

THE UNIVERSITY OF HULL

**PSYCHOLOGICAL ASPECTS OF ADDITIONAL PROCEDURES
FOLLOWING BREAST RECONSTRUCTION**

BEING A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF
CLINICAL PSYCHOLOGY

IN THE UNIVERSITY OF HULL

BY

LESLEY ANN MOODY

BSc. (PSYCHOLOGY)

JULY 2007

ACKNOWLEDGMENTS

I would like to thank all of the participants who gave their time to participate in the study.

I would particularly like to thank Dr Dorothy Frizelle for providing me with continuous help, support and guidance.

Statistical advice was greatly appreciated from Eric Gardiner, who was always patient and understanding.

I would like to thank the Consultants, Miss P. McManus and Mr P. Stanley and all those that helped me practically carry out the research, particularly, Elaine French, Lesley Peacock and Sharron Kay.

To my friends both on and off the course for giving me much needed personal and peer support.

Finally, thank you to my family and Alan for their love, support and encouragement.

ABSTRACT

Aims: The main objective of this research was to compare psychological distress (anxiety and depression) and body image dissatisfaction (BID) between two groups of women: those who had undergone breast reconstruction following mastectomy for breast cancer (BR) and those who had undergone breast reconstruction and additional procedures (BR-AP). Furthermore, the study aimed to explore the possible reasons why women might undergo additional procedures following breast reconstruction.

Method: A cross-sectional retrospective design was employed and data was collected at one time period only. Ninety seven patients were recruited (69.3% of the total patient cohort) who attended prearranged clinic appointments between August 2006 and February 2007 at a regional Breast Care Unit.

Results: The prevalence of anxiety and depression was higher in the BR-AP group compared to the BR group. This difference was not significant for anxiety, however it was approaching statistical significance for depression ($p = 0.09$). The BR-AP group had a significantly higher BID than the BR group ($p = 0.045$). There was some evidence that undergoing additional procedures predicted depression ($p = 0.060$) and BID ($p = 0.045$).

Conclusions: Undergoing additional procedures following breast reconstruction may not lead to a positive psychological outcome in terms of anxiety, depression and body image dissatisfaction. In view of the cost that undergoing these procedures presents to the NHS, coupled with the assumption that they offer psychological benefits, further research that prospectively examines psychological aspects of women seeking additional procedures is strongly recommended. Knowledge gained from such research is likely to assist in the pre-operative assessment of these women.

CONTENTS

ACKNOWLEDGMENTS	ii
ABSTRACT	iii
CONTENTS	iv
LIST OF FIGURES AND TABLES	viii
CHAPTER ONE-INTRODUCTION	1
1.1.1 Overview of Introduction	1
1.1.2 Breast Cancer	2
1.1.3 Definitions, Prevalence and Prognosis.....	2
1.2.2 Breast Cancer Treatment.....	3
1.2.3 Breast Cancer Surgery.....	3
1.2.4 Mastectomy.....	4
1.2.5 Psychological Distress in Breast Cancer Patients.....	6
1.3 Breast Reconstruction	7
1.3.1 The Timing of Breast Reconstruction.....	8
1.3.2 Reconstructive Surgical Procedures.....	9
1.4 Psychological Aspects of Breast Reconstruction	14
1.4.1 Why Might Women Elect to have Breast Reconstruction?.....	14

1.4.2	Research Investigating Psychological Aspects Regarding the Timing of Breast Reconstruction.....	17
1.4.3	Research Investigating Psychological Distress.....	20
1.5	Body Image.....	21
1.5.1	Definitions of Body Image.....	21
1.5.2	Body Image Assessment.....	22
1.5.3	Theoretical Position of the Current Study: Definition and Assessment of Body Image Dissatisfaction.....	23
1.5.4	Research Investigating Body Image.....	24
1.5.5	Models of Body Image.....	27
1.6	Additional Procedures Following Breast Reconstruction.....	32
1.6.1	Definition of an Additional Procedure.....	32
1.6.2	Theoretical Position of the Current Study: Definition of an Additional Procedure.....	34
1.6.3	Types of Additional Procedures.....	34
1.6.4	Psychological Aspects of Additional Procedures Following Breast Reconstruction.....	40
1.6.6	Why Might Women Choose to have Additional Procedures Following Breast Reconstruction?.....	42
1.7	Cosmetic Surgery Research.....	44
1.7.1	Why Might Individuals Elect to have Cosmetic Surgery?.....	44
1.7.2	The Psychological Effects of Cosmetic Surgery.....	46
1.7.3	Research Comparing Psychological Aspects of Cosmetic Surgery and Reconstructive Surgery.....	49

1.8	Current Guidelines for Psychological Assessment.....	51
1.9	Summary of Introduction.....	54

CHAPTER TWO-RATIONALE, AIMS AND RESEARCH QUESTIONS.....56

2.1	Rationale.....	56
2.2	Aims.....	57
2.3	Research Questions.....	58
2.4	Epistemological Statement.....	59

CHAPTER THREE – METHODOLOGY.....60

3.1	Design.....	60
3.2	Participants.....	60
3.3	Measures.....	63
3.4	Procedure.....	72
3.5	Data Analysis.....	73

CHAPTER FOUR- RESULTS.....77

4.1	Overview of Results.....	77
4.2	Recruitment and Patient Demographics.....	77
4.3	Justification of Tests used in the Statistical Analyses.....	92
4.4	Inferential Analyses Relating to the Research Questions.....	96

4.5	Further Analyses.....	112
4.6	Summary of Results.....	115
CHAPTER FIVE- DISCUSSION.....		118
5.1	Overview of Discussion.....	118
5.2	Main Findings of the Study.....	118
5.3	Clinical Implications.....	137
5.4	Theoretical and Methodological Strengths and Limitations.....	140
5.5	Recommendations for Future Research.....	144
CONCLUSIONS.....		146
REFERENCES.....		149
APPENDIXES.....		163

LIST OF FIGURES AND TABLES

FIGURES

1	Photographs to illustrate DIEP breast reconstruction.....	38
2	Photographs to illustrate LD breast reconstruction.....	39
3	Photographs to illustrate expander/implant breast reconstruction.....	39
4	Flow diagram of recruitment and retention.....	79
5	Percentage of participants that had undergone additional procedures according to the definition used.....	90
6	Box plot of total depression scores according to whether participants had undergone additional procedures.....	99

TABLES

1	Advantages and difficulties associated with different types of breast reconstruction.....	13
2	Summary of the formal measures used in the study.....	64
3	Classification of anxiety and depression scores on the HADS.....	65
4	Summary of measures provided in the questionnaire pack.....	70
5	Summary of information obtained from participants' medical notes.....	71
6	Demographic (interval) data for participants and non-participants.....	80
7	Demographic (categorical) data for participants and non-participants.....	81

8	Age according to participant groups.....	83
9	Ethnic origin and marital status according to participant groups.....	84
10	Current medication and previous treatment for anxiety and depression according to participant groups.....	85
11	Timing and type of breast reconstruction according to participant groups.....	88
12	Types of additional procedures that participants hoped to have.....	91
13	Prevalence of anxiety for BR and BR-AP groups.....	97
14	Prevalence of depression for BR and BR-AP groups.....	98
15	Body image dissatisfaction for BR and BR-AP groups.....	102
16	Reasons given by participants for having, considering or planning to have additional procedures.....	104
17	Reasons given by participants for not having, considering or planning to have additional procedures.....	106
17	Themes derived from women’s descriptions of their experiences (BR group).....	108
18	Themes derived from women’s descriptions of their experiences (BR-AP group).....	110

CHAPTER ONE - INTRODUCTION

1.1 Overview of Introduction

The present study aimed to investigate psychological distress (anxiety and depression) and body image dissatisfaction in women who have undergone breast reconstruction following mastectomy after a diagnosis of breast cancer. The main objective was to compare two groups of women: those who have undergone breast reconstruction alone and those who have undergone breast reconstruction and additional procedures. Furthermore, the study aimed to understand the possible reasons why women might go on to have additional procedures following breast reconstruction. With these aims in mind, this chapter will start with a brief introduction to breast cancer, an overview of treatment with a particular focus upon mastectomy, breast reconstruction and additional procedures following reconstruction. Current literature relating to psychological distress and body image of women who have undergone these procedures will be reviewed. A synthesis of the possible reasons why women might have additional procedures following breast reconstruction will be presented and the chapter will conclude with an overview of the current guidelines relating to the acceptance of referrals for plastic surgery and the preoperative psychological assessment of individuals seeking these procedures.

1.2 Breast Cancer

1.2.1 Definitions, Prevalence and Prognosis

Breast cancer is defined as the uncontrolled growth of abnormal breast cells. The cancer begins in the tissues of the breast and has the potential of spreading to other parts of the body (breastcancer.org, 2006). Breast cancer is one of the most common cancers in women worldwide, with more than 1 million women diagnosed each year (World Health Organization, 2007). It occurs more often in women from Western, developed countries, accounting for more than one in four female cancers in the United Kingdom (Cancer Research UK, 2004). In 2003 there were 44,091 new cases of breast cancer diagnosed in the United Kingdom (UK): 43,756 (99%) in women and 335 (1%) in men. Breast Cancer in men is rare, with around 250 cases being diagnosed each year (Cancer Research UK, 2004). Overall, it has been predicted that one in nine women will develop breast cancer at some time in their lives (Cancer Research UK, 2004).

The risk of developing breast cancer increases with age, with more than 80% of cases occurring in women aged over 50 years and the highest number of cases diagnosed in the 50 to 64 age group (Cancer Research UK, 2004). The incidence rates of breast cancer have continued an upward trend, however early detection and improved treatment has meant that survival rates have also risen. The estimated five year survival rate for women diagnosed in England and Wales between 2001 and 2003 was 80%, compared with only 52% for women diagnosed between 1971 and 1975 (Coleman et al. 2004).

1.2.2 Breast Cancer Treatment

Breast cancer treatment has improved considerably in recent years and many options are now available. These options may depend upon a number of factors including: the stage of the cancer (whether it is in the breast only or has spread to lymph nodes or other sites in the body); the type of breast cancer; estrogen-receptor and progesterone-receptor levels in the tumor tissue; a woman's age, general health, menopausal status and whether the cancer is newly diagnosed or has recurred. (National Cancer Institute [NCI] 2007). Overall four main types of treatment are used; these include surgery, radiation therapy, chemotherapy and hormone therapy (NCI, 2007). These different types of treatment are often combined to offer the best possible chance of destroying the breast cancer. The section below will now focus upon breast cancer surgery, specifically, upon mastectomy and breast reconstruction.

1.2.3 Breast Cancer Surgery

Many patients with breast cancer have some type of surgery to remove the cancer from the breast (Berger & Bostwick, 1998). This surgery may be separated into two main categories, breast conserving surgery and mastectomy. Breast conserving surgery, often called "lumpectomy", is defined as an operation to remove the cancer without removing the affected breast. Patients who are treated with breast conserving surgery may also have some of the lymph nodes under the arm removed for biopsy, a procedure called

“lymph node dissection”. This helps to determine if the cancer has the propensity to spread beyond the breast, if it has spread to the lymph nodes there is a greater likelihood of it spreading elsewhere (Berger & Bostwick, 1998). After a lumpectomy and lymph node dissection, radiation therapy is often used with the aim of killing any residual cancer cells. The radiation therapy typically consists of a single daily treatment five days a week for a total of 25 to 28 treatments.

There may be a number of possible reasons, medical and non medical, for not performing breast conserving and radiation therapy (Berger & Bostwick, 1998). Some medical reasons include: pregnancy, prior radiation to the involved breast, invasive cancer accompanied by a large amount of intraductal cancer (tumors that develop in the milk ducts) and rare cases of large locally advanced tumors or those with clinically apparent inflammatory breast cancer. Non medical reasons may include: lack of a strong desire for breast preservation, inability to attend daily radiation treatments, fear of radiation and fear of the cancer-producing breast (Berger & Bostwick, 1998). In these cases, mastectomy may be the preferred choice.

1.2.4 Mastectomy

Mastectomy involves surgery that removes the entire breast that has cancer. The aim of this surgery is to remove the breast while the tumor is still confined to the breast area to minimize the possibility of local recurrence and to prevent it spreading to other parts of the body (Berger & Bostwick, 1998). Over the 1990s, mastectomy became one of the main options for breast cancer treatment, accounting for 60 to 75% of cases (Neal &

Hoskin, 1997). Several different types of mastectomy may be used including: radical mastectomy, modified radical mastectomy and total or simple mastectomy. Radical mastectomy involves surgery to remove the breast that has cancer, the underlying chest wall muscles and all of the lymph nodes under the arm (axilla). Due to leaving a woman with a large deformity and also the development of other techniques, this procedure is now rarely used. Modified radical mastectomy involves removal of the breast, nipple-areola and lymph nodes in the axilla. The largest chest wall muscle, the pectoralis major, remains intact which greatly reduces the deformity resulting from the mastectomy. This procedure does not leave a woman with a “hollowed out” appearance; rather the chest will be flat with a diagonal or horizontal scar. A total or simple mastectomy is similar to the modified radical mastectomy in that all or nearly all of the breast tissue is removed, however, this can be performed without removal of the lymph nodes. Depending on the extent of the tumor and also whether the patient plans to have immediate breast reconstruction, variable amounts of skin are removed. When no reconstruction is planned, the surgeon may remove a relatively large amount of skin. For patients who decide to have mastectomy and immediate reconstruction, skin-sparing mastectomy may be used, in which only the nipple and areola are excised. This procedure is considered to provide a good cosmetic result (Berger & Bostwick, 1998).

To summarize, there are a number of different types of procedures that can be used in breast cancer surgery. However, it is important to note that even if the surgeon removes all of the cancer that can be seen at the time of the surgery, some patients may be given radiation therapy, chemotherapy, hormone therapy or any combination of these treatments to kill any residual cancer cells that may be left. This is known as “adjuvant

therapy” and is usually taken into account when making a decision about breast reconstruction. It is important to note that women are expected to make a number of complex decisions regarding their treatment at a time of intense pressure when they may be still reeling from the shock of receiving a diagnosis of breast cancer. Therefore, it is important that psychological aspects are not overlooked.

1.2.5 Psychological Distress in Breast Cancer Patients

Questions concerning the prevalence and incidence of psychological distress within breast cancer patients have resulted in a multitude of research investigations. Pasacrete (1997) conducted a study in which 79 women were assessed 3 to 7 months following breast cancer diagnosis. A 9% prevalence for “depressive disorder” was found with a 24% rate of “elevated depressive symptoms.” Other studies have found a 20 to 25% prevalence of depression in breast cancer patients (Breitbart, 1995).

With a particular focus upon surgery, research has indicated that around 50% of women undergoing mastectomy suffer clinically significant levels of anxiety and depression prior to surgery and almost one third report psychological problems one year later (Goldberg et al. 1992). Other psychological difficulties associated with mastectomy include decreased sexual interest and negative changes in body image and self-esteem (Al-Ghazal, Fallowfield, & Blamey, 2000; Kraus, 1999).

It has been suggested that breast reconstruction may restore some of the negative impact of having a mastectomy (Al-Ghazal, Fallowfield, et al. 2000). Research in this area has

compared psychological difficulties such as distress and body image dissatisfaction, in mastectomy and breast reconstruction patients. This research will later be presented in relation to psychological aspects of breast reconstruction.

1.3 Breast Reconstruction

Following mastectomy women may choose not to attempt to recreate their breast shape or they can opt to restore their lost breast by either wearing an external prosthesis or by having their breast surgically reconstructed. Although some women choose the first option, most women decide to try to restore their breast form (Berger & Bostwick, 1998). Reconstruction of the breast has only recently become a popular choice. In 1983 only 5% of women underwent post-mastectomy reconstruction compared to 40% in 1991 (Crespo, et al. 1994). The literature regarding the possible reasons why women elect to have breast reconstruction will be reviewed shortly.

Breast reconstruction techniques have been developed and refined over recent years and the results of the surgery have improved considerably (Berger & Bostwick, 1998). The focus now is on breast preservation and avoidance of a mastectomy deformity, whereas in the past breast reconstruction involved creating a breast mound that may have been quite different to the other breast. Furthermore, now women are given the choice about the timing of their reconstruction, whether to have it at the same time as mastectomy (immediate) or as a separate procedure after mastectomy (delayed). Information regarding the timing of breast reconstruction is outlined below.

1.3.1 The Timing of Breast Reconstruction

For some women the decision about when to have breast reconstruction was made by circumstance because they only became aware that reconstruction was available after they had undergone a mastectomy. For others, it is recommended that reconstruction is delayed to allow them time to recover from systemic therapy, for example chemotherapy, that is used to treat the cancer. The possible need for adjunctive treatment, either chemotherapy or radiation therapy, should be considered when making a decision about the best timing for reconstruction (Berger & Bostwick, 1998). Chemotherapy can impair the body's ability to resist infection by lowering the white blood cell count; therefore breast reconstruction surgery is often delayed for at least a month after chemotherapy has been completed to make sure that the patient's blood count has returned to normal. Radiation therapy often causes changes in the skin and underlying subcutaneous and fatty tissues and therefore it is recommended that the patient must wait at least six weeks after the therapy has been completed to reduce the possibility of healing problems. Problems such as breast firmness and distortion often occur with implant reconstructions that have been performed before or after irradiation. According to Berger & Bostwick (1998) consideration of the best possible aesthetic outcome is likely to play an important part in deciding upon the timing of breast reconstruction.

From a psychological perspective there has been some debate regarding the optimum timing for breast reconstruction (Harcourt & Rumsey, 2001). Research concerning this

issue will be presented in relation to psychological aspects of breast reconstruction. First, an overview of reconstructive surgical procedures is presented below.

1.3.2 Reconstructive Surgical Procedures

Breasts can be reconstructed with implants or tissue expanders and the tissue remaining after the mastectomy, or they can be reconstructed with “flaps” of the patient’s muscle or skin. These flaps are obtained from the abdomen, back, hips or buttocks and are then transferred to the chest wall. The choice of reconstructive method depends on a number of factors, for example, the amount and quality of the tissue remaining after the mastectomy, the surgeon’s experience with each technique and the patient’s preferences and expectations (Berger & Bostwick, 1998).

Implant reconstruction using tissue remaining after the mastectomy is often the choice for women who have sufficiently healthy tissue at the mastectomy site to adequately cover an implant (Berger & Bostwick, 1998). This is often regarded as the simplest procedure and normally takes 1 to 2 hours to perform. There are two main categories of implants, fixed volume breast implants and implants in which the volume can be changed after they are implanted (tissue expanders). All implants have a silicone elastomer layer or envelope that contains the filling, which is either silicone gel or saline solution. Implant reconstruction with available tissue usually has a low rate of complications (Berger & Bostwick, 1998). However, a common problem that can occur is when a large amount of hard fibrous tissue forms around the implant. This is the body’s normal reaction to foreign material, known as “capsular contracture”. In some

cases the fibrous formation around the breast becomes tight, the implant becomes hard and the breast appears deformed. Irradiation therapy often causes capsular contracture to develop, when it is performed at the mastectomy site before breast reconstruction or after the implant has been inserted. This problem is often managed with a capsulectomy, a procedure in which the thickened capsule and implant are surgically removed and the implant is repositioned or replaced. Alternatively a layer of latissimus dorsi muscle (from the back) may be inserted to cover and cushion the implant or the implant may be removed and a flap reconstruction may be performed using the woman's own tissues.

When skin is tight at the mastectomy site but women still prefer to have a simple reconstruction (rather than a more complicated flap procedure) tissue expanders can be used. Tissue expanders are adjustable implants that can be inflated with saline solution to stretch the tissues after the mastectomy. Once the implant is inserted, saline solution is injected through the skin and into a valve leading to the implant. The temporary expander is left in place until the breast has been expanded and adjusted to the optimal volume and shape; it is then exchanged for a permanent fixed-volume implant, usually after 4 to 6 months or longer. Other tissue expanders (postoperatively adjustable implant or permanent expander implant) can remain in place for months or even years so that breast size can be altered over a long period of time. Once the breast size is judged to be ideal, the valve, which is connected to a separate tube leading to the implant, is removed and the device becomes a permanent fixed volume implant. Complications related to tissue expander reconstruction include capsular contracture, device failure, expander exposure and implant displacement (Berger & Bostwick, 1998).

For some women reconstruction using their own available breast tissue is not the most appropriate choice, and in these cases flap reconstructions may be performed. These are considered to be more complex reconstructions, generally consisting of longer operations, greater recovery time and a higher rate of complications (Berger & Bostwick, 1998). Flap reconstruction consists of using a woman's own flaps of muscle or muscle and skin (musculocutaneous) to rebuild the breast after mastectomy. The two most common sources of tissue for breast reconstruction with the patient's own tissue (autologous) are the lower abdominal wall (the transverse rectus abdominus musculocutaneous [TRAM] flap and the back (the latissimus dorsi [LD] procedure), however the buttock (gluteus maximus flap) and hip (lateral hip or rubens flap) can also be used as donor sites. With TRAM flaps, tissue is taken from the lower abdomen, between the pubic bone and the waist and transferred to the breast region. This technique rarely needs an implant and is thought to result in a more natural looking reconstruction (Berger & Bostwick, 1998). It is sometimes referred to as the "tummy tuck" procedure as it removes excess tissue and fat from the abdomen. Once completed, the abdominal area is closed and tightened and the resulting scar extends across the lower abdomen.

Disadvantages of this TRAM flap are related to the loss of muscle from the abdomen that can lead to hernia. There is a risk of blood vessels clotting or causing total flap loss and there may be poor blood supply to the skin and fat that will become the new breast. This can cause fat necrosis (a firm, round lump that forms in an area of fatty breast tissue) that will leave the breast hard and painful (Berger & Bostwick, 1998). TRAM flaps have also been associated with abdominal bulges (Clayton & Waller, 1996).

A further abdominal technique is the deep interior epigastric perforator (DIEP) flap, which may be appropriate for those patients needing only a small amount of tissue to reconstruct the breast mound or for those needing bilateral reconstruction. Like the free TRAM Flap, tissue is harvested from lower abdomen, but only the overlying skin, fat and blood vessels are removed, the rectus abdominus muscle is left intact and in place. This may mean that muscle strength in the abdomen is retained (Berger & Bostwick, 1998).

In the LD flap procedure, an oval section of skin and muscle (latissimus dorsi) or sometimes just muscle, is transferred from the back around to the breast area. Blood vessels remain attached whenever possible, however if they are cut, they are reattached by microscopic surgery to blood vessels in the chest area. The LD flap does not usually provide enough tissue to form the entire breast, so an implant is often placed behind the muscle to provide more volume. A common problem associated with LD flap reconstruction is the build up of fluid in the back area which requires drainage with a syringe. Less common difficulties include blood accumulation (hematoma) and problems with blood supply (Berger & Bostwick, 1998). Table 1 summarises some of the advantages and difficulties associated with these three main types of reconstructive surgical procedures, implant and expander reconstruction, abdominal flap reconstruction (TRAM and DIEP) and back flap reconstruction (LD).

Table 1

Advantages and Difficulties Associated With Different Types of Breast Reconstruction

Type of breast reconstruction	Advantages	Difficulties
Implant and tissue expander	<p>Less time in surgery and shorter recovery period (in relation to flap procedures)</p> <p>Tissue expanders may be altered over time until ideal breast size is achieved</p>	<p>Capsular contracture</p> <p>Device failure, exposure or displacement</p>
Abdominal flap procedures (TRAM, DIEP)	<p>Uses a woman's own tissue therefore may be more likely to resemble a natural breast</p> <p>Excess tissue and fat are taken from the abdomen providing a "tummy tuck"</p>	<p>Loss of muscle from the abdomen</p> <p>Risk of hernia</p> <p>Risk of problems with blood supply</p> <p>Fat necrosis</p> <p>May cause abdominal bulges</p>
Back flap procedure (LD)	<p>May be more likely to resemble a natural breast (as with other flap procedures)</p> <p>Resulting scars are often disguised under bra straps</p>	<p>Build up of fluid requiring drainage</p> <p>Possible hematoma and problems with blood supply</p>

As highlighted in Table 1, every reconstruction technique has its complications and limitations. It is important to note that a reconstructed breast has neither the function nor physiological attributes of a natural breast and therefore it is not a true replacement (Ward, 1981). Procedures involving the transfer of tissue from one area of the body to another can cause scarring of both the donor site and the breast area. It is also unlikely that the transferred skin will match the color or texture of the existing skin in the area to which it is moved (Ward, 1981). In addition, muscle strength may be reduced at the donor site, causing discomfort and difficulty with everyday activities, such as walking or stretching, for several days or weeks after surgery (Clayton & Waller, 1996). As a result of the various complications and limitations associated with breast reconstruction, many women undergo a series of additional procedures to achieve a satisfactory result. An outline of the types of procedures that may be considered to be additional as well as an insight into the debate regarding how these procedures are defined will be presented shortly. In addition, research investigating the psychological aspects of having additional procedures following breast reconstruction will be reviewed. First, an overview of current literature relating to psychological aspects of breast reconstruction will be presented.

1.4 Psychological Aspects of Breast Reconstruction

1.4.1 Why Might Women Elect to have Breast Reconstruction?

In considering the reasons why women might have breast reconstruction, it is important to consider the impact of cultural norms within our society. In Western society, where a

great deal of emphasis is placed upon appearance and improving appearance through surgical means (Davis, 1994), breast reconstruction may be considered to be a normal, healthy choice, indicative of good psychological adjustment (Rowland, Holland, Chaglassian, & Kinne, 1995). Although breast reconstruction does not actually treat breast cancer, it appears to be considered to be part of breast cancer treatment and therefore it is routinely offered to women. Cromptvoets (2006) proposed that breast reconstruction is “a medically unnecessary procedure that has no effect upon morbidity or mortality” and therefore it can be seen as “an aesthetic practice” (p. 78). Furthermore she highlights the power that surgeons can have in influencing a woman to have reconstruction. “The healthy patient is medicalised as something that needs to be ‘fixed’, constructing it as inherently abnormal and incomplete” (p. 84).

Although women may be highly influenced by their surgeon, they are still given the choice of whether or not to have breast reconstruction. The literature relating to motivation for electing to undergo breast reconstruction will be reviewed shortly. Terms such as “body image” “body integrity” and “body satisfaction” are highlighted in this literature which may cause confusion for the reader and a clear definition of what is actually being measured is important. A more detailed discussion of this issue as well as a clear description of the aspect of body image that the current study is adopting is presented in the section 1.5 (p. 21) however, in order to avoid disruption at this point, interchangeable terms are used.

The most common reasons given by women for electing to undergo breast reconstruction include a reluctance to wear an external prosthesis, the chance to wear a

greater variety of clothing, a desire to restore their feelings of wholeness and body integrity,¹ to avoid disfigurement and deformity and to improve self confidence (Contant, Van Wersch, Wiggers, Wai & Van Geel, 2000; Rowland et al. 1995). A frequently cited reason for not pursuing breast reconstruction is the fear of additional surgery (Schain, Jacobs & Wellisch, 1984) or wanting to avoid further “unnecessary” surgery (Harcourt & Rumsey, 2001). In addition, some women fear, inaccurately, that reconstruction may trigger recurrence of the cancer or that other people will view the surgery as “an act of self-indulgent vanity” (Harcourt & Rumsey, 2001, p. 480).

It has been suggested that there is no clear evidence of specific psychological or body image factors differentiating women who have had breast reconstruction from those who have not (Harcourt & Rumsey, 2001; Cash & Pruzinsky, 2004). Holly & Kennedy (1998) found no significant differences on measures of body image, self-esteem, social support, anxiety and depression between these two groups of women. Rowland (1998) reports that most women choosing breast reconstruction are psychologically healthy and benefit from surgery when they seek to satisfy “internal” motivations (e.g., to achieve personal goals) versus “external” motivations (e.g. to please someone else). However, it is not known whether women declining breast reconstruction have, for example, more resilient body images or well developed body image defenses (e.g., denial) or if they are less invested in their appearance (Cash & Pruzinsky, 2004). Body image in particular appears to be a significant issue in this area and will be discussed shortly.

¹ Body integrity is defined as the perception of one’s body as an intact, properly functioning entity (Carver et al. 1998).

Overall, the literature highlights possible reasons for choosing breast reconstruction; however it is difficult to differentiate those who choose breast reconstruction from those who decline it. It is therefore difficult to ascertain why women who have had breast reconstruction might also go on to have additional procedures; this is an issue that will be discussed later.

As mentioned in section 1.2.5 (p. 6) a number of research studies have reported various psychological difficulties in breast cancer patients. Within the literature, breast reconstruction following mastectomy is viewed as a procedure aimed at improving women's psychological adjustment to the diagnosis and treatment of breast cancer (Harcourt & Rumsey, 2001). However, there has been some debate regarding the possible psychological benefits of breast reconstruction, particularly in terms of psychological distress (anxiety and depression) and body image. Research in this area has tended to compare psychological aspects of mastectomy and breast reconstruction and also compared immediate and delayed reconstruction. Psychological research specifically regarding the issue of timing of breast reconstruction is discussed below, followed by an overview of the literature that focuses upon psychological distress and body image.

1.4.2 Research Investigating Psychological Aspects Regarding the Timing of Breast Reconstruction

It was only until recently that immediate reconstruction was offered to women, as it was originally felt that delaying the procedure would give a woman the time to grieve for the

missing breast, to make her decision about the reconstruction, then, ultimately the reconstructed breast would be accepted into her body image more satisfactorily (Winder & Winder, 1985).

Reported satisfaction with the overall outcome of reconstruction has been found to be typically high regardless of the timing of the procedure (Wellisch, Schain, Noone, & Little, 1985). However, from a psychological perspective, there has been some debate regarding the optimum timing for reconstructive surgery. Immediate reconstruction is often assumed to be advantageous over delayed procedures on the basis of cost effectiveness, speedier recovery and reduced inconvenience for the patient (Bremner-Smith, Straker, Abel, & Rainsbury, 1996). Cash & Pruzinsky (2004) highlight the clinical rationale for immediate reconstruction, which includes sparing the woman the experience of living with mastectomy scars, wearing external prostheses and undergoing a second operation. An issue that has been repeatedly raised in the literature is whether immediate reconstruction circumvents the “mourning” process that is thought to be “necessary” for adapting to the loss of a breast (Cash & Pruzinsky 2004).

It has been suggested that a request for immediate reconstruction is now considered to be indicative of positive adjustment to the diagnosis of breast cancer (Rowland et al. 1995) because it is thought to offer greater psychological benefits such as less psychological distress and increased feelings of attractiveness and self-esteem (Al-Ghazal, Sully, Fallowfield & Blamey, 2000; Stevens et al. 1984). Furthermore, Al-Ghazal, Sully et al. (2000) suggested that women who had undergone delayed breast

reconstruction had a much poorer body image than women who had undergone immediate breast reconstruction.

However, the evidence is inconclusive as other research has found no significant differences in body image or psychological distress between these two groups of women (Harcourt, 2002; Mock, 1993; Schain, Wellisch, Pasnau, & Landsverk (1985). Roth, Lowery, Davis, & Wilkins (2005) suggest that prospective studies have not been as universal as retrospective studies in supporting the relative benefits of immediate reconstruction. In a prospective, randomized study comparing immediate versus 1 year delayed reconstruction, Dean, Chetty, & Forrest (1983) reported significant psychological benefits for the immediate reconstruction group at 3 months, but at 1 year no differences in psychological status or sexual functioning were found between the two groups. This suggests that regardless of timing of breast reconstruction, time may be an important factor in adjusting to breast surgery

There is evidence to suggest that prior to surgery, women seeking immediate breast reconstruction may experience more psychological distress than women seeking delayed reconstruction (Roth et al. 2005; Rowland et al. 2000; Stevens et al. 1984) and Roth et al. (2005) highlighted the importance of preoperative psychosocial assessment in determining suitability for immediate reconstruction. “Preoperative psychological screening may help to identify those prospective reconstruction patients who may be at risk for a poor surgical result” (p. 1000). To summarize, the research regarding the optimum timing for undergoing breast reconstruction is inconclusive and prospective studies have highlighted the importance of preoperative psychological assessment of

women seeking breast reconstruction. This appears to be a pertinent issue which is discussed at greater length in section 1.8 (p. 51).

1.4.3 Research Investigating Psychological Distress

In a retrospective study, Al-Ghazal, Fallowfield et al. (2000) showed that patients who had breast reconstruction reported less psychological distress (anxiety and depression) than those who underwent mastectomy alone. This may suggest that there are some psychological benefits to having breast reconstruction. However, other research has found no significant difference in distress between mastectomy and breast reconstruction patients (Harcourt & Rumsey, 2001). Furthermore, the study was retrospective and therefore there is a lack of information regarding whether or not mood altered after having breast reconstruction.

Harcourt (2002) conducted a prospective study of 103 women undergoing either mastectomy alone, mastectomy with immediate reconstruction or delayed reconstruction. She found that 32% of respondents reported high levels of anxiety (case level scores of 11 or more) on the Hospital Anxiety and Depression Scale (HADS, Zigmond & Snaith, 1983) and 5% reported case levels of depression prior to surgery, however, improvements in both anxiety and depression following surgery were found in each group. These improvements were maintained over the course of the study (12 months) but the greatest improvement was evident amongst the delayed reconstruction group. However, no significant differences were found between the three different surgery groups. The research suggests that psychological distress may often occur in

breast cancer patients; however it is not clear whether mastectomy or breast reconstruction offer psychological benefits in terms of improving mood. Another psychological difficulty highlighted in the literature has been body image, which is considered in the following section.

1.5 Body Image

Much of the research in the area of breast reconstruction has focussed upon body image; however there have been various problems in researching the construct of body image. Before this research is reviewed, it is necessary to outline some of the main difficulties, specifically in terms of how the construct of body image is defined and measured.

1.5.1 Definitions of Body Image

The term “body image” has been historically defined in many ways. An early definition offered by Schilder (1935) was, “The picture of our own body which we form in our own mind” (p.11). It is now generally agreed that body image as a construct is far more complex than implied by this early definition, it is largely considered to be a multidimensional phenomenon consisting of affective, cognitive, behavioural and perceptual features about the body and bodily experiences (Cash & Pruzinsky, 1990; Thompson, Heinberg, Altabe & Tantleff-Dunn, 1999). The complexity in defining body image has been attributed to terminological confusion (Brown, Cash & Milulka, 1990; Cash & Pruzinsky, 2004), a point that was initially raised in section 1.4.1 (p. 14) in relation to the reasons why women might elect to have breast reconstruction.

Thompson et al. (1999) highlighted that defining body image was “tricky” because many different terms have been used to describe different components of body image and they criticised researchers and clinicians for using these terms interchangeably. They highlighted 14 different terms that have been used to refer to some aspect or dimension of body image and this number has recently expanded (Stewart & Williamson, 2004). The difficulties faced in defining body image have meant that there have been inevitable problems in its assessment (Thompson, 2004).

1.5.2 Body Image Assessment

Mock (1993) highlighted that the measurement of body image is difficult because “each individual’s body image is unique, personal, and not directly observable” (p. 154). Nevertheless, it is often assumed that body image can be objectively measured and under this assumption a number of measures have been developed. Thompson (2004) argued that there is a mislabeling (or non-labeling) of the specific aspect of body image that a measure actually assesses. He proposes that researchers should be specific in labeling the dimension of body image that they wish to investigate and to choose a measure that assesses this specific dimension. Other issues related to difficulties in measuring body image include the importance of using a measure that has good reliability and validity, using the measure with appropriate samples and to evaluate the data in terms of norms rather than statistical significance (Thompson, 2004).

