4.98$ $p < 0.05$; Table 8.6). It is interesting to note that only one of the women with a low neuroticism score (8 or less) reported a deterioration in her marriage at three months. There was a tendency for those who had a high extraversion score preoperatively to report more social deterioration at three months postoperatively but this was not significant. (33% of high scorers vs 15% of low scorers $X^2 = 3.6$ $p = 0.057$; Table 8.7).

There was no relationship between neuroticism score preoperatively and social and sexual deterioration at three months postoperatively. There was no relationship between extraversion score preoperatively and sexual or marital deterioration at three months postoperatively.

Surgical Treatment Package

There was a trend for women to report more social deterioration the more treatment they received. Twenty-two percent of women treated with mastectomy alone reported decreased social activities compared with 33% of those receiving mastectomy and radiotherapy and 47% of those receiving chemotherapy or oophorectomy as well. The trend was not

significant (Table 8.8; $X^2 = 4.3$ n.s.). There was no relationship between the amount of treatment received and impairment of marital (Table 8.9) and sexual functioning.

Summary

The most powerful effect on sexual deterioration is the current mental state. All those who were clinical cases at three months postoperatively reported sexual deterioration. The preoperative clinical and GHQ 'caseness' were good predictors of sexual deterioration three months after operation. As far as marital deterioration is concerned the preoperative neuroticism score is the best predictor of deterioration at three months. Only one of the women in the low neuroticism group reported deterioration at three months.

The only predictor of social deterioration is the amount of treatment received and this relationship just failed to reach significance.

TABLE 8.1

RELATIONSHIP BETWEEN BEING A CASE
AT THREE MONTHS POSTOPERATIVELY AND
SEXUAL DETERIORATION AT THREE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

SEXUAL DETERIORATION AT THREE MONTHS POSTOPERATIVELY	NOT A CASE AT THREE MONTHS POSTOPERATIVELY	CASE AT THREE MONTHS POSTOPERATIVELY	TOTAL
No Deterioration	29	0	29
Deterioration	26	11	37

$r_t = 1 \qquad p < 0.001$

CLINICAL 'CASENESS'

SEXUAL DETERIORATION AT THREE MONTHS POSTOPERATIVELY	NOT A CASE AT THREE MONTHS POSTOPERATIVELY	CASE AT THREE MONTHS POSTOPERATIVELY	TOTAL
No Deterioration	34	0	34
Deterioration	31	8	39

$r_t = 1 \qquad p < 0.001$

TABLE 8.2

RELATIONSHIP BETWEEN BEING A CASE AT THREE MONTHS POSTOPERATIVELY AND SOCIAL DETERIORATION AT THREE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

SOCIAL DETERIORATION AT THREE MONTHS POSTOPERATIVELY	NOT A CASE AT THREE MONTHS POSTOPERATIVELY	CASE AT THREE MONTHS POSTOPERATIVELY	TOTAL
No Deterioration	68	12	80
Deterioration	18	8	26

$r_t = 0.35 \qquad p < 0.01$

CLINICAL 'CASENESS'

SOCIAL DETERIORATION AT THREE MONTHS POSTOPERATIVELY	NOT A CASE AT THREE MONTHS POSTOPERATIVELY	CASE AT THREE MONTHS POSTOPERATIVELY	TOTAL
No deterioration	69	8	77
Deterioration	24	3	27

$r_t = 0.04 \qquad$ n.s.

TABLE 8.3

RELATIONSHIP BETWEEN BEING A CASE AT THREE MONTHS POSTOPERATIVELY AND MARITAL DETERIORATION AT THREE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

MARITAL DETERIORATION AT THREE MONTHS POSTOPERATIVELY	NOT A CASE AT THREE MONTHS POSTOPERATIVELY	CASE AT THREE MONTHS POSTOPERATIVELY	TOTAL
No Deterioration	58	13	71
Deterioration	5	3	8

$r_t = 0.37 \quad p < 0.01$

CLINICAL 'CASENESS'

MARITAL DETERIORATION AT THREE MONTHS POSTOPERATIVELY	NOT A CASE AT THREE MONTHS POSTOPERATIVELY	CASE AT THREE MONTHS POSTOPERATIVELY	TOTAL
No Deterioration	68	9	77
Deterioration	6	2	8

$r_t = 0.35 \quad p < 0.01$

TABLE 8.4

ASSOCIATION BETWEEN BEING A CASE PREOPERATIVELY AND SEXUAL DETERIORATION AT THREE MONTHS POSTOPERATIVELY

BEING A GHQ CASE PREOPERATIVELY

CASENESS PREOPERATIVELY	SEXUAL DETERIORATION	NO SEXUAL DETERIORATION	TOTAL
A GHQ CASE PREOPERATIVELY	16	5	21
NOT A GHQ CASE PREOPERATIVELY	21	28	49

$X^2_y = 5.3$ 1df $p < 0.05$

BEING A CLINICAL CASE PREOPERATIVELY

CASENESS PREOPERATIVELY	SEXUAL DETERIORATION	NO SEXUAL DETERIORATION	TOTAL
A CASE PREOPERATIVELY	12	2	14
NOT A CASE PREOPERATIVELY	27	32	59

$X^2_y = 5.7$ 1df $p < 0.02$

TABLE 8.5

RELATIONSHIP BETWEEN BEING A CASE PREOPERATIVELY AND MARITAL DETERIORATION AT THREE MONTHS POSTOPERATIVELY

GHQ 'CASE'

MARITAL RELATIONSHIP	GHQ NON CASE PREOPERATIVELY	GHQ CASE PREOPERATIVELY	TOTAL
The Same or Improved	54	20	74
Deterioration	3	5	8

$X^2 = 2.5$ n.s.

TABLE 8.6

ASSOCIATION BETWEEN NEUROTICISM SCORE PREOPERATIVELY AND MARITAL DETERIORATION AT THREE MONTHS POSTOPERATIVELY

PREOPERATIVE 'N' SCORE	MARITAL DETERIORATION	NO MARITAL DETERIORATION	TOTAL
LOW 'N' SCORE	1	42	43
HIGH 'N' SCORE	7	27	34

$X^2_y = 5$ $_{1df}$ $p < 0.05$

TABLE 8.7

ASSOCIATION BETWEEN EXTRAVERSION SCORE PREOPERATIVELY AND SOCIAL DETERIORATION AT THREE MONTHS POSTOPERATIVELY

PREOPERATIVE 'E' SCORE	SOCIAL DETERIORATION	NO SOCIAL DETERIORATION	TOTAL
LOW 'E' SCORE	8	46	54
HIGH 'E' SCORE	16	33	49

$X^2_y = 3.6$ $_{1df}$ n.s.

TABLE 8.8

ASSOCIATION BETWEEN SURGICAL TREATMENT PACKAGE AND SOCIAL DETERIORATION AT THREE MONTHS POSTOPERATIVELY

SURGICAL TREATMENT	SOCIAL DETERIORATION	NO SOCIAL DETERIORATION	TOTAL
MASTECTOMY ALONE	16	57	73
MASTECTOMY PLUS RADIOTHERAPY	8	16	24
MASTECTOMY PLUS RADIOTHERAPY PLUS OOPHORECTOMY OR CHEMOTHERAPY	7	8	15

$X^2 = 4.3_{2df}$ n.s.

TABLE 8.9

ASSOCIATION BETWEEN SURGICAL TREATMENT PACKAGE AND MARITAL DETERIORATION AT THREE MONTHS POSTOPERATIVELY

SURGICAL TREATMENT	MARITAL DETERIORATION	NO MARITAL DETERIORATION	TOTAL	
MASTECTOMY ALONE	3	48	51	
MASTECTOMY PLUS RADIOTHERAPY	4	14	18	*
MASTECTOMY PLUS RADIOTHERAPY PLUS OOPHORECTOMY OR CHEMOTHERAPY	0	13	13	*

$X^2_y = 0.48$ 1df n.s.

* these categories were collapsed before performing the X^2 test.

CHAPTER 9

Results of the assessment made at twelve months postoperatively

Psychiatric case rate

The clinical case rate at twelve months postoperatively was 5% (6 cases out of 118 women) and the GHQ case rate 12.8% (14 cases out of 109). Twenty-six percent of women fulfilled RDC criteria; 20 women had minor depressive disorder, 6 major depressive disorder and 6 generalized anxiety disorder. As can be seen in Table 9.1 the highest case rate was found before operation. Twelve months after operation the GHQ and clinical case rates were lower than at three months postoperatively. The RDC case rate remains more or less the same.

Changes in the marital relationship since operation

Eleven and a half percent (10/87) of women said that their marital relationship was more confiding than before their operation. Four point six percent (4/87) reported it to be less confiding and 84% (73/87) reported it to be the same. Twenty-seven and a half percent (24/87) said their husbands were more sympathetic than before their operation, 68% (59/87) as sympathetic and 4.6% (4/87) less sympathetic. Fifteen percent (13/87) of women said there were less quarrels between themselves and their husbands, 78% (68/87) the same number and 7% (6/87) said there were more. Twelve and a half percent (11/87) of women said there was more affection between themselves and their husband, 85% (74/87) the same amount and 2% (2/87) said there was less.

Overall 47% thought their relationship had improved since their operation, 43% thought it was the same and 9.6% thought it was worse.

Changes in sexual relationship since operation

Thirty-four percent (28/82) of the women said the frequency of sexual intercourse had decreased since operation, 7% (6/82) that it had increased and 58.5% (48/82) that it had stayed the same. Thirty-one percent (25/81) said their enjoyment of intercourse had decreased. Four percent, (3/81) said it had improved and 65% (53/81) said it was the same. Thirty-eight percent of women said that the amount of caressing in their sexual relationship had decreased, 60% (44/81) said it was the same and 1% (1/81) said it had increased.

Overall, 54% reported a worsening of their sexual relationship since operation.

Changes in social relationship

Seventeen percent of women said they went out less with their husband than they did before their operation, 10% said more and 73% said the same. Seventeen percent said they went out less with friends or on their own than before, 13% more and 69% the same. Overall 27% were going out less than before.

Change in work competence

At twelve months postoperatively 6% (6/95) of those who worked preoperatively had not returned to work. Seventeen percent (16/95) were working less hours and 9½% (9/95) had changed jobs to the one they had had prior to operation. Sixty-seven percent were back to their old job working as many hours as before.

With respect to household tasks, 5% (6/119) found their ability to be much impaired, 32% (38/119) found it to be impaired for some tasks and 57% (68/119) said they were coping with their household tasks as usual.

Back to normal self

Forty-nine percent (58/118) said they were back to their normal self by one year postoperatively.

Phantom breasts

By one year postoperatively 30% (33/109) women were still experiencing a phantom breast; 6% of women experienced pain in the absent breast, 22% of women experienced tingling of the non-existent nipple.

Worries about cancer

Thirty-two percent (37/116) of women now expressed the worry that any little ache and pain they had made them fear that the cancer had spread (compared with 17% at three months postoperatively). Twenty-three percent (27/115) examined their remaining breast constantly (at least once a day).

Fifty-six percent of women (65/117) had worry about cancer at the back of their minds, 9% constantly worried about spread or recurrence.

Changes in attitude to appearance

Sixteen percent (19/118) of the women said they paid more attention to their appearance since their operation and only 7% said they paid less attention to their appearance.

TABLE 9.1

PSYCHIATRIC CASE RATES BEFORE AND AFTER OPERATION

	GHQ Case Rate	Clinical Case Rate	RDC Case Rate
Before operation	31%	15%	46.5%
Three months after operation	19%	10%	29%
Twelve months after operation	12.8%	5%	26%

CHAPTER 10

Variables associated with psychiatric case rate at twelve months postoperatively

Exactly the same hypotheses as were tested three months after operation can also be tested at twelve months after operation. Three women who had a particularly severe depressive illness were treated by me after I had seen them three months postoperatively. They all recovered after being treated with tricyclic antidepressants and psychotherapy. This will inevitably have distorted the data as, untreated, they may well have been cases at twelve months post-operatively.

Demographic variables

There was no relationship between age, social class, or marital status and psychiatric case rate at twelve months post-operatively (Tables 10.1 and 10.3). There was a tendency for the case rate to be related to social class (Table 10.3) with Social Class V having a higher clinical case rate than those in the higher socio-economic groups. (Social Class I and II 0% cf III and IV 5% cf V 33%). There was the same tendency with GHQ case rate (8.3% - 40% case rate) but in neither case was the tendency significant.

Vulnerability factors reported by Professor George Brown

Women with 3 children under the age of 14

There was no difference in case rate in women with and without children under the age of 14 (Table 10.4).

Confidant

There was no relationship between having a confiding relationship with the husband and the clinical case rate (Table 10.5).

These data suggest that the importance of a confiding relationship has by this point in time disappeared.

There was no relationship between the number of confidants and psychiatric case rate at twelve months postoperatively (Table 10.6).

Women who had lost their mother before the age of 11

Women who had lost their mother before the age of 11 did not have an increased case rate (Table 10.7).

Employment

There was a non significant tendency for those who had no job prior to their operation to have a higher case rate at twelve months postoperatively (12% cf 3% $X^2 = 1.5$ n.s.; Table 10.8). There was no such tendency with the GHQ case rate. The conclusion must be that being employed at the time of stress has no long term protective effect.

Patients with poor marriages

There was a tendency for those with a poor marriage to have a higher GHQ case rate (22% cf 10.5%) at twelve months postoperatively but this tendency was not significant (Table 10.9).

Patients with poor social supports

Patients who lived alone did not have a higher case rate at twelve months postoperatively than the rest (Table 10.10).

There was no relationship between the numbers of friends who informally dropped in on the patient as assessed preoperatively and the psychiatric case rate at twelve months postoperatively (Table 10.11). Those who had no such friends tended to have a higher case rate than the rest ($X^2 = 2.19$ n.s.). There was no relationship between the number of friends the patient could drop in on and the clinical case rate although there was a relationship with the GHQ case rate. Those who had no such friends had a significantly higher GHQ case rate, 33% compared with 9% of the rest ($X^2 = 4.7$ $p < 0.05$; Table 10.12). However as this is an isolated finding the conclusion must be that having poor social support does not result in patients remaining psychiatrically ill following stress.

Patients with a previous psychiatric illness

There was no relationship between having had previous psychiatric treatment and the psychiatric case rate at twelve months postoperatively (Table 10.13).

Personality variables

The mean neuroticism score (as assessed preoperatively) was greater in those who were a clinical case at twelve months than those who were not (12.7 cf 8.2 $t = 2.04$ $p < 0.05$; Table 10.14). The same relationship was found with GHQ 'caseness' at twelve months (12.1 cf 7.9 $t = 2.76$ $p < 0.01$). The mean extraversion score was

not different in the twelve month case and non case groups (Table 10.15).

Those who had high extraversion scores preoperatively had no higher case rate than those who had low extraversion scores pre-operatively. Those who had high neuroticism scores pre-operatively had no higher clinical case rate than those who had low neuroticism scores. However those with high neuroticism scores did have a higher GHQ case rate (22% cf 5.9% $X^2 = 4.1$ $p < 0.05$; Table 10.16).

Stress

Women who had experienced other stresses in the six months preoperatively were no more likely to be cases at twelve months postoperatively than those who had not (Table 10.17).

Perceiving the surgeons and nurses as sympathetic

There was no relationship between perceiving the surgeons and nurses as sympathetic and psychiatric case rate at three months postoperatively (Table 10.18 and 10.19).

Women proud of their breasts and appearance preoperatively

Women who had stated that they were pleased with and proud of their breasts prior to operation did not have a higher case rate twelve months after operation than the rest (Table 10.20). Nor did women who had declared themselves to be very particular about their appearance prior to operation have a higher case rate than the rest (Table 10.21).

The hypothesis that women who are narcissistic are more likely to become psychiatrically ill following mastectomy is not upheld.

Those who are psychiatrically ill preoperatively

There was a significant relationship between those who were a GHQ case preoperatively and those who were a GHQ case at twelve months postoperatively. Twenty-six percent of those who were a GHQ case preoperatively were a case at twelve months postoperatively compared with 8.5% of those who were a non case preoperatively (Table 10.22; $X^2 = 4.1$ $p < 0.05$). There was no relationship between preoperative GHQ case rate and clinical 'caseness' at twelve months or between preoperative clinical caseness and clinical or GHQ 'caseness' at twelve months postoperatively (Table 10.23).

The hypothesis that those who are a preoperative case are more likely to be a twelve month case is not upheld. More particularly the preoperative GHQ does not help to identify those who are likely to be a case at twelve months postoperatively.

Those who have extra treatments

There was no relationship between the surgical treatment package received and psychiatric case rate at twelve months post-operatively (Table 10.24). The details about the effects of extra treatments are given in a separate chapter.

SUMMARY OF VARIABLES AFFECTING PSYCHIATRIC CASE STATUS AT TWELVE MONTHS POSTOPERATIVELY

1. The number of people the patient can drop in on informally (GHQ case rate).
2. The EPI neuroticism score assessed preoperatively (GHQ case rate).
3. The preoperative GHQ case status (GHQ case rate).

An analysis of covariance was performed with the raw twelve months GHQ score as outcome variable, social support (2 point scale), marital relationship (2 point scale), previous psychiatric treatment (3 point

scale), and surgical treatment (2 point scale) as independent variables. The preoperative GHQ score and the EPI neuroticism score (N) were used as covariates. The latter three independent variables were included because they had been important in the three months post-operative analysis.

After adjustment for the covariates the only independent variable which remained significantly related to outcome was the patient's marital relationship ($p < 0.02$) (Table 10.25). The covariates GHQ ($p < 0.01$) and N ($p < 0.05$) were significantly related to outcome. There was a significant interaction between previous psychiatric treatment and social support ($p < 0.02$) and between social support and marital relationship ($p < 0.05$).

As the most important interaction again involved the patients' previous psychiatric treatment status I did a separate analysis for each of the three types of treatment status; no previous treatment, GP treatment for psychiatric symptoms, psychiatric inpatient or out-patient treatment (Tables 10.26 - 10.27).

Table 10.26 shows the analysis of the scores of women who had had no previous psychiatric treatment ($n = 49$). The patients marital relationship prior to surgery is the only factor significantly related to the GHQ score at twelve months after adjustment for all other factors, covariates and interactions ($p < 0.05$).

Table 10.27 shows the analysis of the scores of women who had had previous GP treatment for psychiatric symptoms. The patients marital relationship prior to operation and her social support prior to operation were both significantly related to the GHQ score at twelve months, after adjustment for all other factors, covariates and interactions (both significant at the 5% level).

The numbers in the third group, those who had previous hospital psychiatric treatment, were too few for analysis (n = 10).

In order to examine whether or not previous psychiatric treatment was important after the interactions were adjusted for I did a further analysis of the whole group of patients (Table 10.28) to assess the effects of the main factors after adjustment for the covariates, all other factors and interactions. In this analysis previous psychiatric treatment was significantly related to the GHQ score at twelve months ($p < 0.005$).

It will also be noted that when all independent variables and interactions are adjusted for in Tables 10.26 and 10.27 the pre-operative GHQ score and the N score are no longer significantly related to the dependent variable. However as the importance of the GHQ and N is as predictors of the psychiatric outcome at twelve months it is the analysis in Table 10.25 which is important from the point of view of the covariates (i.e. that there is a significant relationship between the preoperative GHQ and N and the GHQ score at twelve months).

TABLE 10.1

RELATIONSHIP BETWEEN AGE AND PSYCHIATRIC 'CASENESS' AT TWELVE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

AGE	CASE	NON CASE	TOTAL	
20 - 30	0	1	1	*
31 - 40	0	17	17	*
41 - 50	6	33	39	
51 - 60	7	39	46	Z
60+	1	2	3	Z

$X^2 = 4.12_{2df}$ n.s.

CLINICAL 'CASENESS'

AGE	CASE	NON CASE	TOTAL
20 - 30	0	1	1
31 - 40	1	16	17
41 - 50	2	42	44
51 - 60	2	48	50
60+	1	2	3

* These categories were collapsed before
Z performing the X^2 test.

TABLE 10.2

RELATIONSHIP BETWEEN MARITAL STATUS AND PSYCHIATRIC 'CASENESS' AT TWELVE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

MARITAL STATUS	CASE	NON CASE	TOTAL	
Married	12	67	79	
Divorced Separated Cohabiting Widowed	2	12	14	*
Single	0	13	13	*

$X^2_y = 2.26$ $_{1df}$ n.s.

CLINICAL 'CASENESS'

MARITAL STATUS	CASE	NON CASE	TOTAL	
Married	5	80	85	
Divorced Separated Cohabiting Widowed	1	14	15	*
Single	0	15	15	*

$X^2_y = 0.9$ $_{1df}$ n.s.

* These categories were collapsed before performing the X^2 test.

TABLE 10.3

RELATIONSHIP BETWEEN SOCIAL CLASS AND PSYCHIATRIC 'CASENESS' TWELVE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

SOCIAL CLASS	CASE	NON CASE	TOTAL	
1	1	11	12	Z
2	2	21	23	Z
3	6	48	54	*
4	3	9	12	*
5	2	3	5	*

$X^2_y = 0.46$ 1df n.s.

CLINICAL 'CASENESS'

SOCIAL CLASS	CASE	NON CASE	TOTAL	
1	0	12	12	Z
2	0	23	23	Z
3	3	58	61	*
4	1	12	13	*
5	2	4	6	*

$X^2_y = 0.39$ 1df n.s.

* Z These categories were collapsed before performing the X^2 test.

TABLE 10.4

RELATIONSHIP BETWEEN HAVING CHILDREN UNDER THE AGE OF 14 AND PSYCHIATRIC 'CASENESS' TWELVE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

NO. OF CHILDREN UNDER AGE 14	CASE	NON CASE	TOTAL
No children under age 14	11	64	75
One or more children under age 14	3	27	30

$X^2_y = 0.1$ 1df n.s.

CLINICAL 'CASENESS'

NO. OF CHILDREN UNDER AGE 14	CASE	NON CASE	TOTAL
No children under age 14	10	76	86
One or more children under age 14	1	30	31

$X^2_y = 0.015$ 1df n.s.

TABLE 10.5

RELATIONSHIP BETWEEN CONFIDING RELATIONSHIP WITH HUSBAND AND PSYCHIATRIC CASENESS AT TWELVE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

RELATIONSHIP WITH HUSBAND	CASE	NON CASE	TOTAL	
Confiding	5	44	49	
Confiding - qualified	4	21	25	*
Not confiding	1	5	6	*
Definitely not confiding	2	0	2	*

$X^2_y = 1.2$ 1df **n.s.**

CLINICAL 'CASENESS'

RELATIONSHIP WITH HUSBAND	CASE	NON CASE	TOTAL	
Confiding	2	49	51	
Confiding - qualified	2	24	26	*
Not confiding	0	7	7	*
Definitely not confiding	1	3	4	*

$X^2_y = 0.37$ 1df n.s.

* These categories were collapsed before performing the X^2 test.

TABLE 10.6

RELATIONSHIP BETWEEN NUMBER OF CONFIDANTS AND PSYCHIATRIC 'CASENESS' AT TWELVE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

NO. OF CONFIDANTS	CASE	NON CASE	TOTAL	
NONE	1	5	6	*
1 - 2	7	35	42	*
3 - 4	3	37	40	Z
5 +	3	11	14	Z

$X^2_y = 0.28$ n.s.

CLINICAL 'CASENESS'

NO. OF CONFIDANTS	CASE	NON CASE	TOTAL	
NONE	0	8	8	*
1 - 2	4	39	43	*
3 - 4	0	46	46	Z
5 +	2	12	14	Z

$X^2_y = 0.39$ n.s.

* Z These categories were collapsed before performing an X^2 test.

TABLE 10.7

RELATIONSHIP BETWEEN LOSS OF MOTHER BEFORE AGE 11 AND PSYCHIATRIC 'CASENESS' AT TWELVE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

LOSS OF MOTHER	CASE	NON CASE	TOTAL
Loss of mother before age 11	1	9	10
No loss of mother before age 11	12	82	94

$X^2_y = 0.1$ n.s.

CLINICAL 'CASENESS'

LOSS OF MOTHER	CASE	NON CASE	TOTAL
Loss of mother before age 11	0	10	10
No loss of mother before age 11	6	100	106

$X^2_y = 0.02$ n.s.

TABLE 10.8

THE RELATIONSHIP BETWEEN PREOPERATIVE EMPLOYMENT STATUS AND PSYCHIATRIC CASE RATE AT TWELVE MONTHS POSTOPERATIVELY

GHQ Case Rate

EMPLOYMENT STATUS	CASE	NON CASE	TOTAL
Unemployed	3	18	21
Employed part-time	5	35	40
Employed full-time	6	39	45

$X^2 = 0.04_{2df}$ n.s.

Clinical Case Rate

EMPLOYMENT STATUS	CASE	NON CASE	TOTAL	
Unemployed	3	22	25	
Employed part-time	2	41	43	*
Employed full-time	1	46	47	*

$X^2_y = 1.5_{1df}$ n.s.

* These categories were collapsed before performing the X^2 test.

TABLE 10.9

RELATIONSHIP BETWEEN PREOPERATIVE ASSESSMENT OF MARITAL RELATIONSHIP AND PSYCHIATRIC CASENESS AT TWELVE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

MARITAL RELATIONSHIP	CASE	NON CASE	TOTAL	
1 "Good"	3	17	20	*
2	1	17	18	*
3	4	19	23	Z
4 "Bad"	4	9	13	Z

$X^2_y = 1.1$ 1df n.s.

* Z These categories were collapsed before performing the X^2 test.

CLINICAL 'CASENESS'

MARITAL RELATIONSHIP	CASE	NON CASE	TOTAL	
1 "Good"	2	18	20	*
2	1	18	19	*
3	1	25	26	Z
4 "Bad"	1	13	14	Z

$X^2_y = 0.001$ n.s.

* Z These categories were collapsed before performing the X^2 test.

TABLE 10.10

RELATIONSHIP BETWEEN LIVING ALONE AND PSYCHIATRIC CASENESS AT TWELVE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

LIVING GROUP	CASE	NON CASE	TOTAL
Living alone	1	13	14
Not living alone	13	78	91

$X^2_y = 0.09$ n.s.

CLINICAL 'CASENESS'

LIVING GROUP	CASE	NON CASE	TOTAL
Living alone	1	15	16
Not living alone	5	91	96

$X^2_y = 0.0$ n.s.

TABLE 10.11

THE RELATIONSHIP BETWEEN THE NUMBER OF PEOPLE WHO INFORMALLY DROP IN ON THE PATIENT AND PSYCHIATRIC CASE RATE AT TWELVE MONTHS POSTOPERATIVELY

GHQ Case Rate

	CASE	NON CASE	TOTAL	
None	4	10	14	Z
1-2	3	24	27	Z
3-5	2	31	33	+
6+	4	24	28	+

$X^2 = 0.59$ n.s.

$^{+}_{Z}$ These categories were collapsed before performing the X^2 test.

Clinical Case Rate

	CASE	NON CASE	TOTAL
None	1	13	14
1-2	2	29	31
3-5	0	34	34
6+	3	29	32

TABLE 10.12

RELATIONSHIP BETWEEN THE NUMBER OF PEOPLE THE PATIENT CAN DROP IN ON INFORMALLY AND THE PSYCHIATRIC CASE RATE AT TWELVE MONTHS POSTOPERATIVELY

GHQ Case rate

	CASE	NON CASE	TOTAL	
None	5	10	15	*
1-2	2	29	31	*
3-5	2	31	33	Z
6+	4	19	23	Z

$X^2_y = 0.14$ 1df n.s.

Clinical Case Rate

	CASE	NON CASE	TOTAL	
None	2	13	15	*
1-2	1	34	35	*
3-5	0	34	34	Z
6+	3	24	27	Z

$X^2_y = 0.63$ n.s.

$\overset{*}{Z}$ These categories were collapsed before performing the X^2 test.

TABLE 10.13

RELATIONSHIP BETWEEN PREVIOUS PSYCHIATRIC TREATMENT AND PSYCHIATRIC 'CASENESS' AT TWELVE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

PREVIOUS PSYCHIATRIC TREATMENT	CASE	NON CASE	TOTAL
No previous treatment	5	55	60
GP Treatment	8	28	36
Psychiatric inpatient or outpatient treatment	1	10	11

$X^2_y = 1.84$ n.s.

CLINICAL 'CASENESS'

PREVIOUS PSYCHIATRIC TREATMENT	CASE	NON CASE	TOTAL
No previous treatment	3	60	63
GP Treatment	3	37	40
Psychiatric inpatient or outpatient treatment	0	13	13

$X^2_y = 0.04$ n.s.

TABLE 10.14

RELATIONSHIP BETWEEN SCORES ON THE NEUROTICISM SUBSCALE OF THE EYSENCK PERSONALITY INVENTORY AND PSYCHIATRIC 'CASENESS' AT TWELVE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

GHQ 'CASENESS'	MEAN	STANDARD DEVIATION	STANDARD ERROR	NUMBER OF CASES (n)
CASE	12.0769	6.396	1.774	13
NON CASE	7.9036	4.853	0.533	83

$t = -2.76 \quad p < 0.01$

CLINICAL 'CASENESS'

CLINICAL 'CASENESS'	MEAN	STANDARD DEVIATION	STANDARD ERROR	NUMBER OF CASES (n)
CASE	12.6667	7.090	2.894	6
NON CASE	8.2688	4.987	0.517	93

$t = -2.04 \quad p < 0.05$

TABLE 10.15

RELATIONSHIP BETWEEN PREOPERATIVE SCORES ON THE EXTRAVERSION SUBSCALE OF THE EYSENCK PERSONALITY INVENTORY AND PSYCHIATRIC 'CASENESS' AT TWELVE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

'CASENESS'	MEAN SCORE	STANDARD DEVIATION	STANDARD ERROR	NUMBER OF CASES (n)
Case	11.5385	4.576	1.269	13
Non Case	10.9277	4.213	0.462	83

t = -0.48 n.s.

CLINICAL 'CASENESS'

'CASENESS'	MEAN SCORE	STANDARD DEVIATION	STANDARD ERROR	NUMBER OF CASES (n)
Case	10.3333	4.803	1.961	6
Non Case	10.9785	4.227	0.438	93

t = 0.36 n.s.

TABLE 10.16

RELATIONSHIP BETWEEN NEUROTICISM SCORE PREOPERATIVELY AND PSYCHIATRIC CASE RATE AT TWELVE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

NEUROTICISM SCORE	CASE	NON CASE	TOTAL
Low Neuroticism Score	3	48	51
High Neuroticism Score	10	35	45

$X^2_y = 4.1$ $p < 0.05$

CLINICAL 'CASENESS'

NEUROTICISM SCORE	CASE	NON CASE	TOTAL
Low Neuroticism Score	3	48	51
High Neuroticism Score	3	45	48

$X^2_y = 0$ n.s.

TABLE 10.17

THE RELATIONSHIP BETWEEN PREOPERATIVE STRESS AND PSYCHIATRIC CASE RATE AT TWELVE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

STRESS PREOPERATIVELY	CASE	NON CASE	TOTAL
No stress	8	58	66
Stress	6	33	39

$X^2_y = 0.03$ n.s.

CLINICAL 'CASENESS'

STRESS PREOPERATIVELY	CASE	NON CASE	TOTAL
No stress	5	65	70
Stress	1	43	44

$X^2_y = 0.5$ n.s.

TABLE 10.18

RELATIONSHIP BETWEEN PERCEIVING THE SURGEONS AS SYMPATHETIC AND PSYCHIATRIC CASE RATE AT TWELVE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

SURGEONS SYMPATHY	CASE	NON CASE	TOTAL
Very Sympathetic	6	52	58
Sympathetic	3	21	24
Neutral	2	9	11
Unsympathetic	0	6	6

CLINICAL 'CASENESS'

SURGEONS SYMPATHY	CASE	NON CASE	TOTAL
Very Sympathetic	5	57	62
Sympathetic	1	26	27
Neutral	0	13	13
Unsympathetic	0	6	6

TABLE 10.19

RELATIONSHIP BETWEEN PERCEIVING THE NURSES AS SYMPATHETIC AND PSYCHIATRIC CASE RATE AT TWELVE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

NURSES SYMPATHY	CASE	NON CASE	TOTAL
Very Sympathetic	7	59	66
Sympathetic	3	22	25
Neutral	1	5	6

CLINICAL 'CASENESS'

NURSES SYMPATHY	CASE	NON CASE	TOTAL
Very Sympathetic	6	65	71
Sympathetic	0	28	28
Neutral	0	6	6

TABLE 10.20

RELATIONSHIP BETWEEN BEING PROUD OF HER BREASTS AND PSYCHIATRIC CASE RATE AT TWELVE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

ATTITUDE TO BREASTS	CASE	NON CASE	TOTAL
Pleased and proud	5	21	26
Pleased	1	5	6
Too large /small/droopy etc.	4	26	30
Not bothered	4	35	39

CLINICAL 'CASENESS'

ATTITUDE TO BREASTS	CASE	NON CASE	TOTAL
Pleased and proud	2	28	30
Pleased	0	6	6
Too large /small/droopy etc.	2	28	30
Not bothered	2	42	44

TABLE 10.21

RELATIONSHIP BETWEEN ATTITUDE TO APPEARANCE PREOPERATIVELY AND PSYCHIATRIC CASE RATE AT TWELVE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

ATTITUDE TO APPEARANCE	CASE	NON CASE	TOTAL
Very particular	2	12	14
Likes to dress attractively	3	39	42
Likes to be clean and neat	8	32	40
Not very interested	1	6	7
Not at all interested	0	1	1

CLINICAL 'CASENESS'

ATTITUDE TO APPEARANCE	CASE	NON CASE	TOTAL
Very particular	1	14	15
Likes to dress attractively	0	46	46
Likes to be clean and neat	5	38	43
Not very interested	0	7	7
Not at all interested	0	2	2

TABLE 10.22

RELATIONSHIP BETWEEN PREOPERATIVE GHQ AND PSYCHIATRIC 'CASENESS' AT TWELVE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

PREOPERATIVE GHQ 'CASE' STATUS	CASE	NON CASE	TOTAL
'CASE'	8	25	31
'NON CASE'	6	65	71

$X^2_y = 4.1$ $p < 0.05$

CLINICAL 'CASENESS'

PREOPERATIVE GHQ 'CASE' STATUS	CASE	NON CASE	TOTAL
'CASE'	2	31	33
'NON CASE'	3	73	76

$X^2_y = 0.1$ n.s.

TABLE 10.23

RELATIONSHIP BETWEEN PREOPERATIVE CLINICAL 'CASENESS' AND PSYCHIATRIC 'CASENESS' AT TWELVE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

PREOPERATIVE CLINICAL 'CASENESS'	CASE	NON CASE	TOTAL
'CASE'	5	14	19
'NON CASE'	9	79	88

$X^2_y = 2.3$ n.s.

CLINICAL 'CASENESS'

PREOPERATIVE CLINICAL 'CASENESS'	CASE	NON CASE	TOTAL
'CASE'	2	18	20
'NON CASE'	4	92	96

$X^2_y = 0.3$ n.s.

TABLE 10.24

RELATIONSHIP BETWEEN SURGICAL TREATMENT PACKAGE AND PSYCHIATRIC 'CASENESS' AT TWELVE MONTHS POSTOPERATIVELY

GHQ 'CASENESS'

SURGICAL TREATMENT PACKAGE	CASE	NON CASE	TOTAL	
Mastectomy Alone	10	58	68	
Mastectomy and Radiotherapy	4	19	23	*
Mastectomy and Radiotherapy and Chemotherapy or Oophorectomy	0	13	13	*

$X^2_y = 0.04$ n.s.

CLINICAL 'CASENESS'

SURGICAL TREATMENT PACKAGE	CASE	NON CASE	TOTAL	
Mastectomy Alone	6	68	74	
Mastectomy and Radiotherapy	1	24	25	*
Mastectomy and Radiotherapy and Chemotherapy or Oophorectomy	4	11	15	*

$X^2_y = 0.18$ n.s.

* These categories were collapsed before performing the X^2 test

TABLE 10.25

ANALYSIS OF COVARIANCE - GHQ SCORE AT TWELVE MONTHS AS DEPENDENT VARIABLE (N = 92)

SOURCE OF VARIATION		SUM OF SQUARES	df	MEAN SQUARE	F	SIGNIFICANCE OF F
Covariates *						
GHQ Score Preoperatively		291.84	1	291.84	7.24	.009
N Subscale of EPI		171.16	1	171.16	4.25	.043
Main Effects Z						
Surgical Treatment (T)		5.59	1	5.59	.14	.711
Marital Relationship (MR)		252.06	1	252.06	6.25	.015
Social Support (SOC)		111.34	1	111.34	2.76	.101
Previous Psychiatric Treatment (TREAT)		98.22	2	49.11	1.22	.302
2 way Interactions +						
T	MR	88.75	1	88.75	2.20	.143
T	SOC	11.02	1	11.02	.27	.603
T	TREAT	30.09	2	15.04	.37	.690
MR	SOC	165.77	1	165.77	4.11	.047
MR	TREAT	42.31	2	21.15	.52	.594
SOC	TREAT	356.66	2	178.33	4.42	.016
Explained		2270.21	23	98.70	2.45	.002
Residual		2741.65	68	40.32		

* Adjusted for other covariates only

Z Adjusted for all other factors and covariates

\+ Adjusted for covariates, factors and other interactions

TABLE 10.26

ANALYSIS OF COVARIANCE OF PATIENTS WHO HAD NO PREVIOUS PSYCHIATRIC TREATMENT WITH THE GHQ SCORE AT TWELVE MONTHS POSTOPERATIVELY AS THE DEPENDENT VARIABLE (N = 49)

SOURCE OF VARIATION	SUM OF SQUARES	df	MEAN SQUARE	F	SIGNIFICANCE OF F
Covariates *					
GHQ Score Preoperatively	54.61	1	54.61	2.19	.147
N Subscale of EPI	3.05	1	3.05	.12	.729
Main Effects *					
Surgical Treatment (T)	.06	1	.06	.002	.962
Marital Relationship (MR)	117.13	1	117.13	4.70	.036
Social Support (SOC)	4.03	1	4.03	.16	.690
2 way Interactions *					
T MR	.40	1	.40	.016	.900
T SOC	7.74	1	7.74	.31	.586
MR SOC	68.79	1	68.79	2.76	.105
Explained	248.47	9	27.61	1.11	.380
Residual	971.53	39	24.91		

* Each adjusted for all other covariates, main effects and interactions

TABLE 10.27

ANALYSIS OF COVARIANCE OF PATIENTS WHO HAD PREVIOUS GP TREATMENT WITH THE GHQ SCORE AT TWELVE MONTHS POSTOPERATIVELY AS THE DEPENDENT VARIABLE (n = 33)

SOURCE OF VARIATION	SUM OF SQUARES	df	MEAN SQUARE	F	SIGNIFICANCE OF F
Covariates *					
GHQ Score Preoperatively	2.55	1	2.55	.04	.848
N subscale of EPI	207.53	1	207.53	3.07	.093
Main Effects *					
Surgical Treatment (T)	.11	1	.11	.002	.968
Marital Relationship (MR)	337.96	1	337.96	4.99	.035
Social Support (SOC)	423.73	1	423.73	6.26	.02
2 way Interactions *					
T MR	97.63	1	97.63	1.44	.24
T SOC	.005	1	.005	.00	.993
MR SOC	111.80	1	111.80	1.65	.211
Explained	1631.77	9	181.31	2.68	.027
Residual	1556.29	23	67.66		

* Each adjusted for all other main effects, covariates and interactions

TABLE 10.28

ANALYSIS OF COVARIANCE - GHQ SCORE AT TWELVE MONTHS AS DEPENDENT VARIABLE (N = 92)

SOURCE OF VARIATION		SUM OF SQUARES	df	MEAN SQUARE	F	SIGNIFICANCE OF F
Covariates *						
GHQ Score Preoperatively		90.62	1	90.62	2.35	.129
N Subscale of EPI		77.00	1	77.00	1.20	.162
Main Effects *						
Surgical Treatment (T)		14.44	1	14.44	.37	.542
Marital Relationship (MR)		392.58	1	392.58	10.18	.002
Social Support (SOC)		9.51	1	9.51	.25	.621
Previous Psychiatric Treatment (TREAT)		444.46	2	222.23	5.76	.005
2 way Interactions *						
T	MR	88.75	1	88.75	2.30	.133
T	SOC	11.02	1	11.02	.29	.594
T	TREAT	30.09	2	15.04	.39	.678
MR	SOC	165.77	1	165.77	4.30	.042
MR	TREAT	42.31	2	21.15	.55	.580
SOC	TREAT	356.66	2	178.33	4.63	.013
Explained		2120.31	16	132.52	3.44	.001
Residual		2891.55	75	38.55		

* Each adjusted for all other covariates, main effects and interactions

CHAPTER 11

Variables associated with sexual, social and marital deterioration at twelve months postoperatively

Association with current mental state

The correlation between social deterioration and current mental state at twelve months postoperatively was not significant. There was a significant correlation between sexual deterioration and current GHQ 'caseness' (49% non cases had sexual deterioration vs 89% of cases; tetrachoric correlation coefficient $r_t = 0.69$ $p < 0.001$; Table 11.1), but not clinical 'caseness' ($r_t = 0.07$). There was a significant correlation between marital deterioration and GHQ 'caseness' ($r_t = 0.34$ $p < 0.01$; Table 11.2) but not clinical 'caseness'.

Preoperative Predictors

Preoperative mental state

There was no relationship between preoperative mental state and marital or social deterioration. Eighty-six percent of those who were clinical cases preoperatively had sexual deterioration at twelve months compared with 48% of those who were not ($X^2 = 4.9$ $p < 0.05$; Table 11.3).