Thompson et al. (1999) proposed that a “continuum” model may be the best way to conceptualise body image, with levels of disturbance ranging from none to extreme,

with most people falling around the middle of the range, indicating mild to moderate distress or dissatisfaction. They paid particular attention to the term “body dissatisfaction”, defining “body satisfaction” as satisfaction with an aspect of one’s body (e.g., waist, hips, thighs, breasts, hair, etc). Several measures include this term in their name and often have a scale designed to target the satisfaction-dissatisfaction continuum of disturbance. They proposed that body dissatisfaction, “is perhaps the most important global measure of distress because it captures the essence of one’s subjective evaluation” (p. 9). These recommendations were taken into account regarding the theoretical position of the current study in defining and assessing body image. The definition employed by the current study is outlined in the following section.

1.5.3 Theoretical Position of the Current Study: Definition and Assessment of Body Image Dissatisfaction

Some of the difficulties in defining and measuring body image have been described in previous sections of Chapter 1. The current study has noted Thompson’s (2004) recommendation that researchers should be specific in labeling the dimension of body image that they wish to investigate and to choose a measure that assesses this specific dimension. The current study has chosen to conceptualize body image as a “continuum model” as suggested by Thompson et al. (1999), with levels of disturbance ranging from none to extreme with most people falling around the middle of the range, indicating mild to moderate distress or dissatisfaction.² The term “body image dissatisfaction” rather

² Dissatisfaction is the noun of the adjective “dissatisfied” which is defined as “displeased or discontented” (Collins Concise Dictionary and Thesaurus, 1995, p. 264).

than body image will be used throughout this study as a measure was chosen that has a scale designed to target the satisfaction-dissatisfaction continuum of disturbance (Body Image Scale [BIS] Berscheid, Walster, & Bohrnstedt, 1972; Polivy, 1977).

In summary, there are a number of problems associated with defining and assessing body image within the literature, meaning that comparing studies can be problematic, particularly as it is not always clear what aspect of body image each study is measuring and how reliable and valid this measure may be. A review of the research investigating body image in breast cancer patients, with a particular focus upon breast reconstruction, will now be presented.

1.5.4 Research Investigating Body Image

As with research looking at distress, research on body image in breast cancer patients has tended to compare the treatments available. The research suggests that women with breast conserving surgery³ demonstrate more positive body image scores than women who have had mastectomies (e.g., Margolis, Goodman, & Rubin, 1990; Steinberg, Juliano, & Wise, 1985). The literature suggests that women with breast-conserving surgery were less likely to experience feelings of loss, become self conscious about their body presentation, and were more likely to retain perceptions of physical attractiveness and femininity, compared with women with mastectomies (Steinberg et al. 1985).

³ Breast-conserving surgery (also called conservative surgery or lumpectomy) is a treatment option for breast cancer whereby the tumour and axillary lymph nodes are surgically removed and most of the breast is preserved (Berger & Bostwick, 1998).

Polivy (1977) suggested that it is to be expected that the effects of mastectomy differ from other surgery because of the sexual implications of the loss of a breast and its potentially devastating effect on a woman's feminine self-image and physical attractiveness, especially in our breast conscious society. This appears to be a pertinent issue, as other studies have suggested that women who believe their breasts are important to their feelings of femininity and attractiveness, valued their physical appearance and considered themselves feminine experienced greater dissatisfaction with body image after breast cancer treatment (e.g., Wellisch et al. 1989; Schover, 1991).

Other research has investigated and compared the effects of mastectomy and reconstructive surgery upon body image. Mock (1993) conducted a retrospective study of women who had received different surgical treatments for breast cancer (mastectomy alone, immediate and delayed reconstruction and conservative surgery). The conservative group reported significantly more positive body image scores than women having mastectomy, with or without reconstruction. No significant differences were found in body image between the two reconstruction groups; however women with delayed reconstruction were shown to be more satisfied with their bodies. Mock (1993) concluded that many women were still adapting to their altered body image a year after surgery. This study suggests that adapting to a changed body image after diagnosis and treatment of breast cancer can take some time and highlights the need for prospective, longitudinal research.

Harcourt (2002) examined the processes involved in the decisions for, or against, reconstructive surgery following mastectomy and the implications of this decision in

terms of psychological outcome and satisfaction. In terms of body image, 39 women out of 103 women reported poorer body image scores at the end of the study than they did prior to surgery (20 had undergone mastectomy alone, 18 had undergone immediate reconstruction and one had delayed reconstruction). A poorer body image score after the surgery (either mastectomy, immediate or delayed reconstruction) was predicted by younger age at the start of the study, poorer pre-surgical body image, lower reported satisfaction with the decision, and higher levels of anxiety and depression. No significant differences in body image were found between the different surgery groups, leading the researcher to conclude that immediate breast reconstruction does not necessarily confer psychological advantages over mastectomy alone or delayed reconstruction (Harcourt, 2002).

Harcourt's (2002) study highlighted the possible issue of age and other research has also found younger women (under 50 years of age) to be at a higher risk of distress than older women (aged 50 years and over) following diagnosis of breast cancer (Schag et al. 1993). Other research has found younger women to report more body image concerns (Ganz, Cascarelli, & Fred, 1999) and to be more sensitive to body image alterations than older women (Al-Ghazal, Fallowfield et al. 2000). This could suggest that women become more satisfied with their bodies as they get older. However, it has been proposed that body image dissatisfaction remains relatively stable for women across much of the adult life span (Grogan, 1999) and what does appear to change with increasing age is that women start to place less importance on their appearance (Tiggemann, 2004).

In summary, there have been various problems in researching the construct of body image. However, it is a concept that is often highlighted in many of the studies investigating psychological aspects of breast reconstruction, possibly suggesting that this may be a significant issue for this group of women. It may be useful now to think about how and why body image may alter after having breast surgery and whether body image may be linked to reasons for electing to have breast surgery, a point that will later be developed in relation to additional procedures following breast reconstruction. In considering these issues, models of body image are outlined below.

1.5.5 Models of Body Image

Rumsey & Harcourt (2005) highlight the difficulties faced by researchers in choosing appropriate models and theories to guide appearance-related research. They made classifications according to general health psychology models, appearance-related models or condition and treatment specific models. They suggested that it may be less constraining to conceptualize appearance as a phenomenon rather than focusing upon particular conditions or populations, but recognized that this approach also has its limitations. In the current study both an appearance-related model related to body image (Price, 1990) and condition specific models related to oncology (White, 2000) and cosmetic surgery (Sarwer, Wadden, Pertschuk, & Whitaker, 1998) are discussed. Two of these models are outlined in this section (Price, 1990 and White, 2000) and a third model relating to cosmetic surgery is described in section 1.7.1 related to the reasons why women might elect to have cosmetic surgery.

Price's (1990) model may be considered to be an appearance-related model and it focuses upon body image. He describes body image as consisting of three related components: body reality, body ideal, and body presentation. Body reality refers to how our body really is; it includes external elements such as height and weight and internal elements such as organs of the body and functions such as digestion. Body reality can change in response to any insults to the body such as disease or trauma. Body ideal is attitudinal and consists of how we would like our body to look and behave. Price sees this ideal as being gained through a process of identification with the body ideals of others, as revealed to us through our interactions with the rest of society. Body ideal is constantly changing and susceptible to a variety of influences. It might be construed as a set of internalised societal norms of how society as a whole thinks we should look and how our body should function. In response to society's views we may make changes to the body (body reality) in order to meet an ideal, for example by tattooing. He proposes that body ideal appears to be a largely learnt phenomenon, contingent upon societal definitions of the ideal. It may be influenced by changes in body reality but is not necessarily matched to this reality. Price (1990) proposed that a mismatch between the reality and ideal may cause difficulties for an individual. The third component, body presentation, refers to how we present all aspects of our body appearance (dress, grooming and behaviour) to the social world. We may alter the presentation of the body reality in the direction of conformity with the ideal.

Price (1990) saw these three elements existing in a state of tension or balance which together make up a satisfactory body image which we strive to maintain. Changes to body reality, for example, through disease or surgery, may cause tension between body

reality and body ideal. In response to this tension an individual might alter their body presentation to compensate for the deficiency in body reality, or might change their attitudes regarding the body ideal. This might involve using particular coping strategies and social supports to help them make these compensatory changes. These responses might be expected to balance the tension between reality and ideal (Newell, 2000).

Price (1990) proposed that breast cancer treatment changes body reality (physical change to the appearance of the breast) and body ideal (the woman may not be happy with the appearance of her breast which is contingent upon societal definitions of the ideal). Therefore a woman may try to alter the body presentation (how the breast appears to the outside world) through surgery such as breast reconstruction in order to balance these elements and obtain a more satisfactory body image. However, she may also change her attitudes to the body ideal and then perhaps surgery would not be considered.

Price's (1990) model offers a possible insight into the reasons why an individual might alter their body presentation through surgical means. From this model we may expect women who have undergone breast reconstruction or additional procedures to become more satisfied with their body image, as there may be less tension between body reality and body ideal due to making changes to the body presentation. However, research has found no differences in body image between women who undergo mastectomy and women who have undergone breast reconstruction (e.g., Mock, 1993) and another study has shown body image satisfaction to decrease following breast reconstruction (Harcourt, 2002). Therefore research does not necessarily support this model.

Crompvoets (2006) offers a possible explanation for a lack of improvement in body image following breast reconstruction or additional procedures. She suggests that breast reconstruction is presented as an option of becoming “whole again” and whilst this option is available it means that women do not come to terms with their body or who they have become after experiencing breast cancer and the loss of a breast. She concluded “it is only once women have undertaken this last bastion of hope that they are forced to renegotiate their sense of themselves as women with or without breasts” (p. 90).

In consideration of Price’s (1990) model, it could be that women seek breast reconstruction or additional procedures in order to try to obtain a more satisfactory body image but that this is not achieved through continuing to alter the body presentation. Seeking further procedures may mean that the tension between the three elements is maintained because the woman has not altered her body ideal after having breast cancer and/or may be attempting to restore her appearance to how it was before, which is difficult to achieve. Consequently it could be that a woman continues to feel dissatisfied with her body image or she may even feel more dissatisfied with increasing cosmetic procedures that fail to achieve her pre-operative appearance or body ideal.

Price’s (1990) model has been criticised regarding the lack of a clear definition of satisfactory body image (Newell, 2000) and in the absence of this definition it is difficult to predict which behaviours will have a positive or negative effect on body image. Furthermore, there is no clarity regarding our understanding of the supposed directions of interactions between the three components of body image. The model does not predict

whether behaviour or attitude change will occur or not under a given set of circumstances.

White (2000) developed a heuristic, multidimensional model of body image in oncology. He proposed that psychological distress, negative thoughts and maladaptive coping strategies are more evident in patients who place greater importance on their appearance and whose cancer is affecting a particularly valued part of the body. This could suggest that women who score lower on measures of body image (indicating poorer body image) place more investment on their appearance and value their breasts to a greater extent than those women who score higher on measures of body image (indicating a more positive body image). However, Carver et al. (1998) showed that patients with greater investment in appearance were more resilient when it came to self-perceptions of general attractiveness, femininity and sexual desirability. White (2002) later highlighted that individual differences have an important role to play and he emphasized that investment in appearance is not constant and may be influenced by time, the status of the disease and social context.

To summarize, these models may highlight that issues relating to body image could be linked to reasons for electing to undergo breast surgery and could also suggest that body image alters after having breast surgery. Overall, the research in this area is inconclusive and it is unclear the extent to which psychological difficulties such as anxiety and depression and body image difficulties exist in mastectomy or breast reconstruction patients and also whether there are any psychological benefits for having this surgery. It also suggests that factors such as age may affect psychological response to breast cancer

and treatment and highlights the fact that this needs to be taken into account by both researchers and clinicians who are involved in the care of these patients. Furthermore, it is unknown whether psychological difficulties are present in women who have undergone additional procedures or indeed what factors might be associated with the desire to have additional procedures. The current study attempts to address this gap in the literature.

1.6 Additional Procedures Following Breast Reconstruction

As initially described in section 1.3.2, after having breast reconstruction, many women undergo a series of additional procedures to achieve a satisfactory result. There are many different types of procedures, surgical and non surgical that may be performed, some of which will be described. Firstly, it is important to raise the issue of how an “additional procedure” may be perceived and defined.

1.6.1 Definition of an Additional Procedure

There is likely to be considerable debate about how an additional procedure is perceived and defined following breast reconstruction (by both the patients themselves and by the breast surgeons) and this may also raise certain ethical issues. As mentioned, techniques in breast reconstruction surgery have developed considerably in recent years, meaning that surgeons potentially have a range of procedures at their disposal in restoring a woman’s breast. This may mean that surgeons perceive all of these procedures to be part of the breast reconstruction, rather than additional procedures that may be used with the

aim of further improving cosmetic appearance. However, the way in which a surgeon perceives these procedures may also affect how they are presented to the patient, for example if a surgeon portrays that a nipple reconstruction is part of the process of breast reconstruction, will the woman be more likely to choose to have this procedure, as opposed to if the surgeon was to highlight nipple reconstruction as being an additional procedure? It appears that surgeons hold a considerable amount of power in terms of suggesting whether these procedures should go ahead, a point highlighted by Crompvoets (2006) in relation to possible reasons for electing to undergo breast reconstruction. An example is an opinion expressed by Berger & Bostwick (1998) who stated that, “the need for a second operation does not indicate that the first procedure was a failure. The second operation presents the woman and her doctor with an opportunity to obtain the best possible cosmetic result” (p. 338).

As expressed by Crompvoets (2006), breast reconstruction can be considered to be cosmetic as strictly speaking it is “a medically unnecessary procedure” (p. 78). Therefore, it could be argued that additional procedures are cosmetic and in terms of both ethical issues and increased costs to the National Health Service (NHS), it is important to consider psychological aspects of having these additional procedures, in terms of whether or not they offer any psychological benefits for women.

Within the literature, there is a lack of consensus regarding a clear definition of an additional procedure. The definition employed in the current study is outlined in the following section.

1.6.2 Theoretical Position of the Current Study: Definition of an Additional Procedure

In the current study, an additional procedure is defined as any procedure relating to, and following, the initial breast reconstruction, which is undertaken with the main objective of improving cosmetic appearance. However further clarification of this may be needed. Reconstruction using tissue expanders generally consists of more than one procedure in completing that reconstruction. Saline solution is gradually inserted into expanders until an optimal volume is achieved and for temporary expanders, these are taken out and replaced with an implant. Although these are, strictly speaking, further procedures, they will not be defined as such because they are considered to be part of the initial breast reconstruction. Inclusive of this definition are both surgical and non surgical procedures that are related to improving the appearance of either the breasts or other areas of the body involved in the reconstruction such as the abdomen, back, hips, and buttocks, which are used in flap reconstruction. Before considering the research relating to psychological aspects of additional procedures, some of the types of procedures that may be defined as additional are described below.

1.6.3 Types of Additional Procedures

A common procedure after implant or expander reconstruction is to replace the original implant with another to improve breast shape, size or position. TRAM flap reconstructions may be followed by liposuction to the reconstructed breast if it is larger than the other breast. Liposuction may also be used on the abdominal area and hips to

improve appearance. When the breast lacks projection after a TRAM flap an implant may be inserted as an additional procedure. Sometimes thickened fat can form in the reconstructed breast after surgery; this can be excised or treated with liposuction. Re-operative breast surgery may also be performed to improve a previous breast reconstruction. There may be a number of reasons for this including the woman feeling unhappy with the results, complications have occurred, or the appearance of the breast reconstruction has deteriorated over time (Berger & Bostwick, 1998).

A further procedure available to women is to have nipple reconstruction on the reconstructed breast. Some women may only want the shape of a breast to fill a bra and decide that they do not want a nipple. Another option is to apply removable nipples that stick on with adhesive. However, surgical nipple-areola (the pigmented area surrounding the nipple) reconstruction may be the preferred choice. The nipple is usually reconstructed a few months after surgery after the ideal breast shape is obtained. The idea is that the breast is given time to “settle” so that the surgeon can place the nipple in a position that matches the nipple on the opposite breast (University of Michigan Health System [UMHS] 2005). Most women choose to have their nipple reconstructed using available tissue on the breast and then have their nipple and areola tattooed at a later date (Berger & Bostwick, 1998). Tattooing is used to create a pigmented circle to match the other areola without resorting to a skin graft. Tattoos generally take around an hour to complete and are usually performed as outpatient procedures. Initially the tattoo may appear darker than the color selected however with time it is expected to fade to an acceptable color. However, if the woman believes that it has faded too much over time, the tattoo may be re-colored at a later date. The main advantage of having nipple-areola

reconstruction is that the reconstructed breast may match the natural breast more closely, given that it has the shape of a nipple. The main disadvantages are that as it requires additional surgery and a further recovery period may be needed (UMHS, 2005).

Additional procedures may also be performed on the other breast that has not been reconstructed in order to improve aesthetic appearance. Surgeons may use one of the procedures developed for cosmetic breast surgery, to augment, reduce or lift the other breast and this may be undertaken either before or after breast reconstruction. If the woman's existing breast is small and flattened she may want to consider having it enlarged to make it fuller and rounder. Breast augmentation usually requires the insertion of an implant, which is placed under the breast tissue itself, or under the chest muscle behind the breast. It does not cover the breast tissue, and therefore it can still be effectively checked for any new lumps or tumors. The main advantage of enlarging the breast is that it is more likely to match the shape of the reconstructed breast, therefore symmetry is improved. However, as mentioned with implant reconstruction, complications may occur such as leaks, ruptures or capsular contracture that may need to be corrected with even further surgery (UMHS, 2005).

Reconstructive surgery can usually create a breast with volume; however it may not match the natural breast which may droop slightly. This breast may be lifted (known as mastopexy) so that it looks more similar to the reconstructed breast. With a mastopexy, the surgeon moves the nipple-areola upward on the breast to a new position, removes some skin from the nipple and a breast implant may be inserted. Advantages of a mastopexy are that the lifted breast will be higher and firmer after surgery and be more

likely to match the shape of the reconstructed breast. Disadvantages of mastopexy include acquiring new permanent scars and there is a small possibility that sensation may be lost in the nipple or breast (UMHS, 2005).

A further procedure that may be performed on the natural breast is breast reduction, which may be undertaken if it is larger than the reconstructed breast. In breast reduction, the surgeon removes fat, glandular tissue, and skin from the lower part of the breast, the nipple is moved upwards and the tissues are closed to form a smaller breast. Advantages of breast reduction are that the reduced breast is more likely to match the shape of the reconstructed breast and there may be fewer difficulties associated with having large breasts such as less strain on the back. Disadvantages include acquiring permanent scars, the nipple and breast may lose feeling from six weeks up to a year, or sensation may be lost permanently. This is likely to occur if the breast is particularly large and the nipple has to be completely removed before being placed higher up on the breast (UMHS, 2005).

In summary, there are a number of additional procedures available following breast reconstruction. They have the advantage of increasing the likelihood that the breasts may look as natural and symmetrical as possible, however as they consist of additional surgery, a further recovery period may be needed (UMHS, 2005). In addition, complications may occur, or corrections may be required, meaning that there is a possibility of undergoing even more procedures. The possible psychological advantages and disadvantages of having additional procedures will be considered shortly, first some photographs to illustrate the different types of breast reconstruction and additional

procedures are presented.⁴ Consultant Breast Surgeons selected these photographs as examples of good cosmetic outcomes.

Figure 1

Photographs to illustrate DIEP breast reconstruction

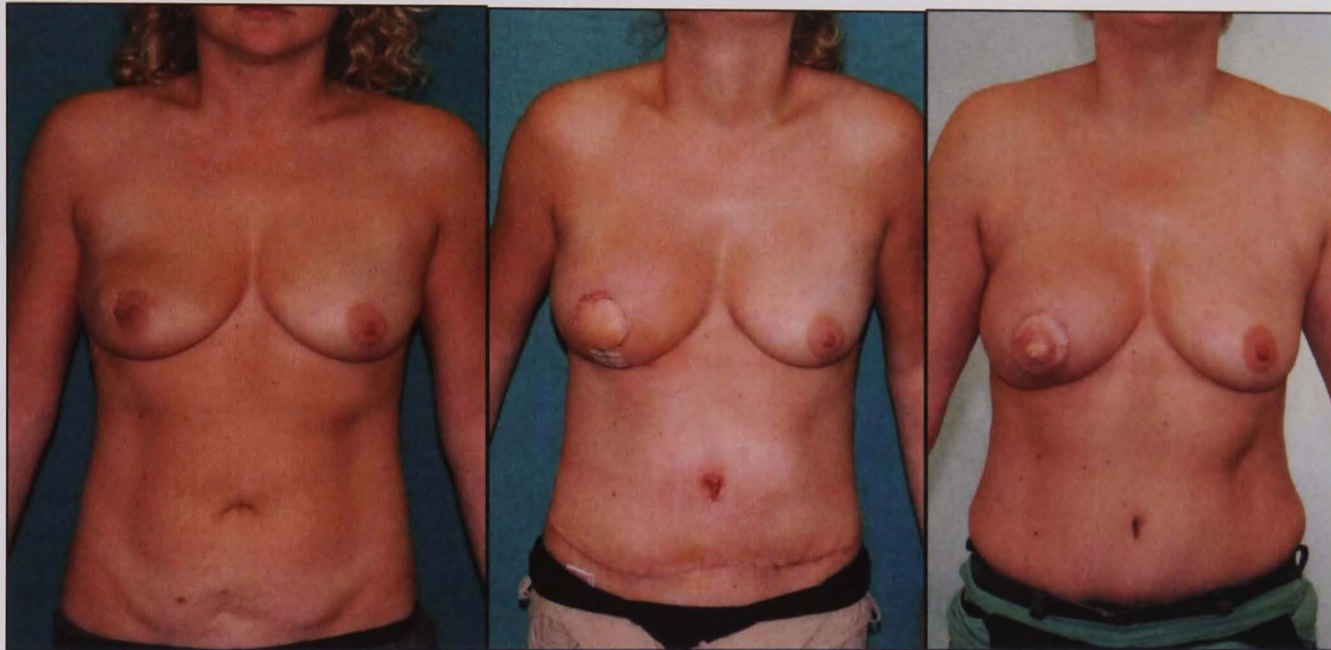


Figure 1 shows a 36 year old woman who had undergone a right mastectomy and immediate breast reconstruction. The first photograph (from left to right) shows her with cancer of the right breast before she has had any surgery. The next photograph shows her 10 days after she has undergone a mastectomy and immediate breast reconstruction. Her breast was reconstructed using a DIEP flap. The third photograph shows her 1 year later after undergoing nipple-areola reconstruction and a nipple tattoo.

⁴ Permission to include all of the photographs was obtained from the local hospitals NHS Trust, Consultant Breast Surgeons and also from individual patients in writing (see Appendix C).

Figure 2

Photographs to illustrate LD breast reconstruction

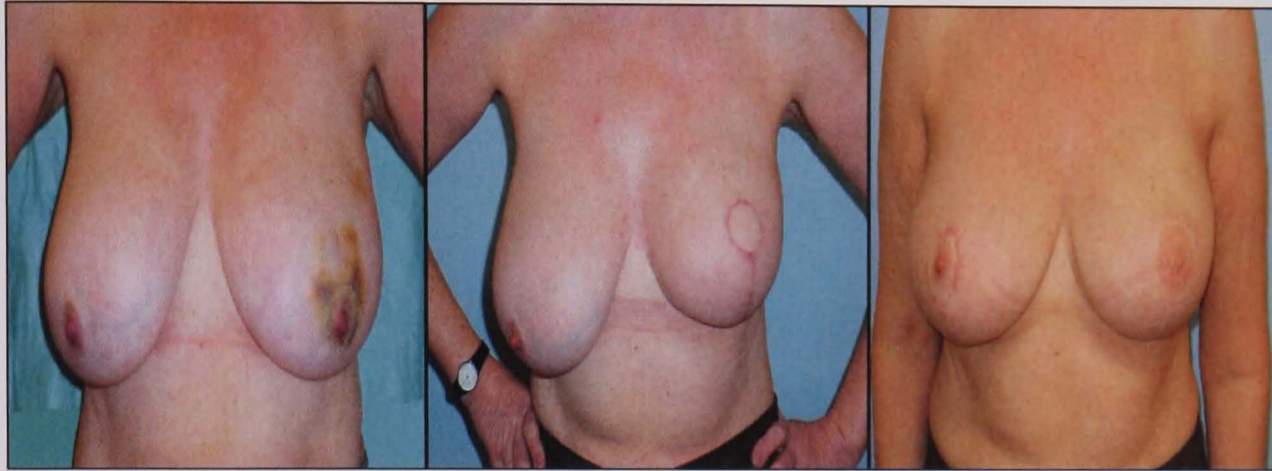


Figure 2 shows a 57 year old woman who had undergone a left mastectomy and immediate breast reconstruction. The first photograph (from left to right) shows her before she has undergone any surgery. She is then shown 3 months after her breast was reconstructed with an LD flap and an implant and then 14 months later after undergoing nipple-areola reconstruction, a nipple tattoo, and contralateral breast reduction.

Figure 3

Photographs to illustrate expander/implant breast reconstruction

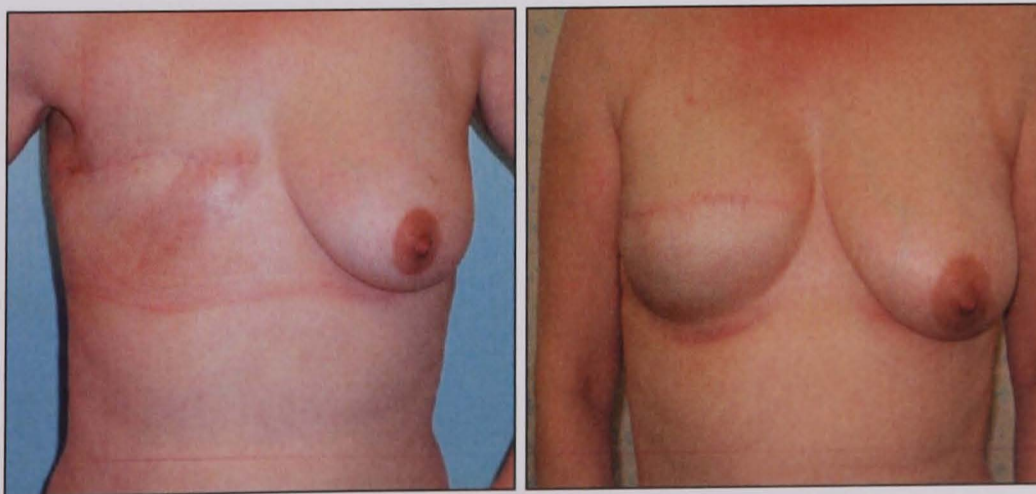


Figure 3 shows a 50 year old woman who had undergone a right mastectomy and delayed breast reconstruction. She is shown 9 months after her breasts were reconstructed using a tissue expander and implant. She had undergone no additional procedures during the data collection period.

1.6.4 Psychological Aspects of Additional Procedures Following Breast Reconstruction

There has been a significant lack of research exploring psychological aspects of having additional procedures following breast reconstruction. An exception is a study by Wellisch et al. (1985) who explored the psychological contribution of nipple addition. They found that patients who had nipple-areola reconstruction in addition to breast reconstruction reported greater overall satisfaction with different aspects of their breast reconstruction (size, softness, sexual sensitivity and nude appearance) than those who did not undergo this procedure. However, the nipple-added group also reported significantly greater anxiety and paranoid ideation. They felt that this appeared to reflect a pattern of anxious self-consciousness which may arise from feeling “different” both to the former self and to other women. They proposed that preoccupations such as these may have motivated these women to seek breast as well as nipple reconstruction as an attempt to reduce the stress of their perceived altered body. Breast reconstruction may have not sufficiently reversed the trauma of breast amputation; therefore a number of women may seek nipple reconstruction “to provide them with a more optimal sense of body integrity and psychological repair” (p. 703). This is an explanation that may fit with the assumptions of Price’s (1990) model, as described previously, that a woman

may alter her body presentation to balance the tension between her body reality and body ideal, in order to obtain a more satisfactory body image.

Wellisch et al. (1985) highlighted a number of cautions with these interpretations. First, the patients were not randomly assigned to the nipple-areola reconstruction versus no nipple-areola groups; therefore it cannot be assumed that the groups were statistically equivalent. Second, it is possible that the increased satisfaction found in the nipple-addition group may not be attributed to the fact that they had the nipple-areola reconstruction but rather they were more satisfied originally with their breast reconstruction. It could be that increased satisfaction with breast reconstruction may have led these patients to seek this further procedure. The opposite may be true for those who did not seek nipple-areola reconstruction. Furthermore, this study was retrospective and it is unknown whether anxiety and paranoid ideation was present before the breast and nipple-areola reconstructions. Although anxiety and paranoid ideation might be motivating factors for seeking reconstruction, the researchers highlighted that this is “a clinical judgement and not a proven fact” (p.703).

In a similar study, Andrade, Baxter & Semple (1999) investigated the impact of breast mound revisions and nipple-areola reconstruction on patient satisfaction. They found no correlations between these additional procedures and overall satisfaction, proposing that most women are content with simply having a breast mound and that there is little added benefit in undergoing these additional procedures. However, as recognised by the researchers, this study can be criticised for its basic method of categorising patient satisfaction as a “yes” or “no” answer to a single question. Further information on

satisfaction may have been revealed by using a Likert scale. Furthermore, the study was also retrospective and therefore it is not known whether satisfaction altered throughout the process of having breast reconstruction and additional procedures.

In summary, there are a number of additional procedures available to women after having breast reconstruction. However, there is currently a lack of research and support for the psychological benefits of undergoing these procedures, yet they are routinely offered to women. This again raises the issue of whether carrying out these procedures can be justified in terms of financial cost to the NHS. Furthermore, in terms of ethics, it is important to note that each operation carries with it a degree of risk, the stress of surgery, and the possibility of failure. Electing to undergo this surgery, therefore, carries with it the potential for physical and psychological benefits but also the risk of physical and psychological distress (Schain, 1991). Therefore, in the current NHS climate of cost-benefit ratio it is important to research why women might choose to have additional procedures following breast reconstruction and if there are any psychological benefits for undergoing these procedures.

1.6.6 Why Might Women Choose to have Additional Procedures Following Breast Reconstruction?

There are a number of reasons why women may choose to have additional procedures following breast reconstruction and the literature regarding the possible reasons why women elect to undergo breast reconstruction may offer some insight. In terms of cultural norms, it was highlighted that in Western society a great deal of emphasis is

placed upon appearance and improving appearance through surgical means (Davis, 1994) and breast reconstruction may be considered to be a normal, healthy choice, indicative of good psychological adjustment (Rowland et al. 1995). Crompvoets (2006) has highlighted the great influence that surgeons can have upon a woman's decision to undergo breast reconstruction and she has also applied this to considering reasons for undergoing additional procedures. In recounting one woman's experience of breast reconstruction she described how she felt that the woman's "body was medicalised further as her healthy breast was positioned as needing to be altered....She was an endless set of bodily flaws for the surgeon to correct" (p. 85). She suggested that these additional procedures are recommended by surgeons to fit with their ideals and women may be enthusiastic about them at the time because it also relates to their ideal. However, Kasper (1995) argues that breast reconstruction fails to meet the expectations of many women, it does not restore the body to how it looked or felt prior to illness and that the emotional consequences of breast cancer and surgery do not disappear. Crompvoets (2006) suggested that women may seek breast reconstruction and additional procedures in the hope of becoming "whole again" to fit with society's ideals, however, she highlights that the outcome is not necessarily positive.

These ideas appear to be linked with the literature focusing upon the reasons that women give for electing breast reconstruction such as a desire to restore feelings of wholeness, normalcy and body integrity (Contant et al. 2000; Rowland et al. 1995). Crompvoets (2006) proposed that it is not the surgery that enables these positive changes but the elimination of the "hassles" of prostheses which helps women to feel that they have the freedom to wear clothes that they felt were unavailable to them previously. In light of

this, she questioned whether these positive changes could be achieved without having to resort to surgery.

Cash & Pruzinsky (2004) suggested that there is no clear evidence of specific psychological or body image factors differentiating women who have had breast reconstruction from those who have not. Additionally, due to a lack of research, it is not known whether there are any psychological factors differentiating those who have had breast reconstruction from those women who have had breast reconstruction and additional procedures. In consideration of the fact that these additional procedures are undergone with the principal aim of improving appearance, it is useful to briefly review the literature on cosmetic surgery.

1.7 Cosmetic Surgery Research

1.7.1 Why Might Individuals Elect to have Cosmetic Surgery?

Much of this research has suggested that factors such as poor body image and low self-esteem play a significant role in women's motivation to undergo cosmetic surgery (Sarwer, Wadden, et al. 1998; Sarwer, Wadden, & Whitaker, 2002). Pruzinsky & Edgerton (1990) have suggested that cosmetic surgery is body surgery, that by modifying the body surgically, psychological improvement will occur. A number of studies have reported improvements in body image following cosmetic surgery (e.g., Edgerton, Langman & Pruzinsky 1991; Sarwer et al. 2002). However, given the

unavailability of a widely accepted and validated measure of body image with cosmetic surgery, Sarwer, Wadden, et al. (1998) have questioned the reliability of these studies.

Sarwer, Wadden, et al. (1998) proposed a model to explain the relationship between body image and cosmetic surgery. Within this model they proposed that it is the interaction between body image valance (a measure of importance to one's self-esteem) and value that leads to the decision to pursue cosmetic surgery. Individuals with lower body image valance, whose self-esteem is not dependent on their appearance, may be unlikely to pursue cosmetic surgery, regardless of whether such individuals are satisfied or dissatisfied with their body image. In contrast, individuals with a higher body image valance may be more likely to seek cosmetic surgery, and furthermore, those with a high degree of body image dissatisfaction "may well comprise the majority of cosmetic surgery patients" (p. 16). However, they also highlighted that individuals with both high body image valance and high satisfaction with their appearance may also seek cosmetic surgery. They may represent the healthy "doers" who wish to further enhance their appearance and an already positive self-esteem (Goin & Goin, 1987).

In summary, this model highlights that the relationship between body image and cosmetic surgery may be more complex than previous studies have suggested. It is not necessarily as straightforward as the idea that individuals seek cosmetic surgery because they are dissatisfied with their bodies; rather it seems that other factors such as body image valance and value may play an important role.

This model may also be applied to women that elect to have breast reconstruction and also those that go on to have additional procedures. It could be, for example, that women with high body image valance and high body image dissatisfaction are more likely to go on to have additional procedures following breast reconstruction, because they place greater importance on their appearance and are dissatisfied with it. Or conversely, women with high body image valance and high body image satisfaction may seek additional procedures to further improve their appearance, a point highlighted by Wellisch et al. (1985) in relation to the psychological contribution of nipple reconstruction following breast reconstruction. Reviewing the research on cosmetic surgery may raise some hypotheses about the possible reasons why women might elect to have additional procedures following breast reconstruction, however further research in this area is clearly needed.