Preoperative personality assessment

There was no relationship between the preoperative extraversion score or neuroticism score and marital or sexual deterioration at twelve months postoperatively. Thirty-two percent of women with high extraversion scores reported social deterioration compared with 14% of those with low scores (Table 11.4; $X^2 = 3.1$ n.s.). There was no relationship between the neuroticism score and sexual deterioration at twelve months.

Treatment received

There was no relationship between treatment received and social, sexual and marital deterioration at twelve months after operation.

TABLE 11.1

RELATIONSHIP BETWEEN BEING A CASE AT TWELVE MONTHS POSTOPERATIVELY AND SEXUAL DETERIORATION AT 12 MONTHS AFTER OPERATION

GHQ 'CASENESS'

SEXUAL DETERIORATION	CASE	NON CASE	TOTAL
No Deterioration	1	30	31
Deterioration	8	29	37

$r_t = 0.69 \qquad p < 0.001$

CLINICAL 'CASENESS'

SEXUAL DETERIORATION	CASE	NON CASE	TOTAL
No Deterioration	2	30	32
Deterioration	2	36	38

$r_t = 0.07 \qquad$ n.s.

TABLE 11.2

RELATIONSHIP BETWEEN BEING A CASE AT TWELVE MONTHS POSTOPERATIVELY AND MARITAL DETERIORATION AT 12 MONTHS AFTER OPERATION

GHQ 'CASENESS'

MARITAL DETERIORATION	CASE	NON CASE	TOTAL
No Deterioration	9	59	68
Deterioration	3	8	11

$r_t = 0.34$ $p < 0.01$

CLINICAL 'CASENESS'

MARITAL DETERIORATION	CASE	NON CASE	TOTAL
No Deterioration	4	67	71
Deterioration	1	11	12

$r_t = 0.16$ n.s.

TABLE 11.3

RELATIONSHIP BETWEEN 'CASENESS' PREOPERATIVELY AND SEXUAL DETERIORATION AT TWELVE MONTHS POSTOPERATIVELY

CLINICAL CASE PREOPERATIVELY	SEXUAL DETERIORATION	NO SEXUAL DETERIORATION	TOTAL
A CASE PREOPERATIVELY	12	2	14
NOT A CASE PREOPERATIVELY	26	28	54

$X^2_y = 4.9$ 1df $p < 0.05$

TABLE 11.4

RELATIONSHIP BETWEEN EXTRAVERSION SCORE ASSESSED PREOPERATIVELY AND SOCIAL DETERIORATION AT TWELVE MONTHS POSTOPERATIVELY

EXTRAVERSION SCORE	SOCIAL DETERIORATION	NO SOCIAL DETERIORATION	TOTAL
LOW EXTRAVERSION SCORE	7	42	49
HIGH EXTRAVERSION SCORE	14	30	44

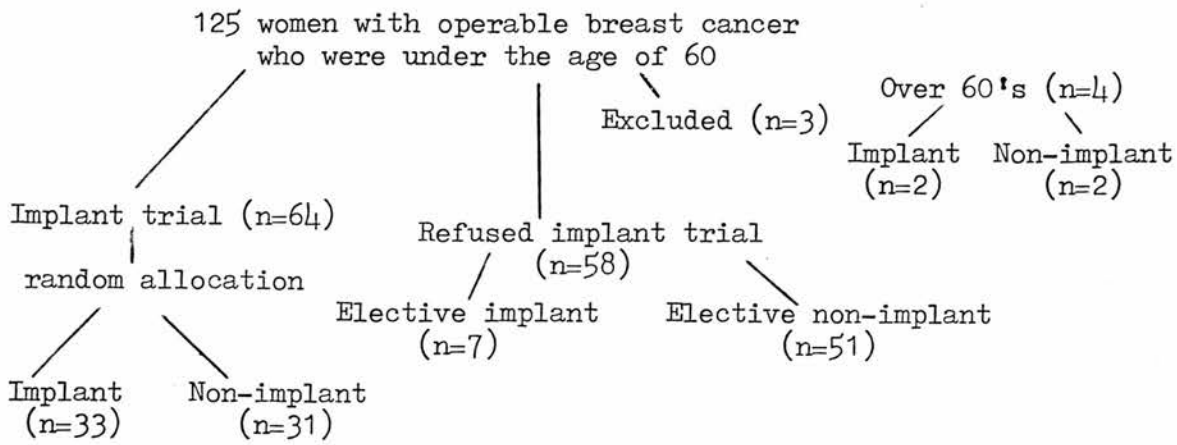
$X^2_y = 3.1$ 1df n.s.

CHAPTER 12

The Breast Reconstruction Trial

As the breast reconstruction trial was conducted as a randomly allocated controlled trial during the period of the study the results of the trial will be reported separately in this Chapter. One hundred and twenty-five women who were consecutive admissions to Longmore Hospital with operable breast cancer under the age of 60 were offered inclusion in the trial. Sixty-four women elected to enter the trial, 7 refused and had an elective implant, 51 refused and had a mastectomy without reconstruction. Three other women did not enter the trial. One had a bilateral mastectomy and bilateral implants and two were unwilling to have a mastectomy and had a lumpectomy and radiotherapy as an alternative treatment. It had originally been intended to do a second trial in women over the age of 60. However, partly because of lack of time on my part, and partly because of the lack of interest in reconstruction in this age group, only 4 women were entered in the over 60's trial. The numbers are obviously too small to analyse.

FIGURE



One of the patients who drew 'implant' as an option did not get a reconstruction because it was not technically feasible. Another patient unfortunately had her implant aspirated in error by a clinician who was unaware of her having had a reconstruction and who assumed the patient had a collection of fluid; the implant subsequently had to be removed. Both these women were included in the analysis in the implant group even though they did not have a breast reconstruction.

The women in the breast reconstruction trial are a subgroup of the women already discussed and were interviewed preoperatively and at three and twelve months postoperatively in the same way as the other women in the study. They were also given the same self-rating scales to rate.

Surgical Procedure

The surgical procedure was similar in all patients. A total mastectomy was performed, removing the nipple and an ellipse of skin which included 3 cm of normal skin in all directions around the tumour. Initially this was combined with a lower axillary node (pectoral) sample but since January 1980 a proportion of patients (13 of those in the implant trial) were treated in a randomised trial by mastectomy and axillary node clearance using the Patey technique. In these patients, when the axilla had been surgically cleared of lymphatic tissue and the pectoralis minor muscle partially removed, the upper end of the remaining muscle was sutured to the under surface of pectoralis major so as to close off the sub-pectoral space. The patient was then randomised in the operating room, either to have an implant inserted or not. In those patients allocated for immediate implant, a sub-pectoral pocket was formed

through a lateral incision in the serratus anterior and a sialistic prosthesis (Heyer-Schultz) inserted. The most suitable size of prosthesis was determined by the insertion of implants from a 'sizing set' which was kept sterile in the operating room. A suction drain was inserted to drain the region of the axilla, the wound was irrigated with cetrimide (5%) and closed with interrupted subcutaneous dexon and a continuous subcuticular prolene suture. A Frederick supporting bra (Jobst Ltd) was worn for five days in all cases.

All patients received oral penicillin V (1G daily) and flucloxacillin (1G daily) for five days after implant. Post-operative radiotherapy was given only to those patients in whom an axillary node sample had revealed positive nodes, i.e. in whom there was known to be residual axillary disease. Sampled patients who were node-negative and patients having an axillary clearance did not receive radiotherapy. Premenopausal patients who were node-positive received, in addition, either chemotherapy or oophorectomy within the current Scottish Breast Cancer Trials (Stewart, 1982). Women in the control group were advised about an external prosthesis before leaving the ward and its suitability was kept under review by our nurse counsellor.

RESULTS

Missing information

Two of the women in the trial, both randomly allocated implants were not seen preoperatively. Two patients refused one follow-up interview. One patient was at sea with her husband at the time of the three month assessment. Another left her husband and could not be traced at three months and twelve months after operation. GHQ

data were missing in more patients than interview data since eight patients did not return completed questionnaires despite their attendance at interview. The two patients who were not seen pre-operatively could not be used in the analysis. Fifty-four of the 62 (87%) other cases had complete data for the preoperative and three month postoperative assessments. Fifty of the 62 (81%) had complete data for all three assessments. There were complete interview data on 58 of the 62 (94%).

Demographic Characteristics of Women Entering the Breast Reconstruction Trial

As can be seen from Tables 12.1 - 12.4 the women who entered the breast reconstruction trial did not differ from the whole group with respect to age, social class, marital status or employment status. There was a tendency for women entering the trial to have a higher psychiatric morbidity pre-operatively but this was not significant (Table 12.5). The women entering the trial did differ significantly from those not interested in reconstruction in being more likely to have unsatisfactory marriages ($X^2 = 11$ $p < 0.02$; Table 12.6) and by having significantly lower scores on the E sub-scale of the Eysenck Personality Inventory ($t = 2.30$, $p < 0.05$; Table 12.7). More of the women entering the trial stated that fear of losing their breast was their main fear but the difference was not very striking (Table 12.8): most women, trial and non trial, regarded the fact that they had cancer as their main fear.

As reported in Chapter 7 the surgical package received by patients and their marital relationship were the two main predictors of psychiatric outcome three months after operation. Although the options 'implant' and 'non implant' were randomly allocated it is

possible that the two trial groups might have had an unequal distribution of these variables. They may also have been unequal with respect to preoperative psychiatric morbidity. Tables 12.9 to 12.11 examine these possibilities. There is a tendency for the women in the non implant group to have more bad marriages, more extra treatments and more GHQ 'cases' pre-operatively, so that in assessing the outcome of the two groups it will be necessary to take this into account. The two groups did not differ with respect to TNM staging.

Results of Psychiatric Outcome

1. Crosstabulations

Three months after operation there were more GHQ 'cases' at three months in the non implant group than the implant group (significant at the 0.05 level; Table 1 below).

TABLE 1

IMPLANT TRIAL

PSYCHIATRIC 'CASENESS' AT THREE MONTHS POST-OPERATIVE

GHQ 'CASENESS'

GHQ CASE STATUS	IMPLANT*	NON IMPLANT**
'Case'	2	10
'Non case'	26	18
TOTAL	28	28

$X^2 = 5.2$ p 0.05

*5 missing **3 missing

When the patients were stratified by their preoperative GHQ caseness the implant group still had significantly less than the expected number of cases ($p < 0.05$) - see below.

Initial non case	Subsequent Case	Non case	
Implant	2 (Expected $\frac{120}{38} = 3.16$)	18	20
Non implant	4	14	18
	6	32	38
Initial case			
Implant	0 (Expected $\frac{42}{17} = 2.47$)	7	7
Non implant	6	4	10
	6	11	17

Using the formula $\frac{\lfloor T - E(T) \rfloor - \frac{1}{2}}{SE} = C$ (D.R. Cox 1971)

$$\frac{(5.63 - 2) - .5}{1.51419} = 2.07 = C$$

The significance of this test criterion can be read from tables of the Standard Normal Distribution giving a $p < 0.05$ (2 tailed test).

Using the clinical case criterion, there is a tendency for there to be less cases in the implant group but this tendency is not significant (Table 2).

TABLE 2 /

TABLE 2

CLINICAL 'CASENESS' AT THREE MONTHS POST-OPERATIVE

MENTAL STATE	IMPLANT*	NON IMPLANT
'Case'	2	6
'Non case'	28	25
TOTAL	30	31

$X^2_y = 1.18$ n.s.

* 3 missing

When the patients are stratified according to preoperative clinical case criteria the result is not affected and the tendency is not significant.

Twelve months after operation the case rate had fallen in both groups. There was still a tendency for there to be less GHQ 'cases' in the implant group but this difference was not significant (Table 3).

TABLE 3

IMPLANT TRIAL

PSYCHIATRIC 'CASENESS' AT TWELVE MONTHS POST-OPERATIVE

GHQ 'CASENESS'

GHQ CASE STATUS	IMPLANT*	NON IMPLANT**
'Case'	1	3
'Non case'	27	26
TOTAL	28	29

$X^2_y = 0.23$ n.s.

* 5 missing ** 2 missing

Only one patient fulfilled the clinical 'case' criteria at a year postoperatively. However, two women in the non-implant group were treated by me for depression over the year and both were clinically asympatomatic by the time of the twelve month interview (Table 4).

TABLE 4

CLINICAL 'CASENESS'

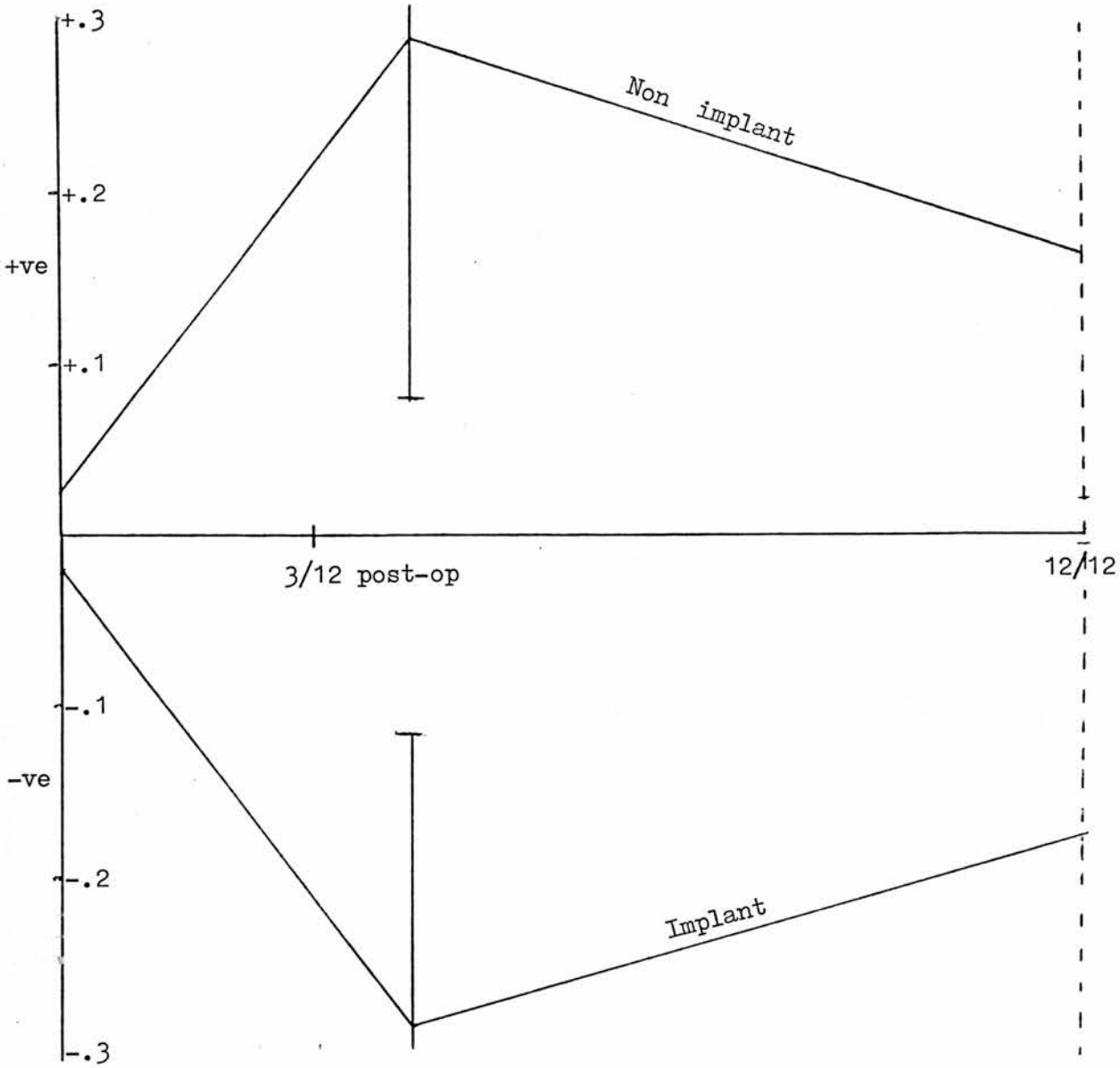
MENTAL STATE	IMPLANT*	NON IMPLANT**
'Case'	0	1
'Non Case'	31	29
TOTAL	31	30

*2 missing **1 missing

Z Scores

The General Health Questionnaire provides a score which is more legitimately used as a continuous variable. In the previous section a cut off point was applied to distinguish probable 'cases' from 'non cases'. If the GHQ is used as a continuous variable the effect of the implant can be examined by using Z scores.

$$\left[\frac{\text{score for the individual patient - mean score for the whole group}}{\text{standard deviation}}\right]$$



The Z scores are not significantly different preoperatively or at twelve months postoperatively but the scores for the implant group are significantly lower than the scores for the non-implant group at three months postoperatively.

Other main predictors of outcome

In Chapter 7 it was demonstrated that the patient's marital relationship and the surgical package she received were the main

predictors of psychiatric outcome at three months postoperatively.

In order to see if breast reconstruction was significantly related to outcome when these other predictors of outcome were allowed for an analysis of covariance using the raw GHQ score as a continuous outcome variable, the preoperative GHQ score as a covariate and implant, treatment package and marital relationship as categorical independent variables was performed. The Statistical Package for Social Sciences (S.P.S.S.) programme ANOVA was used, (Table 12.12).

The effect of the reconstruction was no longer significant. However, there was an interaction between the patient's marital relationship and the effect of the reconstruction. A further analysis of covariance (Table 5) including only women with unhappy marriages was performed. In this group of women, those who had received a reconstruction had significantly lower GHQ scores ($p < 0.02$) even after adjustment for the other main variables and covariant. Breast reconstruction accounted for 23% of the variation in the three month GHQ score. On the other hand, reconstruction did not have a significant effect on the psychiatric outcome of those women with happy marriages.

TABLE 5

Analysis of covariance in women with unhappy marriages (n = 24)

Source of variation	Sum of squares	df	Mean square	F	Significance of F
Pre-operative GHQ	181.403	1	181.403	4.689	0.043
Implant (corrected for preoperative GHQ and surgical treatment)	309.360	1	309.360	7.997	0.011
Surgical treatment (corrected for pre-operative GHQ and implant)	357.124	1	357.124	9.232	0.007
Explained	1005.495	4	251.374	6.498	0.002
Residual	735.003	19	38.684		

Effect of breast reconstruction on the patient's marital relationship

The marital relationship scale is described in Chapter 3. At three months and twelve months after operation the patient was asked if there was any change in the individual items of the marital relationship scale. If any item had changed for the worse the relationship was rated as having changed for the worse, if any item for the better the relationship was deemed to be better. //As it happened there were no instances where in one individual one item had changed for the worse and one for the better.//

TABLE 6

IMPLANT TRIAL

CHANGES IN THE MARITAL RELATIONSHIP AT 3 MONTHS POST-OPERATIVELY IN IMPLANT AND NON IMPLANT GROUPS

CHANGE IN MARITAL RELATIONSHIP	IMPLANT	NON IMPLANT
Worse	1	3
Same	0	0
Better	19	19
TOTAL	20	22

As can be seen from Table 6 above, almost all the women in both groups reported a change for the better at three months post-operatively. There were no differences between the two groups.

TABLE 7

IMPLANT TRIAL

MARITAL CHANGES AT 1 YEAR IN IMPLANT AND NON IMPLANT GROUPS

CHANGE IN MARITAL RELATIONSHIP	IMPLANT	NON IMPLANT
Worse	5	4
Same	0	1
Better	17	17
TOTAL	22	22

At twelve months approximately 20% of the women were reporting a worsening in their marital relationship but most of them were still reporting an improvement and there were no differences between the two groups (Table 7).

Effect of breast reconstruction on the patient's sexual relationship

At three months and twelve months postoperatively the patients were asked if there had been any changes in their sexual relationship. They were asked about frequency and enjoyment of intercourse and caressing. Again if any item was rated lower than before the sexual relationship was deemed to be worse and so on.

TABLE 8

IMPLANT TRIAL

CHANGES IN SEXUAL RELATIONSHIP AT THREE MONTHS POST-OPERATIVELY IN IMPLANT AND NON IMPLANT GROUPS

CHANGE IN SEXUAL RELATIONSHIP	IMPLANT	NON IMPLANT
Worse	14	11
Same	6	5
Better	0	0
TOTAL	20	16

At three months postoperatively two thirds of the women in both groups reported a deterioration in their sexual relationship. There were no differences between the two groups.

TABLE 9

CHANGES IN SEXUAL RELATIONSHIP ONE YEAR POST-OPERATIVELY IN IMPLANT AND NON IMPLANT GROUPS

CHANGE IN SEXUAL RELATIONSHIP	IMPLANT	NON IMPLANT
Worse	12	9
Same	8	6
Better	1	1
TOTAL	21	16

Twelve months after operation over half the women still reported a worsening of their sexual relationship. There were no differences between implant and non implant groups.