1.7.2 The Psychological Effects of Cosmetic Surgery

Research has tended to focus upon women's motivation for having cosmetic surgery, as outlined above, and also the possible psychological effects of having the surgery. In line with much of the literature, Hussain, Schofield, & Loxton (2002) proposed that factors such as body image and self-esteem play a significant role in women's motivation to have cosmetic surgery; however they extended this to include the overall use of health services. Unlike other research, they have suggested that cosmetic surgery might not necessarily lead to a favorable outcome. They found that women who had previously had a cosmetic procedure were more likely than women who had not to seek further use of health services such as surgical procedures. They also found that cosmetic surgery use

was significantly associated with the number of chronic illnesses and use of medication for anxiety or sleep disturbances, suggesting that women who have had cosmetic surgery are more likely to suffer from poorer physical and psychosocial health.

In support of the idea that cosmetic surgery may not necessarily result in a positive outcome, Sarwer & Crerand (2004) suggested that cosmetic treatments may exacerbate preoccupation with a particular feature or shift the concern to another feature. They highlighted that patients suffering from body dysmorphic disorder (BDD)⁵ frequently believe that cosmetic treatments are the only viable interventions for their distress however they rarely benefit from these procedures and the majority report dissatisfaction with the results (Veale, 2000). This suggests that procedures may exacerbate, rather than alleviate, body image dissatisfaction in this group of patients. However, this is generally assumed not to be the case with individuals that do not suffer from BDD (Sarwer & Crerand, 2004).

These studies suggest that the outcome of cosmetic surgery may not necessarily be positive. In relation to additional procedures following breast reconstruction, it raises the issue of whether these procedures should be portrayed as part of the process of breast reconstruction, since the study by Hussain et al. (2002) suggests that having one procedure might lead to further procedures but that this is associated with a negative outcome. It could be that women seeking additional procedures are distressed and they believe that cosmetic treatments are the only viable interventions for relieving this

⁵ Body dysmorphic disorder (BDD) is defined as preoccupation with an imagined defect in appearance. If a slight physical anomaly is present, the person's concern is markedly excessive (American Psychiatric Association [APA] 1994).

because this is how the process of breast reconstruction is portrayed. However, additional procedures may cause women to become more preoccupied with aspects of their appearance and it is possible that similar to BDD patients, this distress is not relieved through undergoing more procedures, it may even be increased. This supports Crompvoets (2006) who suggested that whilst the options of breast reconstruction and additional procedures are available to women they may fail to come to terms with their body or who they have become after experiencing breast cancer and the loss of a breast.

The findings of these studies also highlight the increased financial costs to health services that may arise after having a cosmetic procedure, which may not be justified given the lack of support for it having a positive effect upon physical and psychological health. However, the study by Hussain et al. (2002) can be criticized as the researchers had a lack of information about the type of cosmetic surgery participants had undergone and the number and timing of cosmetic procedures. In addition, they did not clearly define what was meant by cosmetic surgery and they lacked information on the preoperative psychological state of the patients.

It has been argued that cosmetic surgery may not be the best intervention to deal with issues underlying low self-esteem and poor body image (Hasan, 2000) and the need for preoperative psychological screening of patients requesting cosmetic surgery has been recommended (Sarwer, Wadden et al. 1998). However, it has been recognized that this recommendation is not always considered by surgeons and there currently are no standardized well-established techniques for preoperative assessment (Money, 2004). A discussion of the current guidelines for the acceptance of referrals for plastic surgery

within the NHS and recommendations relating to the psychological assessment of individuals seeking this type of surgery will be presented shortly and will conclude this chapter (section 1.8, p. 51). However, first is a review of the research that has compared psychological aspects of cosmetic and reconstructive surgery.

1.7.3 Research Comparing Psychological Aspects of Cosmetic Surgery and Reconstructive Surgery

Research has compared psychological factors such as body image in cosmetic surgery and reconstructive surgery patients. Özgür, Tuncali, & Güler (1998) challenged the notion that people seeking cosmetic surgery may have problems with body image, as they found no significant difference in body image scores between three groups of patients: an aesthetic group (those seeking surgery purely for aesthetic or cosmetic reasons), a reconstructive group (those seeking a type of reconstructive procedure) and a control group (people from the normal population that were not seeking surgery). The researchers argued that a regular person who seeks an aesthetic procedure should not be considered a psychologically disturbed individual at face value. Furthermore, they argued that because there was no difference in body image scores between the groups, that individuals who present for reconstructive procedures and wish further aesthetic procedures should be evaluated and treated exactly as purely aesthetic candidates. However, if these results were taken on face value there could be a danger that reconstructive patients with body image difficulties are not given an appropriate preoperative assessment.

Sarwer, Whitaker, et al. (1998), in a study that investigated body image concerns found a number of reconstructive surgery patients reported a level of dissatisfaction and preoccupation consistent with a diagnosis of body dysmorphic disorder. As mentioned, this may suggest that undergoing procedures results in greater preoccupation with appearance and greater body image dissatisfaction. Sarwer, Whitaker et al. (1998) concluded that these results highlight the importance of screening for body image dissatisfaction. However, it is important to point out that the reconstructive surgery patients in the study were all scar revision patients. Similarly in Özgür et al's (1998) study the reconstructive surgery patients were chosen regardless of the type of procedure, body region and type of trauma. Consequently these results cannot reliably be generalized to breast reconstruction patients.

In summary, research suggests that psychological factors such as body image dissatisfaction may play an important role in motivation to seek both breast reconstruction and cosmetic surgery. However, the psychological effects of having this type of surgery may not be positive and preoperative psychological assessment has been recommended. With regard to additional procedures following breast reconstruction, little is known about the psychological status of women who seek additional procedures or the potential psychological changes that may follow, yet these procedures are routinely offered to women. Current guidelines regarding the acceptance of referrals for plastic surgery within the NHS and recommendations relating to the psychological assessment of individuals seeking this type of surgery are now considered.

1.8 Current Guidelines for the Acceptance of Referrals and Psychological Assessment

Current NICE guidelines “Improving outcomes for breast cancer” (2002) recommend that breast reconstruction should be available to all women who have undergone mastectomy however there are no guidelines for additional procedures. The current guidelines related to taking referrals for “plastic” surgery within the NHS stress that cosmetic surgery (surgery undertaken exclusively to improve appearance) will usually be excluded from NHS provision in the absence of previous trauma, disease, or congenital deformity. Additional procedures are not accounted for in either set of guidelines and it is not clear where they should fit in. Although these women have experienced previous “disease” in the form of breast cancer, it could be argued that these additional procedures are cosmetic as they do not actually treat the breast cancer.

Exceptions include if there is a significant likelihood that the individual will gain much higher than average benefit from the treatment or if there is a high likelihood that severe psychosocial dysfunction may be alleviated. (NHS Modernisation Agency [NHSMA] 2007). However, as mentioned there is a significant lack of research exploring psychological aspects of additional procedures following breast reconstruction. It is not known whether this group of women are distressed or whether there are any psychological benefits in undergoing additional procedures.

There has been a recent move in the UK towards providing better regulation of cosmetic surgery in both the private and public sectors. A recent strategy led by the NHS

Modernisation Agency (NHSMA) called “Action on Plastic Surgery” (2002-2005) focused upon the delivery of plastic, reconstructive and aesthetic surgery and one of their recommendations was to “incorporate the psychologist into the core plastic surgery team” (p. 7). Furthermore, the Department of Health (DOH, 2007) has published an information document which provides advice for people who are considering cosmetic surgery. They highlight that concerns about appearance might arise from other problems, such as anxieties about social situations or relationships, and they suggest that the individual could see a counsellor or psychologist to help them address their “concerns in other effective ways”. This suggests that there is a need for psychological assessment in this area.

Although there appears to be a move towards involving psychologists in preoperative assessment it is important to note that there is currently no specific training, standardised assessments or published guidelines available to assist psychologists working in this role. Consequently, it is difficult for psychologists to know what psychosocial aspects they should be assessing, what measures are appropriate to use, and also if there are any contraindications that would suggest that undergoing cosmetic or reconstructive surgery is not advisable for certain individuals.

The Faculty of Clinical Health Psychology (facCHP) within the British Psychological Society (BPS) reported that although there are no published guidelines available to assist psychologists, there are a number of contraindications to surgery that are generally agreed among psychologists working in this area. These include, “BDD or generalized body image issues, eating disorder, current self harm or risk of post traumatic stress

disorder (PTSD), unrealistic expectations, very poor quality of life (QOL) or social isolation” (J. Unwin, personal communication, June 28, 2007). These individuals may be offered psychological therapy or referred to another appropriate service and they may be reviewed again for surgery at a later date. In contrast, cosmetic or reconstructive surgery is thought to be appropriate for those individuals who “have no history of body image issues, specific appearance concern that is amenable by surgery, reasonable QOL which is only restricted by the specific issue (e.g., they can work and look after family but scarring affects their sex life), no major mental health issues or risk issues, reasonable expectations of the effect that surgery will have on their lives and what can be achieved” (J. Unwin, personal communication, June 28, 2007).

This suggests that it may not be sufficient to base clinical judgments upon measuring specific psychological aspects such as body image dissatisfaction in isolation. Furthermore, the contraindications for surgery are not clear, for example, high body image dissatisfaction may be seen as a contraindication for undergoing surgery, or alternatively, it could be perceived that surgery is *required* in order to increase satisfaction with body image. J. Unwin, Chair of the facCHP suggested that the issue is not simply whether individuals have body image dissatisfaction, it is important to consider whether such dissatisfaction is specific or general and to take into account other aspects such as mental health, QOL and expectations of surgery.

In summary, there may be a number of interrelated issues that need to be considered in preoperative assessment of individuals seeking cosmetic or reconstructive surgery. However, in the absence of any standardized assessment criteria, psychologists are

placed in the position of having to make difficult and potentially controversial decisions about whether or not they believe that surgery should be undertaken by individuals. With regard to the focus of the current study, appropriate and effective preoperative assessment may be even more difficult due to the lack of research exploring psychological aspects of additional procedures following breast reconstruction. It is not known whether undergoing additional procedures offer any psychological benefits for women.

1.9 Summary of Introduction

Breast reconstruction has become a widely used technique for restoring a woman's breast following mastectomy. It is often assumed to provide psychological benefits such as improvements in body image and distress and current NICE guidelines (2002) recommend that it should be available to all women who have undergone mastectomy for breast cancer. However, research exploring psychological aspects of breast reconstruction is inconclusive, highlighting that issues such as time since surgery and age may be important factors in adjusting to breast surgery. Research in this area has been further complicated by difficulties in defining and assessing body image, meaning that comparing studies has been problematic.

Following breast reconstruction a number of women undergo additional procedures to achieve a satisfactory result; however there appears to be considerable debate about how an "additional procedure" is perceived and defined by both patients and breast surgeons. Additional procedures may be perceived to be part of the process of breast

reconstruction and breast cancer treatment overall, or they may be seen as further cosmetic procedures undertaken with the principal aim of further improving appearance. It is not known if there are psychological implications related to how surgeons present additional procedures to women.

In the current NHS climate of cost-benefit ratio it is important to research why women might choose to have additional procedures and if there are any psychological benefits for undergoing these procedures. Research suggests that psychological factors such as body image dissatisfaction may play an important role in motivation to seek both breast reconstruction and cosmetic surgery. However the psychological effects of undergoing this type of surgery may not be positive and preoperative psychological assessment has been recommended. Little is known about the psychological status of women who seek additional procedures or the potential psychological changes that may follow, yet these procedures are routinely offered to women.

Although there appears to be a move towards involving psychologists in preoperative assessment, there is currently no specific training, standardised assessments or published guidelines available to assist psychologists working in this role. Psychologists are placed in the position of having to make difficult and potentially controversial decisions about whether or not they believe that surgery should be undertaken by individuals. Further research, exploring psychological aspects of additional procedures following breast reconstruction is greatly needed and knowledge gained from such research may assist in the preoperative assessment of these women.

CHAPTER TWO - RATIONALE, AIMS AND RESEARCH QUESTIONS

2.1 Rationale

Breast cancer is one of the most common cancers in women worldwide, with more than 1 million women diagnosed each year (World Health Organization, 2007). Mastectomy is one of the main options for breast cancer treatment and many women also go on to have breast reconstruction and additional procedures following this.

A number of psychological difficulties have been associated with both mastectomy and breast reconstruction including mood disturbance and negative changes in body image. However, the research is inconclusive and it is unclear the extent to which psychological difficulties such as anxiety and depression and body image problems exist in mastectomy or breast reconstruction patients. Also it is unknown whether psychological difficulties are present in women who have undergone additional procedures after having breast reconstruction or indeed what factors might be associated with the desire to have additional procedures.

However, these procedures are routinely offered to women despite the lack of supporting research. This raises two issues, the first relates to how additional procedures are conceptualized and whether or not they should they be portrayed as being part of the process of breast reconstruction. The second issue relates to ethics and to the potential costs to health services in providing these additional procedures. Given the lack of research about the psychological aspects of these additional procedures, it may be

considered to be unethical for surgeons to offer them routinely to patients. Furthermore, this raises the question of whether providing these procedures can be justified in terms of the financial costs that they present to health services.

There is currently no standardized preoperative psychological assessment of women seeking additional procedures after breast reconstruction and there is no specific training or published guidelines available to assist psychologists working in this role. Discovering high levels of distress and body image dissatisfaction in a sample of these women could provide the rationale for preoperative assessment, in order that these women are appropriately assessed for surgery. In addition, research such as this could help to highlight predictors of dissatisfaction in women who undergo these additional procedures. With the ability to identify such predictors we could improve pre and post operative service and care of these women which in turn may decrease the cost of these repeat procedures to the NHS.

2.2 Aims

The principal aim of the current study was to investigate psychological distress (anxiety and depression) and body image dissatisfaction in women who had undergone breast reconstruction following mastectomy after a diagnosis of breast cancer. The main objective was to compare two groups of women: those who had undergone breast reconstruction alone and those who had undergone breast reconstruction and additional procedures. The study also aimed to understand the possible reasons why women might go on to have additional procedures following breast reconstruction. Furthermore, the

study aimed to explore women's experiences of undergoing breast reconstruction and additional procedures.

2.3 Research Questions

The main research questions were the following:

- What is the prevalence of anxiety and depression in women who have undergone breast reconstruction?
- What is the prevalence of anxiety and depression in women who have undergone breast reconstruction and additional procedures?
- Is there a difference in anxiety and depression between those women who have undergone breast reconstruction and those who have undergone breast reconstruction and additional procedures?
- Do additional procedures predict anxiety or depression?
- What is the extent of body image dissatisfaction in women who have undergone breast reconstruction?
- What is the extent of body image dissatisfaction in women who have undergone breast reconstruction and additional procedures?
- Is there a difference in body image dissatisfaction between those women who have undergone breast reconstruction and those who have undergone breast reconstruction and additional procedures?
- Do additional procedures predict body image dissatisfaction?

There were also some further subordinate research questions which were the following:

- What reasons do women give for having, considering or planning to have additional procedures?
- What reasons do women give for not having or considering or planning to have additional procedures?
- How do women who have undergone breast reconstruction alone describe their experience?
- How do women who have undergone breast reconstruction and additional procedures describe their experience?

2.4 Epistemological Statement

The critical realist position assumes that there exists a real world that has regularities. However, it emphasizes that the world can never be known with absolute certainty and therefore our understanding of it is essentially tentative (Barker, Pistrang, & Elliot, 2002). The critical realist position asserts that reality is testable and measurable. In the current study it is assumed that psychological distress (anxiety and depression) and body image dissatisfaction are real constructs that are quantifiable.

The critical realist position also highlights the importance of research being replicable. It is essential that researchers are explicit about their methodology and analysis so that subsequent researchers are able to clearly understand how conclusions were made.

(Barker et al. 2002). The current study aimed to provide clear accounts of the methodological and analytical procedures employed in order that the findings can be evaluated and that the study can be replicated. Furthermore, the study aimed to provide clear explanations of how key constructs have been defined and measured which may also assist in the evaluation and replication of the findings. A critical realist epistemological position was adopted for the current study.

CHAPTER THREE - METHODOLOGY

3.1 Design

The study utilised a cross-sectional, retrospective methodology, whereby the data was collected from measures completed at one time period only. The data was collected from participants when attending routine clinic appointments with their Consultant Breast Surgeon. For those patients who were not recruited whilst attending clinic, data was collected via postal questionnaire. The study employed a predominantly quantitative approach for the main research questions, however content analysis was used to answer the subordinate research questions.

3.2 Participants

The sample consisted of 97 women aged between 33 and 83 years ($M=52.81$) who had undergone breast reconstruction following mastectomy after a diagnosis of breast cancer. Participants were recruited via their Consultant Breast Surgeon at their pre arranged clinic appointment.

The inclusion criteria for the study were:

- Women aged 18 years and over who had undergone breast reconstruction following mastectomy after a diagnosis of breast cancer.

The exclusion criteria for the study were:

- Women who had undergone breast reconstruction for reasons other than following a diagnosis of cancer.
- Women who had experienced a recurrence of cancer or cancer that had spread.
- Women who had undergone a prophylactic (risk-reducing) mastectomy who had not received a diagnosis of breast cancer.
- Women that were not English speaking (measures were validated in English language only with the exception of the HADS).

Out of the 97 participants recruited, 55 women (56.7%) were identified as undergoing breast reconstruction and additional procedures and 42 women (43.3%) were identified as undergoing breast reconstruction alone.⁶ Further demographic information for each of these two groups is presented in the results section (chapter 4, p. 78).

Sample size calculation

One of the study's main objectives was to compare psychological distress (anxiety and depression) and body image dissatisfaction between women who had undergone breast reconstruction alone and women who had undergone breast reconstruction and additional procedures. However, it was not possible to accurately quantify the likely differences between these groups and consequently no sample size calculation was done.

The study attempted to recruit as many participants as possible within the data collection

⁶ For the study's definition of an additional procedure see chapter 1 p. 34).

period and it was not possible to control the number of participants in each group. However, discussions with Consultant Breast Surgeons before data collection started suggested that there would not be too much of an imbalance in the sample sizes recruited from women who had undergone breast reconstruction alone and women who had undergone breast reconstruction and additional procedures.

3.3 Measures

Participants were asked to provide basic demographic data which included: marital status, current medication for anxiety or depression and previous treatment for anxiety or depression. Additional demographic data was obtained from participants' medical notes which included the following: age, socio-economic status, ethnic origin, details of breast cancer treatment (whether participants had undergone chemotherapy or radiotherapy), date of mastectomy, details of breast reconstruction (date of surgery, timing and type of breast reconstruction) and details of any additional procedures (whether participants had had them or not, dates and number of procedures). Furthermore, from the information obtained on dates of breast reconstruction and additional procedures, time since participants had undergone their last procedure was calculated. For those women who had undergone additional procedures, time since last procedure was the time since they had undergone their last procedure, however, for women who not undergone additional procedures, time since last procedure was the time since they had undergone breast reconstruction.

The dependent variables for the study were prevalence and severity of anxiety and depression, as measured by the Hospital Anxiety and Depression Scale (HADS) and the extent of body image dissatisfaction, as measured by the Body Image Scale (BIS).

Table 2 provides a summary of the formal measures used in the study. These measures are also described in further detail below (the measures are not included in the appendixes due to copyright).

Table 2

Summary of the formal measures used in the study

Measure	To assess	Scoring
Hospital Anxiety and Depression Scale (HADS)	Anxiety and depression	7 items pertaining to anxiety and 7 items pertaining to depression, each scores 0-3
Body Image Scale (BIS) (edited version used)	Body image dissatisfaction	23 items, each scores 0-5

Hospital Anxiety and Depression Scale (HADS)

(Zigmond & Snaith, 1983)

The HADS is a self-report measure used widely in hospital settings. It does not contain questions enquiring about somatic complaints, making it less likely to be confounded by the effects of medical conditions.

The HADS consists of 14 items divided into two subscales for anxiety and depression. For each item participants are required to choose the most applicable statement that relates to their current functioning. The responses are scored on a scale of 0-3, giving a potential global scoring range of 0-21 for each subscale. The authors' recommendations for classifications of anxiety and depression are displayed in Table 3.

Table 3

Classification of anxiety and depression scores on the HADS

Score range on the HADS	Classification
0-7	Normal/Asymptomatic
8-10	Possible clinical disorder
11-21	Probable clinical disorder

Herrmann (1997) reviewed a number of studies that had used the HADS and concluded that it is a reliable and valid instrument for assessing anxiety and depression in medical patients. Regarding reliability, he reported high internal consistencies (Cronbach alphas)

to be between 0.80 to 0.93 for anxiety and 0.81 to 0.90 for the depression subscales. Furthermore, a high retest reliability was reported ($r > 0.80$, after up to two weeks). This suggests that the HADS is stable enough to withstand situational influences and that it is able to respond to mood changes over time.

With regard to validity, the research was mixed. Herrmann (1997) suggested that the HADS theoretically enables separate assessments of anxiety and depression but in reality there is some overlap. There has been some debate whether the anxiety and depression subscales really measure different aspects of mood, with some studies finding a correlation between the subscales. However, Herrmann (1997) concluded that this is mainly due to a real coincidence of anxious and depressed symptoms in the patient groups rather than to inadequacies of the HADS measure. A more recent review of the validity of the HADS was reported by Bjelland, Dahl, Haug, & Neckelmann (2002) who concluded that the HADS performs well in assessing the symptom severity and the caseness of anxiety disorders and depression in both somatic, psychiatric and primary care patients and in the general population. After reviewing other measures of psychological distress, it was felt that the HADS was the most reliable and valid measure for assessing anxiety and depression in this population of women. Furthermore, this measure provides “cut off” scores, meaning that the prevalence of anxiety and depression can be calculated, which was one of the main objectives of the current study.

The Body Image Scale (BIS)

(Berscheid et al. 1972; Polivy, 1977).

The BIS is a self report measure used in a wide variety of studies investigating body image. The original BIS (Berscheid et al. 1972) consisted of 109 items. This was edited by Polivy (1977) and shortened to 49 items that are organized into separate categories of body image, self-concept and feelings of satisfaction with intimate relationships. The 49-item measure has been used in a number of studies with breast cancer and mastectomy patients.

For the purposes of the current study, the 49-item measure was edited to 22 items and an additional question was added to enquire about participants' satisfaction with the appearance of their reconstructed breast, resulting in a total of 23 items. The rationale for editing the measure was that the focus of the current study was to measure body image dissatisfaction and as 27 of the 49 items measured self-concept and feelings of satisfaction with intimate relationships, they were omitted. An additional item relating to satisfaction with the reconstructed breast was added because it was recognized that women may have different feelings towards their natural and reconstructed breasts.

Each item in the edited scale relates to a different part of the body and participants are required to choose the most applicable statement that reflects how satisfied they feel about the appearance of each particular body part. The responses are scored on a scale of 0-5, giving a potential global scoring range of 0-115, with a higher score indicating greater body image dissatisfaction.

The 22-item scale (those items pertaining to body image dissatisfaction only) demonstrated reliability as measured by Cronbach's alpha of 0.86 as well as criterion-related, convergent and construct validity (Bohrstedt, 1977). Internal consistency of the BIS in a previous study (Mock, 1993) measured Cronbach's alpha as 0.87.

Test-retest reliability of the 22-item scale was tested in the current study. The item added in the current study asking about satisfaction with the reconstructed breast was omitted because the women from the sample tested had not undergone breast reconstruction. An opportunity sample of 30 women (independent to the participants involved in the study) aged between 22 and 67 years ($M=30.8$, $SD=11.83$) completed the scale on two occasions. A high retest reliability was reported (intraclass correlation = 0.87, after a period of 4 weeks). This suggests that the 22-item BIS is stable enough to withstand situational influences. These studies suggest that the scale has reasonably good reliability and validity, however, given the lack of reliability and validity data regarding the 23-item BIS, a more critical discussion of this is presented in chapter 5, in relation to theoretical and methodological strengths and limitations of the study. Despite these limitations, the BIS was judged to be the most appropriate measure available as it enables the measurement of the extent of body image dissatisfaction, which was one of the main objectives of the current study. A more detailed discussion of the difficulties in assessing body image is presented in chapter 1, p. 22, followed by further information regarding the theoretical position of the current study regarding this issue (p. 23).

Additional Procedures Questionnaire

In addition to the formal measures used in the study, a further questionnaire was included. This was specifically designed to explore the additional procedures that participants may have undergone following breast reconstruction. Participants were asked to provide information regarding whether or not they had undergone additional procedures, whether or not they were considering or planning to have any additional procedures in the future, what types of additional procedures they hoped to have, and they were requested to give their reasons for these choices. Participants were also asked whether they had been aware before undergoing breast reconstruction that additional procedures may be required or desired. Participants were also given the opportunity to provide any further comments about their experiences.

Table 4 provides a summary of the measures provided in the questionnaire pack, which can also be found in Appendix A. Table 5 provides a summary of the information that was obtained from participants' medical notes.

Table 4

Summary of measures provided in the questionnaire pack

Measure	To assess
Demographic questionnaire	Marital status, current medication for anxiety and depression, previous treatment for anxiety and depression (in the last 3 years)
Body Image Scale (BIS) (edited version used)	Body image dissatisfaction
Hospital Anxiety and Depression Scale (HADS)	Anxiety and depression
Additional procedures questionnaire	Additional procedures (whether participants have had them or not, whether or not they were considering or planning to have them, types of procedures, reasons for these choices and whether participants were aware before undergoing breast reconstruction that additional procedures may be required or desired)
Further comments/experiences	A space to share individual experiences

Table 5

Summary of information obtained from participants' medical notes

Type of information	Details obtained
Demographic	Age, socio-economic status, ethnic origin
Breast cancer treatment	Whether or not participants had undergone chemotherapy or radiotherapy
Mastectomy	Date of mastectomy
Breast reconstruction	Date, timing and type of breast reconstruction, time since breast reconstruction was undertaken
Additional procedures	Whether participants had them, dates of procedures, number of procedures, time since last procedure was undertaken

Two measures of whether or not participants had undergone additional procedures were taken. This information was obtained from participants' medical notes and participants were categorized according to the definition employed by the current study (see section 1.6.2, p. 34). Participants were also asked whether or not they had undergone additional procedures, therefore using their own definitions of the term "additional procedures".

3.4 Procedure

Ethical approval for the study was obtained from the Local Research Ethics Committee. The letter of approval and the main ethical considerations for the study can be found in Appendix B. Furthermore, the study was reviewed prior to gaining ethical approval by the local Cancer Research Network Consumer Research Panel (CRP). This consisted of a panel of nine consumers (patients and carers) all of whom had experience of cancer. This review resulted in a letter containing comments and suggestions, which were incorporated into the design of the study (see Appendix B).

Potential participants were identified when they attended routine clinic appointments at the Breast Care Unit at the local hospital. The patients were told about the research by their Consultant Breast Surgeon during their appointment. With the patients' permission, the researcher approached potential participants when their appointment finished and provided them with some information about the study. Further information was then provided in the form of an invitation letter and an information sheet (see Appendix C). The patients were given sufficient time to read the information and to ask questions. They were then given a consent form (see Appendix C) to indicate whether or not they had decided to take part in the study. Those that provided written consent to take part were given the questionnaire pack to complete. This consisted of a demographic information sheet, BIS, HADS and a specifically designed questionnaire enquiring about any additional procedures following breast reconstruction. They were also given the opportunity to provide any comments about their experiences.

If participants required more time to complete the questionnaire pack they were given the option of taking it home and returning it via post. Patients that could not be recruited via clinic (e.g., because they attended at times when the researcher was not present) were sent the information and questionnaire pack via post and supplied with a reply-paid envelope for return.

Participants' G.Ps were informed of their participation in the research via letter (see Appendix D). Furthermore, G.Ps were notified if clinically significant levels of anxiety or depression were found in patients' scores on the HADS. Participants' G.Ps were also provided with information about a source they could refer participants to for psychological support, should this be required (see Appendix D for an example letter).

3.5 Data Analysis

For the main research questions (quantitative analysis) data was analyzed using the Statistical Package for the Social Sciences for Windows (SPSS) Version 14.0. Alpha was set at 0.05 for all analyses.

The data distributions for the main outcome variables were inspected using histograms and Kolmogorov-Smirnov tests. Depending on the results of the tests of normality, parametric or non-parametric methods of analyses were used.

The prevalence of anxiety and depression and the body image dissatisfaction scores for the two groups of participants (those who had undergone breast reconstruction alone and

those who had undergone breast reconstruction and additional procedures) were examined using descriptive statistics. Differences between the groups were calculated using the chi-square test or independent samples *t*-tests. Finally, General Linear Model (GLM) was used to test whether additional procedures predict anxiety, depression or body image dissatisfaction.

Information provided by participants in response to the open ended questions was analysed using content analysis. A reliability check with two other researchers was conducted and there was a high level of agreement between researchers. Each researcher read the information written by participants in response to the open ended questions and developed themes from this information followed by a frequency analysis. Discrepancies that occurred were discussed between researchers in detail until a mutual agreement was reached. Reaching these decisions involved reading participants' written responses a number of times, until it was felt that themes had been reliably generated. Further information regarding these discrepancies and levels of agreement is detailed below.

Verification of Themes

For the research question that aimed to understand participants' reasons for having, considering or planning to have additional procedures, researchers agreed on six out of seven (85.7%) of the main themes. One researcher had developed a theme called "to improve myself" however the other researchers felt that it would be more valid to split this theme into two separate themes to reflect that participants had written about both wanting to improve their appearance and to improve psychological aspects of their self

such as body image. Consequently the group decided to have these two themes (see results, p. 104).

For the research question that aimed to understand participants' reasons for not having, considering or planning to have additional procedures, again there was one instance of disagreement between researchers. All of the researchers agreed on the main themes, however there was some discussion regarding the subordinate themes under the main theme titled "additional procedures are unnecessary". Two of the researchers felt that no subordinate themes were needed, however one researcher felt that it was important to distinguish between the participants who had simply stated that additional procedures were unnecessary ($n=7$) and those participants who had given a reason why they felt additional procedures were unnecessary ($n=3$). After discussing this further, the researchers agreed to have two subordinate themes called "statement that additional procedures are unnecessary" and "not needing anything else to feel happy/good about the self" (see p. 106).

For the research question that aimed to explore participants' experiences of undergoing breast reconstruction there were three instances of disagreement between researchers. There was some discussion regarding the title of the first main theme "making sense of breast cancer". One researcher titled this theme "breast cancer issues" however, after discussion it was felt that a title such as "making sense of breast cancer" reflected the fact that many women seemed to be trying to make sense of their experiences of having breast cancer and of the process following diagnosis (see p. 108).

There was some further discussion about whether there should be one or two subordinate themes under the main theme of “making sense of breast cancer” relating to the cancer treatment that participants had written about. One researcher felt that a theme titled “details of breast cancer treatment” was sufficient, however the other researchers felt that it was more valid to have two themes titled “details of treatment received” and “negative effects of treatment” to reflect the fact that a number of participants had written about the difficulties of undergoing breast cancer treatment (see p. 108).

For both the BR and BR-AP groups’ responses, there was some initial disagreement between researchers regarding whether there needed to be one main theme called “reflecting upon my experiences” or two separate main themes called “reflecting upon the experience of having breast cancer” and “reflecting upon the experience of having breast reconstruction”. After reviewing participants’ responses again, it was agreed that having these two themes appeared to be more representative of their responses (see p. 108 and 110). There were no further disagreements between researchers for the BR-AP group’s responses. Consequently, for the research question that aimed to explore participants’ experiences of undergoing breast reconstruction and additional procedures there were two instances of disagreement between researchers.

Further information regarding the tests used for the statistical analyses and justification for the selected analyses is presented in the results chapter, section 4.3 (p. 92).

CHAPTER FOUR- RESULTS

4.1 Overview of Results

This section will begin by describing details of the study recruitment process, the demographic data of the participant sample and information regarding the representativeness of the sample. The rationale for the selection of statistical tests used in the analyses will be outlined. Descriptive statistics will then be presented followed by the inferential analyses focussing upon comparing the prevalence of anxiety and depression and body image dissatisfaction between participants who have undergone breast reconstruction and participants who have undergone breast reconstruction and additional procedures. The regression analyses will then be reported which explores whether additional procedures predict anxiety, depression or body image dissatisfaction. The results of the qualitative analyses will then be presented which focus on participants' reasons for and against additional procedures followed by an exploration of how each group describe their experiences. Finally, further analyses are outlined in relation to the demographic information. In this section the following abbreviations will be used: "BR" for participants who had undergone breast reconstruction only and "BR-AP" for participants who had undergone breast reconstruction and additional procedures.

4.2 Recruitment and Patient Demographics

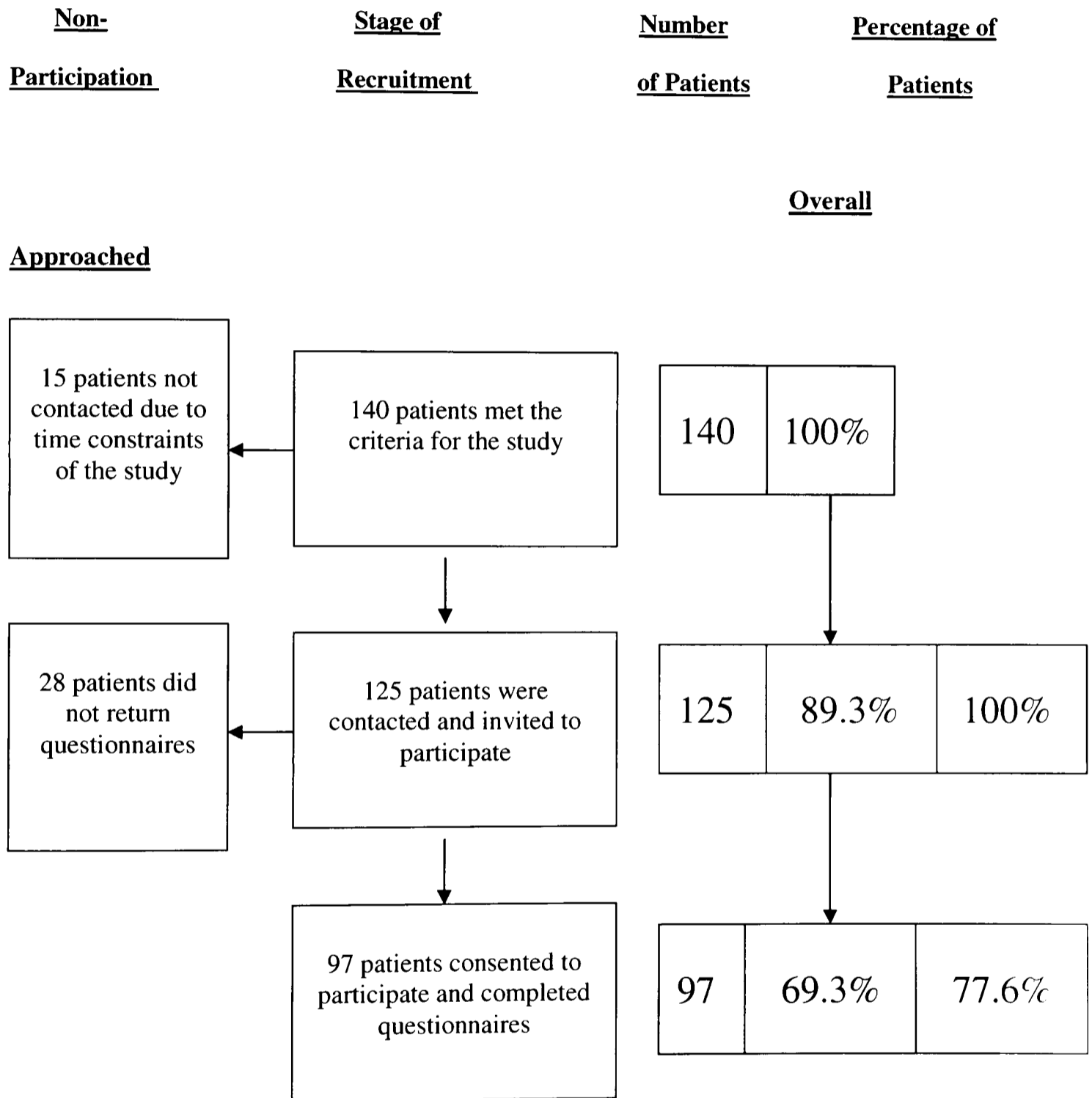
The study aimed to invite all patients who had undergone breast reconstruction following mastectomy for breast cancer who attended routine clinic appointments with

their Consultant Breast Surgeon between the dates of 14th August 2006 and 26th February 2007 via a regional breast care unit and plastic surgery unit at a hospital in the North of England. Of the 140 patients that met the inclusion criteria of the study, 125 were approached and invited to participate. However, 15 were not contacted due to time constraints of the study. Out of the 125 that were contacted, 97 consented to take part: this represents a 77.6% response rate. Of the total 97 participants that were recruited, 55 women (56.7%) were identified as undergoing breast reconstruction and additional procedures and 42 women (43.3%) were identified as undergoing breast reconstruction alone.