Effect of Breast Reconstruction on the patient's social functioning

At three months and twelve months after operation the patients were re-assessed to see if they had altered their level of social activity (including how often they went out with friends or their husband, or whether they had had to give up any sporting or other leisure activity).

TABLE 10

IMPLANT TRIAL

CHANGES IN SOCIAL RELATIONSHIP AT 3 MONTHS POST-OPERATIVELY IN IMPLANT AND NON IMPLANT GROUPS

CHANGES IN SOCIAL RELATIONSHIP	IMPLANT	NON IMPLANT
Worse	13	7
Same	14	18
Better	3	4
TOTAL	30	29

At three months postoperatively there was a tendency (non significant) for the implant group to have more reduction in social activity than the implant group.

TABLE 11

CHANGES IN SOCIAL RELATIONSHIP AT 1 YEAR POST-OPERATIVELY IN IMPLANT AND NON IMPLANT GROUPS

CHANGES IN SOCIAL RELATIONSHIP	IMPLANT	NON IMPLANT
Worse	5	8
Same	20	17
Better	5	4
TOTAL	30	29

By twelve months the breast reconstruction group had a tendency to be better from the social adjustment point of view but again this is not significant (Table 11).

Return to work at 3 months post-operatively in implant and non implant groups

When they were seen at three months and twelve months post-operatively the 54 women who had been working before operation were asked if they had returned to their normal work level.

TABLE 12

IMPLANT TRIAL

RETURN TO WORK AT 3 MONTHS POST-OPERATIVELY IN IMPLANT AND NON IMPLANT GROUPS

WORK STATUS	IMPLANT	NON IMPLANT
At work	18	12
Not at work	9	14
TOTAL	27	26

$X^2_y = 1.5$ n.s.

There was a non significant tendency for the implant group to have returned to work 13 weeks postoperatively (Table 12).

TABLE 13

RETURN TO WORK AT 12 MONTHS POST-OPERATIVELY IN IMPLANT AND NON IMPLANT GROUPS

WORK STATUS	IMPLANT	NON IMPLANT
At work	26	24
Not at work	1	1
TOTAL	27	26

Almost all the women in both groups had returned to work by twelve months postoperatively (Table 13).

Change in the ability to do household tasks

Many women found it difficult to do some jobs in the house following their operation, namely hoovering, cleaning windows, carrying heavy bags, at three months.

TABLE 14

ABILITY TO PERFORM HOUSEHOLD TASKS THREE MONTHS POSTOPERATIVELY

ABILITY TO PERFORM HOUSEHOLD TASKS	IMPLANT	NON IMPLANT
Impairment of ability	15	20
No impairment of ability	14	11
TOTAL	29	31

$$X^2_y = 0.55 \quad \text{n.s.}$$

At three months postoperatively there was a non significant tendency for the non implant group to have more women who showed impairment of ability to do household tasks (Table 14).

TABLE 15

ABILITY TO PERFORM HOUSEHOLD TASKS
TWELVE MONTHS POSTOPERATIVELY

ABILITY TO PERFORM HOUSEHOLD TASKS	IMPLANT	NON IMPLANT
Impairment of ability	14	8
No impairment of ability	17	22
TOTAL	31	30

$X^2_y = 1.53$ n.s.

At twelve months postoperatively this tendency was reversed with more of the implant group showing impairment than the non implant group (Table 15). The reason for this is uncertain but I do know from my conversations with the patients postoperatively that many of the women with breast reconstruction were worried about "bursting" it and this may account for why some of them were reluctant to resume some tasks. I did not ask systematically about their fears about damaging the implant.

Effect of breast reconstruction on the patients' assessment of their naked appearance

Although the clinician's objective assessment of the cosmetic result was not always favourable, usually because of inequality of size between the two breasts and because the reconstructed breast did not droop like the natural one, the patients on the whole were very pleased with the result. Only two patients of the 30 seen at twelve months regretted having had the implant. They told me that to have their 'bump' even though it was smaller was better than to

have nothing at all. I did assess their opinions about their naked appearance at three months and twelve months postoperatively.

TABLE 16

IMPLANT TRIAL

SUBJECTIVE ASSESSMENT OF NAKED APPEARANCE

AT 3 MONTHS POST-OPERATIVELY

ASSESSMENT	IMPLANT	NON IMPLANT
Ugly - mutilated	11	20
Not Ugly - neat	11	8
Almost Normal	8	2
TOTAL	30	30

$X^2 = 6.69 \quad p < 0.05$

Two thirds of the women in the non implant group regarded their naked appearance as ugly or mutilated compared with one third of the implant group. This difference was significant at the 5% level, (Table 16).

TABLE 17

SUBJECTIVE ASSESSMENT OF NAKED APPEARANCE

AT 12 MONTHS POST-OPERATIVELY

ASSESSMENT	IMPLANT	NON IMPLANT	
Ugly - mutilated	8	17	
Not Ugly - neat	21	11	*
Almost Normal	2	1	*
TOTAL	31	29	

$X_y^2 = 5.36 \quad p < 0.05$

* These categories were collapsed before performing the X^2 test.

By twelve months postoperatively less women in both groups were regarding their naked appearance as ugly or mutilated. The breast reconstruction group still had the significantly better outcome (Table 17).

Effect of breast reconstruction on freedom of clothing

One of the problems after mastectomy from the cosmetic point of view is that even when the patient has a good external prosthesis and is wearing a good bra there is still the problem of an unsightly gap or hollow at the medial edge of the bra. This makes wearing a V-neck or even a shirt blouse difficult because of the anxiety about revealing the gap. The advantage of the breast reconstruction is that it fills in this gap and even though the breasts are asymmetrical without the bra the patient usually looks completely normal with the bra on. In most cases, apart from women with very small breasts, it was necessary to use some external padding in addition to the reconstruction to equalize the size.

TABLE 18

IMPLANT TRIAL

FREEDOM OF CLOTHING REPORTED BY THE PATIENT

AT 3 MONTHS POST-OPERATIVELY

ASSESSMENT	IMPLANT	NON IMPLANT	
No limitation - can wear anything	18	2	
Can wear anything except swimwear	2	0	*
Anything except a low neck showing cleavage	6	10	*
Can only wear a high neck	3	16	Z
Can only wear loose high necked garments	1	3	Z
TOTAL	30	31	

$X^2 = 23.16_{2df} \quad p < 0.001$

* Z These categories were collapsed before performing the X^2 test.

This table demonstrates clearly that the women with the breast reconstruction were less restricted in what they could wear and this was significant at the 0.1% level.

TABLE 19

IMPLANT TRIAL

FREEDOM OF CLOTHING REPORTED BY THE PATIENT

AT 12 MONTHS POST-OPERATIVELY

ASSESSMENT	IMPLANT	NON IMPLANT	
No limitation - can wear anything	22	3	
Can wear anything except swimwear	2	1	*
Anything except a low neck showing cleavage	5	7	*
Can only wear a high neck	2	13	Z
Can only wear loose high necked garments	0	6	Z
TOTAL	31	30	

$$X^2 = 28.25_{2df} \quad p < 0.001$$

*Z These categories were collapsed before performing the X^2 test.

The same was equally true at twelve months postoperatively; two thirds of the implant group could wear anything compared with 10% of the non implant group.

TABLE 12.1

AGE DISTRIBUTION

AGE RANGE (YEARS)	ALL PATIENTS	IMPLANT TRIAL
20 - 30	1	0
31 - 40	19	10
41 - 50	49	25
51 - 60	56	29
60+	4	0
TOTAL	129	64
MEAN AGE	49	48.8

TABLE 12.2

SOCIAL CLASS DISTRIBUTION

SOCIAL CLASS	ALL PATIENTS	IMPLANT TRIAL
1	15	7
2	27	9
3	66	35
4	15	10
5	6	3
TOTAL	129	64

TABLE 12.3

MARITAL STATUS

MARITAL STATUS	ALL PATIENTS	IMPLANT TRIAL
Married	98	49
Single	15	9
Widowed	10	3
Divorced/Separated Cohabiting	6	3
TOTAL	129	64

TABLE 12.4

WORK STATUS

WORK STATUS	ALL PATIENTS	IMPLANT TRIAL
Unemployed	28	10
Working full-time	50	23
Working part-time	51	31
TOTAL	129	64

TABLE 12.5

PSYCHIATRIC MORBIDITY OF THOSE WHO WERE INTERESTED IN BREAST RECONSTRUCTION AND THOSE WHO WERE NOT

GHQ 'CASENESS' PRE-OPERATIVELY

GHQ CASE STATUS	TRIAL PATIENTS*	NON TRIAL PATIENTS** WHO WERE NOT INTERESTED IN RECONSTRUCTION
'Case'	20	12
'Non case'	41	37
TOTAL	61	49

$X^2_y = 0.55$ n.s.

*3 missing

**3 missing

CLINICAL 'CASENESS' PRE-OPERATIVELY

CLINICAL 'CASE' STATUS	TRIAL PATIENTS*	NON TRIAL PATIENTS** WHO WERE NOT INTERESTED IN RECONSTRUCTION
'Case'	13	7
'Non case'	49	44
TOTAL	62	51

$X^2_y = 0.57$ n.s.

*2 missing

**1 missing

TABLE 12.6

MARITAL RELATIONSHIP OF THOSE WHO WERE INTERESTED IN BREAST RECONSTRUCTION AND THOSE WHO WERE NOT

MARITAL RELATIONSHIP ON A 2 POINT SCALE - ASSESSED PREOPERATIVELY

MARITAL RELATIONSHIP	TRIAL PATIENTS	NON TRIAL PATIENTS NOT INTERESTED IN RECONSTRUCTION
"Good" Marriage	18	28
"Bad" Marriage	30	12
TOTAL	48	40

$$X^2_{y\ 1df} = 7.36 \quad p < 0.01$$

MARITAL RELATIONSHIP OF THOSE WHO WERE INTERESTED IN BREAST RECONSTRUCTION AND THOSE WHO WERE NOT

MARITAL RELATIONSHIP ON A 4 POINT SCALE - ASSESSED PREOPERATIVELY

MARITAL RELATIONSHIP - 4 POINT SCALE	TRIAL PATIENTS	NON TRIAL PATIENTS NOT INTERESTED IN RECONSTRUCTION
1 "Good"	9	15
2	9	13
3	18	10
4 "Bad"	12	2
TOTAL	48	40

$$X^2_{3df} = 11.00 \quad p < 0.02$$

TABLE 12.8

MAIN PREOPERATIVE WORRY IN THOSE WHO WERE INTERESTED IN BREAST RECONSTRUCTION AND THOSE WHO WERE NOT

MAIN WORRY	TRIAL PATIENTS	NON TRIAL PATIENTS NOT INTERESTED IN RECONSTRUCTION
Mastectomy	10	3
Cancer	36	31
Other Worry	6	13
TOTAL	52	47

TABLE 12.7

THE EYSENCK PERSONALITY INVENTORY EXTRAVERSION SUBSCORE ASSESSED PREOPERATIVELY IN THOSE WHO WERE INTERESTED IN RECONSTRUCTION AND THOSE WHO WERE NOT

E.P.I. EXTRAVERSION SUBSCORE	IMPLANT n=57	NON NON IMPLANT n=39
Mean Score	9.9825	11.9744
Standard Deviation	4.430	3.766
Standard Error	0.587	0.603

$t = -2.30 \quad p < 0.05$

TABLE 12.9

IMPLANT TRIAL

MARITAL RELATIONSHIP - 4 POINT SCALE

MARITAL RELATIONSHIP	IMPLANT	NON IMPLANT
Good (1)	7	2
(2)	4	5
(3)	10	8
Bad (4)	3	9
TOTAL	24	24

MARITAL RELATIONSHIP - 2 POINT SCALE

MARITAL RELATIONSHIP	IMPLANT	NON IMPLANT
Good (1, 2)	11	7
Bad (3, 4)	13	17
TOTAL	24	24

TABLE 12.10

IMPLANT TRIAL

PRE-OPERATIVE 'CASENESS' IN IMPLANT AND NON IMPLANT GROUPS

GHQ 'CASENESS'

PRE-OPERATIVE MENTAL STATE	IMPLANT*	NON IMPLANT
'Case'	8	12
'Non case'	22	19
TOTAL	30	31

*3 missing

CLINICAL 'CASENESS' PRE-OPERATIVELY

IN IMPLANT AND NON IMPLANT GROUPS

PRE-OPERATIVE MENTAL STATE	IMPLANT*	NON IMPLANT
'Case'	6	7
'Non case'	25	24
TOTAL	31	31

*2 missing

TABLE 12.11

IMPLANT TRIAL

TREATMENT RECEIVED

TREATMENT	IMPLANT	NON IMPLANT*
Mastectomy alone	22	16
Mastectomy plus radiotherapy	7	7
Mastectomy plus radiotherapy plus chemotherapy or oophorectomy	4	6
TOTAL	33	29

* The 2 missing non implant cases had mastecto my and axillary clearance with no radiotherapy. They were not used in any of the analyses assessing the effect of treatment.

TABLE 12.12

ANALYSIS OF COVARIANCE OF MARRIED WOMEN IN THE IMPLANT TRIAL (n=40)

Source of variation	Sum of Squares	df	Mean Square	F	Significance of F
Preoperative GHQ	472.588	1	472.588	6.514	.016
Implant (I) (adjusted for preoperative GHQ, surgical treatment and marital relationship)	128.85	1	128.85	1.776	.192
Surgical Treatment (T) (adjusted for preoperative GHQ, implant and marital relationship	884.539	1	884.539	12.192	.001
Marital relationship (M) (adjusted for preoperative GHQ I and T)	6.304	1	6.304	.087	.770
2 way interactions					
I T (adjusted for preoperative GHQ, I, T, M, IM and TM)	5.996	1	5.996	.083	.776
I M (adjusted for preoperative GHQ, I, T,M,IT, and TM)	211.588	1	211.588	2.916	.098
T M (adjusted for preoperative GHQ, I, T,M, IT and IM)	30.871	1	30.871	.426	.519
3 way interactions					
I T M	16.327	1	16.327	.225	.639
Explained	1943.353	8	242.919	3.348	.007
Residual	2249.047	31	72.550		

CHAPTER 13
DISCUSSION

Sample

As the sample is one of consecutive admissions to Longmore hospital of women with operable breast cancer the sample would be representative of women with operable breast cancer as a whole, if all cases of breast cancer from the area were admitted there. In Edinburgh Professor Forrest is known to have a special interest in breast cancer and a large percentage of women with breast cancer do get referred to him and only a minority of patients get referred to other surgeons. The fact that all patients are not referred to him may have biased the sample in an undefinable way. During the period of the current trial all patients with probable operable breast cancer seen by Professor Forrest's team were admitted for investigation to Longmore Hospital and hence were included in the sample. There is one way in which the sample is not representative and that is with respect to age; very few women over the age of sixty were included. The fact that no relationship between age and psychiatric morbidity was found may have been due to this bias.

Ninety-three percent of cases were followed up three months after operation and 91% twelve months after operation. It is possible that those who were preoperative cases were less likely to be followed up than non cases hence biasing the postoperative sample. However examination of the data shows that this was not the case. Twenty of the 21 preoperative cases (95%) were followed up at three months and twelve months after operation compared with 90% (93/103) and 93% (96/103) of non cases.

The reported rates for psychiatric morbidity at three months and twelve months after mastectomy could have been influenced by the physical

side effects of the chemotherapy or radiotherapy; tiredness and loss of appetite count towards a diagnosis of depression where there is a depressed mood and these symptoms can also be a side effect of treatment. Six patients had chemotherapy; twelve treatments at one month intervals. In all cases the physical side effects only lasted for 3 or 4 days after each treatment. Only one of the chemotherapy patients was diagnosed as a clinical case at three months after operation. She certainly had loss of energy and appetite and 1½ stone weight loss but she also had a depressed mood with loss of interest, poor concentration and suicidal ideas. It is unlikely that the chemotherapy side effects were responsible for the diagnosis; she had the same symptoms preoperatively. None of the chemotherapy patients were clinical cases twelve months after operation.

On the whole the patients who received radiotherapy had finished their treatment some weeks before I saw them three months after operation so that physical side effects of radiotherapy did not contaminate my assessment. I did in fact ask them about the physical side effects of radiotherapy. In five cases the radiotherapy treatment was not finished when I saw the patient at three months. This was usually because there had been a delay due to poor healing of the mastectomy scar or due to the woman having had an adjuvant oophorectomy. Two women who had had the latter were diagnosed as clinical cases at three months after operation. Both were young women who had had an oophorectomy and were finding the loss of their ovaries "difficult to take". One of them did have decreased weight and energy but she denied any physical complications of radiotherapy; she also had suicidal ideas, loss of interest and poor concentration. The other also reported no physical side effects from her radiotherapy and also reported poor concentration, loss of interest and disturbed sleep as well as weight gain and depression.

I do not think that there is any evidence to suggest that the physical toxicity of chemotherapy or radiotherapy influenced the reported clinical case rate.

Reliability and Validity

Interrater reliability was not a problem as all the interviews were done by the author. The symptom data were collected by means of structured PSE questions whose reliability are already established (Wing et al., 1974). My own reliability in recording PSE symptoms was assessed in another study (Surtees et al); there was a satisfactory level of agreement between myself and other raters (no agreement less than 0.70 for any pair of raters). Much of the rest of the questionnaires were of a factual nature, demographic details etc. apart from the assessment of the marital and sexual relationship. The marital scale I used (Page 32) comprised five questions. I tested the internal reliability of the scale by examining the correlation between the score on each of the items and the score on the global marital assessment. The correlations were as follows: a) confiding relationship 0.61, b) sympathy 0.71, c) quarrelling 0.65, d) overall happiness 0.82 and e) affection 0.76.

The study would have been improved by assessing the validity of the marital and sexual sections both preoperatively and the changes postoperatively by interviewing a sample of the husbands at each time period. This had been my intention; unfortunately this proved technically impossible.

The study would also have been improved by subjecting the whole of the preoperative and postoperative questionnaires to an intra-reliability study (by recording a sample of interviews and then rerating them on a separate occasion).

Although throughout the results section the variables were crosstabulated against two case criteria, clinical and GHQ, when it came to the final analyses I used the GHQ as a continuous outcome variable in an analysis of variance. The reason for doing this was that it was felt that information is lost by arbitrarily dividing the GHQ scores into two categories. In most instances the GHQ and clinical cases behaved in the same way with respect to the variables examined and it was felt to be justified to use the one outcome variable for the final analyses.

Comparison with a matched random community sample

During the period of this study the author was also involved in a community study. A random sample (1:100) of women who were between the ages of 18-65 and who lived in the North sector of Edinburgh, were interviewed (Surtees et al., 1983). The interview was designed to gather the information necessary for a PSE and an RDC diagnosis (Dean et al., 1983). The mastectomy patients in the current sample have been matched with patients from this random sample for age, marital status and social class; variables found to be significantly related to the case rate in the community study (Surtees et al., 1983).

The results of this comparison are shown in Tables 13.1 - 13.3. Preoperatively (Table 13.1) the total case rate was 45.2% compared with 11.1% in the community sample ($X^2 = 34.6$ $p < 0.001$). The minor depressive disorder rate (27.8% cf 3.2% $X^2 = 27.3$ $p<0.001$) and the major depressive disorder rate (15.1% cf 4% $X^2 = 7.78$ $p<0.01$) were significantly greater in the preoperative breast cancer group than in the community sample.

Three months after operation (Table 13.2) 30% of the mastectomy sample were cases compared with 11% of the community sample ($X^2 = 11.6$ $p < 0.001$). There were significantly more minor depressive disorders (18% cf 3.5% $X^2 = 11.5$ $p < 0.001$). However the difference in rates for major depressive disorder (10.2% cf 3.4% $X^2 = 3.3$ n.s.) was not significant.

The results twelve months after operation (Table 13.3) were very similar. Twenty-seven percent of mastectomy patients were cases compared with 10.3% of their matched community sample controls. There were significantly more minor depressive disorders (17.2% cf 3.4% $X^2 = 10.5$ $p < 0.01$) but not major depressive disorder

(5.3% cf 2.6% FE = 0.16 n.s.).

Following mastectomy the difference in case rate is almost entirely explained by the excess of minor depressive disorders in the mastectomy group. There was no significant difference in the major depressive disorder case rate. However, it is possible that because of a Type II error a real difference between the samples is not being demonstrated. As mentioned previously the diagnosis of minor depressive disorder is easily achieved (Appendix 6) and these patients were not regarded by me as being clinically ill.

Before operation significantly more women in the breast cancer sample than in the community sample fulfilled the criteria for a major depressive disorder. However these illnesses were often of short duration and had usually been present for only one or two weeks at the time of interview.

TABLE 13.1

COMPARISON OF RATES OF PSYCHIATRIC ILLNESS IN BREAST CANCER PATIENTS PREOPERATIVELY WITH RATES IN A MATCHED RANDOM COMMUNITY SAMPLE

RESEARCH DIAGNOSTIC CRITERIA DIAGNOSIS	NUMBER IN THE BREAST CANCER SAMPLE (%) n = 126	NUMBER IN THE COMMUNITY SAMPLE (%) n = 126	X^2_y TEST
Major Depressive Disorder	19 (15%)	5 (4%)	$X^2_y = 7.78$ $p < 0.01$
Minor Depressive Disorder	35 (28%)	4 (3%)	$X^2_y = 27.3$ $p < 0.001$
Generalised Anxiety Disorder	3 (2.5%)	5 (4%)	n.s.
TOTAL	57 (45%)	14 (11.1%)	$X^2_y = 34.6$ $p < 0.001$

TABLE 13.2

COMPARISON OF RATES OF PSYCHIATRIC ILLNESS IN MASTECTOMY PATIENTS THREE MONTHS AFTER OPERATION WITH RATES IN A MATCHED RANDOM COMMUNITY SAMPLE

RESEARCH DIAGNOSTIC	NUMBER IN THE BREAST CANCER SAMPLE (%) n = 126	NUMBER IN THE COMMUNITY SAMPLE (%) n = 126	X^2_y TEST
Major Depressive Disorder	12 (10.2%)	4 (3.4%)	$X^2_y = 3.3$ n.s.
Minor Depressive Disorder	21 (18%)	4 (3.4%)	$X^2_y = 11.5$ $p < 0.001$
Generalised Anxiety Disorder	2 (1.7%)	5 (4.3%)	n.s.
TOTAL	35 (30%)	13 (11.1%)	$X^2_y = 11.6$ $p < 0.001$

TABLE 13.3

COMPARISON OF RATES OF PSYCHIATRIC ILLNESS IN MASTECTOMY PATIENTS TWELVE MONTHS AFTER OPERATION WITH RATES IN A MATCHED RANDOM COMMUNITY SAMPLE

RESEARCH DIAGNOSTIC CRITERIA DIAGNOSIS	NUMBER IN THE BREAST CANCER SAMPLE (%) n = 126	NUMBER IN THE COMMUNITY SAMPLE (%) n = 126	X^2_y TEST
Major Depressive Disorder	6 (5.2%)	3 (2.6%)	$X^2_y = 0.78$ n.s.
Minor Depressive Disorder	20 (17.4%)	4 (3.5%)	$X^2_y = 10.5$ $p < 0.01$
Generalised Anxiety Disorder	5 (4.3%)	5 (4.3%)	n.s.
TOTAL	31 (27%)	12 (10.2%)	$X^2_y = 9.25$ $p < 0.01$

Type of psychiatric illness following mastectomy

The conclusions reached from these data are that most of the psychiatric morbidity following mastectomy is of a minor nature. Most women with symptoms were not ill in the sense that as a psychiatrist I would have expected such patients to come to me for treatment. Nor did these women regard themselves as psychiatrically ill or impaired in their day to day living because of psychiatric symptoms. The group who were considered to be ill by me and who fulfilled more stringent criteria (those named 'clinical case' in the results section) were no greater in number following operation than in a random sample of the population. My conclusion is that the stress of mastectomy is not aetiologically related to major psychiatric illness. One could argue that none of these women were genetically predisposed to major psychiatric illness but this was not the case. Eleven women were on or had been on phenothiazines for mental illness. None of these patients became psychotic and none required a psychiatric admission during the twelve month follow-up period.

Comparison with previous studies

The findings of this study were in accord with those of Bard and Sutherland in finding that most women were more afraid of having cancer than they were of the prospect of having a mastectomy. The study did not confirm Renneker and Cutler's finding that post menopausal women have less problems than premenopausal women but there was confirmation for their belief that women who were neurotic preoperatively have more psychological distress following mastectomy.

On the whole the clinical case rate in the current study was lower than that of other studies. Twelve months after operation the case rate was 5% compared with Maguire's rate of 25% (moderate/severe, depressed/anxious) and Morris's rate of 23% (10+ on HRS). Hughes found that 18% had severe symptoms within the first six months and 36% had mild depression. As Hughes does not give a point prevalence the findings of the present study can only be compared with the former 2 studies. One of the reasons for the case rate being lower is because of the use of more stringent criteria. The other two studies did not use operational definitions of illness. Their rates were very similar to the total twelve month RDC rate (26%) in this study. Of the 32 women fulfilling these criteria 20 had minor depressive disorder and 6 had generalized anxiety disorder. Clinically I did not consider these women to be suffering from a psychiatric illness. Neither did they consider themselves to be ill! Another reason for the rate being lower than that in the Maguire study may have been that all the women selected for this study had small tumours whereas Maguire's sample were unselected women with operable breast cancer (in point of fact women with larger tumours are not usually considered suitable for mastectomy). Presumably because his patients had more advanced cancer more of them received radiotherapy (75% of his sample compared with 36.5% of mine). However the findings of the current study are that treatment in addition to mastectomy affects the case rate at three months after operation but has no effect on the case rate at twelve months. Difference in treatment is therefore unlikely to explain the difference in case rate at twelve months after operation.

Not many studies have examined preoperative predictors of psychiatric morbidity. I found that a high N score on the EPI predicted psychiatric morbidity at twelve months but not at three months. This confirmed the findings of Morris et al. who found a relationship between the N score preoperatively and psychiatric morbidity twelve months after operation and of Hughes who found that women who had regarded themselves as unneurotic preoperatively were asymptomatic at follow-up. The finding that preoperative 'caseness' predicted those who would be psychiatrically ill three months and twelve months after operation also confirmed the findings of Morris and colleagues, who found that a preoperative score of 10+ on the HRS predicted morbidity and those of Hughes who found that five out of her eight 'cases' had high scores on the GHQ preoperatively.

The finding that breast reconstruction reduces psychiatric morbidity to some extent confirms the earliest finding of Winnick and Robins who found that the more extensive the operation (and thus the greater the mutilation) the higher the morbidity.

Silberfarb felt that he couldn't confirm the fact that mastectomy produced a depressive illness. Like him I found that women often felt intermittently low in mood and had one or two associated symptoms like sleep disturbance or appetite disturbance or tiredness but that few had a true depressive syndrome; indeed no more than in a random sample of the population.

In fact when examined carefully the only way in which Maguire's mastectomy patients differed from controls was that more of them had <u>some</u> symptoms as opposed to <u>no</u> symptoms; there were no more patients with moderate/severe depression/anxiety than in the

control group. In the present study too the only difference from the random sample control group was an increase in the number of women who had a few symptoms.

Most of the findings of Jamieson in his retrospective study were not confirmed in this study. No relationship between psychiatric morbidity and age, the length of the marriage or perceiving the nurses and surgeons as sympathetic was found. Seven percent of my patients had felt life was not worth living but none had suicidal ideas (compared with 2.5% of patients with suicidal ideas in his sample) and 6.4% had an increased alcohol consumption (cf his 15%).

The patients in the present study reported a much higher sexual morbidity than that described in other studies. Fifty-one percent at three months and 50% at twelve months reported some deterioration whereas Morris only reported deterioration in 18% at three months and 32% at two years after operation. Maguire found deterioration in a third. The reasons for the difference are unclear. It could be because I included an assessment of touching and caressing which was the aspect of the sexual relationship which appeared to deteriorate most.
However, the other authors give no details about what was assessed when they were estimating sexual deterioration.

More patients reported an improvement in their marital relationship compared with that reported in other studies; 55% at three months and 47% at a year compared with 6% in the Morris study and 13% in the Hughes study. Again this may be because more detail was asked about the marital relationship.

Fifty-one percent of the patients in the study were back to their preoperative work level (63% were at work) at three months after operation compared with 54% in the Silberfarb and Morris studies and 87% in the McCardle study. At twelve months after operation 67% were back to their preoperative work level (93.5% were back to work) compared with 71% in the Morris study.

None of the other studies mention social functioning so no comparison could be made with other studies.

Patients who received chemotherapy or oophorectomy (in addition to mastectomy and radiotherapy) were found to have a higher case rate three months after operation than the rest of the patients. This finding confirms that of McCardle and his colleagues (1981) who found that patients receiving chemotherapy with or without radiotherapy had a higher case rate than those receiving radiotherapy alone. There was a similar tendency in the study of Maguire and colleagues (1980) but the difference was not significant.

On the whole, therefore, my findings confirm those of previous studies. My study is the only one using an operational definition for psychiatric illness and it does provide new information about the type of morbidity following mastectomy.

The Implant Trial

Only half the women who were offered the opportunity of inclusion in the implant trial were interested in reconstruction so that the sample was certainly not representative of women with operable breast cancer as a whole. Indeed women who were interested in a reconstruction differed from women who were not interested by

having lower extraversion scores on the EPI and by more of them declaring their marriages to be unsatisfactory. This means that the findings of the implant trial cannot be generalised to all women with operable breast cancer. Nor can it be said that all women with unhappy marriages should have a reconstruction or all women undergoing mastectomy. Indeed many of the women who were not interested expressed an abhorence of having a foreign object underneath their skin. It could well be that such women would actually have had an increased psychiatric morbidity if they had had a reconstruction. The trial was effectively a random allocation to immediate or late implantation of those women who were interested in an implant. The conclusion to be drawn is that all women about to undergo mastectomy should be told about reconstruction and given enough information to make an informed choice. Those who are interested will benefit if they receive immediate reconstruction. From the psychiatric point of view the benefit is shortlived and reduces morbidity only in the early months following operation. A delayed implant would not therefore be expected to be particularly effective in reducing morbidity; it was not a popular alternative anyway. The cosmetic benefits were long lasting and I assume that these would be equally satisfactory with delayed reconstruction.

The fact that a blanket approach cannot be applied (say for instance giving everyone immediate reconstruction) poses clinical management problems. Many hospitals still use frozen sections in the diagnosis of breast cancer. In effect this means that a woman goes into theatre for a breast biopsy not knowing whether or not

she will have a mastectomy; the decision is made in theatre while she is anaesthetised. With this method of management it would be impossible to determine the patient's preference or give her information about reconstruction. There is a trend in teaching centres towards the kind of management adopted by Professor Forrest and his team; the diagnosis is made prior to the patient going for operation. This approach makes psychological sense. It enables the patient to be involved in the discussion about her treatment and makes it easier for her to accept. (The difference between having something stolen and giving it away). It also gives her an opportunity to discuss the effect of mastectomy with her spouse - "Will he still love me", "Will he still find me attractive". She is therefore able to seek reassurance before she actually loses her breast. Recently some patients have been treated by lumpectomy and radiotherapy (if their tumours are suitable) as an alternative to mastectomy. Again the patient's preferences need to be sought before operation; some women actually prefer a mastectomy when offered the alternative of a less mutilating procedure.

The conclusion to be drawn from the implant trial is that in most women the mutilating effect of the operation is not a major cause of psychiatric morbidity. In women who have unsatisfactory marriages the mutilation does seem important, presumably because it makes a fragile relationship even more unsatisfactory.

Predictors of outcome

The predictors of psychiatric outcome changed over the course of time. Before operation patients who had poor social supports and previous psychiatric treatment were more likely to be psychiatrically ill. At three months after operation the patient's marital relationship was important, the surgical treatment package received (in those who had had previous psychiatric GP or hospital treatment), previous psychiatric treatment and the preoperative GHQ. At twelve months after operation the preoperative GHQ and the N score on the EPI (assessed preoperatively), previous psychiatric treatment, the patient's marital relationship as assessed preoperatively and in those who had had previous GP psychiatric treatment, social support, were the important variables.

It is interesting to note that at all three time periods those who had had previous psychiatric treatment behaved differently than those who had not. The only variable related to outcome, following operation, in those who had had no previous treatment was the marital relationship and this may well be due to the type of stress involved rather than to stress in general. In this group the extent of the treatment received for the breast cancer had no effect on psychiatric morbidity.

Social support as measured by me was important both preoperatively and at twelve months postoperatively in women who had had previous GP treatment for psychiatric disorders. The relationship prior to operation may have been entirely due to patients who were currently depressed reporting their social supports as being poor because of a low mood or because such patients had limited their social contacts due to their depression. However the association with the twelve months GHQ score is more interesting. The social support was assessed preoperatively. Its contribution at twelve months was assessed after adjustments had been made for the preoperative GHQ so that the poor social support does

appear, in these women, to be making a separate contribution to psychiatric morbidity twelve months after operation.

However my measure of social support is very idiosyncratic and merely assesses whether the patient has friends she can drop in on informally or who visit her in the same way. All the same my results probably justify further study.

The reason why the marital relationship became important three months and twelve months after operation may well be due to the type of stress. It is easy to understand why a poor marital relationship might make a woman more vulnerable to the stress of mastectomy but not to the stress of being told she has cancer. By the twelve months follow-up very little of the variance is explained by the factors examined. It is likely that the effect of the stress of mastectomy has almost disappeared by now. Surtees (1978) suggests that the effect of a stress decreases over time but that the effect may still be present from the point of view of predisposing the patient to react to new stresses. In this instance the longterm mutilation resulting from mastectomy must be seen as a longterm difficulty. It is likely that the cases at twelve months have been precipitated by new unrelated events. I did not collect information about new stresses systematically but did record that two women lost their spouses (by death) during the follow-up period. In several instances the patient's mother became seriously ill and needed to be looked after by the patient.

Another reason for suggesting that the GHQ cases at twelve months were due to new events is that the GHQ is known to be poor at picking up chronic cases and good at picking up new cases. It is less likely that the cases at twelve months are related to the stress of the mastectomy itself. In fact eight out of the 14 GHQ cases at twelve months had not been cases at three months postoperatively. Five had been cases all along and one was a case at three months and twelve months after operation but not preoperatively.

Identifying high risk patients before operation

Having established a number of factors which predict psychiatric outcome three and twelve months after operation it is useful to identify predictors which would be of clinical value. If patients could be identified at the time of operation as being at high risk of developing psychiatric illness subsequently then nurse counsellors and surgeons could be alerted to this possibility. In units with a nurse counsellor resources could be conserved by her only following up those patients who were at high risk. Using the preoperative GHQ as a predictor I found that a cut off of 12 predicted 8 out of 11 of the clinical cases at three months after operation (sensitivity 73%). Seventy-six of the remaining 104 non cases were correctly identified by this cut off (specificity 73%). The other 28 were incorrectly predicted as cases at three months. Using this simple screen the nurse would need to follow-up only 36 patients instead of 120 (5 of these seen at three months had no preoperative GHQ) and would "catch" 8 of the 11 cases by so doing. Of course application of this cut off to a different sample may not produce such a good result. The nurse could add to her high risk group those who were to undergo oophorectomy or chemotherapy, who had had previous psychiatric treatment and, if the information were available, those with unhappy marriages. As a result of my work we did use in the Edinburgh unit a preoperative GHQ as a routine way of identifying high risk cases for the benefit of the community nurse.

Learning about breast cancer as a life event

It is interesting to regard being informed about having breast cancer and the subsequent treatment as "life events". A number of retrospective studies of psychiatric patients indicate that life events precede a wide range of psychiatric disorders (Paykel and Rowan, 1979). Depression and other neurotic disorders show a greater relationship to life events than schizophrenia. Loss events and depression seem to be particularly highly related. This study offered me an opportunity to study a single life event prospectively. This has been done with other events, e.g. bereavement (Clayton et al., 1968), redundancy (Kasl et al., 1975), childbirth (Kendell et al., 1981). Apart from the study of childbirth none of these studies has used an operational definition of illness. On the whole they too have found that only a very small proportion of subjects develop a major psychiatric illness (after childbirth a major illness follows in 2 per 1,000 cases). My work confirms that the majority of illnesses following a "loss" event are depressive and of a minor nature. Looking at an event prospectively does give an opportunity to study the factors which influence the development of a psychiatric illness in response to events.

Brown and Harris (1978) found factors which made depression more likely after a life event. These were, presence in the home of 3 or more children under the age of 14, lack of full-time or part-time employment, absence of a confidant and loss of mother by death or separation before the age of 11 years. They also found lower social class made depression more likely but this factor was explicable by the other four. The preoperative sample is probably the most straightforward to examine. The patients have all experienced the same event of being told they have cancer.

I was unable to test the first finding of Brown and Harris as too few women had children under the age of 14 (being of an older age group). Of the other findings I was only able to confirm that women who had no confidant were more likely to be a case before operation. However this relationship was lost when adjustments were made for other factors.

I found no relationship between loss of mother before the age of 11 years and the psychiatric case rate; the numbers are small so that such a relationship cannot be excluded. However the data does not even show a trend in that direction. Employment status was not important either but again this was difficult to test as all the women were by definition off sick when I saw them because they were in hospital. I therefore used their employment status immediately prior to being told they had cancer and found no relationship between that and the case rate after being told.

In addition women who had poor social supports were also more likely to be psychiatrically ill after being told they had cancer and twelve months after operation. This result confirms the work of Henderson and his colleagues (1978) who found a relationship between poor social supports and psychiatric illness.

There is an indication that poor social support is a predisposing factor in the development of psychiatric illness but this finding would need to be confirmed with better measures of social support.

Further Studies

My results imply that if the mutilation were further reduced (for instance by treating with lumpectomy or quadrantectomy and radiotherapy rather than mastectomy) then the psychiatric morbidity would be reduced further. This would need to be tested in a controlled trial of lumpectomy and radiotherapy versus mastectomy.

It would also be important to test my hypothesis that telling the patient her diagnosis before her operation and allowing her to take part in the decision about her treatment reduces the psychiatric morbidity by doing a controlled trial between women who undergo a frozen section procedure and women who are told their diagnosis preoperatively.

A randomly controlled trial comparing the effects of chemotherapy and oophorectomy (in addition to mastectomy and radiotherapy) on psychiatric morbidity would also provide valuable information. Both are at present being evaluated from the physical point of view as adjuvant therapies for women who are premenopausal and who have positive axillary nodes. It could well be that one treatment regime produces more psychiatric morbidity than the other and if both prove to be equally effective treatments this information would clinically be very important.

PREOPERATIVE QUESTIONNAIRE APPENDIX 1

Study No. 1 ___

Patient Identity No. 2 _____

Series No. 12 _____

Battery No. Pre-op / Post-op

Pre-op: 1 Post-op immediate: 2 3/12: 3 12/12: 4 15 ___

Questionnaire No. 16 ___

Card No. 17 ___

A1. How long had you noticed the breast trouble before you went to see your G.P. about it?

1 week	1	6 - 12 months	5	
1 - 3 weeks	2	1 - 2 years	6	
1 - 3 months	3	2 + years	7	18 ___
4 - 6 months	4	Can't remember	8	
		Not applicable	9	

A2. What did you think was the matter with your breast before you went to see your G.P.?

Nothing serious	0	Cancer	3	
Not cancer	1	Didn't know	8	19 ___
Possibly cancer	2	Not applicable	9	

A3. How had you been feeling for the three months prior to finding the lump?

Normal self	1	
Not quite normal self	2	20 ___
Unlike normal self (depressed, tired, anxious etc.)	3	

If 2, or 3, specify in more detail with cause if known.

A4. Were there any stressful events in your life in the six months prior to finding the lumps (or breast trouble)?

No	0	
Yes	1	21 ___

(Record as Yes stressful events like death of a close relative, marriage or retiral or any other event which is still making the patient feel distressed)

If 1 specify

A5. What about in the previous 5 years?

No 0
Yes 1 — 22 ___

If 1 specify

A6. What did your G.P. say was the matter with your breast?

Nothing serious	1	Other diagnosis	6	
Not cancer	2	No diagnosis given	7	
Unsure if cancer	3	Can't remember	8	23 ___
Euphamism for cancer	4	Not applicable	9	
Cancer	5			

A7. How long was it after seeing your G.P. before you were seen at the breast clinic?

1 - 3 days	1	2+ weeks	4	
4 - 7 days	2	Can't remember	8	24 ___
1 - 2 weeks	3	Not applicable	9	

A8. What did the surgeon say was the matter?

Nothing - no diagnosis	1			
Not cancer - nothing serious	2			
Unsure if cancer	3	Cancer	6	25 ___
Almost sure cancer	4	Other diagnosis	7	
Euphamism for cancer	5	Can't remember	8	

A9. How long after being seen at the breast clinic was it before you came into hospital here?

1 - 3 days	1	2+ weeks	4	
4 - 7 days	2	Can't remember	8	26 ___
1 - 2 weeks	3			

A10. How long is that all together between when you first discovered your breast trouble and when you came into hospital?

3 - 6 days	1	7 - 11 months	5	
1 - 2 weeks	2	1 - 2 years	6	27 ___
3 - 8 weeks	3	2 + years	7	
3 - 6 months	4	Can't remember	8	

A11. What do <u>you</u> think is the matter with your breast?

Not cancer	1			
Maybe cancer	2	Cancer	4	28 ___
Almost certainly cancer	3	Don't know	8	

A12. Have you and your husband/boyfriend talked together about your breast trouble?

No	1	Talked about possible		
Just mentioned	2	implications in detail	4	29 ___
Talked a little	3	Not applicable	9	

If 4 specify

If 1, or 9

A13. Have you talked with anyone (else) about your breast trouble?