In terms of how the participants were recruited, 45 women (46.4%) were recruited at the time they attended their clinic appointments and 52 women (53.6%) were recruited via post. Of the 125 patients that were approached, 28 did not participate in the study. The reason for lack of participation was that they did not return consent forms or questionnaires. These patients were not invited to participate on a second occasion due to time constraints of the study. A flow diagram to illustrate the process of recruitment and retention is shown in Figure 4.

Figure 4

Flow diagram of recruitment and retention



Representativeness of the Sample

Demographic data for all patients who had undergone breast reconstruction following mastectomy within the data collection period was obtained from a local Breast Care Unit ($n=140$). This allowed for comparison of participants and non-participants in terms of age, timing and type of breast reconstruction, additional procedures and time since last procedure. This information is presented in Tables 6 and 7.

Table 6

Demographic (interval) data for participants (P) and non-participants (NP)

Demographic variables	Min		Max		Mean		Std deviation	
	P	NP	P	NP	P	NP	P	NP
Age (years)	33	36	83	85	52.81	50.3	9.42	8.74
Number of additional procedures	0	0	6	3	1.48	0.7	1.72	1.17
Time since last procedure (months)	0.5	0.5	64	84	9.27	11.63	10.56	15.36

Independent samples *t*-tests revealed that participants were not significantly different from non-participants on the basis of age ($t = 1.49$, $df = 138$, $p = 0.14$) and time since last procedure was undertaken ($t = -0.92$, $df = 60.30$, $p = 0.36$). However, a significant difference was found for number of additional procedures, participants having undergone a higher mean number of additional procedures versus non-participants ($t = 3.16$, $df = 115.3$, $p = 0.002$) (see Appendix E).

Table 7

Demographic (categorical) data for participants and non-participants

Demographic variables	Participants ($n=97$)	Non-participants ($n=43$)
Timing of breast reconstruction	Immediate = 59 (60.8%) Delayed = 38 (39.2%)	Immediate = 19 (44.2%) Delayed = 24 (55.8%)
Type of breast reconstruction	Abdominal = 27 (27.8%) Back = 38 (39.2%) Expander/implant = 32 (33%)	Abdominal = 11 (25.6%) Back = 16 (37.2%) Expander/implant = 15 (34.9%) Buttock = 1 (2.3%)
Additional procedures undertaken?	Yes = 55 (56.7%) No = 42 (43.3%)	Yes = 13 (30.2%) No = 30 (69.8%)

Chi-square analyses revealed that there were no significant differences between participants and non-participants on the basis of type of breast reconstruction ($\chi^2 = 0.89$, $df = 2$, $p = 0.97$) however, there was a significant difference for additional procedures (χ^2

= 8.36, $df = 1$, $p = 0.004$). A greater proportion of participants had undergone additional procedures than non-participants. The difference between participants and non-participants regards timing of breast reconstruction almost reached statistical significance ($\chi^2 = 3.34$, $df = 1$, $p = 0.067$). A greater proportion of participants had undergone immediate reconstruction versus non-participants (see Appendix E).

In terms of age, time since last procedure was undertaken, timing of breast reconstruction and type of breast reconstruction, the sample was considered to be representative of the population, however significant differences were found in terms of additional procedures. A greater proportion of participants had undergone additional procedures than non-participants, furthermore, participants had undergone a higher mean number of additional procedures compared to non-participants and this difference needs to be considered in interpreting the results.

Demographics of the Sample

Demographic data was obtained on age, socio-economic status, ethnic origin and marital status of participants. Information regarding current medication for anxiety and depression and previous treatment for anxiety and depression was also obtained, as was information regarding breast reconstruction and any additional procedures. This demographic data is presented for the whole sample ($n=97$) and further broken down according to participant group, BR (breast reconstruction only, $n=42$) and BR-AP (breast reconstruction and additional procedures, $n=55$). Further analyses that compares these two groups on demographic data is presented in section 4.5 (p. 112).

Age

The ages of participants ranged from 33 to 83 years ($M=52.81$, $SD=9.42$). The mean ages of the BR and BR-AP groups were similar, 51.93 and 53.49 years respectively (see Table 8).

Table 8

Age according to participant groups

	Participant group					
	Whole sample ($n=97$)		BR. ^a ($n=42$)		BR-AP ^b ($n=55$)	
	Score Range (min-max)	<i>Mean and Std deviation</i>	Score Range (min-max)	<i>Mean and Std deviation</i>	Score Range (min-max)	<i>Mean and Std deviation</i>
Age	33-83	52.81 (9.42)	34-83	51.93 (9.98)	33-73	53.49 (8.99)

Note. ^a BR = Breast reconstruction only group, ^b BR-AP = Breast reconstruction and additional procedures group

Ethnic Origin and Marital Status

Further demographic data in relation to ethnic origin and marital status is presented in Table 9 which shows that for both the BR and BR-AP groups, the vast majority of participants were white (British) and married or living with a partner.

Table 9

Ethnic origin and marital status according to participant groups

Demographic information	Participant group		
	Whole sample (n=97)	BR. ^a (n=42)	BR-AP ^b (n=55)
<u>Ethnic origin</u>			
White (British)	87 (89.7%)	40 (41.2%)	47 (48.5%)
Pakistani	2 (2.1%)	1 (1%)	1 (1%)
Not stated	8 (8.2%)	1 (1%)	7 (7.2%)
<u>Marital Status</u>			
Married/living with partner	66 (68%)	26 (26.8%)	40 (41.2%)
Single	5 (5.2%)	2 (2.1%)	3 (3.1%)
Divorced/separated	21 (21.6%)	11 (11.3%)	10 (10.3%)
Widowed	5 (5.2%)	3 (3.1%)	2 (2.1%)

Note. ^a BR = Breast reconstruction only group, ^b BR-AP = Breast reconstruction and additional procedures group

Current and Previous Treatment for Anxiety and Depression

At the time of recruitment, the vast majority of participants reported not currently being prescribed any medication for anxiety ($n=91$, 93.8%) or for depression ($n=82$, 84.5%). Approximately one third of participants ($n=27$, 27.8%) reported having received treatment for anxiety or depression in the last 3 years. There appeared to be little differences between the BR and BR-AP groups, although twice the number of BR

participants reported currently being prescribed medication for depression compared to the BR-AP participants (see Table 10). As mentioned, further analyses exploring possible difference between these groups are presented in section 4.5.

Table 10

Current medication and previous treatment for anxiety or depression according to participant groups

Demographic information	Participant group					
	Whole sample (n=97)		BR. ^a (n=42)		BR-AP ^b (n=55)	
Current medication for:	Yes	No	Yes	No	Yes	No
Anxiety	6 (6.2%)	91 (93.8%)	2 (2.1%)	53 (54.6%)	4 (4.1%)	38 (39.2%)
Depression	15 (15.5%)	82 (84.5%)	10 (10.3%)	45 (46.4%)	5 (5.2%)	37 (38.1%)
Previous treatment for anxiety/depression in last 3 years	27 (27.8%)	70 (72.2%)	15 (15.5%)	40 (41.2%)	12 (12.4%)	30 (30.9%)

Note. ^a BR = Breast reconstruction only group, ^b BR-AP = Breast reconstruction and additional procedures group

Breast Cancer Treatment

Chemotherapy and Radiotherapy

Almost half of the participants ($n=48$, 49.5%) from the sample had undergone chemotherapy. Approximately half of these participants were from the BR group ($n=23$, 47.9%) and approximately half ($n=25$, 52%) were from the BR-AP group. Similarly, almost half of participants in the sample ($n=49$, 49.5%) had undergone radiotherapy, 23 (47.9%) were from the BR group and 25 (52%) were from the BR-AP group.

Breast Reconstruction

Timing of Breast Reconstruction

Around two thirds of participants ($n=59$, 60.8%) had undergone immediate breast reconstruction and around a third of participants ($n=38$, 39.2%) had undergone delayed breast reconstruction. The percentages in each group (BR or BR-AP) are similar (see Table 11).

For the whole sample (immediate and delayed breast reconstructions) the time between having a mastectomy and then undergoing breast reconstruction ranged between 0 and 194 months, the mean time being 14.4 months ($SD=31.49$). Participants in the BR group had a slightly longer mean time since breast reconstruction ($M=18.98$ months, $SD=42.4$) than participants in the BR-AP group ($M=10.98$ months, $SD=19.24$). However,

inspection of histograms revealed that the distributions were skewed (see Appendix F), showing that in both groups the vast majority of participants had undergone their breast reconstruction after 0 months, or in other words at the same time as having a mastectomy. This can be accounted for by the fact that around two thirds of participants in the sample had undergone immediate breast reconstruction.

Type of Breast Reconstruction

For the sample as a whole, there was a relatively equal number of participants in each of the three groups according to type of breast reconstruction procedures. As shown in Table 11, 38 participants (39.2%) had undergone a back flap reconstruction (LD), 32 (33%) had undergone an implant or expander reconstruction and 27 (27.8%) had undergone an abdominal flap reconstruction (TRAM and DIEP). However, some differences were observed between the BR and BR-AP groups (see table 11). In particular, a much smaller percentage of participants in the BR group ($n=8$, 8.2%) had undergone expander or implant reconstruction compared to the BR-AP group ($n=24$, 24.7%). Further analyses are presented in section 4.5.

Table 11

Timing and type of breast reconstruction according to participant groups

Information regarding breast reconstruction	Participant group		
	Whole sample (<i>n</i> =97)	BR. ^a (<i>n</i> =42)	BR-AP ^b (<i>n</i> =55)
<u>Timing of breast reconstruction:</u>			
Immediate	59 (60.8%)	27 (27.8%)	32 (33%)
Delayed	38 (39.2%)	15 (15.5%)	23 (23.7%)
<u>Type of breast reconstruction:</u>			
Abdominal	27 (27.8%)	16 (16.5%)	11 (11.3%)
Back	38 (39.2%)	18 (18.6%)	20 (20.6%)
Expander/implant	32 (33%)	8 (8.2%)	24 (24.7%)

Note. ^a BR = Breast reconstruction only group, ^b BR-AP = Breast reconstruction and additional procedures group

Time Since Breast Reconstruction

The minimum time since participants had undergone breast reconstruction was 0.5 months, the maximum time was 99 months, and the mean time since breast reconstruction was 19.96 months (*SD*=18.08). A difference was observed between the groups, with BR-AP having a longer mean time (*M*=26.7 months, *SD*=18.05), since undergoing breast reconstruction than the BR group (*M*=11.16 months, *SD*=14.0).

Inspection of histograms revealed that the distributions were fairly skewed (see Appendix F) especially for the BR group (the vast majority of participants had undergone breast reconstruction between 0 to 5 months ago). For the BR-AP group, the distribution was not quite so skewed, the majority of participants having undergone breast reconstruction between 10 and 30 months ago. This difference may be expected since BR-AP participants will have had their breast reconstruction longer time ago versus the BR group because these women have had necessary time to heal from the breast reconstruction surgery before undergoing additional procedures.

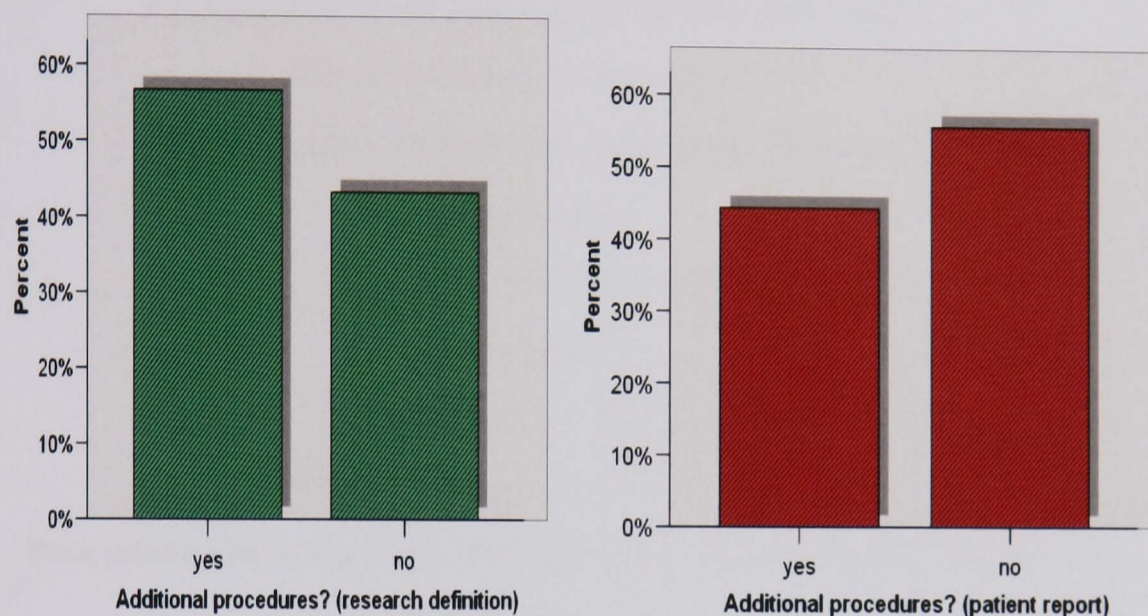
Additional Procedures Following Breast Reconstruction

From reviewing participants' medical notes, 55 participants (56.7%) were identified as undergoing additional procedures following breast reconstruction⁷, placing them in the BR-AP group, whereas 42 participants (43.3%) were identified as not undergoing any additional procedures, placing them in the BR group. However, due to the previously described lack of consensus regarding how an additional procedure is defined, participants were also asked *in their opinion* if they had undergone any additional procedures. A greater number reported that they had *not* undergone any additional procedures ($n=54$) compared to those that reported that they had undergone additional procedures ($n=43$). This highlights a discrepancy between how the study has defined additional procedures and how participants have defined them. This is illustrated in Figure 5.

⁷ For the study's definition of an additional procedure see section 1.6.2 (p. 34).

Figure 5

The percentage of participants that had undergone additional procedures according to the definition used



The minimum number of additional procedures was 0 and the maximum was 6, the mean being 1.48 ($SD=1.72$). Furthermore, the majority of participants ($n=70$, 72.2%) reported that they were considering or planning to have additional procedures in the future, compared to 27 (27.8%) that reported that they were not considering or planning to have any additional procedures.

Types of Additional Procedures

Participants who reported that they were considering or planning to have additional procedures were asked to provide some details about the types of procedures that they were hoping to have. This information is presented in Table 12.

Table 12

Types of additional procedures that participants hoped to have

Types of additional procedures	Frequency (%)
Procedures involving the reconstructed breast	N=52 (72.2)
Repeat of breast reconstruction	1 (1.4)
Nipple reconstruction followed by nipple tattoo	25 (34.7)
Nipple tattoo	15 (20.8)
Re-colour of nipple tattoo	3 (4.2)
Breast reduction	2 (2.8)
Liposuction to the breast	4 (5.6)
Replacement of breast implant	2 (2.8)
Procedures involving the natural (non-reconstructed) breast	N=10 (13.9)
Breast reduction	5 (6.9)
Breast augmentation	1 (1.4)
Mastopexy	4 (5.6)
Procedures involving other areas of the body	N=5 (6.9)
Liposuction to abdominal area	5 (6.9)
Non-specific procedures/other	N=5 (6.9)
Procedures to improve symmetry of the breasts	3 (4.2)
Not sure what procedures will be necessary	2 (2.8)

Table 12 shows that the most frequent type of additional procedures that participants were hoping to have involved the reconstructed breast, with the most common procedure being a nipple reconstruction followed by a nipple tattoo. However, procedures involving the natural (non-reconstructed) breast were frequently reported, with the most common being breast reduction ($n=5$, 6.9%).

Awareness of Requiring or Desiring Additional Procedures Before Undergoing Breast Reconstruction

The vast majority of participants ($n=81$, 83.5%) reported that they had been aware, before having breast reconstruction, that additional procedures may be required or desired, compared to 16 participants (16.5%) who reported that they had not been aware of this.

Time Since Last Procedure Was Undertaken

The minimum time since participants had undergone their last procedure (whether this was breast reconstruction or an additional procedure) was 0.5 months, the maximum time was 64 months, the mean time being 9.27 months ($SD=10.56$).

To summarize, descriptive information presented in this section gives rise to some interesting questions that are considered in section 4.5 Further analyses (p. 112).

4.3 Justification of Tests used in the Statistical Analyses

Quantitative Analyses

Data was analyzed using the Statistical Package for the Social Sciences for Windows Version 14.0. Alpha was set at 0.05 for all analyses.

Test of Normality

A number of analyses were conducted to test for differences in outcome variables between groups. However, before this was undertaken, the data was examined to ascertain whether or not it was normally distributed. The inspection of histograms revealed that the distribution of some of the outcome variables appeared to be skewed. For all comparison analyses, participants' total anxiety scores and total body image scores were statistically non-significant ($p > 0.05$) on the Kolmogorov-Smirnov test, indicating no evidence against normality for these variables. Therefore the data was considered to be normally distributed and consequently parametric methods were used. However, participants' total depression score was found to be statistically significant ($p < 0.05$) for all the analyses conducted, suggesting that the data was not normal and consequently non-parametric methods of analyses were employed (see Appendix F for some examples of histograms and tests of normality).

Selection of Statistical Procedure for the Comparison of Frequency Data

The Chi-square test was used to test for differences in prevalence of anxiety and depression between the two groups (BR and BR-AP). Chi-square is used to assess whether two or more samples, each consisting of frequency data, differ significantly from each other. It was selected because it allows for testing differences between categorical variables, which is the case with the classification of the HADS. The linear by linear association value was interpreted because this is more powerful than the ordinary chi-square test when one variable is ordinal, which is the case with the HADS

classification. An exact test was used because there were some small expected cell counts and therefore the asymptomatic p value may be inaccurate. It is assumed that an exact test will provide greater statistical power.

Selection of Statistical Procedure for the Comparison of Means

The main statistical analysis for the comparison of means focused upon comparing body image dissatisfaction between the BR and BR-AP groups. An independent samples t -test was used because there were two independent groups. The independent samples t -test is a parametric procedure that assumes the sample is from a normal distribution and that the sample comes from a population with equal variances. Levene's test for equality of variances was undertaken and was not statistically significant, hence it was assumed that the sample came from a population with equal variances. For those analyses where Levene's test was found to be significant, it was assumed that the variances are not equal and consequently the p value relating to "equal variances not assumed" was interpreted.

A number of other analyses were conducted that involved comparing means of outcome variables between two groups, for example between those participants who had undergone immediate breast reconstruction with those who had undergone delayed reconstruction. Further details of these analyses are presented in section 4.5.

For analyses comparing body image dissatisfaction and total anxiety, independent samples t -tests were used. Levene's test for the equality of variances was not significant and therefore it was assumed that there were equal variances. For analyses that focused

upon comparing total depression score between groups, the Mann-Whitney U Test was used. This is a non-parametric method used with data that is not normally distributed. It is regarded as the non-parametric version of the independent samples *t*-test as two independent groups can be compared.

Selection of Statistical Procedure for Regression Analyses

The General Linear Model (GLM) was used to test whether undergoing additional procedures predicted anxiety, depression or body image dissatisfaction. This is a regression method convenient to use on SPSS when categorical variables need to be entered into the analyses. The method allows for controlling or adjusting for the effects of other possible predictors such as time since last procedure and age.

Qualitative Analyses

The rationale for using qualitative analysis was that it gave participants the opportunity to express their thoughts, feelings and beliefs which would not have been possible using a quantitative approach alone. Using open ended questions allowed participants to generate their own responses, which the researcher then organized into themes. This was felt to be important, given the lack of research exploring psychological aspects of additional procedures following breast reconstruction. Using a qualitative approach allows this relatively new area to be investigated by attempting to understand women's perceptions and experiences.

Content analysis was selected to try to understand women's reasons for and against having, considering or planning to have additional procedures. It was also used to explore how women in each group (BR and BR-AP) described their experiences. Content analysis was chosen because the literature suggests that it can be used successfully with self report data (Barker et al. 2002). Furthermore, as content analysis provides a useful means of bridging quantitative and qualitative approaches, in that it applies quantitative analysis to qualitative descriptions, it was thought to be an appropriate method for the current study (Barker et al. 2002).

4.4 Inferential Analyses Relating to the Research Questions

The Prevalence of Anxiety and Depression

The research questions concerning anxiety and depression were the following:

- What is the prevalence of anxiety and depression in women who had undergone breast reconstruction?
- What is the prevalence of anxiety and depression in women who had undergone breast reconstruction and additional procedures?
- Is there a difference in the prevalence of anxiety and depression between participants who had undergone breast reconstruction and participants who had undergone breast reconstruction and additional procedures?

Anxiety and depression scores, as measured by the HADS, were compared between BR and BR-AP groups, in order to indicate which group had the higher prevalence of anxiety and depression. The number and percentages of each classification of anxiety and depression are presented in Tables 13 and 14.

Table 13

Prevalence of anxiety for BR and BR-AP groups

HADS Classification for Anxiety	Participant Group	
	BR ^a (n=42)	BR- AP ^b (n=55)
Normal/Asymptomatic	59.5% (n=25)	54.5% (n=30)
Possible Clinical Disorder	23.8% (n=10)	23.6% (n=13)
Probable Clinical Disorder	16.7% (n=7)	21.8% (n=12)
Total Prevalence of Anxiety	40.5% (n=17)	45.4% (n=25)

Note. ^a BR = Breast reconstruction only group, ^b BR-AP = Breast reconstruction and additional procedures group

Table 14

Prevalence of depression for BR and BR-AP groups

HADS Classification for Depression	Participant Group	
	BR ^a (n=42)	BR- AP ^b (n=55)
Normal/asymptomatic	92.9% (n=39)	80% (n=44)
Possible clinical disorder	4.8% (n=2)	10.9% (n=6)
Probable clinical disorder	2.4% (n=1)	9.1% (n=5)
Total prevalence of depression	7.2% (n=3)	20% (n=11)

Note. ^a BR = Breast reconstruction only group, ^b BR-AP = Breast reconstruction and additional procedures group

Tables 13 and 14 show that the prevalence of both anxiety and depression are greater in those participants in the BR-AP group compared to those participants in the BR group. Chi-square analyses were used to test for differences between these two groups. No statistically significant difference was found for anxiety, $\chi^2 = 0.39$, $df = 1$, $p = 0.5$ or for depression, $\chi^2 = 3.14$, $df = 1$, $p = 0.09$. However for depression, the difference was approaching statistical significance (see Appendix G). With a larger sample size, the observed differences in percentages may have been significant.

Before conducting this analysis, on face value there was the expectation that there would be a significant difference between the BR and BR-AP groups (7.2% versus 20% prevalence of depression). Examination of the box plot (Figure 6) of total anxiety scores

in each group provides further information that may account for this perceived discrepancy in the results.

Figure 6

Box plot of total depression scores according to whether participants have undergone additional procedures

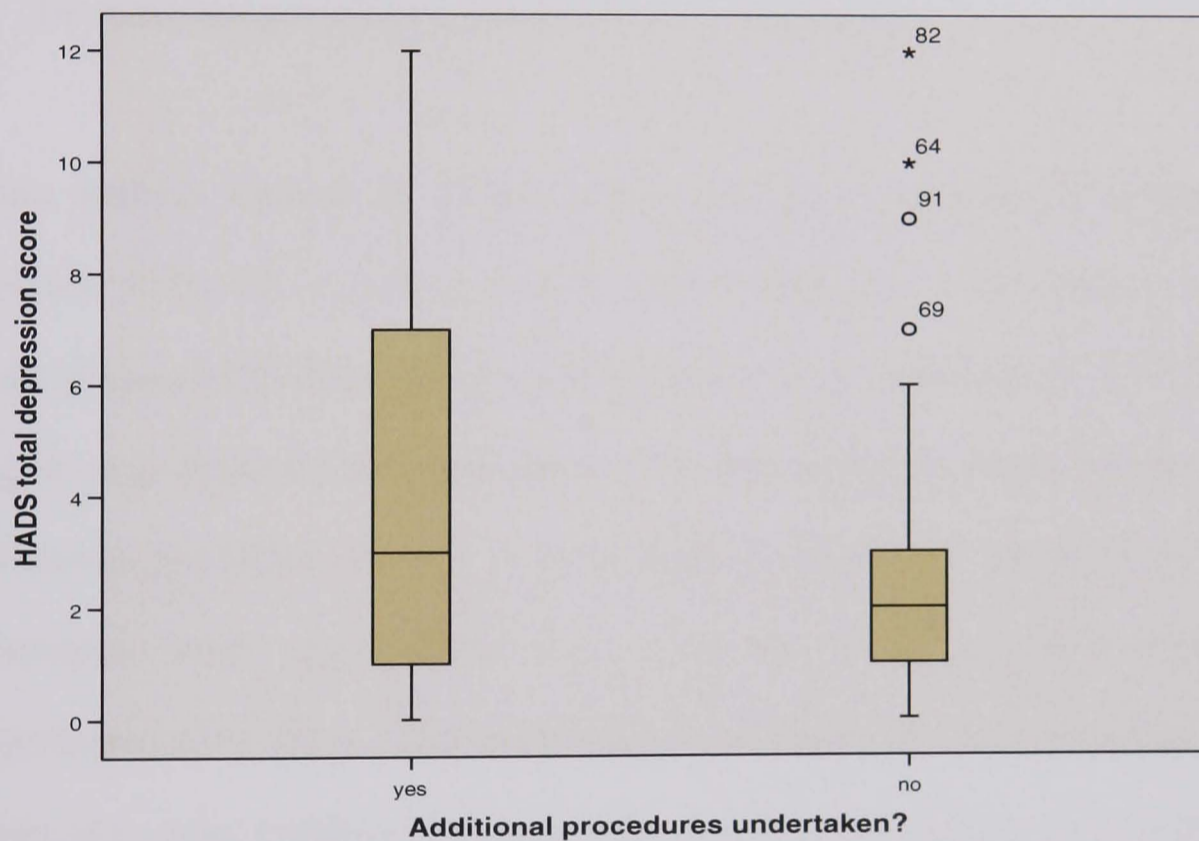


Figure 6 highlights that BR-AP participants had a wider range of HADS depression scores than BR participants. Those participants who had undergone breast reconstruction alone mostly scored very low, placing the majority in the “normal” or “asymptomatic” category for depression. However, as can be seen there are outliers in the data, with only 3 participants having a total score of 8 or above, placing them in the two categories for

possible and probable clinical disorders. It is likely that these outliers have influenced the analyses which may account for the lack of a statistically significant result. Furthermore, power may have been lost by categorizing the depression scale into three categories.

A further research question was:

- Do additional procedures predict anxiety or depression?

Data analysis showed no evidence that undergoing additional procedures predicts anxiety, $F(1, 95) = 0.73, p = 0.40$. Study results show some weak evidence that undergoing additional procedures can be predictive of depression, $F(1, 95) = 3.64, p = 0.060$ (see Appendix G). Participants who had undergone breast reconstruction and additional procedures scored 1.31 points higher on depression than participants who had undergone breast reconstruction alone. However, this did not quite reach statistical significance ($p > 0.05$). After controlling for age and time since last procedure, again there was some evidence that undergoing additional procedures can be predictive of depression $F(1, 93) = 3.24, p = 0.075$ (see Appendix G). Although not statistically significant, the direction of the effect suggests that participants who had undergone breast reconstruction and additional procedures may experience more depression than participants who had undergone breast reconstruction alone.

The Extent of Body Image Dissatisfaction

The research questions relating to body image dissatisfaction were the following:

- What is the extent of body image dissatisfaction in participants who had undergone breast reconstruction?
- What is the extent of body image dissatisfaction in participants who had undergone breast reconstruction and additional procedures?
- Is there a difference in body image dissatisfaction between participants who had undergone breast reconstruction and participants who had undergone breast reconstruction and additional procedures?

The mean total body image dissatisfaction scores were compared between BR and BR-AP groups. These results are displayed in Table 15.

Table 15

Body image dissatisfaction scores for BR and BR-AP groups

Participant group	Body image dissatisfaction score			
	Min	Max	Mean	Std deviation
BR ^a (n=42)	4	62	28.83	12.96
BR-AP ^b (n=55)	3	63	34.42	13.70

Note. ^a BR = Breast reconstruction only group, ^b BR-AP = Breast reconstruction and additional procedures group

As can be seen in Table 15, participants who had undergone breast reconstruction and additional procedures had a higher mean body image dissatisfaction score than participants who had undergone breast reconstruction alone. An independent samples *t*-test revealed that this difference was statistically significant ($t = 2.04$, $df = 95$, $p = 0.045$), suggesting that participants who undergo breast reconstruction and additional procedures have higher body image dissatisfaction than those who have breast reconstruction alone (see Appendix G).

A further research question was:

- Do additional procedures predict body image dissatisfaction?

Data provided evidence that undergoing additional procedures may predict body image dissatisfaction, $F(1, 95) = 4.15$, $p = 0.045$. Participants who had undergone breast reconstruction and additional procedures scored 5.59 points higher on average on body

image dissatisfaction than those who had undergone breast reconstruction alone (see Appendix G). This suggests that those women who had undergone additional procedures have higher body image dissatisfaction than those women who had not undergone additional procedures.

After controlling for age and time since last procedure was undertaken, the predictive effect of undergoing additional procedures remained although statistical significance was not quite reached, $F(1, 93) = 3.15, p = 0.079$ (see Appendix G).

Reasons for and against Having Additional Procedures following Breast Reconstruction

The research questions in this area were the following:

- What reasons do women give for having, considering or planning to have additional procedures?
- What reasons do women give for not having or considering or planning to have additional procedures?

Reasons for Additional Procedures

Participants were asked to give their individual reasons for having, considering or planning to have additional procedures related to their breast reconstruction. These

reasons were then organized into themes. Table 16 contains the results of the content analysis of participants that answered this question.

Table 16

Reasons given by participants for having, considering or planning to have additional procedures

Statement: Please tell us your reasons for having, considering, or planning to have additional procedures related to your breast reconstruction.	
Themes	Frequency (%)
Part of the process of breast reconstruction	N=18 (19.4)
To improve appearance	N=26 (28)
To make breasts look similar to one other	14 (15.1)
To look/feel natural or “normal”	12 (12.9)
To improve psychological aspects of the self	N=20 (21.5)
Body image	16 (17.2)
Confidence	2 (2.2)
Self-esteem	2 (2.2)
Practical reasons	N=5 (5.4)
To improve the fitting of clothing/underwear	4 (4.3)
To be able to get on with everyday life and activities	1 (1.1)
To regain what has been “lost”	N=9 (9.7)
To feel like a woman again	3 (3.2)
To feel “whole” again or complete	5 (5.4)
To get back what has been “lost” through having breast cancer	1 (1.1)
Reasons related to breast reconstruction	N=2 (2.2)
Pleased with the results of breast reconstruction	1 (1.1)
Unhappy with the results of breast reconstruction	1 (1.1)
Lack of information provided	N=13 (14)
No reason given	5 (5.4)
Simply stating that a certain procedure was desired	8 (8.6)

Table 16 shows that the most frequent reason given by participants for having, considering or planning to have additional procedures was around the theme of wanting to improve their appearance, for example:

“To make my reconstructed breast look as similar to my other one as possible”.

The second most frequent reason given by participants was related to wanting to improve psychological aspects of the self, for example:

“I thought that having a nipple on my reconstructed breast would give me a much better body image”.

The third most frequent reason given by participants was related to the perception that additional procedures were part of the process of undergoing breast reconstruction, for example:

“I just accepted that it was part of the procedure”.

Reasons Against Additional Procedures

Participants were asked to give their reasons for not having, considering or planning to have additional procedures. These reasons were then organized into themes. Table 17 contains the results of the content analysis of participants that answered this question.

Table 17

Reasons given by participants for not having, considering or planning to have additional procedures

Statement: Please tell us your reasons for not having, considering, or planning to have additional procedures related to your breast reconstruction.	
Themes	Frequency (%)
Additional procedures are unnecessary	
Statement that additional procedures are unnecessary	7 (28)
Not needing anything else to feel happy/good about self	3 (12)
Reasons related to breast reconstruction/previous surgery	
Satisfied with results of previous surgery	6 (24)
Expectations of breast reconstruction fulfilled	3 (12)
Worried about potential risks/difficulties	
Concerned about possible risks and further recovery period	4 (16)
A sense of “been through enough”	1 (4)
No reason given	
	N=1 (4)

Table 17 shows that the most frequent reason given by participants for not having, considering, or planning to have additional procedures is related to the theme that additional procedures are “unnecessary”. Six participants simply state this without further explanation, however three participants discuss this in terms of not needing anything else to feel happy or good about themselves, for example:

“I don’t want to have anymore surgery, I’m happy as I am”.

The second most frequent reason given by participants is related to how they feel about their breast reconstruction and previous surgery, for example:

“I’m satisfied with the results and do not need to undertake further surgery”.

The third most frequent reason given by participants was related to worrying about possible risks of undergoing additional procedures, for example:

“I couldn’t face the chance of more things going wrong and it taking weeks and weeks to recover”.

Further research questions that were analysed using content analysis were the following:

- How do women who have undergone breast reconstruction alone describe their experience?
- How do women who have undergone breast reconstruction and additional procedures describe their experience?

The BR and BR-AP groups were analysed separately using content analysis, the results of which are presented in Tables 18 and 19. For both of the groups, the themes seemed to fit within nine cluster groups, which were: making sense of breast cancer, deciding to have breast reconstruction, outcome/effects of having breast reconstruction, further/additional procedures, ways of coping, views on staff/service received, reflecting upon the experience of having breast cancer, reflecting upon the experience of having breast reconstruction, and current feelings towards breasts.