No	1	Talked about possible		30	___
Just mentioned	2	implications in detail	4		
Talked a little	3	Not applicable	9		

A14. Most women with breast lumps wonder if they might need a mastectomy. Has that thought occurred to you?

No	1	Yes - seems very likely	4		
Yes - but dismissed	2	Don't know	8	31	___
Yes - seems possible	3				

A15. Some women worry that their husband/boyfriend might not feel the same way about them if they come to need a mastectomy. Do you worry about that?

No	1				
Worry about that a little	2	Don't know	8	32	___
Worry a lot	3	Not applicable	9		

A16. What would you say your main worry is right now? (If necessary prompt and say - is it the worry you may have cancer or worry you may need a mstectomy?)

Cancer	1	Other worry	3		
Mastectomy	2	Don't know	8	33	___

Record

A17. Do you think the surgeon understands how you feel?

Very sympathetic	1		
Sympathetic	2		
Neutral	3	34	___
Unsympathetic	4		
Uncertain - not able to say	8		

A18. What about the nurses - do you think they understand?

Very sympathetic	1		
Sympathetic	2		
Neutral	3	35	___
Unsympathetic	4		
Uncertain - not able to say	8		

A19. Do you know of anyone who has had breast trouble or breast cancer?

No one	0		
Breast disease benign	1		
Breast disease unspecified	2	36	___
Breast cancer	3		

A20. Is that a member of your family?

Yes	1	No	2	Not applicable 9	37 ___

A21. If yes: What relationship is she?

Mother	1			
Grandmother	2	If more than one relative		
Sister	3	record for closest and	38	___
Aunt	4	specify others in writing		
More distant relative	5			
Not applicable	9			

A22. How old were they when they developed it?

Age _____ 39 _____
Not applicable 9 9

Record age of other relatives in writing.

A23. How did things go for them? (either friend or relative)

Still alive 1
Died of other causes 2 Not applicable 9 41 ___
Died of breast cancer 3

Record details if known of causes of illness and treatment.

A24. Now I would like to ask about your breasts.

What size bra do you wear? Size ___ ___ 42 _____

Cup A ___ B ___ C ___ ___

A25. Can you remember what reaction you had to your breasts when they began to develop when you were a teenager? How did you feel about them?

Proud 1
No reaction 2
Ashamed - others better 3 45 ___
Embarrassed and self conscious 4
Can't remember 8

Record

A26. How would you describe your attitude to your breasts now? Are you pleased with the way they look?

Yes - pleased and proud 1
Yes - qualified 2
No - too large/small/droopy 3 46 ___
Don't bother about how they look 4
Don't know 8

A27. Did you breast feed any of your children?

No 0 Yes 1 Not applicable 9 47 ___

A28. Do you still have your periods?

No 0 Yes 1 Perimenopausal 2 48 ___

A29. If no - age of menopause

Not applicable 9 9 49 _____

A30. Do you or did you get changes in your breasts before a period?

No 0 Yes 1 Used to before menopause 2
Don't know 8

Enlargement ___ 51 ___
Tingling of nipple ___ 52 ___
Pain ___ 53 ___

Now I would like to ask you some questions about you and your family.

B1. Are you married?

Married	1	Widowed	4		
Married but spearated	2	Single	5	54	___
Divorced	3	Cohabiting but unmarried	6		

If yes - do you and your husband live together?

IF SINGLE, WIDOWED or DIVORCED ASK SPECIAL QUESTIONS HERE, THEN ASK B11. ASK ALL

B2. Does anyone else stay in the house with you?

Record Yes 1 / No 2 / Not applicable 9

Mother	55	___
Mother-in-law	56	___
Father	57	___
Father-in-law	58	___
Sibling	59	___
Other relative	60	___
Boyfriend/friend	61	___
Lodger	62	___
Child	63	___

ASK ALL

B3. How many does that make in the house altogether including yourself?

Not applicable 9 64 ___

FOR SINGLE PERSON, OR WIDOWED, OR DIVORCED

AT POINT WHERE MARRIAGE WOULD BE ASKED. IF BOYFRIEND, ASK SEXUAL ADJUSTMENT & MARITAL QUESTIONS AS WELL.

B4. Do you have a boyfriend? (Do not include casual relationships. Include steady relationships whether or not sexual.)

No 1 Yes 2 Not applicable 9 65 ___

B5. Are you proposing to get married?

No 1 Yes 2 Not applicable 9 Don't know 8 66 ___

B6. If older relative living with patient:

does your mother/father/aunt etc. as applicable, rely on you particularly?

No 1 Yes 2 Not applicable 9 66 ___

If yes

B7. Are you satisfied about the arrangements for looking after her/him or are you worried about her/him?

Not worried	1	Very worried	3	67	___
A bit worried	2	Not applicable	9		

Record

B8. Expressed worry about what will happen to dependent relative if cancer and death 1

Not expressed worry about what will happen to dependent relative if cancer and death 2 69 ___

Not applicable 9

IF MARRIED ASK:-

B9. How long have you been married?

Record years or not applicable 9 9 70 _____

B10. Have you been married before?

No 1 Yes 2 72 ___

ASK ALL

B11. Do you have any children?

None 1
Yes 2 73 ___
Stillbirth, death or adoption 3

B12. If yes: how many?

Record number or not applicable 9 9 74 _____

Record names and ages

B13. How many is that under the age of 11?

Not applicable 9 None 0 76 ___

If school or preschool children

B14. What have you told them as a reason for your admission?

Investigations	1	Other reasons	4	77 ___
Cancer	2	Not applicable	9	
No reason	3			

Record verbatim

B15. Is the arrangement for looking after them whilst you are in hospital satisfactory or are you worrying about them?

Not worried	1	Very worried	3	78 ___
A bit worried	2	Not applicable	9	

B16. Have you got any other worries about the children?

Worry about what might happen to children if cancer and death - stated 1

Not stated worry about future of children 2 79 ___

Not applicable 9

B17. Is your husband employed at the moment?

Employed 1 Unemployed 2 Not applicable 9 80 ___

7.

Study No. 1 ___

Series No. 2 _____

Battery No. Pre-op / Post-op.

Pre-op. 1. Post-op. immediate 2. 3/12 3. 12/12 4. 5 ___

Questionnaire No. 6 ___

Card No. 7 ___

B18. What is your husband's job? (If unemployed job in last 5 years which lasted 1+ years.)

Note

Social Class 8 ___

B19. Do you have a job at the moment?

No 1 Full 2 Part-time 3 9 ___

B20. If yes, continue. If no, go to Ques. B25.

What is your job?

Note and record SEG classification 10 _____

B21. Who is the main breadwinner in your family? Is it you or your husband?

Husband only earner	1
Husband mainly, wife's income un NB	2
Wife's income minor but NB	3
Wife major earner	4
Wife major earner	5
Not applicable	9

13 ___

B22. Do you find your work satisfying?

Yes	1
Qualified affirmative	2
No	3
Not applicable	9

14 ___

B23. How do you get on with your workmates?

Yes - well	1
Qualified affirmative	2
No - badly	3
Not applicable	9

15 ___

B24. Does your work play an important part in your life?

Very much so	1		
Yes	2	No	4
A little	3	Not applicable	9

16 ___

B25. If no job at the moment -
How long is it since you worked?

Less than 1 year	1	20-30 years	5	
1 - 5 years	2	30-40 years	6	17 ___
5 - 10 years	3	never worked	7	
10 - 20 years	4	Not applicable	9	

B26. What was your job then?

Detail SEG classification 18 _____

B27. Why did you give up your job?

Write down reason

Marriage	1	
Ill health	2	
Looking after relative	3	
No longer financially necessary	4	21 ___
Job unsatisfactory	5	
Sacked	6	
Not applicable	9	

B28. At what age did you leave school? 22 _____

B29. Did you obtain any certificate at school or after leaving school?

What about your husband?	Husb.	Wife	
No certificates	1	1	
Lowers / O Levels	2	2	
Apprenticeship	3	3	
Highers / A Level	4	4	
National Certificate	5	5	24 _____
Professional non-graduate	6	6	
Professional graduate	7	7	
Don't know	8	8	

Now I'm going to ask you some questions about your past?
Were you brought up by both parents?

C1. Did either of your parents die when you were youhg?
If yes: ask how old were you when he/she died?

Parents age at death _____

Not applicable 9 9 26 _____

C2. Did you lose either parent because of separation or divorce when you were young?
If yes: how old were you?

Patient's age at separation _____

Not applicable 9 9 28 _____

C3. Were you separated from either or both of your parents for a year or more as a child?
If yes: record time in years 30 _____

If yes: how old were you (at beginning of separation)

Patient's age at the time _____ 32 _____

Not applicable 9 9

C4. Did any of your brothers and sisters die when you were young?

If yes: patient's age at the time _____ 34 _____
not applicable 9 9

C5. As a child did you have any experience of serious illness or death?

No 1 Yes 2 Record 36 ___

C6. Would you say you suffer from your nerves?

No	1	37 ___
Highly strung, quick tempered etc.	2	
Depression, anxiety, phobias, obsessions	3	
Not certain	8	

C7. If yes: did your GP treat you or did you come to hospital?

Self report only	1			38 ___
G.P. treatment only	2	In-patient psychiatric	4	
Out-patient psychiatric	3	Not applicable	9	

C8. Have you been on any medicine for your nerves in the past?

No 1 Yes 2

Record

Minor tranquilizer	39 ___
Antidepressants	40 ___
Oral phenothiazines	41 ___
Depot phenothiazines	42 ___
Unnamed tablets	43 ___

C9. Are you on any medication at the moment?

Minor tranquilizer	44 ___
Antidepressants	45 ___
Oral phenothiazines	46 ___
Depot phenothiazines	47 ___
Unnamed tablets	48 ___

Note verbatim, medication and dose

C10. Sometimes people find that a drink helps to settle their nerves. How frequently would you say you take a drink? Everyday, once a week or what?

Not at all	1	49 ___
Rarely	2	
Once/twice week socially	3	
Once/twice week at home	4	
Every night socially	5	
Daily at home	6	

C11. Any idea of quantity?

Bottle spirits day	1	50 ___
1+ bottle per week	2	
Less than 1 bottle per week	3	
Less than ½ bottle per week	4	
None	5	
Don't know	8	

C12. Has anyone ever suggested you were drinking too much?

Drink a problem in the past	1
Drink a problem now	2
Drink no problem	3
Not applicable	9

51 ___

C13. Has the amount you drink increased since you discovered the breast lump?

No	1	Uncertain	8
Yes	2	Not applicable	9

52 ___

ANXIETY

Rate for the last month

D1. Free Floating Autonomic Anxiety
Have there been times lately when you have been very anxious or frightened? (Did your heart beat fast - dry mouth, trembling, sweating.)

No	0
Yes - mod or intense half the time	1
Yes - intense more than ½ the time	2
Don't know - unsure	8

53 ___

D2. Anxious Foreboding Autonomic Accompaniments
Have you had the feeling that something terrible might happen? What did it feel like - autnomic accompaniment

No	0
Yes - mod or intense half the time	1
Yes - intense more than ½ the time	2
Don't know - unsure	8

54 ___

THINKING AND CONCENTRATION

D3. What has your concentration been like recently?

No	0
Yes - moderate form of symptom	1
Yes - symptom intense	2
Don't know - unsure	8

55 ___

D4. Do you tend to brood on things? (So much that you neglect your work.)

Rate neglect due to brooding

No	0
Yes - moderate impairment	1
Yes - marked impairment	2
Don't know - unsure	8

56 ___

D5. What about your interests, have they changed at all? Have you lost interest in work or hobbies or appearance?

No	0	Yes - marked	2
Yes - moderate	1	Don't know - unsure	8

57 ___

D6. Do you keep reasonably cheerful or have you been very depressed or low spirited recently?
Have you cried at all? When last enjoyed anything?

No	0
Yes - moderate and varying	1
Yes - severe 50% and unvarying	2
Don't know - unsure	8

58 ___

D7. How do you see the future?
(Has life seemed hopeless? Can you see any future?)

No	0
Yes - mod. hopeless but some hope for future	1
Yes - intense form - given up hope	2
Don't know - unsure	8

59 ___

D8. Have you felt life wasn't worth living?
Have you felt like ending it all?

No	0
Yes but no suicide contemplation	1
Yes contemplating suicide	2
Yes attempt not severe	3
Yes - severe attempt	4
Don't know	8

60 ___

D9. Is the depression worse at any particular time of day?

No depression	0
Not especially in the morning	1
Specially marked in morning	2

61 ___

D10. Have you wanted to stay from other people?

No	0
Yes - not seeking company	1
Yes - actively refuses company 50%+ of month	2

62 ___

D11. What is your opinion of yourself compared to other people?
Do you feel better, not as good, or about the same as most?

Better or as good	0	Completely worthless	2
Some inferiority	1	Don't know - not sure	8

63 ___

D12. How confident do you feel in yourself?

No lack	0	Moderate lack	1	Complete lack	2

64 ___

D13. Are you self-conscious in public? (people notice you in the street) (do you consider people really are looking at you or is it the way you feel?)

Not self conscious	0
Marked self conscious only	1
People criticising and laughing	2

65 ___

D14. What has your appetite been like recently?
Have you lost any weight during the past 3 months?

0	0
Less than 7lb	1
7lb +	2

66 ___

D15. Have you had any trouble getting off to sleep during the past month?
How long do you lie awake? How often does it happen?

No trouble	0	
1 hour delay	1	(10+ nights/month)
2 hours delay	2	
Don't know - not sure	8	

67 ___

D16. Do you seem to be slowed down in your movements or to have too little energy recently? How much has it affected you?

No	0	
Marked listlessness and lack of energy	1	68 ___
Marked retardation and underactivity	2	
Don't know - not sure	8	

D17. Do you wake early in the morning?

No	0	
1 hour before ordinary time	1 (10+ nights/month)	69 ___
2+ hours	2	
Don't know - not sure	8	

D18. Has there been any change in your interest in sex?

No	0	
Marked loss of interest and performance	1	
Almost total loss of libido	2	
Increase	3	70 ___
Don't know - not sure	8	
Not applicable	9	

D19. Have you been very much more irritable than usual recently? How do you show it?

No	0	
Keeps irritation to self	1	
Snapping at people	2	71 ___
Anger, shouting, quarreling	3	
Hitting, throwing and breaking	4	

ASK <u>MARITAL ASSESSMENT IF MARRIED A COMMONLAW HUSBAND</u>

M 1. To what extent do you and your husband tend to talk over problems and worries with each other?

Confiding	1	
Confiding - qualified	2	
Not confiding	3	72 ___
Definitely not confiding	4	
Not applicable	9	

M 2. How sympathetic or understanding is your husband would you say?

Sympathetic and understanding	1	
Sympathetic qualified	2	
Not sympathetic	3	73 ___
Unsympathetic	4	
Not applicable	9	

M 3. If you could start all over again would you -

Marry the same man	1	
Marry someone else	2	74 ___
Not marry	3	
Not applicable	9	

If 1, or 2, probe a little

M4. How often would you say you quarrel in your marriage as compared with other marriages you know?

Far less frequently	1	
A little less frequently	2	
As often	3	
A little more often	4	75 ___
Far more frequently	5	
Not applicable	9	

M5. All in all how happy would you say your marriage is compared with that of other people?

Extremely happy	1	
Definitely happier than most	2	
Average	3	
Less happy than most	4	76 ___
Very unhappy	5	
Not applicable	9	

M6. How much warmth and affection would you say there is between you and your husband? (Rate warm feelings whether or not expressed in words or actions.)

A lot of affection	1	
Quite a lot of affection	2	
Some affection	3	
Not much affection	4	77 ___
None	5	
Not applicable	9	

M7. How frequently do you have unfriendly or angry feelings towards your husband?

Once a month or less, very infrequently	1	
Once a week - infrequently	2	
Once a day - frequently	3	78 ___
Several times a day - most of the time	4	
- all of the time	5	
Not applicable	9	

M8. How would you describe your husband - what are his good points? 79 ___

M9. What are his bad points? 80 ___

Study No. 1 ___

Series No. 2 _____

Battery No. Pre-op/Post-op.

Pre-op. 1. Post op. immediate 2. 3/12 3. 12/12 4. 5 ___

Questionnaire No 6 ___

Card No. 7 ___

M10. Couples vary in how they organise their finance. Who pays the bills and plans the finance in your family?

Husband alone	1	Mostly wife	4	8 ___
Mostly husband	2	Wife alone	5	
50:50	3	Not applicable	9	

M11. What about decision-making? Who makes the major decisions in your family?

Husband alone	1	Mostly wife	4	9 ___
Mostly husband	2	Wife alone	5	
50:50	4	Not applicable	9	

M12. Who is responsible for doing the household tasks in your family?

Wife does all	1	Housework	___	10 ___
Wife does most	2	Gardening	___	11 ___
50:50	3	Washing-up	___	12 ___
Husband does most	4	Tidy rooms	___	13 ___
Husband does all	5	Shopping	___	14 ___
Not applicable	9			

M13. Do the children help?

A lot	1	Not at all	3	15 ___
A little	2	Not applicable	9	

M14. Do you have any other help in the house?

None	1	16 ___
A little 1 - 3 mornings	2	
A lot - 3 +	3	

SEXUAL ADJUSTMENT

Now I would like to ask you about your sex life.

X1. Do you and your husband (boyfriend) still have intercourse?

No 1 Yes 2 Not applicable 9 17 ___

If yes - continue.

If no - go to SOCIAL ADJUSTMENT

X2. How many times in the last month did you have intercourse?

Not applicable 9 9 18 _____

X3. What would be the average frequency of sexual intercourse over the past year?

never	1		
less than once / 3 months	2		
Less than once a month	3		
2-3 times / month	4		
once or twice a week	5	20	___
3 or 4 times a week	6		
5 or 6 times a week	7		
don't know	8		
not applicable	9		

X4. On what proportion of the occasions that you make love do you find it a pleasant experience?

none	1	all	5		
less than ½	2	not applicable	9	21	___
approximately ½	3				

X5. How often do you take the initiative in love-making?

never	1	often	4		
occasionally	2	always	5	22	___
50:50	3	not applicable	9		

X6. On what proportion of occasions do you get unpleasant or anxious feelings during intercourse?

never	1	always	5		
occasionally	2	don't know	8		
50:50	3	not applicable	9	23	___
often	4				

X7. Sometimes women find they are too tired or preoccupied with other things to be interested in sex. How often does that happen with you?

never	1	often	4		
occasionally	2	not applicable	9	24	___
sometimes	3				

X8. On what proportion of occasions that you make love do you reach a climax?

every time	1	never	5		
75% of times	2	don't know	8	25	___
50:50	3	not applicable	9		
25% of times	4				

X9. To what extent do you think your breasts play an important part in love-making from your husband's point of view?

N.B. part in sexual arousal	1	don't know	8		
play a part but not very NB	2	not applicable	9	26	___
not N.B. at all	3				

X10. Do your breasts play an important part in love-making from your point of view?

N.B. part in sexual arousal	1		
small part in sexual arousal	2		
no N.B. at all	3	27	___
don't know - not sure	8		
not applicable	9		

X11. Do you and your husband undress freely in front of each other? (Rate for patient only.)

Undress freely	1	Never	3	
With inhibition	2	Not applicable	9	28 ___

X12. Do you and your husband share the same bedroom?

No 1 Yes 2 29 ___

Now I would like to ask you some questions about your friends and your social life.

SOCIAL ADJUSTMENT

S1. How often do you and your husband go out socially together?

Every night	1	Once in 3 mths	5	
Several times a week	2	Never	6	30 ___
Once a week	3	Not applicable	9	
Once/twice a month	4			

S2. How often do you go out socially on your own or with a friend?

Every night	1	Once in 3 months	5	
Several times a week	2	Never	6	
Once a week	3	Not applicable	9	31 ___
Once / twice a month	4			

S3. How frequently do you entertain friends at home? (include formal invitations to house only. e.g. for dinner and drinks)

Every night	1	Once in 3 months	5	
Several times a week	2	Never	6	
Once a week	3	Not applicable	9	32 ___
Once/twice a month	4			

S4. How often would you go to any of the following?

For each one -

Every night	1	Pub	33 ___
Several times	2	Dance	34 ___
Once a week	3	Dinner	35 ___
Once/twice a month	4	Bingo	36 ___
Once in 3 months	5	Pictures/concert/theatre	37 ___
Never	6	Visiting friends	38 ___
Not applicable	9	Church meetings	39 ___
		Womens' meetings	40 ___

S5. How confident would you say you are socially?

Very confident	1	
Confident	2	
Shy - a bit lacking in confidence	3	41 ___
Very lacking in confidence - awkward	4	

SOCIAL BONDING

S6. How many friends have you who would drop in without invitation and take you as they find you?

None	1	Some 3 - 5	3	
A few 1 - 2	2	A lot 6+	4	42 ___

S7. How many friends could you happily visit without invitation?

None	1	Some 3 - 5	3	
A few 1 - 2	2	A lot 6+	4	43 ___

S8. Do you have anyone to whom you can speak frankly without watching what you say?