Table 18 Themes derived from women's descriptions of their experiences (BR group)

Statement: You may use this space to "tell your story" or share with us your experiences	
Themes	Frequency (%)
Making sense of breast cancer	N=23 (25.6)
Family history of breast cancer	2 (2.2)
Details of discovery and diagnosis of cancer	5 (5.6)
Diagnosis as a shock/disbelief/initial fear of death	7 (7.8)
Details of treatment received	7 (7.8)
Negative effects of treatment (weight gain and hair loss)	2 (2.2)
Deciding to have breast reconstruction	N=15 (16.7)
People that helped with making the decision (family, friends, surgeon, nurses)	4 (4.4)
The timing of the decision	5 (5.6)
Deciding on the type of procedure	3 (3.3)
Psychological/emotional reasons for choosing breast reconstruction	1 (1.1)
Practical reasons for choosing breast reconstruction	2 (2.2)
Outcome/effects of having breast reconstruction	N=15 (16.7)
Complications requiring further surgery	3 (3.3)
Pain and recovery process	3 (3.3)
Practical benefits (clothes fit better, no need for a prosthesis)	2 (2.2)
Psychological/emotional benefits (more confident about body, feel more feminine)	4 (4.4)
Satisfied with the outcome	3 (3.3)
Further/additional procedures	N=4 (4.4)
May need to have these in the future	3 (3.3)
Looking forward to having them	1 (1.1)
Ways of coping	N=10 (11.1)
Support from others (family, friends, surgeon, nurses)	4 (4.4)
Meeting other women who had been through the experience	1 (1.1)
Staying positive/sense of humor	2 (2.2)
Keeping physically fit/having a healthy diet	2 (2.2)
Receiving psychological support/antidepressant medication	1 (1.1)
Views on staff/service received	N=8 (8.9)
Positive about care received	7 (7.8)
Having faith in the surgeon	1 (1.1)
Reflecting upon experience of having breast cancer	N=7 (7.8)
Positive aspects gained (making new friends, reviewing priorities in life)	1 (1.1)
Life changing experience/grateful to be alive	2 (2.2)
Still finding it difficult to cope/fear cancer will return/fear of further treatment	3 (3.3)
Wanting to help others in a similar situation	1 (1.1)
Reflecting upon experience of having breast reconstruction	N=6 (6.7)
Helped in coming to terms with losing a breast	2 (2.2)
Would go through the process again	1 (1.1)
Would recommend it to other women	2 (2.2)
Regret undergoing the type of reconstructive procedure	1 (1.1)
Current feelings towards breasts	N=2 (2.2)
Feel more feminine	1 (1.1)
Happy to look "normal"	1 (1.1)

As can be seen in Table 18 the most frequent cluster of themes was making sense of breast cancer, of which the most common themes were diagnosis as a shock/disbelief/initial fear of death and details of treatment received. Examples include:

“I could not believe it, the first thing I asked was, am I going to die?”

“I had chemotherapy, radiotherapy and also a mastectomy”.

The next two most frequent clusters of themes were deciding to have breast reconstruction and outcome/effects of having breast reconstruction. The most frequent theme in deciding to have breast reconstruction was the timing of the decision, for example:

“At the time of having a mastectomy I wasn’t in the right frame of mind to think about having a reconstruction. However after going through a divorce I felt that I wanted to increase my confidence and went to ask my surgeon about having my breast reconstructed”.

The most frequent theme from the cluster of outcome/effects of having breast reconstruction was psychological/emotional benefits of undergoing breast reconstruction, for example:

“After the reconstruction healed I felt a lot more confident about my body”.

Table 19 *Themes derived from women's descriptions of their experiences (BR-AP group)*

Statement: You may use this space to “tell your story” or share with us your experiences	
Themes	Frequency (%)
Making sense of breast cancer	N= 30 (22.1)
Family history of breast cancer	3 (2.2)
Details of discovery and diagnosis of cancer	8 (5.9)
Diagnosis as a shock/disbelief	8 (5.9)
Details of treatment received	7 (5.1)
Negative effects of treatment (weight gain and hair loss)	4 (2.9)
Deciding to have breast reconstruction	N=26 (19.1)
People that helped with making the decision (family, friends, surgeon, nurses)	6 (4.4)
The timing of the decision	11 (8.1)
Deciding on the type of procedure	2 (1.5)
Psychological/emotional reasons for choosing breast reconstruction	3 (2.2)
Practical reasons for choosing breast reconstruction	4 (2.9)
Outcome/effects of having breast reconstruction	N=21 (15.4)
Complications requiring further surgery	8 (5.9)
Pain and recovery process	2 (1.5)
Practical benefits (clothes fit better, no need for a prosthesis)	3 (2.2)
Psychological/emotional benefits (more confident about body, feel more feminine)	4 (2.9)
Satisfied with the outcome	4 (2.9)
Further/additional procedures	N=11 (8.1)
Wanting to have them	2 (1.5)
Needing to have them	1 (0.7)
Positive about having them/more satisfied/improvement in appearance	6 (4.4)
Reasons for having/considering/planning to have them	2 (1.5)
Ways of coping	N=9 (6.6)
Support from others (family, friends, surgeon, nurses)	5 (3.7)
Staying “strong” for others	2 (1.5)
Staying positive/sense of humor	2 (1.5)
Views on staff/service received	N=9 (6.6)
Positive about care received	3 (2.2)
Gratitude towards surgeon	5 (3.7)
Unhappy about care received	1 (0.7)
Reflecting upon experience of having breast cancer	N=14 (10.3)
Positive aspects gained (making new friends, reviewing priorities in life)	5 (3.7)
Life changing experience/grateful to be alive	5 (3.7)
Still finding it difficult to cope	2 (1.5)
Wanting to help others in a similar situation	2 (1.5)
Reflecting upon experience of having breast reconstruction	N=6 (4.4)
Helped in coming to terms with losing a breast	1 (0.7)
Would go through the process again	3 (2.2)
Would recommend it to other women	2 (1.5)
Current feelings towards breasts	N=10 (7.4)
Not satisfied	4 (2.9)
Satisfied with results/happy to look “normal”	6 (4.4)

Table 19 shows the main themes for the BR-AP group. The most frequent clusters of themes were: making sense of breast cancer, deciding to have breast reconstruction, and outcome/effects of having breast reconstruction. This was the same finding for the BR group. For making sense of breast cancer, the most frequent themes were diagnosis as a shock/disbelief and details of discovery, for example:

“It all started 3 years ago when I found a lump in my breast”.

The second most frequent cluster of themes was deciding to have breast reconstruction; within this the most frequent theme was the timing of the decision. This was also the most frequent theme for the BR group. An example is:

“I knew that I had to have the reconstruction at the same time as I had the mastectomy, I don’t think I would have coped if I had to wake up from the operation without a breast”.

As can be seen in Tables 18 and 19, the frequency of themes were similar for the two groups, suggesting that the two groups describe their experiences in similar ways. The three most frequent clusters of themes derived from their descriptions are: making sense of breast cancer, deciding to have breast reconstruction, and the outcome/effects of having breast reconstruction.

4.5 Further Analyses

Demographic comparisons were carried out between participants who had undergone breast reconstruction alone and participants who had undergone breast reconstruction and additional procedures (see Appendix H).

No significant differences were found between the groups on the basis of: ethnic origin, marital status, age, current medication for anxiety or depression, previous treatment for anxiety or depression, chemotherapy, radiotherapy, timing of breast reconstruction and time since last procedure was undertaken ($p > 0.05$) (see Appendix H). However, a significant difference was found for type of breast reconstruction, $\chi^2 = 7.42$, $df = 2$, $p = 0.024$. In particular, participants who had undergone breast reconstruction and additional procedures had undergone a greater number of expander/implant breast reconstructions than participants who had undergone breast reconstruction alone (See Appendix H).

Further analyses were conducted in relation to findings from demographic data. This involved comparing groups on previous treatment for anxiety and depression, chemotherapy and radiotherapy, timing of breast reconstruction and awareness of requiring or desiring additional procedures before undergoing breast reconstruction.

Previous Treatment for Anxiety and Depression

Participants who reported that they had received treatment for anxiety or depression within the last three years had a higher mean anxiety, depression and body image

dissatisfaction score than participants who reported that they had not received treatment for anxiety and depression. Independent samples *t*-tests revealed these differences were significant for anxiety ($t = 2.76$, $df = 36.35$, $p = 0.009$) and depression ($t = 2.29$, $df = 36.64$, $p = 0.028$) but not for body image dissatisfaction ($t = 0.73$, $df = 95$, $p = 0.467$) (see Appendix H).

Chemotherapy and Radiotherapy

Participants who had undergone chemotherapy had higher mean anxiety ($M=7.52$) and body image dissatisfaction scores ($M=33.50$) than participants who had not undergone chemotherapy ($M=6.59$ for anxiety and $M=30.53$ for body image dissatisfaction). Mean rank depression score was higher in participants who had not undergone chemotherapy ($M=49.67$) compared to participants who had undergone chemotherapy ($M=48.31$). None of these differences were found to be statistically significant ($p = 0.027$ for anxiety, $p = 0.26$ for body image dissatisfaction and $p = 0.81$ for depression).

Similarly, participants who had undergone radiotherapy had higher mean anxiety ($M=7.24$) and body image dissatisfaction ($M=33.08$) than participants who had not undergone radiotherapy ($M=6.85$ for anxiety and $M=30.90$ for body image dissatisfaction). Mean rank depression score was highest in participants who had not undergone radiotherapy ($M=49.26$) as opposed to participants who had undergone radiotherapy ($M=48.74$). None of these analyses were statistically significant ($p = 0.64$ for anxiety, $p = 0.43$ for body image dissatisfaction and $p = 0.93$ for depression). These results suggest that there are no differences in anxiety, depression and body image

dissatisfaction between participants who have undergone chemotherapy or radiotherapy and those participants who have not undergone these treatments.

Timing of Breast Reconstruction

Participants were compared on the three main outcome variables (anxiety, depression and body image dissatisfaction) according to the timing of their breast reconstruction. Those participants who had undergone delayed breast reconstruction reported higher mean anxiety ($M=7.53$), depression ($M=54.37$), and body image dissatisfaction ($M=35.03$) scores than those participants who had undergone immediate breast reconstruction ($M=6.75$, $M=45.54$, $M=30.05$, respectively). However, these differences were found to be not statistically significant ($p = 0.36$ for anxiety, $p = 0.13$ for depression, and $p = 0.079$ for body image dissatisfaction). However results were approaching statistical significance for body image dissatisfaction ($p = 0.079$). This suggests that those participants who had undergone delayed breast reconstruction experience higher body image dissatisfaction than those who had undergone immediate breast reconstruction.

Awareness of Requiring or Desiring Additional Procedures Before Undergoing Breast Reconstruction

Participants that reported not being aware that additional procedures may be required or desired had a higher mean depression ($M=54.03$) and body image dissatisfaction score ($M=34.50$) than those who reported that they had been aware of the possibility of future

additional procedures ($M=48.01$, $M=31.51$, respectively). However, participants that reported being aware of the possibility of additional procedures had a higher mean anxiety score ($M=7.17$) than those who reported not being aware ($M=6.44$). However, none of these differences were found to be statistically significant ($p = 0.43$ for depression, $p = 0.42$ for body image dissatisfaction and $p = 0.52$ for anxiety).

4.6 Summary of Results

Main Findings: Quantitative Analyses

- Participants who had undergone breast reconstruction and additional procedures had a higher prevalence of anxiety and depression than participants who had undergone breast reconstruction alone. This difference was not significant for anxiety but was approaching statistical significance for depression.
- Data analysis showed no evidence that undergoing additional procedures predicts anxiety. There was some weak evidence that undergoing additional procedures can be predictive of depression, participants who had undergone breast reconstruction and additional procedures scored 1.31 points higher on depression than participants who had undergone breast reconstruction alone. However, this did not quite reach statistical significance. After controlling for age and time since last procedure, again there was some evidence that undergoing additional procedures can be predictive of depression. Although not statistically significant, the direction of the effect suggests that participants who had undergone breast reconstruction and additional procedures

may experience more depression than participants who had undergone breast reconstruction alone.

- Participants who had undergone breast reconstruction and additional procedures had a significantly higher mean body image dissatisfaction score than participants who had undergone breast reconstruction alone. There was evidence that undergoing additional procedures may predict body image dissatisfaction, participants who had undergone breast reconstruction and additional procedures scored 5.59 points higher on average on body image dissatisfaction than those who had undergone breast reconstruction alone. This suggests that those women who had undergone additional procedures have higher body image dissatisfaction than those women who had not undergone additional procedures. After controlling for age and time since last procedure was undertaken, the predictive effect of undergoing additional procedures remained although statistical significance was not quite reached.

Main Findings: Qualitative Analyses

- The three most frequent themes regarding reasons given by participants for having, considering or planning to have additional procedures were: wanting to improve one's appearance, wanting to improve psychological aspects of the self, and the perception that additional procedures were part of the process of undergoing breast reconstruction.
- The three most frequent themes regarding reasons given by participants for not having, considering, or planning to have additional procedures were the following:

additional procedures are seen as “unnecessary”, feelings about their breast reconstruction and previous surgery, and worrying about possible risks of undergoing additional procedures.

- Both the BR and BR-AP groups described their experiences in similar ways. The three most common themes were: making sense of breast cancer, deciding to have breast reconstruction, and the outcome/effects of having breast reconstruction.

CHAPTER FIVE- DISCUSSION

5.1 Overview of Discussion

This section will start by summarising the main findings of the study in relation to the research questions and literature outlined in Chapter 1, followed by a consideration of some of the further analyses that were conducted. The clinical and theoretical implications of the study will be discussed followed by a consideration of the theoretical and methodological strengths and limitations. The discussion will conclude with recommendations for future research.

5.2 Main Findings of the Study

The Prevalence of Anxiety and Depression

Consistent with previous research, anxiety and depression were fairly prevalent emotional experiences of patients in the sample. This was particularly the case for anxiety, with 40.5% of participants who had undergone breast reconstruction alone and 45.4% of participants who had undergone breast reconstruction and additional procedures scoring 8 or above on HADS, indicating possible or probable clinical levels of anxiety. This equates to almost one in every two women experiencing clinically significant distress. The prevalence of depression was not quite so high, with 7.2% of participants who had undergone breast reconstruction and 20% of participants who had

undergone breast reconstruction and additional procedures scoring 8 or above on the HADS, indicating possible or probable clinical levels of depression. These findings are similar to a study by Harcourt (2002) who found that 32% of women scored high levels of anxiety (case level scores of 11 or above on the HADS, corresponding to the classification of probable clinical disorder) and 5% scored case levels of depression. Other research has found a 20 to 25% prevalence of depression in breast cancer patients (Breitbart, 1995), which was somewhat higher than that found in the current study. However, it is important to note that the research mentioned above included women that had undergone mastectomy alone or mastectomy and breast reconstruction which was either immediate or delayed. Furthermore, in contrast to the current study, Harcourt (2002) measured levels of anxiety before surgery was undertaken. Consequently, it is difficult to make comparisons between previous studies examining the prevalence of anxiety and depression in breast cancer patients and the current study. No research of a similar nature has been done to allow direct comparison to the current study.

It is important to highlight that additional procedures are offered presumably with the aim of reducing difficulties such as psychological distress and improving satisfaction, however if this was the case we would expect women who had undergone breast reconstruction and additional procedures to be less distressed than women who had undergone breast reconstruction alone. The prevalence of both anxiety and depression were found to be greater in those participants who had undergone breast reconstruction and additional procedures compared to those participants who had undergone breast reconstruction alone. It could be that these women are experiencing more anxiety and depression because they have undergone additional procedures, or alternatively, feeling

anxious and depressed may have motivated them to seek additional procedures. However, the differences between the groups were not statistically significant, although results were approaching statistical significance for depression ($p=0.09$). It is possible that with a larger sample size, this difference may have become statistically significant.

As mentioned previously, there has been a significant lack of research investigating psychological differences between these groups. An exception is a study by Wellisch et al. (1985) who found that participants who had undergone nipple-areola reconstruction following breast reconstruction reported significantly greater anxiety than participants who had not undergone this additional procedure. In the current study, anxiety was found to be greater in participants who had undergone additional procedures, which offers some support for this study, however the difference was not significant. Wellisch et al. (1985) suggested that anxiety related to feeling self-conscious about their bodies, may have motivated these women to go on to have nipple reconstruction following breast reconstruction as an attempt to reduce the stress of their perceived altered body. This is a possible explanation that may fit with Price's (1990) model. The women who had nipple reconstruction in Wellisch et al's (1985) study may have experienced anxiety due to a tension between the body reality (how their body is) and the body ideal (how they would like their body to look) and they sought to balance this tension by altering the body presentation through an additional procedure. This may have been the case in the current study, however, as the difference in anxiety between women who had undergone breast reconstruction alone and women who had undergone breast reconstruction and additional procedures was not statistically significant, this hypothesis must be interpreted with caution.

There were some differences between Wellisch et al. (1985) and the current study. First, participants who had undergone nipple-areola reconstruction were found to be significantly younger ($M = 46.0$ years) than participants who had not undergone nipple reconstruction ($M = 51.3$ years) therefore it is possible that age could be related to anxiety, for example, younger women may feel more anxious about surgery than older women because they may be less satisfied with their bodies or they may place greater investment upon their appearance. In support of this, research has suggested that younger women (under 50 years) may be at greater risk of distress than older women (aged 50 years and over) following diagnosis of breast cancer (Harcourt, 2002). Other research has also suggested that younger women report more body image concerns (Ganz et al. 1999) and may be more sensitive to body image alterations than older women (Al-Ghazal, Fallowfield et al. 2000). However, no significant difference in age was found between participants who had undergone additional procedures and participants who had not undergone additional procedures in the current study. This may support Grogan (1999) who suggested that image dissatisfaction remains relatively stable for women across much of the adult life span.

Overall, the current study demonstrates that the prevalence of anxiety is fairly high in this population of women, regardless of whether or not they had undergone additional procedures following breast reconstruction. There was no evidence that undergoing additional procedures predicts anxiety and no significant difference in anxiety was found between the two groups. This could suggest that the women are still anxious about their health and/or appearance and although their breast cancer has been treated (e.g., by chemotherapy, radiotherapy or mastectomy) breast reconstruction and additional

procedures may serve as a reminder of the fact that they recently had a life threatening illness. Furthermore, women may perceive that they are still in the process of receiving treatment for breast cancer, given that breast reconstruction and additional procedures are routinely offered to women following mastectomy.

Crompvoets (2006) could provide a possible explanation for the high overall anxiety in the total sample. She suggested that while the option of breast reconstruction and additional procedures are available to women they may fail to come to terms with their body or who they have become after experiencing breast cancer. This anxiety may relate to the fact that these women in a sense are on a “quest” to becoming “whole” again by seeking procedures, a point that will also be considered in relation to body image dissatisfaction. However, the women may continue to feel anxious (or even feel a little more anxious) following additional procedures because this sense of feeling “whole” and perhaps returning to their preoperative appearance is not achieved, possibly because they have not come to terms with their experiences of having breast cancer.

The prevalence of anxiety was considerably higher than the prevalence of depression for both groups; however the difference between the groups was much greater for depression. This difference in depression was approaching statistical significance, suggesting that women who had undergone breast reconstruction and additional procedures are more depressed than those who had undergone breast reconstruction alone. It could be that women who have undergone additional procedures are feeling more depressed because their search for trying to feel “whole” and achieve the ideal has

not lived up to their expectations. However, it may also be the case that depression may have developed secondary to ongoing or chronic anxiety.

The majority of participants who had undergone breast reconstruction alone (92.9%, $n=39$) were classified in the normal or asymptomatic group for depression (score of 0 to 7 on the HADS). Only three participants in this group had a total score of 8 or above, placing two of them in the category for possible clinical disorder and just one in the category for probable clinical disorder. In contrast, a greater number of participants who had undergone breast reconstruction and additional procedures (9.1%, $n=5$) scored 11 or above on the HADS, placing them in the category for probable clinical disorder. It is likely that these exceptions have influenced the analyses which may account for the lack of a statistically significant result. It would be interesting to see whether or not this difference became significant with a larger sample size.

There was some evidence (albeit statistically weak), that additional procedures predict depression. Participants who had undergone breast reconstruction and additional procedures scored on average 1.31 points higher on depression than participants who had undergone breast reconstruction alone. However, this did not reach statistical significance. As mentioned, it could be that the women who had undergone additional procedures are feeling more depressed after having additional procedures because they have not got the results that they hoped for (e.g., feeling whole again or achieving the ideal) or perhaps they were more depressed to begin with and consequently they may view the outcome of surgery more negatively. However, 1.31 points as measured by the HADS was considered to be a relatively small difference between the groups, given that

there are 8 points in each category of the HADS. After controlling for age and time since last procedure was undertaken, there was again an indication that additional procedures may be predictive of depression, however this was not statistically significant. Age and time since surgery were controlled for in the current study as previous research has highlighted that these may be important factors in women's adjustment to breast surgery (Dean et al. 1983; Harcourt, 2002; Schag et al. 1993).

The Extent of Body Image Dissatisfaction

Participants who had undergone breast reconstruction and additional procedures had a higher body image dissatisfaction score than participants who had undergone breast reconstruction alone. This difference was found to be statistically significant. Furthermore, there was some evidence that undergoing additional procedures predicts body image dissatisfaction. Participants who had undergone breast reconstruction and additional procedures scored on average 5.59 points higher on body image dissatisfaction than those who had undergone breast reconstruction alone. The difference of 5.59 points as measured by the BIS was not considered to be a very large difference, given that a maximum of 5 points can be scored for each of the 23 items of the BIS, giving a possible total body image dissatisfaction score of 115. However, results were still statistically significant.

These results may suggest that body image dissatisfaction increases throughout the process of having breast reconstruction. Supporting this idea is a study by Harcourt (2002) who found that 39 out of 103 women reported poorer body image after surgery

was undertaken (whether mastectomy, immediate or delayed breast reconstruction). However in the absence of information regarding participants' body image dissatisfaction before surgery in the current study, it is impossible to ascertain whether body image dissatisfaction altered after undergoing additional procedures. It is possible that the women who had undergone additional procedures following breast reconstruction had higher body image dissatisfaction to begin with. Or alternatively, and similar to the hypotheses regarding anxiety and depression, it is possible that undergoing additional procedures results in greater body image dissatisfaction.

Crompvoets (2006) offers a hypothesis that may account for higher body image dissatisfaction seen in women who have undergone additional procedures. Whilst the option of additional procedures is available to women and is presented by surgeons as an option of becoming "whole again," women do not come to terms with their body or who they have become after experiencing breast cancer and the loss of a breast. In consideration of Price's (1990) model, it could be that women seek breast reconstruction or additional procedures in order to try to obtain a more satisfactory body image but that this is not achieved through continuing to alter body presentation. Seeking further procedures may mean that the tension between the three elements (body reality, body ideal and body presentation) is maintained because the woman has not altered her body ideal after having breast cancer and/or may be attempting to restore her appearance to how it was before, which is difficult to achieve. Consequently it could be that a woman continues to feel dissatisfied with her body image or she may even feel more dissatisfied with increasing cosmetic procedures that fail to achieve her preoperative appearance or body ideal.

It is possible that prior to undergoing breast surgery or additional procedures, women may have high expectations regarding the future cosmetic outcome of their breasts. The reality of this however may be quite different. Women may be left with “imperfect” results such as permanent scars, differences between the breasts and nipples in relation to shape, size or color, and little or no sensitivity, resulting in disappointment with the results. Some of these limitations may be seen in the photographs shown in Figures 1, 2 and 3 (p. 38-39) illustrating different types of breast reconstruction and additional procedures. Furthermore, it is important to highlight that Consultant Breast Surgeons selected these photographs as examples of good cosmetic outcomes, suggesting that there may often be further cosmetic limitations. If women have high or unrealistic expectations of cosmetic outcome to begin with it is possible that they may feel disappointed with the results, especially if undergoing additional procedures has meant that a further recovery period was needed and the results have been disappointing. This disappointment may be reflected in the higher body image dissatisfaction and depression found in the current study.

It could also be the case that continuing to undergo additional procedures causes women to become more preoccupied with their appearance, which has been shown to be the case with patients suffering from BDD. These patients frequently believe that cosmetic treatments are the only viable interventions for their distress however they rarely benefit from these procedures and the majority report dissatisfaction with the results (Veale, 2000). Sarwer, Whitaker, et al. (1998) found a number of reconstructive surgery patients reported a level of dissatisfaction and preoccupation consistent with a diagnosis of body dysmorphic disorder and therefore it is possible that some comparisons can be made

between these two groups. However, although the “extent” of body image dissatisfaction is very subjective, the current study has not found extremely high levels of body image dissatisfaction which is what would be expected with BDD patients. The extent of body image dissatisfaction may be considered subjective because it is generally assumed that women in Western society today have difficulties with accepting their body image, therefore, it could be argued that the average woman has high body image dissatisfaction.

Sarwer, Wadden et al. (1998) discussed possible reasons why women may undergo cosmetic procedures that may apply to the current study. They highlighted that individuals with high body image dissatisfaction and high body image valance⁸ may be highly likely to seek cosmetic surgery. It is possible that women with high body image valance and high body image dissatisfaction are more likely to undergo additional procedures following breast reconstruction because they place greater importance on their appearance and are dissatisfied with it. Indeed, women who had undergone additional procedures were found to have a higher body image dissatisfaction, which could offer some support for this hypothesis, however, it is arguably a limitation that body image valance was not measured in the current study. This could have been measured by asking participants, after each item relating to different parts of the body, to rate how important they felt each part was to them and possibly to comment upon why they felt this was important.

⁸ Body image valance was defined by Sarwer, Wadden et al. (1998) as a measure of the importance of body image to one’s self-esteem.

A measure that appears to have taken body image valance into account is the Body-Image Ideals Questionnaire (Cash & Szymanski, 1995). This questionnaire asks participants to rate how close they believe different parts of the body (such as facial features or chest size) are to their ideal (on a Likert scale ranging from “exactly as I am” to “very unlike me”). It also asks participants to rate how important this ideal is to them (on a Likert scale ranging from “not important” to “very important”). This scale provides information about the importance that individuals place upon different aspects of their appearance or body image as well as measuring the potential discrepancy between an individual’s body reality and body ideal.

With body image dissatisfaction, it is important to note that after controlling for age and time since last procedure was undertaken, the predictive effect of additional procedures did not reach statistical significance, suggesting that these factors may be having an effect upon the analyses. The current study was not undertaken to investigate whether age or time since last procedure predicted body image dissatisfaction, rather it sought to control for the possible effects of these variables. However, these findings suggest that these variables may be having an effect upon body image dissatisfaction which offers some support for previous research (Harcourt, 2002; Mock, 1993). However, the direction of the effect is unclear; for example, it is not known whether younger or older age or greater or less time since last procedure predicts greater body image dissatisfaction.

Reasons For and Against Additional Procedures

The three most frequent themes taken from reasons given by participants for having, considering, or planning to have additional procedures were: wanting to improve their appearance, wanting to improve psychological aspects of the self, such as body image, and the perception that additional procedures were part of the process of undergoing breast reconstruction. Similar to the research on motivation for choosing breast reconstruction (Rowland, 1998) these findings suggest that women mainly seek to satisfy “internal” motivations, rather than “external motivations, such as to please someone else.

The literature suggests that two of the most common reasons for electing to have breast reconstruction are fairly practical in nature, such as a reluctance to wear an external prosthesis and the chance to wear a greater variety of clothing (Contant et al. 2000). This was not found to be the case with women in the current study who have had, or were considering to have additional procedures. It could be the case that once women have the shape of the breast mound that results from breast reconstruction, they become less concerned with practical benefits and more concerned with details of further improving their appearance and their reasons for desiring additional procedures may become more psychological or emotional in nature.

A number of women ($n=16$, 17.2%) reported that their reason for having, considering, or planning to have additional procedures was that they wanted to improve their body image. This finding may support Price (1990) who suggested that individuals may alter

the body presentation in response to a change in the body reality which has created a tension between the body reality and body ideal. In other words, these women have experienced considerable changes in the appearance of their bodies, which may not reflect how they would ideally like to look, therefore they may undergo additional procedures to try to look more like their ideal and achieve a more satisfactory body image. Body image may be a motivating factor for women who elect to have additional procedures, however once again; it is not known whether body image alters after having additional procedures.

A further frequent reason given by women for having, considering, or planning to have additional procedures was that they perceived additional procedures to be part of the process of breast reconstruction. This provides a further insight into the way that breast reconstruction and additional procedures are presented to women, that they are all part of the treatment of breast cancer. Once again, this may reflect the power that surgeons have in recommending “medically unnecessary procedures” (Crompvoets, 2006, p. 78) which may or may not offer psychological benefits.

The most frequent reasons given by women for not having, considering, or planning to have additional procedures were that additional procedures were seen to be “unnecessary” and worrying about possible risks associated with undergoing further procedures. These findings are consistent with the literature on breast reconstruction, suggesting that many women decide not to have breast reconstruction because they fear having additional surgery (Schain et al. 1984) or because they want to avoid further “unnecessary” surgery (Harcourt & Rumsey, 2001). It is not clear why the women in the

current study believe additional procedures to be “unnecessary”. There are a number of possibilities, for example, they may be referring to the fact that these procedures are medically unnecessary, i.e. they do not treat breast cancer. It could be that they are seen as unnecessary because their surgeon has not recommended any further procedures, or they may be seen as unnecessary because the women feel content with themselves or with their body image. Further research examining women’s reasons for and against electing additional procedures is clearly needed.

How do women describe their experiences?

Women in both groups described their experiences in similar ways and the same common themes emerged which were around making sense of breast cancer, deciding to have breast reconstruction and the outcome and effects of having breast reconstruction. These findings may account for the overall high anxiety levels found, as these women may still be preoccupied with issues relating to their breast cancer and the effects of having breast reconstruction. Furthermore, these findings highlight that deciding to have breast reconstruction appears to be a particularly important process for these women and the timing of this decision seems to be pertinent. The decision making process may be important to consider in a psychological assessment of these women and further research in this area would be useful.

Further Analyses

Demographic comparisons were carried out between participants who had undergone breast reconstruction alone and participants who had undergone breast reconstruction and additional procedures on the basis of: ethnic origin, marital status, age, current medication for anxiety or depression, previous treatment for anxiety or depression, chemotherapy, radiotherapy, timing of breast reconstruction, type of breast reconstruction and time since last procedure was undertaken. Both groups were equivalent sociodemographically, with the exception of type of breast reconstruction. In particular, participants who had undergone breast reconstruction and additional procedures had undergone a greater number of expander/implant breast reconstructions than participants who had undergone breast reconstruction alone. However, no significant differences were found in anxiety, depression or body image dissatisfaction between the three different types of breast reconstruction (abdominal, back and expander/implant).

Due to the nature of expander/implant breast reconstruction, some surgeons may believe that a greater number of additional procedures are often required to achieve a satisfactory result (P. L. McManus, personal communication, June 28, 2007). In support, Crespo et al. (1994) reported that the number of revisions to achieve symmetry following breast reconstruction was “substantially” higher for women who had undergone expander/implant reconstruction compared to women who had undergone TRAM flap reconstruction. They concluded that “the TRAM flap is.... more likely to produce better, more symmetrical breasts” (p. 455). Similarly, Alderman, Wilkins,

Lowery, Kim, & Davis (2000) suggested that TRAM flap reconstructions may provide “a result more consistent with the patient’s original breast tissue” (p. 774). This research suggests that surgeons may believe that a greater number of additional procedures are “required” with expander/implant breast reconstruction. These beliefs may also affect women attending follow-up clinics after recently undergoing breast reconstruction. If their Consultant Breast Surgeon suggests that the breast reconstruction is not quite complete, the woman may feel that what she has is not “good enough” and therefore she may be motivated to seek additional procedures.

Previous Treatment for Anxiety and Depression

Participants who reported that they had received treatment for anxiety or depression within the last three years had a higher mean anxiety, depression and body image dissatisfaction score than participants who reported that they had not received treatment for anxiety and depression. These differences were statistically significant for anxiety and depression but not for body image dissatisfaction. This suggests that a previous history of anxiety or depression is related to current higher levels of anxiety and depression but not body image dissatisfaction. It may be expected that previous psychological difficulties would increase the risk of further similar difficulties. However, these results suggest that this is not the case for difficulties relating to body image dissatisfaction. The clinical implications that this finding may have for preoperative psychological assessment are discussed in the clinical implications section 5.3.

Chemotherapy and Radiotherapy

No significant differences were found for anxiety, depression or body image dissatisfaction between participants who had undergone chemotherapy or radiotherapy and those participants who had not undergone these treatments. This finding does not support other research which has suggested that exposure to adjuvant therapy such as chemotherapy and radiotherapy may be an important risk factor for distress (Rowland et al. 2000). However, psychological response to breast cancer treatment may relate to other psychological or personality factors. Furthermore, it is important to note that information was not obtained regarding the timing of these treatments, for example, whether they were undertaken before or after breast reconstruction. There may be a difference in anxiety, depression or body image dissatisfaction between those women who had undergone primary treatment (before breast reconstruction) and adjuvant treatment (after breast reconstruction). For example, it may be expected that women who had undergone adjuvant radiotherapy would have higher anxiety, depression and body image dissatisfaction than women who had undergone primary radiotherapy, because this treatment can have a negative cosmetic effect upon breast reconstruction (Berger & Bostwick, 1998), possibly resulting in psychological difficulties

Timing of Breast Reconstruction

No significant difference was found in anxiety or depression between participants who had undergone immediate breast reconstruction and those who had undergone delayed breast reconstruction. However, the difference was approaching statistical significance

for body image dissatisfaction, suggesting that those participants who had undergone delayed breast reconstruction experience higher body image dissatisfaction than those who had undergone immediate breast reconstruction. This supports the hypothesis of Al-Ghazal, Sully, et al. (2000) who found that women who had undergone delayed breast reconstruction had a much poorer body image than women who had undergone immediate breast reconstruction. The reason for this may be related to the fact that women who had immediate reconstruction, as opposed to delayed reconstruction have not had to live without a breast and the degree of self-consciousness that is related to this (Al-Ghazal, Sully, et al. 2000). It is also possible that women who had undergone delayed breast reconstruction may have accepted or come to terms with the loss of their breast and undergoing breast reconstruction may have caused dissatisfaction relating to having to renegotiate their sense of themselves *with* breasts (Crompvoets, 2006). Other research has found no significant differences in anxiety, depression and body image between immediate and delayed breast reconstruction (Harcourt, 2002).

Awareness of Requiring or Desiring Additional Procedures before Undergoing Breast Reconstruction

The vast majority of participants reported that they had been aware before undergoing breast reconstruction that additional procedures may be required or desired. This suggests that breast reconstruction and additional procedures are perceived as a process involving a number of procedures versus breast reconstruction as a single intervention. This suggests that surgeons may be reinforcing an underlying message that women need

to look “good enough”, that additional procedures are “needed” in order for women to become “whole” again (Crompvoets, 2006).

However, no significant differences were found in anxiety, depression or body image dissatisfaction between participants who reported that they had been aware and participants that reported they had been unaware. This raises implications regarding the psychological effects of how additional procedures are defined and portrayed by surgeons which will be discussed in section 5.3.

Discrepancies in How Additional Procedures are Defined

As mentioned, a discrepancy was found between how the study defined additional procedures and how participants had defined them. According to the study’s definition, a greater number of participants had undergone breast reconstruction and additional procedures (56.7%, $n=55$) than participants who had undergone breast reconstruction alone (43.3%, $n=42$). However, according to participants’ definitions, a greater number of participants reported that they had undergone breast reconstruction alone (55.7%, $n=54$) than those who reported that they had undergone breast reconstruction and additional procedures (44.3%, $n=43$). This highlights that participants perceive a number of additional procedures to be part of the process of breast reconstruction and are not defining them as additional.

This finding suggests that in the current study, Consultant Breast Surgeons have defined and presented breast reconstruction and additional procedures as a process, involving a

number of procedures. This reflects the considerable power that surgeons have, although these are “medically unnecessary procedures” as highlighted by Crompvoets (2006, p. 78), it appears that they have been perceived by participants to be part of the “treatment” of breast cancer.

It is interesting to note that when the participants’ definition of additional procedures is employed in the analyses, the results are quite different. Regarding the main analyses relating to the research questions of the study, no significant differences in the prevalence of anxiety and depression or mean body image dissatisfaction scores between the two groups were found. This suggests that participants who define themselves as undergoing breast reconstruction alone do not experience greater anxiety, depression or body image dissatisfaction than those who define themselves as undergoing breast reconstruction and additional procedures. Once again, this finding may be related to how additional procedures are presented to women. Women may perceive that undergoing additional procedures are part of their breast cancer treatment or “healing process”. The significance of this finding is further discussed in relation to clinical implications.

5.3 Clinical Implications

The findings of the current study suggest that there appear to be no psychological benefits of undergoing additional procedures following breast reconstruction in terms of anxiety, depression and body image dissatisfaction. This supports Andrade et al. (1999) who suggested that there are little added benefits of undergoing these additional procedures. This raises important questions in terms of both financial costs and ethics

regarding whether additional procedures should be routinely offered for women. It appears that additional procedures are provided under the assumption that they will lead to a positive outcome for women, such as decreased psychological distress and improved satisfaction and body image. However, the current study suggests that undergoing these additional procedures may not lead to a positive psychological outcome. Women appear to perceive many additional procedures to be part of the process of breast reconstruction or perhaps as part of the process of breast cancer treatment. Women may believe that their breast cancer treatment is “unfinished” which may account for feelings of anxiety, depression and body image dissatisfaction.

The significant difference in body image dissatisfaction between women who had undergone breast reconstruction alone and women who had undergone breast reconstruction and additional procedures may suggest that women become more dissatisfied with their body image after undergoing additional procedures. However, it is not known whether anxiety, depression or body image have altered throughout the process. It could be, for example, that women who had undergone breast reconstruction and additional procedures had higher body image dissatisfaction to begin with. It is not known whether these women have become more or less dissatisfied with their body image or whether this has remained more or less the same, after undergoing additional procedures.

There is a need for prospective longitudinal research that measures psychological factors such as anxiety, depression and body image dissatisfaction over time. However, the current study provides support for the use of pre and post operative psychological

assessment of women who undergo breast reconstruction and additional procedures. These women may experience clinically significant anxiety, depression or have high body image dissatisfaction and these should be monitored over time. It is also important to consider the finding that a previous history of anxiety or depression is related to current higher levels of anxiety and depression but not body image dissatisfaction. This may be a useful part of a preoperative psychological assessment. Women may be at greater risk of developing clinically significant anxiety or depression following surgery if they have experienced these psychological difficulties in the past. It also highlights that high body image dissatisfaction may be more difficult to assess based solely upon reviewing previous psychological difficulties meaning that further assessment in terms of body image dissatisfaction is required. This may be achieved by ensuring that an appropriate measure is used as part of the psychological assessment that also takes into account the importance of body image valance.

An interesting finding was that no significant differences in anxiety, depression and body image dissatisfaction were found between participants who were aware before having breast reconstruction that additional procedures may be required or desired and those who were unaware. This may suggest that there are no obvious psychological advantages or disadvantages of surgeons explaining breast reconstruction as a process involving a number of further procedures. However, it is important to note that a relatively high prevalence of anxiety and depression was found in the sample as a whole, suggesting that it may not be helpful for women to undergo this process.

Surgeons may be reinforcing an underlying message that women need to look “good enough”, that additional procedures are “needed” in order for women to become “whole” again (Crompvoets, 2006). However, no significant differences were found in anxiety, depression or body image dissatisfaction between participants who reported that they had been aware and participants that reported they had been unaware. This raises implications regarding the psychological effects of how additional procedures are defined and portrayed by surgeons.

Participants who defined themselves as undergoing breast reconstruction alone did not experience greater anxiety, depression or body image dissatisfaction than those who defined themselves as undergoing breast reconstruction and additional procedures. This could suggest that it is better for women to view breast reconstruction as a process as they may feel that they have more choice and control. However, the amount of control that women actually have over this process can be debated upon. It has been highlighted that surgeons hold a considerable amount of power in suggesting whether these procedures should go ahead (Crompvoets, 2006).

5.4 Theoretical and Methodological Strengths and Limitations

A particular strength of the current study was that it attempted to clarify some of the difficulties involved in defining and measuring body image in research studies. As recommended by researchers (Thompson et al. 1999; Thompson, 2004) the study aimed to be more specific in labelling the dimension of body image that it was hoping to measure (body image dissatisfaction) and a measure was chosen that has a scale to target

the satisfaction-dissatisfaction continuum of disturbance (BIS). However, this may still appear confusing as the scale used is titled “the body image scale” and strictly speaking it only measures satisfaction with different parts of the body. Body image is now largely considered to be a multidimensional phenomenon consisting of affective, behavioural and perceptual features about the body and bodily experiences (Cash & Pruzinsky, 1990; Thompson et al. 1999). Furthermore, the extent of body image dissatisfaction as measured by the BIS may be subjective as the scale provides a mean body image dissatisfaction score rather than discrete categories classifying the extent of dissatisfaction. However, these difficulties may be reflective of the general problems that exist in assessing body image and it was considered that this study has attempted to specifically define what was measured whilst highlighting the importance of these issues to future researchers.

A difficulty relating to the BIS was in relation to the reliability and validity of the instrument. Reliability and validity data was obtained by Bohrnstedt (1977) for the 22-item scale edited by Polivy (1977). However for the purposes of the current study, the scale was further edited and no new data on validity or reliability for the 23-item measure was obtained. Test-retest reliability of the 22-item scale was tested in the current study, the results of which demonstrated high reliability (see Method, p. 68 for further information). The item added in the current study asking about satisfaction with the reconstructed breast was omitted because the women from the sample tested had not undergone breast reconstruction. These participants were taken from an opportunity sample of 30 women aged between 22 and 67 years ($M=30.8$, $SD=11.83$). Although high test-retest reliability was found for this sample of women, these results may not be

reliably generalized to the participants in the current study, given that these women had undergone breast reconstruction and also had a higher mean age.

A further limitation of the current study was that it did not attempt to measure body image valance (a measure of the importance of body image to one's self-esteem) and therefore it was not known how much importance or value women placed upon feeling satisfied with their appearance. It could be for example, that some women may have had high body image dissatisfaction but low body image valance, meaning that although they may have felt dissatisfied with their body image, this was not an important issue for them that was causing any significant distress.

There may be a number of factors that the current study did not take into account. As mentioned, information was not obtained regarding whether chemotherapy or radiotherapy was undergone before or after breast reconstruction. Participants were not asked to rate how satisfied they were with their breast reconstruction and therefore it was difficult to ascertain whether or not satisfaction might be related to the desire to undergo additional procedures. Furthermore, there was no measure of participants' expectations of the cosmetic outcome of breast reconstruction and additional procedures.

The current study did not take into account personal and environmental factors that may influence a woman's psychological response to breast surgery such as significant life events (Forsen, 1991) and coping style or strategies (Morris, Pettingale, & Haybrittel, 1992). Furthermore, the current study did not consider women's social context, which may be related to investment in appearance (White, 2000).

A significant limitation of the current study was that it employed a cross sectional retrospective method and therefore it is subject to the same criticisms made of previous studies using this method. No baseline data was obtained and therefore there is a lack of information about whether levels of anxiety, depression and body image dissatisfaction altered over time. It is difficult to establish cause and effect, as those participants who had undergone additional procedures may have developed greater body image dissatisfaction because they have had additional procedures, or they may have been more motivated to seek additional procedures because they had greater body image dissatisfaction.

Despite the limitations mentioned, the study appeared to be fairly representative of the population. The participant sample represented 69.3% of all women who had undergone breast reconstruction following mastectomy that met the inclusion criteria for the study within the data collection period. Furthermore, there was a 77.6% response rate. The comparison of participants and non-participants on demographic data indicated that there were no significant differences in terms of age, time since last procedure was undertaken, type and timing of breast reconstruction. The only exception was that a significant difference was found for number of additional procedures, participants had a higher number of additional procedures than non-participants. This may be an artefact of clinic versus postal data collection. Many of the women that were recruited via clinic attended clinics a number of times over the data collection period, probably because they had undergone a greater number of additional procedures and required follow-up appointments. In comparison, participants that were contacted via post may have attended clinics less frequently due to not undergoing as many additional procedures.

A methodological strength of the current study was that it was able to control for the possible confounding effects of age and time since last procedure was undertaken. Furthermore, the study generated some qualitative data regarding women's experiences of undergoing breast reconstruction and additional procedures as well as providing an insight into the possible reasons why women might elect to have additional procedures.

To summarise, a number of theoretical strengths and limitations have been outlined. However, it is important to highlight that the current study has contributed to the currently limited research base of psychological aspects of additional procedures following breast reconstruction.

5.5 Recommendations for Future Research

It is recommended that further attention is given to the clarification of body image as a construct and the development of a reliable and valid instrument for measuring body image within this population of women. Furthermore, it is recommended that it would be useful for future researchers to consider the possible importance of body image valance in measuring body image. The Body-Image Ideals Questionnaire (Cash & Szymanski, 1995) measures the importance that individuals place upon different aspects of their appearance or body image as well as the potential discrepancy between an individual's body reality and body ideal.

Furthermore, it may be useful for researchers to select a measure that aims to assess multiple components of body image such as the Multidimensional Body Self-Relations

Questionnaire (MBSRQ) (Brown, Cash, & Mikulka, 1990) which has subscales that assess appearance evaluation, appearance orientation (e.g. investment in appearance) and body satisfaction. Furthermore, for researchers measuring the body image effects of medical illness and treatment, Pruzinsky (2004) has recommended that researchers should use a combination of general body image measures (e.g., MBSRQ, Brown, Cash, & Mikulka, 1990) and illness-specific measures (e.g., Body Image Scale, Hopwood, Fletcher, Lee, & Al-Ghazal, 2001).

The current study has highlighted the lack of consensus regarding how additional procedures are defined and conceptualised. It may be useful to further explore how additional procedures are conceptualised by both health professionals such as breast surgeons and nurses and also patients. Richer, more detailed information may be achieved through using qualitative methodology such as interviews.

The implementation of large scale multi centre prospective and longitudinal studies would provide further information on whether anxiety, depression or body image dissatisfaction alters throughout the process of undergoing breast reconstruction and additional procedures. A study measuring a range of psychological or psychosocial aspects (e.g., distress, body image dissatisfaction, body image valance, self-esteem, quality of life and social support) in addition to measuring the financial costs that undergoing additional procedures present to the NHS would provide further information regarding whether there are any psychological benefits of undergoing additional procedures. Research such as this could inform service provision, for example, it could highlight predictors of dissatisfaction in women who undergo these additional

procedures. In addition, further research may lead to the development of standardised preoperative assessments for psychologists who may be more frequently asked to undertake such assessments in future years.

CONCLUSIONS

The current study utilized a predominantly quantitative approach to investigate the prevalence of distress (anxiety and depression) and extent of body image dissatisfaction in women who had undergone breast reconstruction alone and women who had undergone breast reconstruction and additional procedures.

Consistent with previous research, anxiety and depression were fairly prevalent emotional experiences of women in the sample. The prevalence of anxiety and depression was higher in women who had undergone breast reconstruction and additional procedures compared to women who had undergone breast reconstruction alone. This difference was not significant for anxiety; however it was approaching statistical significance for depression. Furthermore, women who had undergone breast reconstruction and additional procedures had significantly higher body image dissatisfaction than women who had undergone breast reconstruction alone. There was some evidence that undergoing additional procedures predicted depression and body image dissatisfaction.

The findings of the current study suggest that there appear to be no psychological benefits of undergoing additional procedures following breast reconstruction in terms of anxiety, depression and body image dissatisfaction. This raises important questions in terms of both financial costs to the NHS and ethics regarding whether additional procedures should be routinely offered to women. It appears that additional procedures are provided under the assumption that they will lead to a positive outcome for women, such as decreased psychological distress and improved satisfaction and body image. However, the current study suggests that undergoing these additional procedures may not lead to a positive psychological outcome.

It appears that Consultant Breast Surgeons present breast reconstruction and additional procedures as a process that involves a number of procedures in order to achieve a satisfactory cosmetic result. A common reason given by women for undergoing additional procedures was related to them seeing these procedures as being part of the process of breast reconstruction. It is possible that they perceive their breast cancer treatment to be “unfinished” or that they are “incomplete” in some way. This may account for feelings of anxiety, depression and body image dissatisfaction.

A limitation of the study was that it employed a cross sectional retrospective method and therefore it is not known whether anxiety, depression or body image have altered throughout the process of undergoing breast reconstruction and additional procedures. It could be, for example, that women who had undergone breast reconstruction and additional procedures had higher body image dissatisfaction to begin with. It is not known whether these women have become more or less dissatisfied with their body

image or whether this has remained more or less the same, after undergoing additional procedures.

The current study provides support for the use of pre and post operative psychological assessment of women who undergo breast reconstruction and additional procedures. These women may experience clinically significant anxiety, depression or have high body image dissatisfaction and these should be monitored over time. There is a need for prospective longitudinal research that measures a range of psychological and psychosocial factors over time. In addition, it would be useful to measure the financial costs that undergoing additional procedures present to the NHS. Research such as this is likely to provide further information regarding whether there are any psychological benefits of undergoing additional procedures. Furthermore, a greater understanding of the possible psychological effects of undergoing these procedures and the emotional experiences of women that choose to undergo them may lead to the development of standardised preoperative guidelines to assist psychologists who are frequently asked to undertake such assessments.

REFERENCES

- Alderman, A. K., Wilkins, E. G., Lowery, J. C., Kim, M., & Davis, J. A. (2000). *Determinants of patient satisfaction in post mastectomy breast reconstruction. Plastic and Reconstructive Surgery, 106*(4), 769-776.
- Al-Ghazal, S. K., Fallowfield, L., & Blamey, R. W. (2000). Comparison of psychological aspects and patient satisfaction following breast conserving surgery, simple mastectomy and breast reconstruction. *European Journal of Cancer, 36*, 1938-1943.
- Al-Ghazal, S. K., Sully, L., Fallowfield, L., & Blamey, R. W. (2000). The psychological impact of immediate rather than delayed breast reconstruction. *European Journal of Surgical Oncology, 26*, 17-19.
- American Psychiatric Association (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: Author.
- Andrade, W. N., Baxter, N., & Semple, J. L. (1999). Clinical determinants of patient satisfaction with breast reconstruction. *Plastic and Reconstructive Surgery, 107*, 46-54.

Barker, C., Pistrang, N., & Elliot, R. (2002). *Research methods in clinical psychology: An introduction for students and practitioners* (2nd ed.). Chichester: John Wiley & Sons.

Berger, K., & Bostwick, J. (1998). *A woman's decision: Breast care, treatment and reconstruction* (3rd ed.). New York: Quality Medical Publishing Inc.

Berscheid, E., Walster, E., & Bohrnstedt, G. (1972). Body image: A psychology today questionnaire. *Psychology Today*, 6, 58-66.

Bjelland, I., Dahl, A. A., Haug, T. T., & Neckelmann, D. (2002). The validity of the hospital anxiety and depression scale: An updated literature review. *Journal of Psychosomatic Research*, 2, 69-77.

Bohrnstedt, G. W. (1977). On measuring body satisfaction. Unpublished manuscript, Indiana University, Institute of Social Research at Bloomington.

Breastcancer.org (2006). How breast cancer happens. Retrieved May 31, 2007, from http://www.breastcancer.org/cmn_und_idx.html

Breitbart, W. (1995). Identifying patients at risk for and treatment of major psychiatric complications of cancer. *Supportive Cancer Care*, 3, 45-60.

- Bremner-Smith, A., Straker, V. F., Abel, A., & Rainsbury, R. (1996). Choices and experiences of women offered breast reconstruction. British Association of Oncologists, Winter Meeting, Royal College of Surgeons: London.
- Brown, T. A., Cash, T. F., & Milulka, P. J. (1990). Attitudinal body image assessment: Factor analysis of the body self-relations questionnaire. *Journal of Personality Assessment, 55*, 135-144.
- Cancer Research UK (2004). Breast cancer care: Statistics and facts about breast cancer. Retrieved April 5, 2007, from [http://www.breastcancercare.org.uk/content.php?page_id= 1730](http://www.breastcancercare.org.uk/content.php?page_id=1730)
[content.php?page_id= 3367](http://www.breastcancercare.org.uk/content.php?page_id=3367)[content.php?page_id=419](http://www.breastcancercare.org.uk/content.php?page_id=419)[content.php?page_id=43](http://www.breastcancercare.org.uk/content.php?page_id=43)
- Carver, C., Pozo-Kaderman, C., Price, A., Noriega, V., Harris, S. D., Derhagopian, R. P. et al. (1998). Concern about aspects of body image and adjustment to early stage breast cancer. *Psychosomatic Medicine, 60*, 168-174.
- Cash, T. F., & Pruzinsky, T. (1990). *Body images: Development, deviance and change*. New York: Guilford.
- Cash, T. F., & Pruzinsky, T. (2004). *Body image: A handbook of theory, research and clinical practice*. New York: The Guilford Press.

- Cash, T. F., & Szymanski, M. L. (1995). The development and validation of the body-image ideals questionnaire. *Journal of Personality Assessment, 64*(3), 466-477.
- Clayton, B. J., & Waller, A. L. (1996). The TRAM flap in breast reconstruction. *Plastic Surgical Nursing, 16*, 133-138.
- Coleman, M. P., Rachet, B., Woods, L. M., Mitry, E., Riga, M., Cooper, N., et al. (2004). Trends and socioeconomic inequalities in cancer survival in England and Wales up to 2001. *British Journal of Cancer, 90*(7), 1367-1373.
- Collins concise dictionary and thesaurus (1995). Glasgow: HarperCollins Publishers.
- Contant, C., Van Wersch, A., Wiggers, T., Wai, R. T. J., & Van Geel, A. N. (2000). Motivations, satisfaction, and information of immediate breast reconstruction following mastectomy. *Patient Education and Counseling, 40*, 201-208.
- Crespo, L.D., Eberlein, T. J., O'Connor, N., Hergueter, C. A., Pribaz, J. J., & Eriksson, E. (1994). Post-mastectomy complications in breast reconstruction. *Annals of Plastic Surgery, 32*, 452-456.
- Cromptoets, S. (2006). Comfort, control, or conformity: Women who choose breast reconstruction following mastectomy. *Health Care for Women International, 27*, 75-93.

Davis, K. (1994). *Reshaping the female body: The dilemmas of cosmetic surgery*.

London: Routledge.

Dean, C., Chetty, U., & Forrest, A. P. M. (1983). Effects of immediate breast reconstruction on psychosocial morbidity after mastectomy. *Lancet*, *1*, 459-462.

Department of Health (2007). Considering cosmetic surgery? Retrieved June 21, 2007,

from

http://www.dh.gov.uk/en/Policyandguidance/Healthandsocialcaretopics/CosmeticSurgery/DH_4123795

Edgerton, M. T., Langman, M. W., & Pruzinsky, T. (1991). Plastic surgery and psychotherapy in the treatment of 100 psychologically disturbed patients. *Plastic and Reconstructive Surgery*, *88*, 594-608.

Forsen, A. (1991). Psychosocial stress as a risk factor for breast cancer. *Psychotherapy and Psychosomatics*, *55*, 176-185.

Ganz, P. A., Cascarelli, A., & Fred, C. (1999). Breast cancer survivors: Psychosocial concerns and quality of life. *Breast Cancer Restorative Treatment*, *38*, 183-199.

Goin, J. M., & Goin, M. K. (1987). Psychological understanding and management of the plastic surgery patient. In N. G. Georgiade, G. S. Georgiade, R. Riefkohl, & W. J. Barwick (Eds.), *Essentials of plastic, maxillofacial and reconstructive surgery* (pp. 1127-1143). Baltimore, MD: Williams & Wilkens.

Goldberg, J. A., Scott, R. N., Davidson, P. M., Murray, G. D., Stallard, S., George, W. D. et al (1992). Psychological morbidity in the first year of breast surgery. *European Journal of Surgical Oncology, 18*, 327-331.

Grogan, S. (1999). *Body image*. London: Routledge.

Harcourt, D. (2002). Breast reconstruction: The psychological implications and reasoning behind decisions made by women undergoing mastectomy following diagnosis of breast cancer. *The Research Findings Register*. Summary number 718. Retrieved December 11, 2005, from <http://www.ReFeR.nhs.uk/ViewRecord.asp?ID=718>

Harcourt, D., & Rumsey, N. (2001). Psychological aspects of breast reconstruction: A review of the literature. *Journal of Advanced Nursing, 35*(4), 477-487.

Hasan, J. S. (2000). Psychological issues in cosmetic surgery: A functional overview. *Annals of Plastic Surgery, 44*(1), 89-96.

- Herrmann, C. (1997). International experiences with the hospital anxiety and depression scale: A review of validation and clinical results. *Journal of Psychosomatic Research*, 42, 17-41.
- Holly, P., & Kennedy, P. (1998). The psychological benefits of immediate breast reconstruction in women who have undergone surgery for cancer. *Proceedings of the British Psychological Society*, 6, 32-33.
- Hopwood, P., Fletcher, I., Lee, A., & Al-Ghazal, S. (2001). A body image scale for use with cancer patients. *European Journal of Cancer*, 37, 189-197.
- Hussain, R., Schofield, M., & Loxton, D. (2002). Cosmetic surgery and health service use in midlife. *Women's Health Australia*, 176(12), 576-579.
- Kasper, A. S. (1995). The social construction of breast loss and reconstruction. *Women's Health: Research on Gender, Behavior and Policy*, 1(3), 197-219.
- Kraus, P. L. (1999). Body image, decision making and breast cancer treatment. *Cancer Nursing*, 22(6), 421-427.
- Margolis, G. J., Goodman, R. L., & Rubin, A. (1990). Psychological effects of breast conserving cancer treatment and mastectomy. *Psychosomatics*, 31, 33-39.

Mock, V. (1993). Body image in women treated for breast cancer. *Nursing Research*, 42, 153-157.

Money, A. (2004). The application of cognitive information processing theory to decision processes involving cosmetic surgery. Unpublished master's thesis. Florida State University, Florida, USA.

Morris, T., Pettingale, K., & Haybittel, J. (1992). Psychological response to cancer diagnosis and disease outcome in patients with breast cancer and lymphoma. *Psycho-Oncology*, 1, 105-114.

National Cancer Institute (2007). Breast cancer treatment. Retrieved June 28, 2007, from <http://www.cancer.gov/cancertopics/pdq/treatment/breast/Patient/page5>

National Institute of Clinical Excellence (2002). Improving outcomes for breast cancer- manual update. Retrieved June 28, 2007, from <http://guidance.nice.org.uk/csgbc/guidance/recon.pdf/English>

Neal, P. L., & Hoskin, P. J. (1997). *Clinical oncology: Basic principles and practice* (2nd ed.). New York: Oxford University Press.

Newell, R. (2000). *Body image and disfigurement care*. London: Routledge.

NHS Modernisation Agency (2007). Information for commissioners of plastic surgery services. Referrals and guidelines in plastic surgery. Retrieved June 15, 2007, from <http://www.wise.nhs.uk/sites/clinicalimprovcollab/surgery-plastic/Surgery%20Plastic%20Documents/1/Inclusion.pdf>

NHS Modernisation Agency (2002-2005). Action on plastic surgery. A strategic approach to the delivery of the NHS plastic, reconstructive, and aesthetic surgery service. National good practice guidance: Local implementation document 1. Retrieved June 15, 2007, from http://www.wise.nhs.uk/NR/rdonlyres/BBA564B6-2690-49F9-90A1-E4E2E3A9ACAB/1314/doc1_plastic.pdf

Özgür, F., Tuncali, D., & Güler, G. K. (1998). Life satisfaction, self-esteem and body image: A psychosocial evaluation of aesthetic and reconstructive surgery candidates. *Aesthetic Plastic Surgery*, 6, 412-416.

Pasacreta, J. V. (1997). Depressive phenomena, physical symptoms distress and functional status among women with breast cancer. *Nursing Research*, 46, 214-221.

Polivy, J. (1977). Psychological effects of mastectomy on a woman's feminine self-concept. *Journal of Nervous and Mental Disease*, 164(2), 77-86.

Price, B. (1990). *Body image: Nursing concepts and care*. London: Prentice Hall.

Pruzinsky, T. (2004). Enhancing quality of life in medical populations: a vision for body image assessment and rehabilitation as standards of care. *Body Image, 1*, 71-81.

Pruzinsky, T., & Edgerton, M. T. (1990). Body image change in cosmetic plastic surgery. In T. F. Cash & T. Pruzinsky (Eds.), *Body images: Development, deviance and change* (pp. 217-236). New York: Guilford Press.

Roth, R. S., Lowery, J. C., Davis, J., & Wilkins, E. G. (2005). Quality of life and affective distress in women seeking immediate versus delayed breast reconstruction after mastectomy for breast cancer. *Plastic and Reconstructive Surgery, 116*(4), 993-1002.

Rowland, J. H. (1998). Psychological impact of treatments for cancer. In S. L. Spear (Ed.), *Surgery of the breast: Principles and art* (pp. 295-313). Philadelphia: Lippincott-Raven.

Rowland, J. H., Desmond, K. A., Meyerowitz, B. E., Belin, T. R., Wyatt, G. E., & Ganz, P. A. (2000). Role of breast reconstructive surgery in physical and emotional outcomes among breast cancer survivors. *Journal of National Cancer Institute, 17*, 1375-1379.

Rowland, J. H., Holland, J. C., Chaglassian, T., & Kinne, D. (1995). Breast reconstruction after mastectomy: who seeks it, who refuses? *Plastic and Reconstructive Surgery, 95*, 812-822.

Rumsey, N., & Harcourt, D. (2005). *The psychology of appearance*. Berkshire, England: Open University Press.

Sarwer, D. B., & Crerand, C. E. (2004). Body image and cosmetic medical treatments. *Body Image, 1*, 99-111.

Sarwer, D. B., Wadden, T. A., Pertschuk, M. J., & Whitaker, L. A. (1998). The psychology of cosmetic surgery: A review and reconceptualisation. *Clinical Psychology Review, 18*, 1-22.

Sarwer, D.B, Wadden, T.A., & Whitaker, L. A. (2002). An investigation of changes in body image following cosmetic surgery. *Plastic Reconstructive Surgery, 109*(1), 363-371.

Schag, C. A. C., Ganz, P. A., Polinsky, M. D., Fred, C., Hirji, K., & Petersen, L. (1993). Characteristics of women at risk for psychosocial distress in the year after breast cancer. *Journal of Clinical Oncology, 11*, 783-793.

Schain, W. S. (1991). Breast reconstruction: An update of psychosocial and pragmatic concerns. *Cancer, 1*, 1170-1175.

Schain, W. S., Jacobs, E., & Wellisch, D. K. (1984). Psychosocial issues in breast reconstruction. *Clinical Plastic Surgery, 11*, 237-251.

Schain, W. S., Wellisch, D. K., Pasnau, R. O., & Landsverk, J. (1985). The sooner the better: A study of psychological factors in women undergoing immediate versus delayed breast reconstruction. *American Journal of Psychiatry*, *142*, 40-46.

Schilder, P. (1935). *The image and appearance of the human body*. New York: International Universities Press.

Schover, L. R. (1991). The impact of breast cancer on sexuality, body image, and intimate relationships. *Psychosomatics*, *41*, 112-120.

Steinberg, M., Juliano, M. A., & Wise, M. A. (1985). Psychological outcome of lumpectomy versus mastectomy in the treatment of breast cancer. *American Journal of Psychiatry*, *142*, 34-39

Stevens, L. A., McGrath, M. H., Druss, R. G., Kister, S. J., Gump, F. E., & Forde, K. A. (1984). The psychological impact of immediate breast reconstruction for women with early breast cancer. *Development Evaluation Committee Report no. 41*. : Wessex: Wessex Institute of Public Health.

Stewart, T. M., & Williamson, D. A. (2004). Assessment of body image disturbances. In J. K. Thompson (Ed.), *Handbook of eating disorders and obesity* (pp. 495-514). New York: Wiley.

- Thompson, J. K. (2004). The (mis) measurement of body image: Ten strategies to improve assessment for applied and research purposes. *Body Image, 1*, 7-14.
- Thompson, J. K., Heinberg, L. J., Altabe, M., & Tantleff-Dunn, S. (1999). *Exacting beauty: Theory, assessment and treatment of body image disturbance*. Washington, DC: American Psychological Association.
- Tiggemann, M. (2004) Body image across the adult life-span: Stability and change. *Body Image, 1*, 29-41.
- University of Michigan Health System (2005). Additional surgical options following breast reconstruction. Retrieved May 23, 2007, from <http://www.med.umich.edu/surgery/plastic/clinical/breast/afterrecon.shtml>
- Veale, D. (2000). Outcome of plastic surgery and DIY surgery in patients with body dysmorphic disorder. *Psychiatric Bulletin, 24*, 218-222.
- Ward, C. M. (1981). Breast reconstruction after cancer, aesthetic triumph or surgical disaster? *British Journal of Plastic Surgery, 34*, 124-127.
- Wellisch, D. K., DiMatteo, R., Silverstein, M., Landsverk, J., Hoffman, R., Waisman, J. et al. (1989). Psychological outcomes of breast cancer therapies: Lumpectomy versus mastectomy. *Psychosomatics, 30*, 365-373.

- Wellisch, D. K., Schain, W. S., Noone, R. B., & Little, J. W. (1985). The psychological contribution of nipple addition in breast reconstruction. *Plastic and Reconstructive Surgery*, 80(5), 699-704.
- White, C. A. (2000). Body image dimensions and cancer: A heuristic cognitive behavioral model. *Psycho-Oncology*, 9, 183-192.
- White, C. A. (2002). Body image issues in oncology. In T. F. Cash & T. Pruzinsky (Eds.), *Body image: A handbook of theory, research, and clinical practice* (pp. 379-386). New York: Guilford Press.
- Winder, A. E., & Winder, B. D. (1985). Patient counseling: Clarifying a woman's choice for breast reconstruction. *Patient Education and Counseling*, 7, 65-75.
- World Health Organization (2007). The world cancer report: The major findings: Cancer by the numbers. Retrieved April 5, 2007, from <http://www.who.int/mediacentre/news/releases/2003/pr27/en/print.html>
- Zigmond, A. S., & Snaith, R. P. (1983). The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica*. 67, 361-70.

APPENDIXES

APPENDIX A

- Cover page to questionnaire pack
- Demographic questionnaire
- Body Image Scale (not included due to copyright)
- Hospital Anxiety and Depression Scale (not included due to copyright)
- Additional procedures questionnaire
- Space to share individual experiences

QUESTIONNAIRE PACK

Demographic questionnaire

It would be useful if we had some background information to help us to understand your answers better.

Please tick the appropriate box

1. Are you

Married/living with partner	<input type="checkbox"/>
Single	<input type="checkbox"/>
Divorced/separated	<input type="checkbox"/>
Widowed	<input type="checkbox"/>

Please tick the appropriate boxes

2. Are you currently being prescribed any medication for:

	Yes	No
Anxiety	<input type="checkbox"/>	<input type="checkbox"/>
Depression	<input type="checkbox"/>	<input type="checkbox"/>
Sleeplessness	<input type="checkbox"/>	<input type="checkbox"/>

3. Have you received treatment for anxiety/depression in the last 3 years?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>

PLEASE TURN OVER

EXTRA SPACE IS AVAILABLE AT THE END IF NEEDED

Body Image Scale

Body Image Scale not included due to copyright

PLEASE TURN OVER

Part. I.D. N.o:

Q's-Version 1

May-06

EXTRA SPACE IS AVAILABLE AT THE END IF NEEDED

The Hospital Anxiety and Depression Scale

HADS not included due to copyright

PLEASE TURN OVER

Q's-Version 1

Part. I.D. N.o:

May-06

5-
2006/05/06
2006/05/06

The following questions are related specifically to your breast reconstruction and any other additional procedures that you may have undergone.

PLEASE NOTE: When completing this section of the questionnaire we are interested in hearing about **both SURGICAL AND NON-SURGICAL ADDITIONAL PROCEDURES**

(for example, breast lift or surgery to abdomen after FLAP reconstruction (surgical) or nipple tattoo (non-surgical))

1. Have you had any further procedures related to your breast reconstruction?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>

2. Are you considering or planning to have any further procedures related to your breast reconstruction?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>

3. If you answered 'yes' to question 2 please tell us a bit more about this, such as the types of procedures and when you expect to have them (if appropriate)

4. Were you aware before having breast reconstruction that you may require/want to have further procedure(s)?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>

PLEASE TURN OVER

5. If you answered 'yes' to either question 1 or 2 (or both) please tell us your reasons for having, considering, or planning to have further procedures related to your breast reconstruction.

6. If you answered 'no' to questions 1 and 2 please tell us your reasons for not having, considering or planning to have further procedures related to your breast reconstruction.

PLEASE TURN OVER

Q's-Version 1

EXTRA SPACE IS AVAILABLE AT THE END IF NEEDED

You may use this space to 'tell your story' or share with us your experiences. Anything that you are willing to share will be treated with respect and kept confidential.

A large, empty rectangular box with a thin black border, occupying most of the page. It is intended for the respondent to write their story or share their experiences.

PLEASE TURN OVER
Q's-Version 1

Part. I.D. N.o:

May-06

EXTRA SPACE IS AVAILABLE AT THE END IF NEEDED

If you wish, please use this as extra space for continuing with any of your previous answers, thank you.

END OF QUESTIONNAIRE

THANK YOU AGAIN FOR YOUR TIME AND SUPPORT

Part. I.D. N.o:

Q's-Version 1

May-06

APPENDIX B

- Feedback from local Cancer Research Network Consumer Research Panel (CRP)
- Main ethical considerations
- Ethics Committee Approval
- Trust Research Governance Approval

25th April 2006

Re: Consumer Research Panel – Research Proposal Feedback

Psychological Aspects of Additional Procedures Following Breast Reconstruction

Dear Lesley,

Please find enclosed the collated feedback from members of the Consumer Research Panel. I hope you find this useful. The panel enjoyed reviewing the documents and felt it was a well-written, worthwhile study.

Thank you again for inviting the panel to make comments on your study, please remember us in the future.

If you would like to discuss the feedback please do not hesitate to get in touch.