None	1	A few 2 - 3	3	
One	2	A lot 4+	4	44 ___

S9. Is there anyone who you were closely attached to in the past whom you don't see now for one reason or another? (Only record someone who is missed. If necessary ask - do you miss him/her?) If more than 1 record person most missed.

No-one	1	Conflict	4	
Died	2	Other	5	45 ___
Moved away	3			

Record name.

S10. How long ago is that?

1-5 years	1	20-30 years	4	
5-10 years	2	30-40 years	5	46 ___
10-20 years	3	Not applicable	9	

S11. Do you feel you have an adequate number of friends or do you sometimes feel a lack?

Adequate	1	
Some lack of friends	2	47 ___
Considerable lack of friends	3	

S12. Have you been upset recently by any disagreements or unpleasantness between you and anyone close to you?

No	1	Uncertain - don't know	8	
Yes	2			48 ___

Record.

S13. If applicable (apart from your husband and children) is there anyone (else) who relies on you particularly for help and advice?

No	1	
Yes	2	49 ___

Record.

APPEARANCE & CLOTHING

Now I would like to talk about your appearance.

E1. How would you describe your attitude to your appearance?

Very particular	1	
Likes to dress attractively	2	
Likes to be clean and neat	3	50 ___
Not very interested in appearance	4	
Not at all interested	5	

Record.

E2. Some women like to wear a low neckline on occasion which shows their cleavage. Do you?

Once a week	1	Once a year	4	
Once a month	2	Never	5	51 ___
Once in 3 months	3			

E3. What about swimwear? How often do you wear a bathing costume or bikini?

Once a week	1	
Once a month	2	
Once in 3 months	3	
During annual holiday	4	
Once a year	5	
Less frequently than once a year	6	52 ___
Never	7	
Not sure	8	

E4. I wonder how you would rate your appearance compared with other women of the same age as yourself?

Much more attractively dressed than average	1	
More attractively dressed than average	2	
About average	3	
Less than average	4	
Much less than average	5	53 ___
Can't say	8	
Rater can't classify	9	

E5. What is your attitude towards buying new clothes - do you enjoy it?

Lot of enjoyment	1	Hates buying new clothes	4	
Some enjoyment	2	Can't say	8	54 ___
Doesn't enjoy	3	Rater can't classify	9	

EXPLANATION RE IMPLANT AND THEN -

E6. If you are found to be suitable for an implant after mastectomy how would you feel about it?

Very anxious for implant	1	Definitely wouldn't like	4	
Pleased enough if offered	2	Uncertain - don't know	8	
Not bothered either way	3			55 ___

INTERVIEW RATING

Appearance

Extremely well dressed - very particular about appearance	1	
Neatly and cleanly dressed not obsessively so	2	
Rather untidy but clean	3	56 ___
Dishevelled and unkempt	4	

Neat make-up and hairstyle	1	
Average make-up and hairstyle	2	
No make-up, dishevelled	3	57 ___
Uncertain - in hospital night clothes	8	

Method of coping with stress of breast lump

Denial	1	Anxious/depressed	4	
Fighting spirit	2	Helpless/hopeless	5	58 ___
Stoic acceptance	3	Difficult to classify	9	

Clinical opinion

Record verbally ICD and code 59 _____

APPENDIX 2

POST OPERATIVE QUESTIONNAIRE

Study No. 1 ___

Patient Identity No. 2 _____

Series No. 12 _____

Battery No. 16 ___

Questionnaire No. 17 ___

Card No. 18 ____

---

1. How long is it now since your operation? (time in months) 19 _____

2. Have you had any treatment at the hospital since your mastectomy?

Yes	1	Radiotherapy	___	21	___
No	2	Chemotherapy	___	22	___
Don't know	8	Further Surgery	___	23	___

3. If radiotherapy, how many treatments? 24 ___

4. Were there any problems with the radiotherapy?

No	1	Blisters and burns	___	26	___
Mild or a little	2				
Severe or a lot	3	Feeling of malaise	___	27	___
Don't know	8				
Not applicable	9	Fear	___	28	___

Record

5. How have you been feeling over the last month? Would you say you are back to your normal self?

Normal self	1		
Normal self qualified	2		
Unlike normal self	3	29	___
Don't know	8		

Record

6. If premenopausal - are your periods still as normal?

As normal	1		
Irregular	2		
Have stopped since operation	3	30	___
Not applicable	9		
Don't know	8		

Record

7. What about your energy?

Same energy as before	1	
Not as much energy/easily tired	2	
Very lacking in energy	3	31 ___
Don't know	8	

8. Have you been aware of your body feeling different?

Body feels quite normal	1	
Aware still of body being different	2	
Distressed by body being different	3	32 ___
Don't know	8	

Record

9. Sometimes women have feelings that the breast which has been removed is still there. Do you?

Phantom breast	1	
No phantom breast	2	33 ___
Not sure	8	

10. Do you have any pain in this phantom breast or tingling of the nipple?

(Answer yes only when similar sensations felt in remaining breast, e.g. premenstrually)

Yes	1	pain	___	34 ___
No	0			
Don't know	8	tingling of nipples	___	35 ___
Not applicable	9			

11. Have you had any stiffness in your arm or weakness?

None	1	
Slight limitation of movement or weakness	2	
Some limitation of movement or weakness	3	36 ___
Severe limitation	4	
Don't know	8	

12. Have you been having any pain over the last month?

Mild	1	pain in shoulder		
Moderate	2	and arm	___	37 ___
Severe incapacitating	3	pain or soreness		
No	0	over operated		
Don't know	8	area	___	38 ___

13. Have there been any other aches and pains to worry you?

Expressed worry about aches and pains being possibly due to cancer spread or other cancer	1	
Not expressed worry	2	
Don't know	8	39 ___

Record

14. Some women worry about their other breast and examine themselves for lumps. Do you?

Examines constantly	1	
Examines occasionally	2	
Doesn't examine	3	40 ___
Don't know	8	
Not applicable	9	

Record

How satisfactory are you finding things since your mastectomy?

15. How self-conscious do you feel about your bust?

Very self conscious - puts hand in front	1	
A little self conscious - occasional checks	2	41 ___
Not at all	3	

16. Do your breasts match when you are dressed?

Good match	1	
Good match qualified	2	42 ___
Bad match	3	
Don't know	8	

17. If implant. Is that with or without padding?

Matches without padding	1	
A little padding on operated side	2	
Prosthesis on operated side	3	43 ___
Don't know	8	
Not applicable	9	

18. What about your cleavage?

No cleavage	1	
A bit of cleavage - could wear a V-neck	2	
Good cleavage - could wear a swimming costume, etc.	3	44 ___
Don't know	8	

19. Are there any snags with the prosthesis?

Yes	1	tends to fall out	___	45 ___
No	2	tends to move about	___	46 ___
Don't know	8	discomfort	___	47 ___
Not applicable	9	too heavy	___	48 ___

20. How comfortable is it?

Very comfortable - can wear it all the time except in bed	1	
Some discomfort - takes it out in the house in the evening	2	
Some discomfort - takes it out in the house during the day and evening	3	49 ___
A lot of discomfort - rarely wears it	4	
Never wears it	5	
Don't know	8	
Not applicable	9	

21. Are there any snags with the implant?

Yes	1	discomfort	___	50 ___
No	2	inequality of size	___	51 ___
Don't know	8	wrong place	___	52 ___
Not applicable	9	doesn't droop like other breast	___	53 ___
		heavy feeling	___	54 ___

22. If implant. Do you have any regrets about having the implant?

No	0	
Some regrets	1	
Very much regret	2	55 ___
Don't know	8	
Not applicable	9	

23. What about your husband? Does he think it was a good idea?

Yes	1	
Yes - qualified	2	
No	0	56 ___
Don't know	8	
Not applicable	9	

24. Do you usually wear your bras in bed?

Yes	1	
No	2	57 ___
Don't know	8	

IF EMPLOYED:

25. Have you returned to your work yet?

Yes - as many hours as before	1	
Yes - less hours	2	
Yes - different job	3	
No	4	58 ___
Not applicable	9	
Don't know	8	

If Yes

26. Would you say you are coping as well as you were before?

Coping as well	1	
Coping impaired	2	59 ___
Really not coping	3	

Record

27. Are you confident in your abilities at work?

Yes	1	
Yes - qualified	2	
No	3	60 ___
Don't know	8	
Not applicable	9	

Record

If No

28. Have suffered any financial hardship as a result of not working?

Severe financial hardship	1	
Difficulty making ends meet	2	
Having to do without luxuries	3	
No hardship	4	61 ___
Don't know	8	
Not applicable	9	

Record

29. Since your operation have you needed to see your G.P. about your nerves?

No	1	
Treatment from G.P.	2	
Treatment from Hospital	3	62 ___
Don't know	8	

30. Have you been on any medication over the last three months?

Yes	1	tranquillizers	___	63 ___
No	2	antidepressants	___	64 ___
Don't know	8	phenothiazines	___	65 ___
Not applicable	9	unknown tablets	___	66 ___

Record

31. Are you on any medication at the moment?

tranquillizers	___	67 ___
antidepressants	___	68 ___
phenothiazines	___	69 ___
unknown tablets	___	70 ___

Record

32. Would you say that the amount you drink has changed since your operation?

No	1	
Increase	2	
Decrease	3	
Don't know	8	71 ___
Not applicable	9	

33. Free Floating Autonomic Anxiety
Have there been times lately when you have been very anxious or frightened? (Did your heart beat fast - dry mouth, trembling, sweating?)

No	0
Yes - mod. or intense ½ time	1
Yes - intense ½+ time	2
Don't know - unsure	8

72 ___

34. Anxious Foreboding Autonomic Accompaniments
Have you had the feeling that something terrible might happen? What did it feel like - autonomic accompaniment

No	0
Yes - mod. or intense ½ time	1
Yes - intense ½+ time	2
Don't know - unsure	8

73 ___

THINKING AND CONCENTRATION

35. What has your concentration been like recently?

No	0
Yes - moderate form of symptom	1
Yes - symptom intense	2
Don't know - unsure	8

74 ___

36. Do you tend to brood on things?
(So much that you even neglect your work?)

Rate neglect due to brooding

No	0
Yes - moderate impairment	1
Yes - marked impairment	2
Don't know - unsure	8

75 ___

37. What about your interests, have they changed at all? Have you lost interest in work or hobbies or appearance?

No	0
Yes - moderate	1
Yes - marked	2
Don't know - unsure	8

76 ___

38. Do you keep reasonably cheerful or have you been very depressed or low spirited recently? Have you cried at all? When last enjoyed anything?

No	0
Yes - moderate and varying	1
Yes - severe 50% and unvarying	2
Don't know - unsure	8

77 ___

7.

39. How do you see the future?
(Has life seemed hopeless? Can you see any future?)

No worry about future	0	
Occasional worry about cure - at back of mind	1	78 ___
Constant worry of spread or recurrence	2	

40. Have you felt life wasn't worth living?
(Have you felt like ending it all?)

No	0	
Yes but no suicide contemplation	1	
Yes contemplating suicide	2	
Yes attempt not severe	3	79 ___
Yes - severe attempt	4	
Don't know	8	

41. Is the depression worse at any particular time of day?

No depression	0	
Not especially in the morning	1	80 ___
Specially marked in morning	2	

Study No.		1 ___
Series No.	2	_____
Battery No.		5 ___
Questionnaire No.		6 ___
Card No.		7 ___

A1. Have you wanted to stay from other people?

No	0	
Yes - not seeking company	1	8 ___
Yes - actively refuses company 50%+ of month	2	

A2. How confident do you feel in yourself?

No lack	0	
Moderate lack	1	9 ___
Complete lack	2	

A3. Is that a change?

As confident	1	
Less confident	2	10 ___
More confident	3	
Don't know	8	

A4. Are you self-conscious in public? (people notice you in the street) (Do you consider people really are looking at you, or is it the way you feel?)

Self-conscious about appearance	1	
Marked self-consciousness - people looking	2	11 ___
People criticising and laughing	3	

Record

A5. What has your appetite been like recently? Have you lost any weight during the past 3 months?

Weight steady	0	
Weight loss less than 7lb	1	
Weight loss more than 7lb	2	12 ___
Weight gain	3	

A6. Have you had any trouble getting off to sleep during the past month? How long do you lie awake? How often does it happen?

No trouble	0	
1 hour delay	1	
2 hours delay (10+ nights/months)	2	13 ___
Don't know - not sure	8	

A7. Do you wake early in the morning?

No	0	
1 hour before ordinary time	1	14 ___
2+ hours before ordinary time	2	(10+ nights/months)
Don't know - not sure	8	

A8. Has there been any change in your interest in sex?

No	0	
Marked loss of interest and performance	1	
Almost total loss of libido	2	
Increase	3	15 ___
Don't know - not sure	8	
Not applicable	9	

A9. Have you been very much more irritable than usual recently? How do you show it?

No	0	
Keeps irritation to self	1	
Snapping at people	2	16 ___
Anger, shouting, quarrelling	3	
Hitting, throwing and breaking	4	

A10. Have you experienced any other emotions since your operation? Some women feel angry and wonder "why me?"

Anger	1	
No anger	2	17 ___
Guilt	3	

A11. How do you feel about your treatment so far?

Satisfied	1	
Some complaints	2	18 ___
Angry about treatment	3	

Record

ASK MARITAL ASSESSMENT IF MARRIED A COMMONLAW HUSBAND

MARITAL ASSESSMENT

A12. To what extent do you and your husband tend to talk over problems and worries with each other?

Confiding	1	
Confiding - qualified	2	
Not confiding	3	19 ___
Definitely not confiding	4	
Not applicable	9	

A13. Is that a change since your operation?

More confiding	1	
Same	2	
Less confiding	3	20 ___
Don't know	8	
Not applicable	9	

A14. How sympathetic or understanding is your husband would you say?

Sympathetic and understanding	1	
Sympathetic qualified	2	
Not sympathetic	3	21 ___
Unsympathetic	4	
Not applicable	9	

A15. Is that a change since your operation?

More sympathetic	1	
Same	2	
Less sympathetic	3	22 ___
Don't know	8	
Not applicable	9	

A16. How often would you say you quarrel in your marriage as compared with other marriages you know?

Far less frequently	1	
A little less frequently	2	
As often	3	
A little more often	4	23 ___
Far more frequently	5	
Not applicable	9	

A17. Has that changed since your operation?

More quarrels	
Same	
Less quarrels	24 ___
Don't know	
Not applicable	

A18. How much warmth and affection would you say there is between you and your husband? (Rate warm feelings whether or not expressed in words or actions.)

A lot of affection	1	
Quite a lot of affection	2	
Some affection	3	
Not much affection	4	25 ___
None	5	
Not applicable	9	

A19. Is that a change since your operation?

More affection	1	
Same	2	
Less affection	3	26 ___
Don't know	8	
Not applicable	9	

A20. How frequently do you have unfriendly or angry feelings towards your husband?

Once a month or less, very infrequently	1	
Once a week - infrequently	2	
Once a day - frequently	3	
Several times a day - most of the time	4	27 ___
Several times a day - all of the time	5	
Not applicable	9	

A21. Is that a difference from before your operation?

More unfriendly	1	
Same	2	
Less unfriendly	3	28 ___
Don't know	8	
Not applicable	9	

A22. Since your operation do you think your relationship with your husband has changed at all?

Improved	1	
No change	2	
Worse	3	29 ___
Don't know	8	

A23. Couples vary in how they organise their finance. Who pays the bills and plans the finance in your family?

Husband alone	1	
Mostly husband	2	
50:50	3	
Mostly wife	4	30 ___
Wife alone	5	
Not applicable	9	

A24. Is that a change since your operation?

Husband more		
Same		
Wife originally more		31 ___
Don't know		
Not applicable		

A25. What about decision-making? Who makes the major decisions in your family?

Husband alone	1	
Mostly husband	2	
50:50	3	
Mostly wife	4	32 ___
Wife alone	5	
Not applicable	9	

A26. Is that a change since your operation?

Husband - more decisions	1		
Same	2		
Wife - more decisions	3	33	___
Don't know	8		
Not applicable	9		

A27. Who is responsible for doing the household tasks in your family?

Wife does all	1	Housework	___	34	___
Wife does most	2	Gardening	___	35	___
50:50	3	Washing up	___	36	___
Husband does most	4	Tidy rooms	___	37	___
Husband does all	5	Shopping	___	38	___
Not applicable	9				

A28. Do the children help?

A lot	1		
A little	2		
Not at all	3	39	___
Not applicable	9		

A29. Do you have any other help in the house?

None	1		
A little: 1-3 mornings	2	40	___
A lot: 3+ mornings	3		

A30. Is there any change in your ability to cope with household tasks?

Much impaired	1		
Impaired	2		
As usual	3	41	___
Better	4		

A31. Are there any changes in the sharing of the tasks?

Yes	1	Husband does more	___	42	___
No	2	Children do more	___	43	___
		Extra help	___	44	___

Record

SEXUAL ADJUSTMENT

NOW I WOULD LIKE TO ASK YOU ABOUT YOUR SEX LIFE:

A32. Do you and your husband (boyfriend) still have intercourse?

No	1		
Yes	2	45	___
Not applicable	9		

IF YES - continue

IF NO - go on to SOCIAL ADJUSTMENT

A33. How many times in the last month did you have intercourse?

Not applicable 9 46 ____

A34. What would be the average frequency of sexual intercourse over the past three months?

Never	1
Less than once / 3 months	2
Less than once a month	3
2-3 times / month	4
Once or twice a week	5
3 or 4 times a week	6
5 or 6 times a week	7
Don't know	8
Not applicable	9

48 ___

A35. On what proportion of the occasions that you make love do you find it a pleasant experience?

None	1
Less than half	2
Approximately half	3
More than half	4
All	5
Not applicable	9

49 ___

A36. How often do you take the initiative in love-making?

Never	1
Occasionally	2
50:50	3
Often	4
Always	5
Don't know	8
Not applicable	9

50 ___

A37. On what proportion of occasions do you get unpleasant or anxious feelings during intercourse?

Never	1
Occasionally	2
50:50	3
Often	4
Always	5
Don't know	8
Not applicable	9

51 ___

A38. Sometimes women find they are too tired or preoccupied with other things to be interested in sex. How often does that happen with you?

Never	1
Occasionally	2
Sometimes	3
Often	4
Not applicable	9

52 ___

A39. On what proportion of occasions that you make love do you reach climax?

Every time	1	
75% of times	2	
50:50	3	
25% of times	4	53 ___
Never	5	
Don't know	8	
Not applicable	9	

A40. Do you and your husband undress freely in front of each other?

Undresses freely	1	
Avoids - self-conscious about scar	2	
Undresses in bathroom or before husband	3	54 ___
Never in front of husband	8	
Not applicable	9	

Record

A41. Do you and your husband share the same bedroom?

No	1	
Yes	2	55 ___

A42. Would you say there is any change in your sex life since your operation?

Increase	1	Frequency ___	56 ___
Same	2	Enjoyment ___	57 ___
Decrease	3	Caressing ___	58 ___
Don't know	8		
Not applicable	9		

Record

A43. Would you say that your husband's feelings towards you have changed at all as a result of this operation?

No	1	
A little	2	59 ___
Yes	3	
Don't know	8	
Not applicable	9	

Record

A44. Has your operation made any difference to the way you feel about making love?

Self conscious about appearance	)	yes 1:	60 ___
Not as attractive sexually	)	no 2:	61 ___
Physically unfit by reason of lethargy or pain	)	a little 3:	62 ___

Record

SOCIAL ADJUSTMENT

Now I would like to ask you some questions about your friends and your social life.

A45. How often do you and your husband go out socially together?

Every night	1	
Several times a week	2	
Once a week	3	
Once/twice a month	4	63 ___
Once in 3 months	5	
Never	6	
Not applicable	9	

A46. Is that the same as before your operation?

More	1	
Same	2	
Less	3	64 ___
Don't know	8	
Not applicable	9	

A47. How often do you go out socially on your own or with a friend?

Every night	1	
Several times a week	2	
Once a week	3	
Once/twice a month	4	65 ___
Once in 3 months	5	
Never	8	
Not applicable	9	

A48. Is that the same as before your operation?

More than before	1	
Same	2	
Less than before	3	
Not at all now	4	66 ___
Don't know	8	
Not applicable	9	

A49. Are there any social activities which you have given up since your operation?

Yes	1	
No	2	67 ___
Don't know	8	

Record

A50. How confident are you going out socially?

Hasn't been out socially at all	1	
Out socially but only with husband	2	68 ___
Occasionally out alone	3	
As normal	4	

A51. What about your friends?

Seen more of them than before	1		
Same	2	69	___
Seen less of them	3		

A52. What about your family?

Seen more of them	1		
Same	2	70	___
Seen less of them	3		

A53. Would you say that your family or friends treat you any differently now than before your operation?

Yes	1	Sorry for her	___	71 ___
No	2	More help and sympathy	___	72 ___
		Less friendly - avoid	___	73 ___

A54. Have there been any changes in your behaviour with people?

Yes	1	Less jolly - doesn't laugh as much	___	74 ___
No	2	Nasty or sharp with family	___	75 ___
A little	3	More touchy, easily upset	___	76 ___

A55. What have you told your children about your operation?

Cancer and mastectomy	1		
Breast off - poorly and nasty	2		
Sore breast - operation	3		
Lump in breast - taken out	4	77	___
Operation - not specified	5		
Nothing	6		
Not applicable	9		

Record

Study No.	1	___
Series No.	2	_____
Battery No.	5	___
Questionnaire No.	6	___
Card No.	7	___

B1. Do you notice any difference in their attitude towards you?

Yes	1	More helpful	8	___
No	2	Worried about her health	9	___
Don't know	8	Not so close - offhand	10	___
Not applicable	9	Specific problems - temper tantrums, bed-wetting, etc.	11	___

Record

16.

APPEARANCE AND CLOTHING

Now I would like to talk about your appearance.

B2. How would you describe your attitude to your appearance?

Very particular	1	
Likes to dress attractively	2	
Likes to be clean and neat	3	12 ___
Not very interested in appearance	4	
Not at all interested	5	

Record

B3. Is that a change since your operation?

More attention to appearance	1	
Same	2	
Less attention to appearance	3	13 ___
Don't know	8	

B4. Since your operation have you had the opportunity to dress up for a social occasion?

Yes	1	14 ___
No	2	

B5. I wonder how you would rate your appearance compared with either women of the same age as yourself?

Much more attractively dressed than average	1	
More attractively dressed than average	2	
About average	3	
Less than average	4	15 ___
Much less than average	5	
Can't say	8	
Rater can't classify	9	

B6. Is that a change since your operation?

Yes 1 Same 2 No 3 Don't know 8 16 ___

INTERVIEW RATING

Appearance

Extremely well dressed - very particular about appearance	1	
Neatly and cleanly dressed - not obsessively so	2	
Rather untidy, but clean	3	17 ___
Dishevelled and unkempt	4	

Neat make-up and hairstyle	1	
Average make up and hairstyle	2	
No make-up, dishevelled	3	18 ___
Uncertain - in hospital night clothes	8	

Method of coping at present time

Denial	1			
Fighting spirit	2	Helpless / hopeless	5	19 ___
Stoic acceptance	3	Difficult to assess	9	
Anxious / depressed	4			

Clinical opinion

Record verbally ICD and code 20 ___

Interviewer's comment on interview 21 ___

APPENDIX 3

Eysenck Personality Inventory Form A

EYSENCK PERSONALITY INVENTORY

by H. J. Eysenck and Sybil B. G. Eysenck

PERSONALITY QUESTIONNAIRE

FORM A

NAME..... AGE.....

OCCUPATION..... SEX.....

N= ☐ E= ☐ L= ☐

Instructions

Here are some questions regarding the way you behave, feel and act. After each question is a space for answering "YES" or "NO".

Try to decide whether "YES" or "NO" represents your usual way of acting or feeling. Then put a cross in the circle under the column headed "YES" or "NO". Work quickly, and don't spend too much time over any question; we want your first reaction, not a long-drawn out thought process. The whole questionnaire shouldn't take more than a few minutes. Be sure not to omit any questions.

Now turn the page over and go ahead. Work quickly, and remember to answer every question. There are no right or wrong answers, and this isn't a test of intelligence or ability, but simply a measure of the way you behave.

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E ○ N ○ L ○ | | | | | | | | | | |

FORM A

		YES	NO
1.	Do you often long for excitement?	○	○
2.	Do you often need understanding friends to cheer you up?	○	○
3.	Are you usually carefree?	○	○
4.	Do you find it very hard to take no for an answer?	○	○
5.	Do you stop and think things over before doing anything?	○	○
6.	If you say you will do something do you always keep your promise, no matter how inconvenient it might be to do so?	○	○
7.	Does your mood often go up and down?	○	○
8.	Do you generally do and say things quickly without stopping to think?	○	○
9.	Do you ever feel "just miserable" for no good reason?	○	○
10.	Would you do almost anything for a dare?	○	○
11.	Do you suddenly feel shy when you want to talk to an attractive stranger?	○	○
12.	Once in a while do you lose your temper and get angry?	○	○
13.	Do you often do things on the spur of the moment?	○	○
14.	Do you often worry about things you should not have done or said?	○	○
15.	Generally, do you prefer reading to meeting people?	○	○
16.	Are your feelings rather easily hurt?	○	○
17.	Do you like going out a lot?	○	○
18.	Do you occasionally have thoughts and ideas that you would not like other people to know about?	○	○
19.	Are you sometimes bubbling over with energy and sometimes very sluggish?	○	○
20.	Do you prefer to have few but special friends?	○	○
21.	Do you daydream a lot?	○	○
22.	When people shout at you, do you shout back?	○	○
23.	Are you often troubled about feelings of guilt?	○	○
24.	Are *all* your habits good and desirable ones?	○	○
25.	Can you usually let yourself go and enjoy yourself a lot at a gay party?	○	○
26.	Would you call yourself tense or "highly-strung"?	○	○
27.	Do other people think of you as being very lively?	○	○

		YES	NO
28.	After you have done something important, do you often come away feeling you could have done better?	○	○
29.	Are you mostly quiet when you are with other people?	○	○
30.	Do you sometimes gossip?	○	○
31.	Do ideas run through your head so that you cannot sleep?	○	○
32.	If there is something you want to know about, would you rather look it up in a book than talk to someone about it?	○	○
33.	Do you get palpitations or thumping in your heart?	○	○
34.	Do you like the kind of work that you need to pay close attention to?	○	○
35.	Do you get attacks of shaking or trembling?	○	○
36.	Would you always declare *everything* at the customs, even if you knew that you could never be found out?	○	○
37.	Do you hate being with a crowd who play jokes on one another?	○	○
38.	Are you an irritable person?	○	○
39.	Do you like doing things in which you have to act quickly?	○	○
40.	Do you worry about awful things that might happen?	○	○
41.	Are you slow and unhurried in the way you move?	○	○
42.	Have you ever been late for an appointment or work?	○	○
43.	Do you have many nightmares?	○	○
44.	Do you like talking to people so much that you never miss a chance of talking to a stranger?	○	○
45.	Are you troubled by aches and pains?	○	○
46.	Would you be very unhappy if you could not see lots of people most of the time?	○	○
47.	Would you call yourself a nervous person?	○	○
48.	Of all the people you know, are there some whom you definitely do not like?	○	○
49.	Would you say that you were fairly self-confident?	○	○
50.	Are you easily hurt when people find fault with you or your work?	○	○
51.	Do you find it hard to really enjoy yourself at a lively party?	○	○
52.	Are you troubled with feelings of inferiority?	○	○
53.	Can you easily get some life into a rather dull party?	○	○
54.	Do you sometimes talk about things you know nothing about?	○	○
55.	Do you worry about your health?	○	○
56.	Do you like playing pranks on others?	○	○
57.	Do you suffer from sleeplessness?	○	○

PLEASE CHECK TO SEE THAT YOU HAVE ANSWERED *ALL* THE QUESTIONS

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APPENDIX 4

General Health Questionnaire - 60 item

APPENDIX 4

GENERAL HEALTH QUESTIONNAIRE

GHQ-60

Please read this carefully:

We should like to know if you have had any medical complaints, and how your health has been in general, *over the past few weeks.* Please answer ALL the questions on the following pages simply by underlining the answer which you think most nearly applies to you. Remember that we want to know about present and recent complaints, not those that you had in the past.

It is important that you try to answer ALL the questions.

Thank you very much for you co-operation.

HAVE YOU RECENTLY:

1 — **been feeling perfectly well and in good health?**	Better than usual	Same as usual	Worse than usual	Much worse than usual
2 — **been feeling in need of a good tonic?**	Not at all	No more than usual	Rather more than usual	Much more than usual
3 — **been feeling run down and out of sorts?**	Not at all	No more than usual	Rather more than usual	Much more than usual
4 — **felt that you are ill?**	Not at all	No more than usual	Rather more than usual	Much more than usual
5 — **been getting any pains in your head?**	Not at all	No more than usual	Rather more than usual	Much more than usual
6 — **been getting a feeling of tightness or pressure in your head?**	Not at all	No more than usual	Rather more than usual	Much more than usual
7 — **been able to concentrate on whatever you're doing?**	Better than usual	Same as usual	Less than usual	Much less than usual
8 — **been afraid that you were going to collapse in a public place?**	Not at all	No more than usual	Rather more than usual	Much more than usual
9 — **been having hot or cold spells?**	Not at all	No more than usual	Rather more than usual	Much more than usual
10 — **been perspiring (sweating) a lot?**	Not at all	No more than usual	Rather more than usual	Much more than usual
11 — **found yourself waking early and unable to get back to sleep?**	Not at all	No more than usual	Rather more than usual	Much more than usual
12 — **been getting up feeling your sleep hasn't refreshed you?**	Not at all	No more than usual	Rather more than usual	Much more than usual
13 — **been feeling too tired and exhausted even to eat?**	Not at all	No more than usual	Rather more than usual	Much more than usual

PLEASE TURN OVER

HAVE YOU RECENTLY:

14 – **lost much sleep over worry?**	Not at all	No more than usual	Rather more than usual	Much more than usual
15 – **been feeling mentally alert and wide awake?**	Better than usual	Same as usual	Less alert than usual	Much less alert
16 – **been feeling full of energy?**	Better than usual	Same as usual	Less energy than usual	Much less energetic
17 – **had difficulty in getting off to sleep?**	Not at all	No more than usual	Rather more than usual	Much more than usual
18 – **had difficulty in staying alseep once you are off?**	Not at all	No more than usual	Rather more than usual	Much more than usual
19 – **been having frightening or unpleasant dreams?**	Not at all	No more than usual	Rather more than usual	Much more than usual
20 – **been having restless, disturbed nights?**	Not at all	No more than usual	Rather more than usual	Much more than usual
21 – **been managing to keep yourself busy and occupied?**	More so than usual	Same as usual	Rather less than usual	Much less than usual
22 – **been taking longer over the things you do?**	Quicker than usual	Same as usual	Longer than usual	Much longer than usual
23 – **tended to lose interest in your ordinary activities?**	Not at all	No more than usual	Rather more than usual	Much more than usual
24 – **been losing interest in your personal appearance?**	Not at all	No more than usual	Rather more than usual	Much more than usual
25 – **been taking less trouble with your clothes?**	More trouble than usual	About same as usual	Less trouble than usual	Much less trouble
26 – **been getting out of the house as much as usual?**	More than usual	Same as usual	Less than usual	Much less than usual
27 – **been managing as well as most people would in your shoes?**	Better than most	About the same	Rather less well	Much less well
28 – **felt on the whole you were doing things well?**	Better than usual	About the same	Less well than usual	Much less well
29 – **been late getting to work, or getting started on your housework?**	Not at all	No later than usual	Rather later than usual	Much later than usual
30 – **been satisfied with the way you've carried out your task?**	More satisfied	About same as usual	Less satisfied than usual	Much less satisfied
31 – **been able to feel warmth and affection for those near to you?**	Better than usual	About same as usual	Less well than usual	Much less well
32 – **been finding it easy to get on with other people?**	Better than usual	About same as usual	Less well than usual	Much less well
33 – **spent much time chatting with people?**	More time than usual	About same as usual	Less than usual	Much less than usual

GO ON TO THE NEXT PAGE

HAVE YOU RECENTLY:

34 – **kept feeling afraid to say anything to people in case you made a fool of yourself?**	Not at all	No more than usual	Rather more than usual	Much more than usual
35 – **felt that you are playing a useful part in things?**	More so than usual	Same as usual	Less useful than usual	Much less useful
36 – **felt capable of making decisions about things?**	More so than usual	Same as usual	Less so than usual	Much less capable
37 – **felt you're just not able to make a start on anything?**	Not at all	No more than usual	Rather more than usual	Much more than usual
38 – **felt yourself dreading everything that you have to do?**	Not at all	No more than usual	Rather more than usual	Much more than usual
39 – **felt constantly under strain?**	Not at all	No more than usual	Rather more than usual	Much more than usual
40 – **felt you couldn't overcome your difficulties?**	Not at all	No more than usual	Rather more than usual	Much more than usual
41 – **been finding life a struggle all the time?**	Not at all	No more than usual	Rather more than usual	Much more than usual
42 – **been able to enjoy your normal day-to-day activities?**	More so than usual	Same as usual	Less so than usual	Much less than usual
43 – **been taking things hard?**	Not at all	No more than usual	Rather more than usual	Much more than usual
44 – **been getting edgy and bad-tempered?**	Not at all	No more than usual	Rather more than usual	Much more than usual
45 – **been getting scared or panicky for no good reason?**	Not at all	No more than usual	Rather more than usual	Much more than usual
46 – **been able to face up to your problems?**	More so than usual	Same as usual	Less able than usual	Much less able
47 – **found everything getting on top of you?**	Not at all	No more than usual	Rather more than usual	Much more than usual
48 – **had the feeling that people were looking at you?**	Not at all	No more than usual	Rather more than usual	Much more than usual
49 – **been feeling unhappy and depressed?**	Not at all	No more than usual	Rather more than usual	Much more than usual
50 – **been losing confidence in yourself?**	Not at all	No more than usual	Rather more than usual	Much more than usual
51 – **been thinking of yourself as a worthless person?**	Not at all	No more than usual	Rather more than usual	Much more than usual
52 – **felt that life is entirely hopeless?**	Not at all	No more than usual	Rather more than usual	Much more than usual
53 – **been feeling hopeful about your own future?**	More so than usual	About same as usual	Less so than usual	Much less hopeful

PLEASE TURN OVER

HAVE YOU RECENTLY:

54	– **been feeling reasonably happy, all things considered?**	More so than usual	About same as usual	Less so than usual	Much less than usual
55	– **been feeling nervous and strung-up all the time?**	Not at all	No more than usual	Rather more than usual	Much more than usual
56	– **felt that life isn't worth living?**	Not at all	No more than usual	Rather more than usual	Much more than usual
57	– **thought of the possibility that you might make away with yourself?**	Definitely not	I don't think so	Has crossed my mind	Definitely have
58	– **found at times you couldn't do anything because your nerves were too bad?**	Not at all	No more than usual	Rather more than usual	Much more than usual
59	– **found yourself wishing you were dead and away from it all?**	Not at all	No more than usual	Rather more than usual	Much more than usual
60	– **found that the idea of taking your own life kept coming into your mind?**	Definitely not	I don't think so	Has crossed my mind	Definitely has

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APPENDIX 5

Feighner Criteria

Primary Depression

A. Dysphoric mood characterized by symptoms such as being depressed, sad, blue, despondent, hopeless, "down in the dumps", irritable, fearful, worried or discouraged.

B. At least five of the following for definite and four for probable depression.

(1) Poor appetite or weight loss (2lb a week or 10lb or more a year when not dieting)

(2) Sleep difficulty (insomnia or hypersomnia)

(3) Loss of energy, e.g. fatigability, tiredness

(4) Agitation or retardation

(5) Loss of interest in usual activities or decrease in sexual drive

(6) Feeling of self reproach or guilt

(7) Complaints or actually diminished ability to think or concentrate, such as slowed thinking or mixed up thoughts.

(8) Recurrent thoughts of death or suicide, including thoughts of wishing to be dead.

C. A psychiatric illness lasting at least one months with no pre-existing psychiatric conditions.

Anxiety Neurosis

A. (1) Age of onset prior to 40

(2) Chronic nervousness with recurrent anxiety attacks manifested by apprehension, fearfulness or sense of impending doom with at least 4 of the following symptoms present during the majority of attacks:

(a) dyspnoea

(b) palpitations

(c) chest pain or discomfort

(d) choking or smothering sensatio

(d) dizziness

(f) paraesthesiae

B. The anxiety attacks are essential to the diagnosis and there must have been at least 6 separated by at least a week from the others.

C. A diagnosis of probable anxiety neurosis is made when at least two symptoms listed in A (2) are present.

APPENDIX 6

Research Diagnostic Criteria

Major Depressive Disorder

A. Dysphoric mood or pervasive loss of interest or pleasure.

B. Five of the following symptoms for a definite diagnosis, 4 for a probable diagnosis.

(1) Poor appetite or weight loss or increased appetite or weight gain

(2) Sleep difficulty or sleeping too much

(3) Loss of energy, fatigability or tiredness

(4) Psychomotor agitation or retardation

(5) Loss of interest or pleasure in usual activities, including social contacts or sex.

(6) Feelings of self reproach or excessive or inappropriate guilt

(7) Complaints or evidence of diminished ability to think or concentrate, such as slowed thinking or indecisiveness

(8) Recurrent thoughts of death or suicide or any suicidal behaviour

C. Duration of dysphoric features at least one week (definite if more than two weeks, probable if one to two weeks)

D. Sought or was referred for help during the dysphoric period, took medicine or had impairment in functioning with family, at home, at school, at work or socially.

E. No Schizophrenic symptoms.

Minor Depressive Disorder

A. A relatively persistent depressed mood dominates the clinical picture (or is co-equal with anxiety). The depressed mood may be described as depressed, sad, blue, hopeless, low or down in the dumps.

B. Two or more of a list of 16 symptoms.

1 - 8 as above.

(9) Nonverbal manifestations of depression such as tearfulness or sad face

(10) Pessimistic attitude

(11) Brooding about past or current unpleasant events

(12) Preoccupation with feelings of inadequacy

(13)/

(13) Resentful, irritable angry or complaining
(14) Demandingness or clinging dependency
(15) Self pity
(16) Excessive somatic concern.

C. Duration one week for probable, two for definite.

D. As above.

Generalized Anxiety Disorder

A. Relatively persistent generalized anxious mood, described as anxious, nervous, jittery, tense, restless or uptight.

B. At least one of the following:
(1) Diffiulty falling asleep
(2) Sweating, blushing, dizziness, palpitations and shortness of breath
(3) Muscular tension or tremors
(4) Persistent worrying about future events
(5) Fidgeting or inability to sit still.

C. Duration of episode of at least two weeks.

D. Must result in either impairment in functioning with family, at home, at school, at work, or socially, taking medication or seeking or being referred for help from someone.

APPENDIX 7

Protocol for Surgical Assessment at Longmore Hospital

1. Patients will be admitted in two streams; on Monday 10.00 am and Thursday 10.00 am.

2. Monday Stream

Monday :
- Complete clinical examination and staging form
- X-ray chest and pelvis
- Mammogram (if not done)
- Axillary X-ray (mammogram unit)
- Bloods - haematology plus ESR
  - blood urea; calcium, protein, creatinine
  - alkaline phosphatase (with request for iso-enzymes if elevated)
  - γ glutamyl transpeptidase
- Arrange Consultation with Dr Dean and Mrs Simpson
- Book bone scan, Ultrasound } at RIE: if not possible, book bone scan on Thursday at Western

Tuesday : Lymphoscintigram: 0915 Western General. While there, register at Radiotherapy Department with notes and X-rays (patients not available for other tests).

Wednesday:
- Plasma sampling (4 x $\frac{1}{2}$ hour) if required (Longmore)
- Liver ultrasound (RIE)
- Tru cut

Thursday:
- Bone scan (X-ray hotspots)
- Home Thursday afternoon

Readmit Monday for operation Tuesday.

3. Thursday Stream

Thursday :
- Complete clinical examination and staging form
- X-ray chest and pelvis
- Mammogram (if not done)
- Axillary views (mammogram unit)
- Bloods (as above)
- Book bone scan Tuesday at RIE - if not possible bone scan at Western General Hospital following Tuesday.
- Book liver ultrasound.

Friday :
- Lymphatic scintiscan 0915 Western General Hospital (patient not available for other tests)
- Discharge Friday afternoon for weekend.

Monday :
- Attend RIE for liver ultrasound
- Readmit Longmore
- Tru cut
- 1600 Consultation with Dr Dean and Mrs Simpson

Tuesday : Bone Scan (X-ray hotspots)

Wednesday:
- Plasma sampling (4 x $\frac{1}{2}$ hourly)
- Attend RIE radiotherapy for registration with X-rays and notes

Thursday : Operation

4./

Appendix 7 cont..

4. Results

Review results of (Monday stream on following Monday)

(Thursday stream on following Wednesday)

If suspicious of liver metastases:

laparotomy plus liver biopsy precedes mastectomy

If suspicious of internal mammary node metastases:

internal mammary node biopsy as part of mastectomy

If suspicious of bone metastases:

guided needle aspiration

If X-ray positive:

regard as advanced disease

If X-ray equivocal or negative:

needle biopsy

If X-ray unequivocal benign disease:

no further action

APPENDIX 8

Dear Mrs

You will remember that you saw me before your operation. I wonder if you could come and see me on

at at Longmore Hospital. If this time is not convenient could you let me know so that I can send you another appointment?

Kind regards.

Yours sincerely,

APPENDIX 9

Lancet Publication

Sewn in on back cover

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