With thanks,

Yours sincerely

Research Assistant/CRP Facilitator

CONSUMER RESEARCH PANEL (CRP)

Feedback: Research Proposal:

Psychological Aspects of Additional Procedures Following Breast Reconstruction

Page 1. Introduction - states breast cancer "accounts for around 25 percent...": **I felt there should be references as to where this info comes from.**

Page 5. Expected results and implications: **One would presume women might be glad of psychological help after "further procedures following breast reconstruction", but shouldn't there be some data showing what indication there has been that there is a need for psychological pre-op pre-assessment?**

Questionnaire pack:

Page 2 - Q 4: **If I was the patient filling this in, I'd want to know what does my current or previous occupation have to do with the study.**

Page 5 - both questions: **How can knowing what a patient is feeling at that moment help the study?**

I felt some of the questions were intrusive and pointless. They may not have been to the researcher, but, as a patient, I'd feel annoyed about them. Perhaps a brief explanation of why they are relevant might help.

Who will receive the knowledge gained, and how (if it's deemed necessary) will any action be enforced?

The Questionnaire Pack: Part B – additional procedures.

Using three letter words throughout, e.g. '...tell us a bit more...' can seem patronising. Suggest '...tell us something more...'. Needs simplification as below.

Q 4: b) Suggest: 'If you answered 'yes' to question 4a), please tell us more about these procedures, including wherever possible, dates and time since breast reconstruction.'

Q 5: b) 'If you answered 'yes' to question 5a), please tell us more about this, such as the types of procedures and when you expect to have them.'

Q 7: 'If you answered 'yes' to either questions 4 and 5, please tell us your reasons for having, considering or planning to have further procedures related to your breast reconstruction.'

Q 8: 'If you answered 'no' to questions 4 and 5, please tell us your reasons for not having, considering or planning further procedures related to your breast reconstruction.'

Page 15 Sentence construction. The use of 'may' means participants have a choice, so there is no need to add 'if you would like to'. 'Uttermost?'
Do **not** tell people to remember.

Suggest: 'You may use this space to tell us your story. Anything you are willing to share will be treated with respect and kept confidential.'

Information Sheet

Modern thinking recognises that headings as statements are preferable to those as questions wherever possible, since these may not be the questions the participants would like answered. Also, use of 'I' in these questions can be annoying and patronising, since the form-writer is not the person in question!

Suggest:

The purpose of this study

Why you have been invited to take part in this study

('Why have I been chosen?' This question has been used in past research, but is outdated, patronising and tries to play on people's vanity. It is bad practice and verges on coercion. The participants **HAVE NOT BEEN CHOSEN**, they have been invited to take part because they have undergone breast reconstruction at...)

Choice about taking part

What happens if you take part?

INSERT: 'The researchers may access your medical records.'

It is **MOST** important to include this information on the **Information Sheet**. It should not just suddenly appear on the consent form.

The possible disadvantages of taking part

The possible benefits of taking part

Confidentiality

Origins, organisation and funding of the research

Ethical approval

Consent form

1 Suggest: 'I confirm....and have had sufficient opportunity to ask questions'

3 Talking about researchers 'looking at sections of medical notes' seems a dumbing down of 'accessing medical records' – gives the impression they may only look at a page or two. Better to be open – permission will mean access to complete medical records. Also, keep to one description e.g. 'medical records'.

4 Re informing GP: This should come next to last in the numbered list, as it currently lies between and splits statements about taking part and access to records.

Numbers 6 and 7 could cause confusion. Each contains two statements.

7 If a person did **NOT** want to take part in the study nor give access to medical records, would they be filling in the form?

Suggest:

‘3 I give my permission for researchers to access my medical records.

4 I agree to take part in the above study.

5 I do not agree to take part in the above study, but I give my permission for researchers to access my medical records.’

Presumably, participants do not have the option of taking part but not allowing access to medical records?

Additional points

Should the subject of anxiety and depression cause further problems, we hope there is adequate provision at the oncology centre to give support.

The questionnaire on the body image scale could be given to any healthy woman. Many women are known not to be satisfied with their body image. Is the researcher trying to prove that certain women with a low body image have breast reconstruction? Should healthy women be given the questionnaire to see if there is a marked difference?

Main Ethical Considerations

- Written consent was obtained from all participants.
- Participants were made aware that they had the right to withdraw from the study at any point, with no fear of any negative effect upon their current or future care.
- All information provided by participants was kept anonymous and a master list for identifying participants was stored in a locked filing cabinet kept separately from the data.
- There may have been a possibility that participants could have experienced psychological distress upon completing the measures. This was documented in the participant information sheet. Participants were informed that a Trainee Clinical Psychologist was available to speak to at their convenience. Participants were also told that their GP could refer them for appropriate psychological support (via the local Oncology Health Centre) if the participant wanted such a referral.
- Participants' G.Ps were notified if clinically significant levels of anxiety or depression were found in participants' scores on the HADS. G.Ps were also provided with information about a source they could refer participants to for psychological support, should this be required (via the local Oncology Health Centre).
- There was no relationship between the researcher and any of the participants involved in the study and patients were offered no incentive by the researcher, or medical professionals for partaking in the study.

20 June 2006

Miss Lesley Ann Moody
Trainee Clinical Psychologist
University of Hull
Department of Clinical Psychology
Cottingham Road
Hull
HU6 7RX

Dear Miss Moody

Full title of study: **Psychological Aspects of Additional Procedures
Following Breast Reconstruction**
REC reference number: **06/Q1104/78**

The Research Ethics Committee reviewed the above application at the meeting held on 19 June 2006.

Thank you for attending the meeting along with Dr _____ (Academic Supervisor) in support of your application

Ethical opinion

- Members expressed concern regarding the lack of privacy provided for the participants to complete the questionnaire whilst waiting for their routine clinic appointment. It was strongly recommended that a private area/room be available to the participants
- It was agreed that the Participant invitation letter was a little coercive in its opening sentence and request that the words be rearranged to open with the invitation sentence first

Members raised a number of points for clarification as follows:

Personal contact details on the participant information sheet. You confirmed that the contact details were those of the Department at the University and not your personal details

Data stored on personal laptop computer. You explained that the data will be anonymised and pass word protected

Clarify the number of participants required. You confirmed 90 participants are required

The members of the Committee present gave a favourable ethical opinion of the above research on the basis described in the application form, protocol and supporting documentation.

Ethical review of research sites

The favourable opinion applies to the research sites listed on the attached form.

Conditions of approval

The favourable opinion is given provided that you comply with the conditions set out in the attached document. You are advised to study the conditions carefully.

Approved documents

The documents reviewed and approved at the meeting were:

<i>Document</i>	<i>Version</i>	<i>Date</i>
Application	1	03 May 2006
Investigator CV	Lesley Moody	03 May 2006
Protocol	1	01 May 2006
Covering Letter		03 May 2006
Peer Review	University Peer Review	01 April 2006
Questionnaire: HADS	1	01 May 2006
Questionnaire: Body Image Scale	1	01 May 2006
Questionnaire: Demographic Questionnaire	1	01 May 2006
Questionnaire: Satisfaction Questionnaire	1	01 May 2006
Letter of invitation to participant	1	01 May 2006
GP/Consultant Information Sheets	1	01 May 2006
Participant Information Sheet: PIS	1	01 May 2006
Participant Consent Form: Consent form	1	01 May 2006
GP Notification of Distress Letter	1	01 May 2006
Supervisor CV	Dr	

Research governance approval

The study should not commence at any NHS site until the local Principal Investigator has obtained final research governance approval from the R&D Department for the relevant NHS care organisation.

Membership of the Committee

The members of the Ethics Committee who were present at the meeting are listed on the attached sheet.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

06/Q1104/78

Please quote this number on all correspondence

With the Committee's best wishes for the success of this project

Yours sincerely

Chair

Email: ,

Enclosures: List of names and professions of members who were present at the meeting and those who submitted written comments

Standard approval conditions

Site approval form (SF1)

Copy to:

Development (R&D)

R&D Department

NHS Trust, Research and

Local Research Ethics Committee

LIST OF SITES WITH A FAVOURABLE ETHICAL OPINION

For all studies requiring site-specific assessment, this form is issued by the main REC to the Chief Investigator and sponsor with the favourable opinion letter and following subsequent notifications from site assessors. For issue 2 onwards, all sites with a favourable opinion are listed, adding the new sites approved.

REC reference number:	06/Q1104/78	Issue number:	1	Date of issue:	20 June 2006
Chief Investigator:	Miss Lesley Ann Moody				
Full title of study:	Psychological Aspects of Additional Procedures Following Breast Reconstruction				

This study was given a favourable ethical opinion by Local Research Ethics Committee on 19 June 2006. The favourable opinion is extended to each of the sites listed below. The research may commence at each NHS site when management approval from the relevant NHS care organisation has been confirmed.

<i>Principal Investigator</i>	<i>Post</i>	<i>Research site</i>	<i>Site assessor</i>	<i>Date of favourable opinion for this site</i>	<i>Notes ⁽¹⁾</i>
Miss Lesley Ann Moody	Trainee Clinical Psychologist			20/06/2006	

Approved by the Chair on behalf of the REC:

..... (Signature of Chair/Administrator)

~~(delete as applicable)~~

..... (Name)



Local Research Ethics Committee

25 July 2006

Miss Lesley Ann Moody
Trainee Clinical Psychologist
University of Hull
Department of Clinical Psychology
Cottingham Road
Hull
HU6 7RX

Dear Miss Moody

Full title of study: **Psychological Aspects of Additional Procedures
Following Breast Reconstruction**
REC reference number: **06/Q1104/78**

Thank you for your letter in which you respond to the points raised in our letter dated 20th June 2006.

I can confirm that you have addressed all issues raised and that the Favourable Opinion is unchanged

06/Q1104/78	Please quote this number on all correspondence
--------------------	---

With the committees best wishes for a successful study

Yours sincerely

Committee Co-ordinator

Email: /

Our Ref: SW-05/07/06-Lesley Moody.doc

05 July 2006

Lesley Moody
Trainee Clinical Psychologist
The University Of Hull
The Department of Clinical Psychology
The Hertford Building
Cottingham Road, Hull, HU6 7RX

Dear Lesley

Re: Psychological Aspects of Additional Procedures Following Breast Reconstruction

I am please to notify you formally that this study has been approved by the Trust and may now proceed.

NHS Trust conducts all research in accordance with the requirements of the Research Governance Framework, and the NHS Intellectual Property Guidance. In undertaking this study you agree to comply with all reporting requirements, systems and duties of action put in place by the trust to deliver research governance, and you must comply with the Trust information management and data protection policies. In addition, you agree to accept the responsibilities associated with your role that are outlined within the Research Governance Framework as follows:

- The study follows the agreed protocol
- Participants should receive appropriate care while involved in the study
- The integrity and confidentiality of clinical, other records and data generated by the study will be maintained
- All adverse events must be reported to the Trust and other authorities specified in the protocol
- Any suspected misconduct by anyone involved in the study must be reported

The Trust is required to return information on the progress of studies to the National Research Register, and to report research findings. We will, therefore, ask you every 6 months for such updates. This includes full reference of any publications arising from the project.

I would like to wish you every success with this project

Yours sincerely

Head of Clinical Effectiveness, Modernisation and Research and Development

APPENDIX C

- Participant invitation letter
- Participant information sheet
- Consent form
- Consent for clinical photography
- Consent to include patients' photographs

Dear

We are inviting women who have received breast reconstruction who are currently treated locally to take part in a research study. This research aims to try and understand the experiences of women who have had breast reconstruction and also those who are considering or have had further procedures. It is hoped that the results will be helpful in improving pre and post operative care and provide the best possible service to patients in the future.

Please find enclosed an information sheet, consent form (3 copies) and a questionnaire pack.

- **The information sheet:** This provides you with some more information about the study
- **Consent form:** After reading the information sheet please indicate on the consent form whether or not you would like to take part in the study. There are 3 copies of the consent form, please complete all 3.
- **Questionnaire pack:** If you decide that you would like to take part please complete every page. This should take you around 15 to 20 minutes.

If you decide to take part please return 2 copies of the consent form (1 is for you to keep) and the completed questionnaire pack.

If you decide not to take part, we would be grateful if you could return 2 copies of the consent form, indicating that you do not want to take part.

Your answers to these questions will be kept confidential and will not be used for purposes other than this research study.

Although we very much hope that you will be willing to help us with this study, we wish to stress that you are under no obligation to take part, and that whatever you decide; this will not affect how you are treated now or at any point in the future. If you have any concerns or queries, you can contact the chief investigator for the study, Lesley Moody via e-mail at

Thank you for taking the time to read this letter.

Yours Sincerely,

Miss L. Moody

Consultant Breast
Surgeon

Consultant Plastic and
Reconstructive Surgeon

Trainee Clinical
Psychologist

INFORMATION SHEET

Psychological Aspects of Additional Procedures Following Breast Reconstruction

You are being invited to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully. Talk to others about the study if you wish. You can contact the researcher if there is anything that is not clear or if you would like more information.

What is the purpose of the study?

The purpose of the research study is to try to explore women's thoughts and feelings after having breast reconstruction. After having breast reconstruction a number of women may go on to have further procedures related to their reconstructed breast(s). However, little research has been conducted into what women think and feel about this. The study aims to understand the experiences of women who have had breast reconstruction and also those who are considering or have had further procedures. It is hoped that the results will be helpful in improving future care of these patients.

Why have I been chosen?

You have been chosen to take part in the research study as you have undergone breast reconstruction at the local hospital. In addition you may or may not have undergone further procedures related to your breast reconstruction. All breast reconstruction patients are being asked to take part. It is expected that approximately 45 people will be invited to take part in the study over a ten month period.

Do I have to take part?

It is up to you to decide whether or not to take part. If you do, you will be given this information sheet to keep and be asked to sign a consent form. You are still free to withdraw at any time and without giving a reason. A decision to withdraw at any time, or a decision not to take part, will not affect the standard of care you receive.

What will happen to me if I take part?

If you are interested in taking part in the study, it is requested that you complete a questionnaire pack whilst at your next routine clinic appointment. The questionnaires are short and should take you around 20 minutes to complete. After completing the questionnaires you can return them to us in a sealed envelope which is provided. As a matter of routine we will inform your G.P of your participation in the research. If there is evidence of clinically significant distress, your GP will be notified. With your permission the researcher may need to access your medical records in order to gain certain background information such as type and timing of your breast reconstruction.

What are the possible disadvantages of taking part?

The study involves completing questionnaires that ask about your thoughts, feelings and experiences of having breast reconstruction and possibly further procedures following on from this. There is the possibility that you might find completing the questionnaires distressing. If this is the case, a Trainee Clinical Psychologist will be available to talk to, at your convenience. If you find that you are experiencing significant distress, your GP can arrange for you to speak with a psychologist via the Oncology Health Centres, should you so wish.

What are the possible benefits of taking part?

If you are experiencing distress, the questionnaires will indicate this and you will be offered a referral for some help. In addition, the information gained from the study might contribute to improved care for future breast reconstruction patients. Taking part in the study would also allow you to voice your individual thoughts and feelings about your experiences, which may benefit other women in future in terms of improved understanding and care.

Will my taking part in this study be kept confidential?

All information which is collected about you during the course of the study will be kept strictly confidential. Any information about you which leaves the hospital will have your name and address removed so that you cannot be identified from it.

What will happen to the results of the research study?

The results of the research study will be written up as part of the researcher's doctoral qualification. You will have the option of receiving a short written report outlining the main findings of the study, although no individual results will be available. Results may also be published in peer review journals to allow other clinicians to access them. In such publications, there will be no identifying names or details, ensuring your complete confidentiality.

Who is organising and funding the research?

The research is being undertaken as part of a postgraduate doctorate qualification in clinical psychology. The research is salaried by NHS Workforce Development Confederation to carry out the research and no external funding will be sought.

Who has reviewed the study?

The research has been reviewed by the Local Research Ethics Committee and has gained ethical approval.

Contact for further information

Lesley Moody (Trainee Clinical Psychologist)
Department of Clinical Psychology
University of Hull
e-mail

Thank you for taking the time to read this information sheet

CONSENT FORM

Title of project: Psychological Aspects of Additional Procedures Following Breast Reconstruction

Names of researchers: Lesley Moody BSc. (Hons)

Please initial box

1. I confirm that I have read and understood the information sheet for the above research study and have had sufficient opportunity to ask questions.
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected.
3. I understand that sections of my medical records may be looked at by the researchers. I give permission for these individuals to have access to my records.
4. I agree to take part in the above study
5. I do **not** wish to take part in the above study however I give my permission for the researchers to access my medical records.
6. I do **not** wish to take part in the above study and I do **not** give my permission for the researchers to access my medical notes.
7. I understand that my G.P will be informed of my participation in the above study
8. Once the research has been completed I would like to receive a summary of the main findings of the study.

PLEASE TURN OVER

_____ Name of Patient	_____ Date	_____ Signature
_____ Name of person taking consent (if different from researcher)	_____ Date	_____ Signature
_____ Researcher	_____ Date	_____ Signature

**WE WOULD BE GRATEFUL IF YOU COULD COMPLETE
ALL 3 CONSENT FORMS.**

PLEASE KEEP ONE COPY AND RETURN 2 COPIES

Thank you for taking the time to complete the consent forms

1 copy for patient
1 copy for researcher
1 copy to be kept with hospital notes



CONSENT FOR CLINICAL PHOTOGRAPHY

Photographs or video recordings are often taken to help in your care. If such images are taken, your doctor will have explained the reasons for this. The images will be included in your medical records for future reference.

Photos or videos may be used after you have been treated to help us to maintain and improve the quality of our care, or to research into new developments. Anonymous images may be used in medical teaching, and occasionally in medical publications.

do not have to agree to any use of photographs which identify you.

We would not use any photographic image that identified you in a research study, or any photo in a publication, without first contacting you to ask for your permission.

Please read the statements below. and if you agree sign to indicate this.

Please cross out any statement to which you do not agree.

I agree to still photographs or videos being taken during my care to help to treat me. My doctor has explained the reasons for taking the images, and I have fully understood them.

My doctor has informed me that photographs/video recordings were taken during my care. My doctor or she has explained the reasons for this and I have fully understood them. I am happy for these images to be retained as part of my medical records.

(cross out one)

I agree to the use of video or still photographs to help improve the quality of care given at this hospital.

I agree to allow someone other than my doctor to contact me to ask for my permission to use photographic images in a research study or publication, should the occasion arise.

.....
Patient Signature

.....
Date

.....
Witness Signature

.....
Witness Name

.....
Date

Proposed Procedure:

Patient Details

Dear.... (patient)

You may recall that you were recently invited to take part in a research study that aims to try and understand the experiences of women who have had breast reconstruction and also those who are considering or have had further procedures. Thank you very much for taking the time to complete the questionnaire pack, your participation is much appreciated.

As part of the write up of the study I would like to include examples of photographs of women that have undergone breast reconstruction. The reason for this is to illustrate both the cosmetic outcome of breast reconstruction and also the different types of procedures that are available.

When you have attended clinic appointments at (local) hospital you have been asked to give your permission to have your photograph taken. I would like to ask for your permission to include these photographs in the write up of the study. These photographs will be completely anonymous and there will be no information that could identify you in any way. The photographs will be printed in a thesis that is part of my doctoral qualification. This thesis will be available for educational purposes only and may be reviewed by people with an interest in the field of breast reconstruction.

I would appreciate it if you could complete two copies of the consent form overleaf in order to indicate whether or not you have consented for your photographs to be used. Please return one copy (stamped envelope provided) and keep a copy for your own records.

Although I hope that you will be willing to give your consent for your photographs to be used, I would like to stress that you are under no obligation to agree to this and whatever you decide, this will not affect how you are treated now or at any point in the future. If you have any concerns or queries please do not hesitate to contact me via e-mail

Thank you again for the taking the time to participate in the study and for completing the consent form overleaf.

Yours Sincerely,

Miss L. Moody

Trainee Clinical
Psychologist

Consultant Breast
Surgeon

Consultant Plastic and
Reconstructive Surgeon

CONSENT FORM

Title of project: Psychological Aspects of Additional Procedures Following Breast Reconstruction

Names of researchers: Lesley Moody BSc. (Hons)

Please initial the appropriate box according to whether or not you consent to the following:

I consent for my photographs to be used in the above research project.
I understand that they will be printed in a doctoral thesis which will be available for educational purposes only.

I do **not** consent for my photographs to be used in the above research project.

Please complete below:

Name of Patient

Date

Signature

Researcher

Date

Signature

APPENDIX D

- G.P information letter
- G.P notification of distress letter

Dear Dr

**Re: Psychological aspects of additional procedures following breast reconstruction
LREC number**

By way of introduction, my name is Lesley Moody and I am a Trainee Clinical Psychologist from the University of Hull currently conducting a doctoral research project. The study aims to understand the experiences of women who have had breast reconstruction and who are considering or have had further procedures. It is hoped that the results will be helpful in improving pre and post operative care for these patients.

The research is being conducted at (local) hospital. With the permission of Consultants I have invited all patients who have undergone breast reconstruction to take participate.

Your patient has agreed to take part in the study which involves filling out a questionnaire pack. All responses will remain confidential and the information will not be used for purposes other than this research. The study will last approximately 10 months and participation will involve completing the questionnaires on one occasion only.

If you have any questions or concerns or would like any further information then please do not hesitate to contact me using the details below.

Many thanks,

Lesley Moody

Contact details:

Lesley Moody
Trainee Clinical Psychologist
Supervised by
Department of Clinical Psychology
The University of Hull
e-mail:

Dear Dr

Re:

As you may recall, I wrote to you on [redacted] to inform you that your patient [redacted] had agreed to participate in a research study investigating psychological aspects of additional procedures following breast reconstruction. [redacted] has completed and returned the questionnaires which enquire about body image dissatisfaction and distress.

My reason for writing this letter is to inform you that some of [redacted] scores on the questionnaires were elevated, indicating possible clinical levels of anxiety/depression. I hope that you can review his/her mental state when he/she next attends your surgery. I understand that oncology patients can be referred to the Oncology Health Centre (local) hospital for psychological support if you feel that this would be appropriate.

If you require any further information, please do not hesitate to contact me using the details below.

Many thanks,

Lesley Moody

Contact details:

Lesley Moody
Trainee Clinical Psychologist
Supervised by
Department of Clinical Psychology
The University of Hull
e-mail:

APPENDIX E

- SPSS output: Demographic differences between participants and non-participants

Demographic Differences Between Participants and Non-Participants

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 7th june 2007.sav

Group Statistics

	participant or non participant?	N	Mean	Std. Deviation	Std. Error Mean
Age of participant	participant	97	52.81	9.416	.956
	non participant	43	50.30	8.741	1.333

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
Age of participant	Equal variances assumed	1.688	.196	1.488	138	.139	2.512
	Equal variances not assumed			1.531	86.325	.129	2.512

T-Test

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 7th june 2007.sav

Group Statistics

	participant or non participant?	N	Mean	Std. Deviation	Std. Error Mean
number of additional procedures	participant	97	1.48	1.721	.175
	non participant	43	.70	1.166	.178

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
number of additional procedures	Equal variances assumed	10.043	.002	2.731	138	.007	.787	.288	.217	1.357
	Equal variances not assumed			3.157	115.270	.002	.787	.249	.293	1.281

T-Test

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 7th june 2007.sav

Group Statistics

	participant or non participant?	N	Mean	Std. Deviation	Std. Error Mean
time since last procedure	participant	97	9.268	10.5613	1.0723
	non participant	43	11.628	15.3557	2.3417

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
time since last procedure	Equal variances assumed	4.607	.034	-1.054	138	.294	-2.3599	2.239	-6.7871	2.067
	Equal variances not assumed			-.916	60.3	.363	-2.3599	2.576	-7.5113	2.792

Crosstabs

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 7th june 2007.sav

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
participant or non participant? * Type of breast reconstruction - final categories	140	100.0%	0	.0%	140	100.0%

participant or non participant? * Type of breast reconstruction - final categories Crosstabulation

Count

		Type of breast reconstruction - final categories			Total
		abdominal flaps	LD flaps	expanders/implants	
participant or non participant?	participant	27	38	32	97
	non participant	11	17	15	43
Total		38	55	47	140

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	.089 ^a	2	.957	.973		
Likelihood Ratio	.089	2	.956	.973		
Fisher's Exact Test	.116			.973		
Linear-by-Linear Association	.084 ^b	1	.771	.815	.432	.090
N of Valid Cases	140					

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 11.67.

b. The standardized statistic is .290.

Crosstabs

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 7th june 2007.sav

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
participant or non participant? * additional procedures undertaken? (study's definition)	140	100.0%	0	.0%	140	100.0%

participant or non participant? * additional procedures undertaken? (study's definition) Crosstabulation

Count

		additional procedures undertaken? (study's definition)		Total
		yes	no	
participant or non participant?	participant	55	42	97
	non participant	13	30	43
Total		68	72	140

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	8.356 ^b	1	.004		
Continuity Correction ^a	7.330	1	.007		
Likelihood Ratio	8.541	1	.003		
Fisher's Exact Test				.006	.003
Linear-by-Linear Association	8.296	1	.004		
N of Valid Cases	140				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 20.89.

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
participant or non participant? * timing of breast reconstruction	140	100.0%	0	.0%	140	100.0%

participant or non participant? * timing of breast reconstruction Crosstabulation

Count

		timing of breast reconstruction		Total
		immediate	delayed	
participant or non participant?	participant	59	38	97
	non participant	19	24	43
Total		78	62	140

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.343 ^b	1	.067		
Continuity Correction ^a	2.703	1	.100		
Likelihood Ratio	3.333	1	.068		
Fisher's Exact Test				.096	.050
Linear-by-Linear Association	3.319	1	.068		
N of Valid Cases	140				

a. Computed only for a 2x2 table

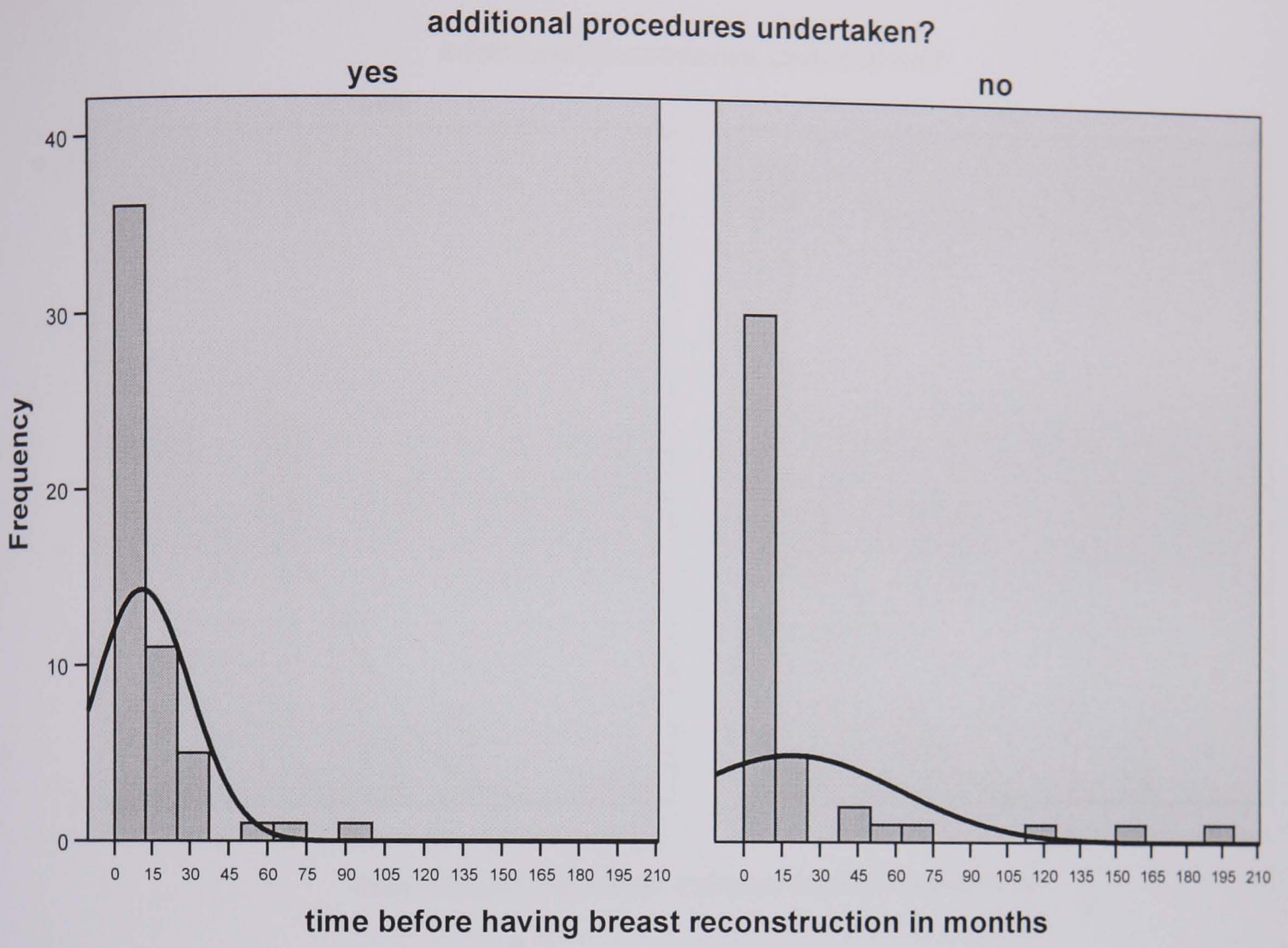
b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 19.04.

APPENDIX F

- SPSS output: Examples of histograms of data distributions
- Kolmogorov-Smirnov Tests

Graph

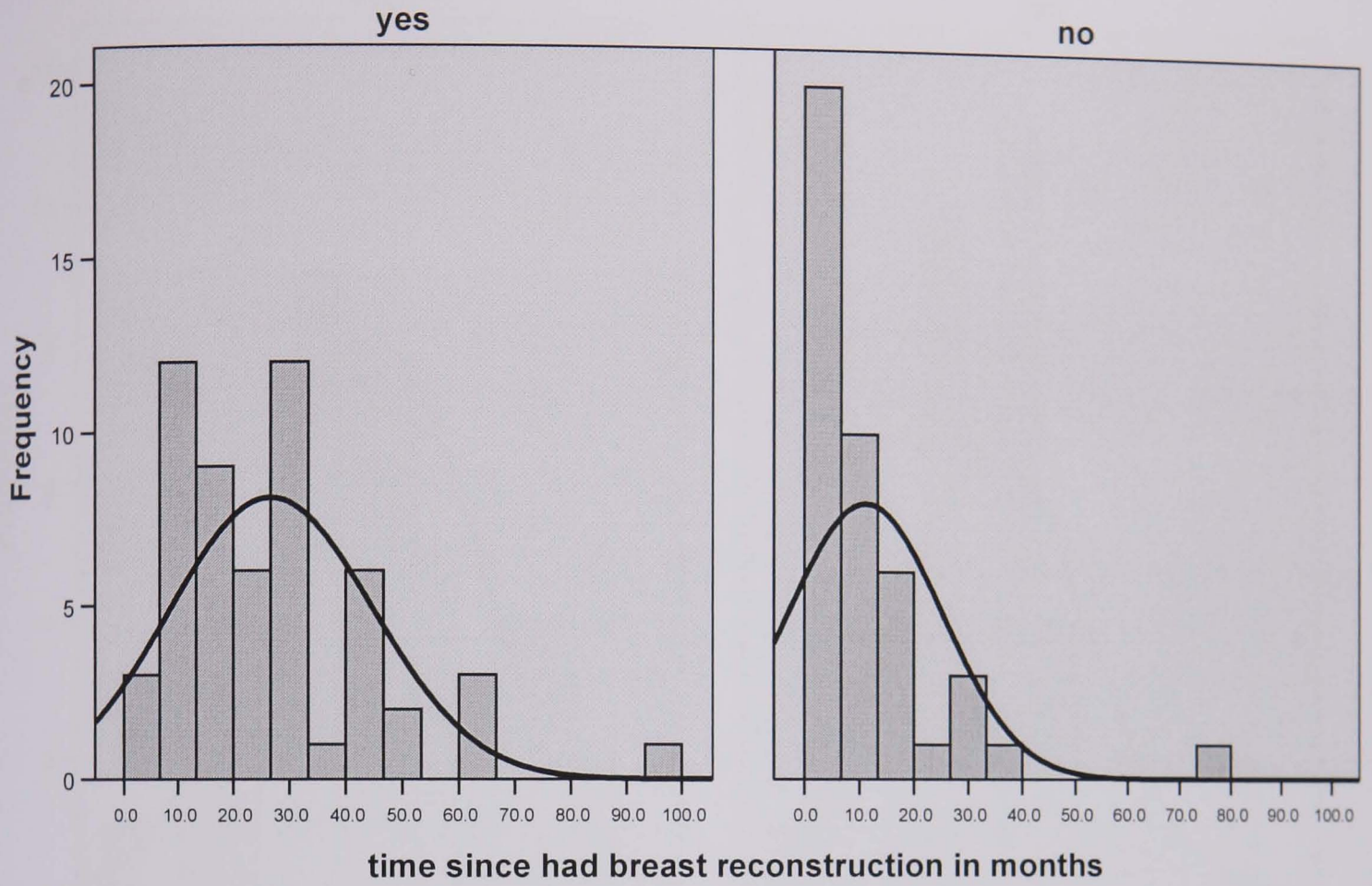
[DataSet2] G:\thesis data 25th may.sav



Graph

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 25th may.sav

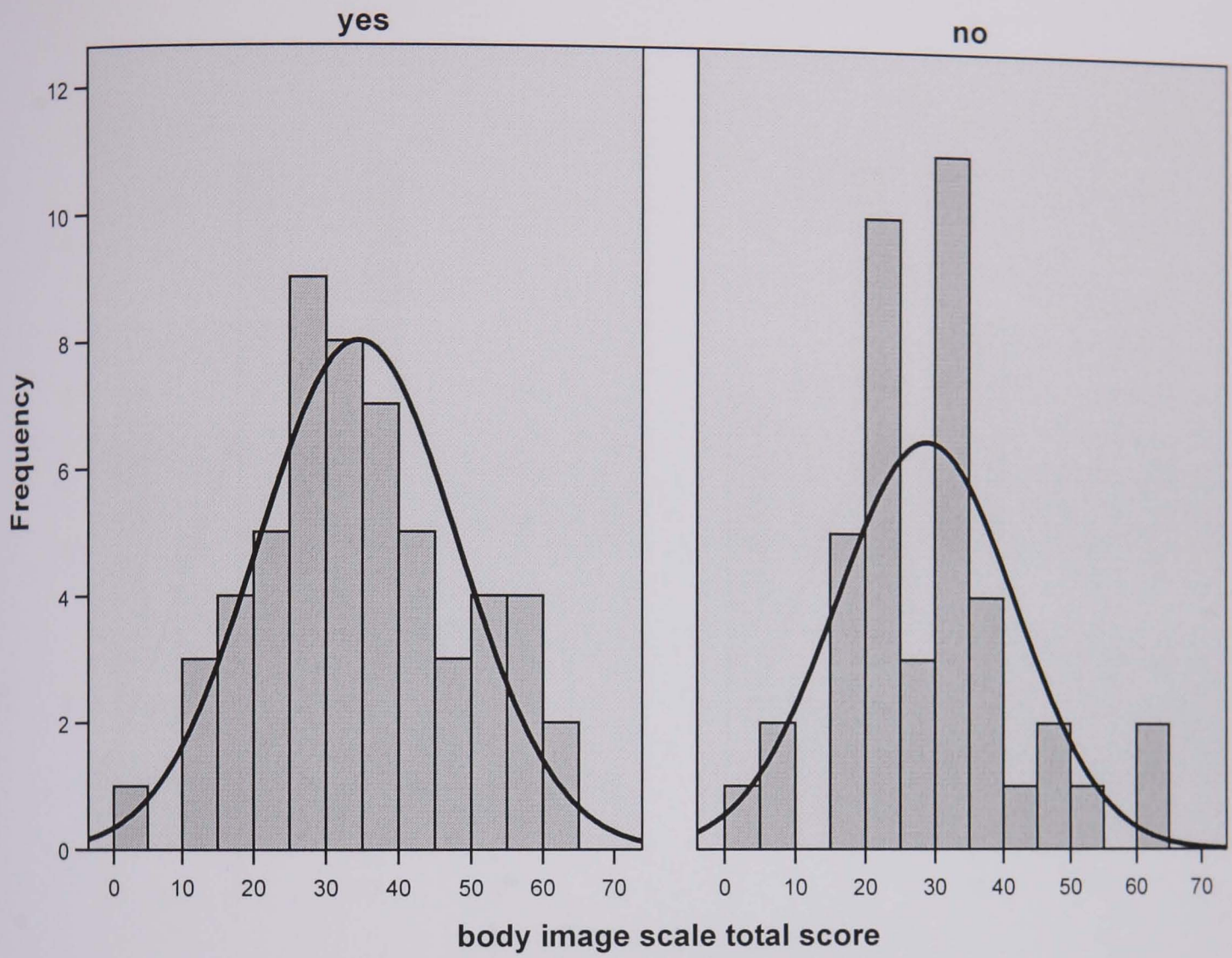
additional procedures undertaken?



Graph

[DataSet1] H:\thesis data 10th May.sav

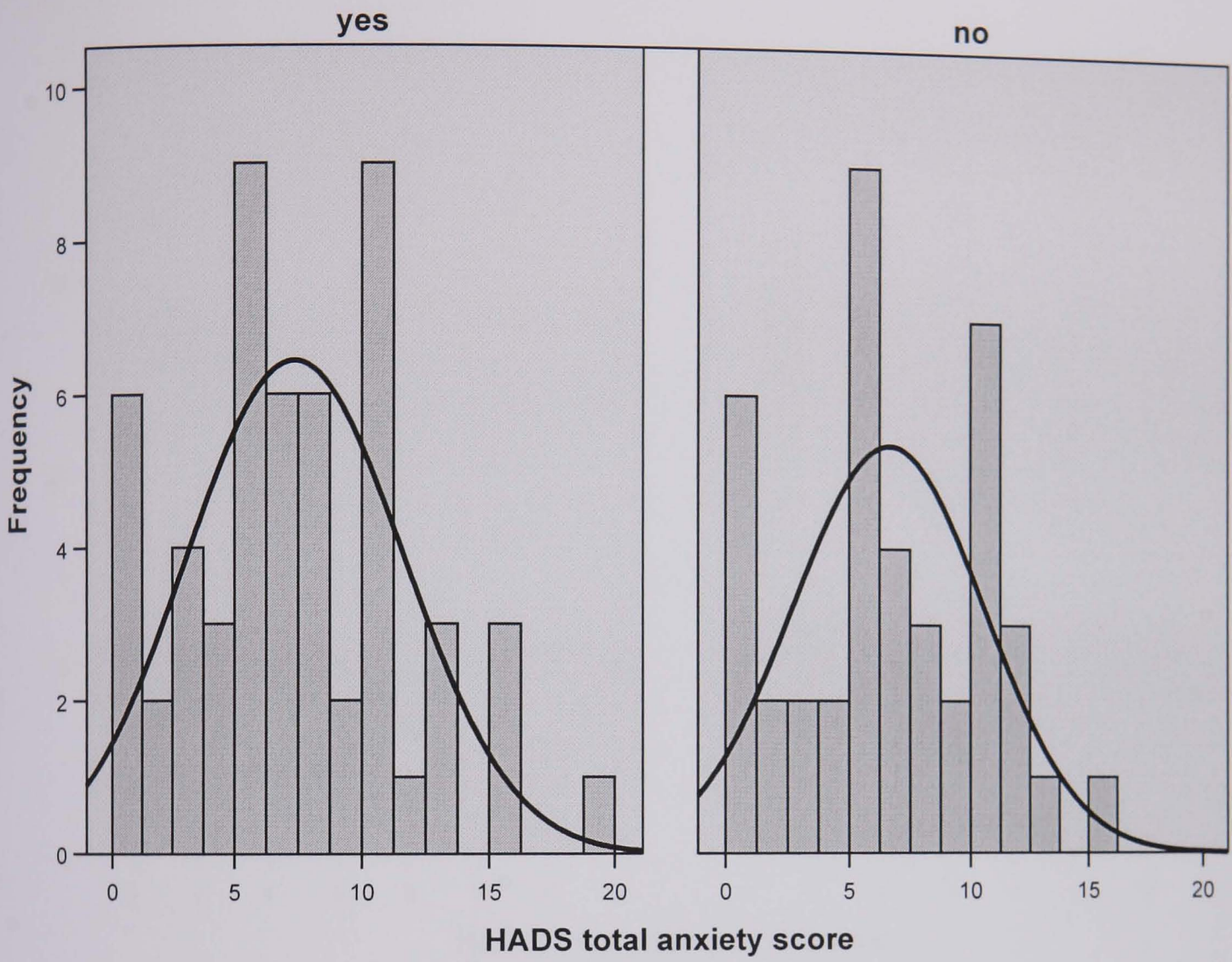
additional procedures undertaken?



Graph

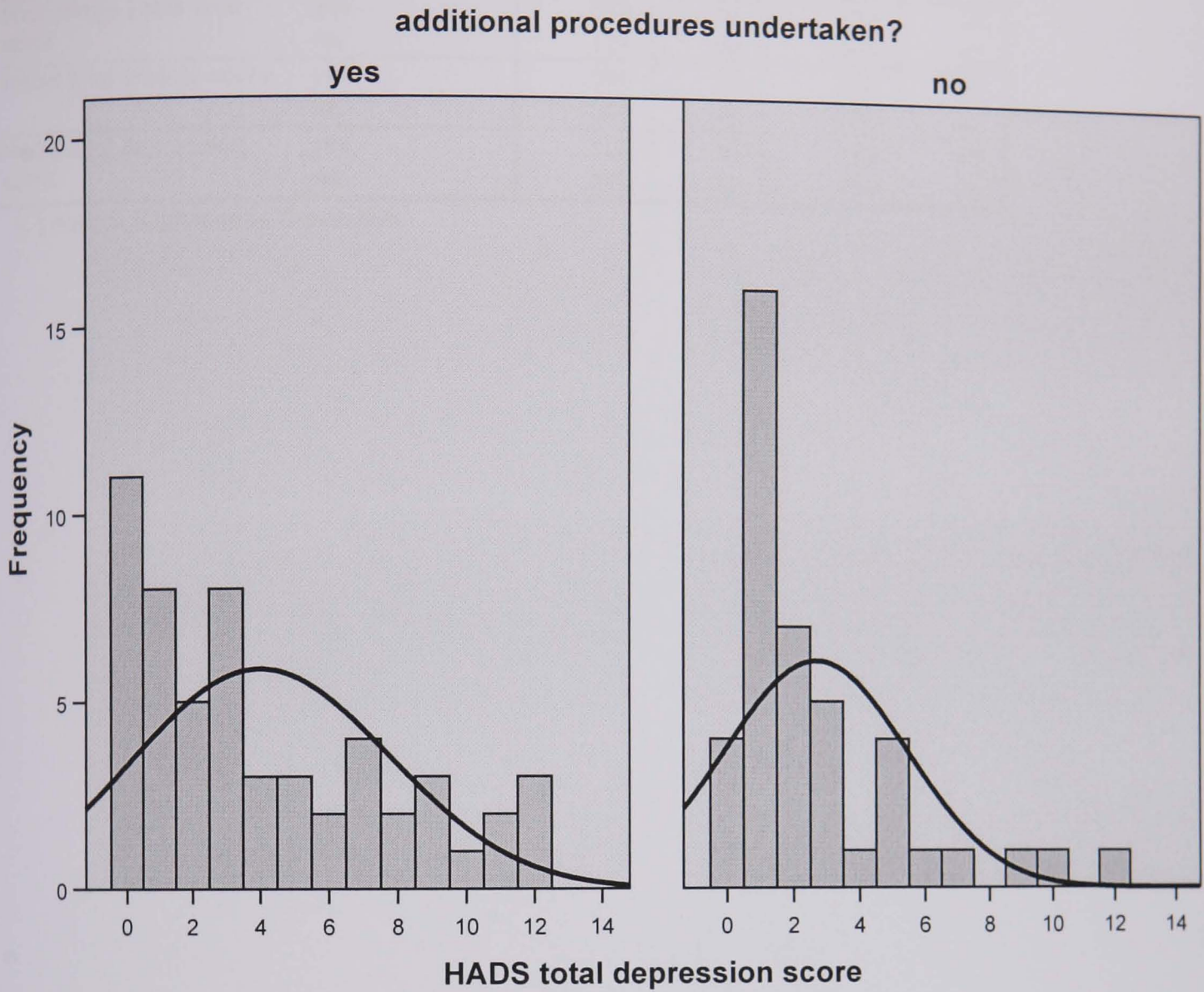
[DataSet1] H:\thesis data 10th May.sav

Additional procedures undertaken?



Graph

[DataSet1] H:\thesis data 10th May.sav



Explore

[DataSet1] H:\thesis data 10th May.sav

additional procedures undertaken?

Case Processing Summary

		Cases		
		Valid N	Missing N	Total N
body image scale total score	yes	55	0	55
	no	42	0	42
HADS total anxiety score	yes	55	0	55
	no	42	0	42
HADS total depression score	yes	55	0	55
	no	42	0	42

Tests of Normality

	additional procedures undertaken?	Kolmogorov-Smirnov ^a		Shapiro-Wilk	
		Statistic	df	Statistic	df
body image scale total score	yes	.079	55	.984	55
	no	.121	42	.955	42
HADS total anxiety score	yes	.095	55	.965	55
	no	.090	42	.970	42
HADS total depression score	yes	.187	55	.882	55
	no	.242	42	.779	42

a. Lilliefors Significance Correction

body image scale total score

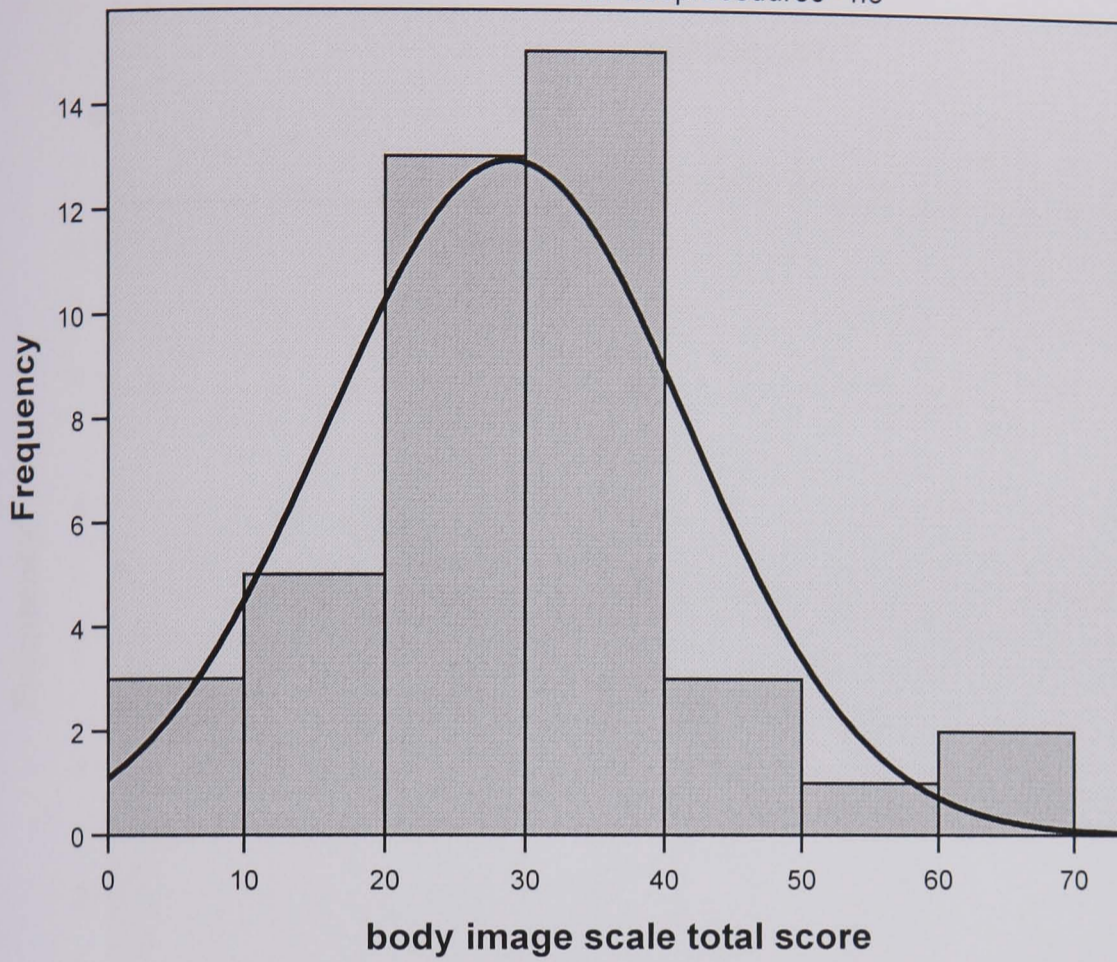
Histograms

Histogram



Histogram

for addprocedures= no

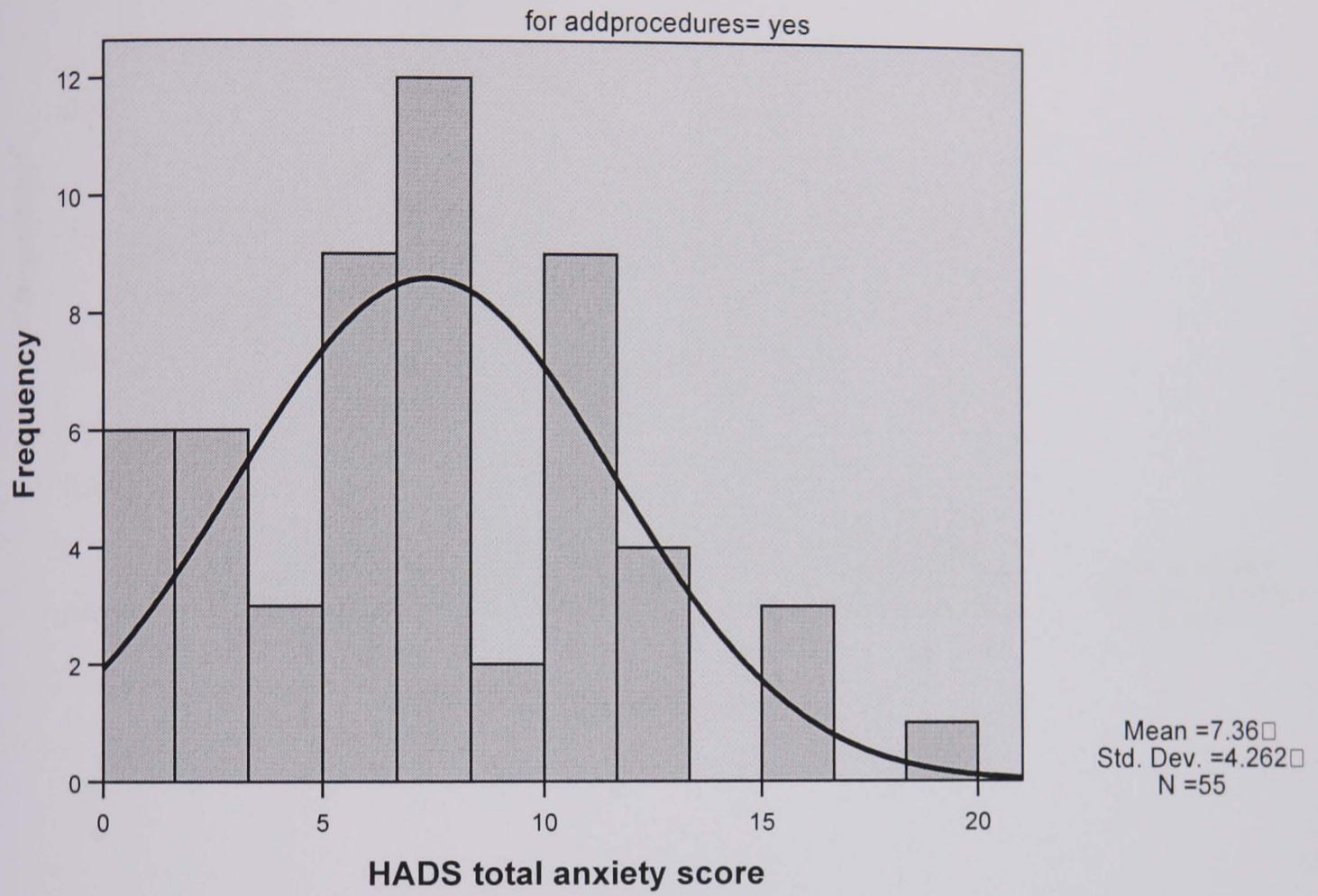


Mean =28.83
Std. Dev. =12.958
N =42

HADS total anxiety score

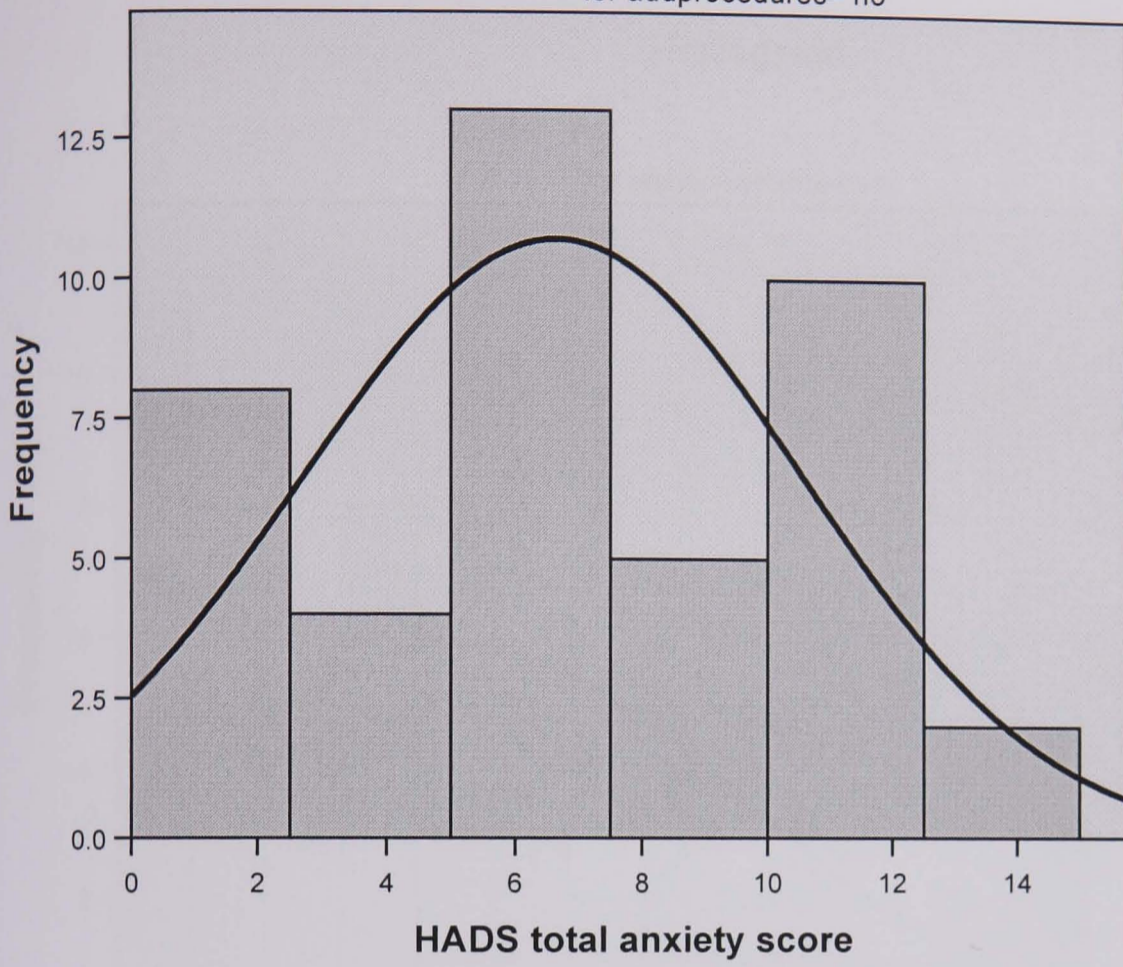
Histograms

Histogram



Histogram

for addprocedures= no

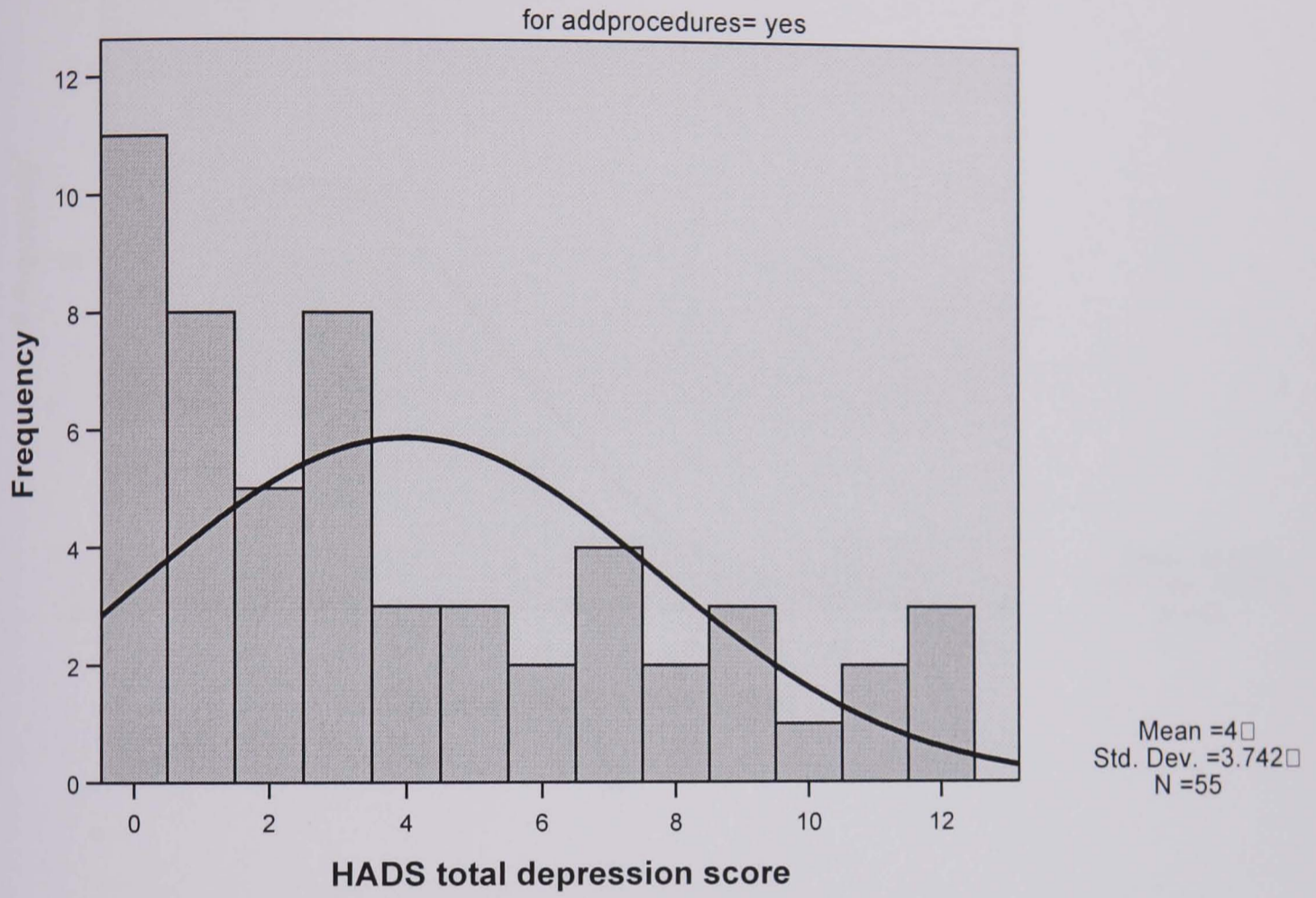


Mean =6.64
Std. Dev. =3.913
N =42

HADS total depression score

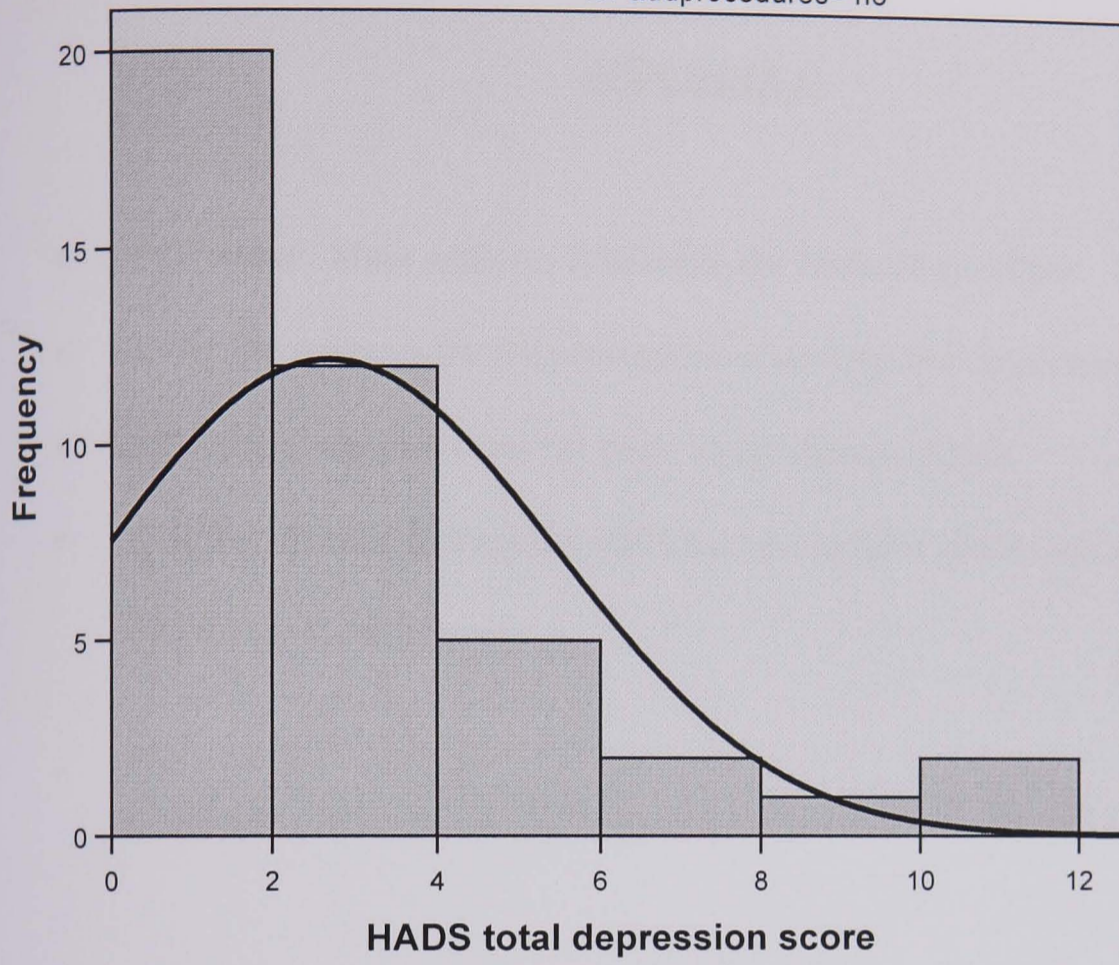
Histograms

Histogram



Histogram

for addprocedures= no



Mean = 2.69
Std. Dev. = 2.754
N = 42

APPENDIX G

- SPSS output: Main analyses relating to the research questions
- Chi-square analyses for the prevalence of anxiety and depression
- Independent samples t-test for body image dissatisfaction
- GLM for whether undergoing additional procedures predict anxiety, depression or body image dissatisfaction

Crosstabs

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 25th may.sav

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
additional procedures? (judged by me) * HADS classification for Anxiety	97	100.0%	0	.0%	97	100.0%

additional procedures? (judged by me) * HADS classification for Anxiety Crosstabulation

Count

		HADS classification for Anxiety			Total
		Normal/assy mptomatic	possible clinical disorder	probable clinical disorder	
additional procedures?	yes	30	13	12	55
(judged by me)	no	25	10	7	42
Total		55	23	19	97

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.427 ^a	2	.808
Likelihood Ratio	.431	2	.806
Linear-by-Linear Association	.387	1	.534
N of Valid Cases	97		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.23.

Crosstabs

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 25th may.sav

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
additional procedures? (judged by me) * HADS classification for depression	97	100.0%	0	.0%	97	100.0%

additional procedures? (judged by me) * HADS classification for depression Crosstabulation

Count

		HADS classification for depression			Total
		normal/assy mptomatic	possible clinical disorder	probable clinical disorder	
additional procedures? (judged by me)	yes	44	6	5	55
	no	39	2	1	42
Total		83	8	6	97

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	3.285 ^a	2	.194	.226		
Likelihood Ratio	3.558	2	.169	.226		
Fisher's Exact Test	2.991			.226		
Linear-by-Linear Association	3.140 ^b	1	.076	.088	.054	.033
N of Valid Cases	97					

a. 4 cells (66.7%) have expected count less than 5. The minimum expected count is 2.60.

b. The standardized statistic is -1.772.

T-Test

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 25th may.sav

Group Statistics

	additional procedures? (judged by me)	N	Mean	Std. Deviation	Std. Error Mean
body image scale	yes	55	34.42	13.699	1.847
total score	no	42	28.83	12.958	1.999

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Differe nce	Std. Error Differe nce
body image scale total score	Equal variances assumed	.714	.400	2.036	95	.045	5.585	2.743
	Equal variances not assumed			2.052	90.7	.043	5.585	2.722

Univariate Analysis of Variance

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 25th may.sav

Between-Subjects Factors

		Value Label	N
additional procedures? (judged by me)	1	yes	55
	2	no	42

Descriptive Statistics

Dependent Variable: HADS total anxiety score

additional procedures?	Mean	Std. Deviation	N
yes	7.36	4.262	55
no	6.64	3.913	42
Total	7.05	4.109	97

Tests of Between-Subjects Effects

Dependent Variable: HADS total anxiety score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	12.372 ^a	1	12.372	.731	.395
Intercept	4671.960	1	4671.960	275.954	.000
addprocedures	12.372	1	12.372	.731	.395
Error	1608.370	95	16.930		
Total	6444.000	97			
Corrected Total	1620.742	96			

a. R Squared = .008 (Adjusted R Squared = -.003)

Parameter Estimates

Dependent Variable: HADS total anxiety score

Parameter	B	Std. Error	t	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Intercept	6.643	.635	10.463	.000	5.382	7.903
[addprocedures=1]	.721	.843	.855	.395	-.953	2.395
[addprocedures=2]	0 ^a	.	.	.	.	.

a. This parameter is set to zero because it is redundant.

Univariate Analysis of Variance

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 25th may.sav

Between-Subjects Factors

		Value Label	N
additional procedures? (judged by me)	1	yes	55
	2	no	42

Descriptive Statistics

Dependent Variable: HADS total anxiety score

additional procedures?	Mean	Std. Deviation	N
yes	7.36	4.262	55
no	6.64	3.913	42
Total	7.05	4.109	97

Tests of Between-Subjects Effects

Dependent Variable: HADS total anxiety score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	57.370 ^a	3	19.123	1.138	.338
Intercept	227.536	1	227.536	13.535	.000
addprocedures	8.572	1	8.572	.510	.477
Age	4.696	1	4.696	.279	.598
timesincelp	31.570	1	31.570	1.878	.174
Error	1563.372	93	16.810		
Total	6444.000	97			
Corrected Total	1620.742	96			

a. R Squared = .035 (Adjusted R Squared = .004)

Parameter Estimates

Dependent Variable: HADS total anxiety score

Parameter	B	Std. Error	t	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Intercept	8.514	2.405	3.540	.001	3.738	13.290
[addprocedures=1]	.609	.853	.714	.477	-1.084	2.302
[addprocedures=2]	0 ^a	.	.	.	.	.
Age	-.024	.046	-.529	.598	-.116	.067
timesincelp	-.056	.041	-1.370	.174	-.138	.025

a. This parameter is set to zero because it is redundant.

Univariate Analysis of Variance

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 25th may.sav

Between-Subjects Factors

		Value Label	N
additional procedures?	1	yes	55
(judged by me)	2	no	42

Descriptive Statistics

Dependent Variable: HADS total depression score

additional procedures?	Mean	Std. Deviation	N
yes	4.00	3.742	55
no	2.69	2.754	42
Total	3.43	3.397	97

Tests of Between-Subjects Effects

Dependent Variable: HADS total depression score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	40.838 ^a	1	40.838	3.636	.060
Intercept	1065.993	1	1065.993	94.912	.000
addprocedures	40.838	1	40.838	3.636	.060
Error	1066.976	95	11.231		
Total	2251.000	97			
Corrected Total	1107.814	96			

a. R Squared = .037 (Adjusted R Squared = .027)

Parameter Estimates

Dependent Variable: HADS total depression score

Parameter	B	Std. Error	t	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Intercept	2.690	.517	5.203	.000	1.664	3.717
[addprocedures=1]	1.310	.687	1.907	.060	-.054	2.673
[addprocedures=2]	0 ^a	.	.	.	.	.

a. This parameter is set to zero because it is redundant.

Univariate Analysis of Variance

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 25th may.sav

Between-Subjects Factors

		Value Label	N
additional procedures?	1	yes	55
(judged by me)	2	no	42

Descriptive Statistics

Dependent Variable: HADS total depression score

additional procedures?	Mean	Std. Deviation	N
yes	4.00	3.742	55
no	2.69	2.754	42
Total	3.43	3.397	97

Tests of Between-Subjects Effects

Dependent Variable: HADS total depression score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	62.386 ^a	3	20.795	1.850	.144
Intercept	71.393	1	71.393	6.351	.013
addprocedures	36.397	1	36.397	3.238	.075
Age	4.576	1	4.576	.407	.525
timesinceelp	12.010	1	12.010	1.068	.304
Error	1045.429	93	11.241		
Total	2251.000	97			
Corrected Total	1107.814	96			

a. R Squared = .056 (Adjusted R Squared = .026)

Parameter Estimates

Dependent Variable: HADS total depression score

Parameter	B	Std. Error	t	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Intercept	4.312	1.967	2.193	.031	.407	8.218
[addprocedures=1]	1.255	.697	1.799	.075	-.130	2.639
[addprocedures=2]	0 ^a	.	.	.	.	.
Age	-.024	.038	-.638	.525	-.099	.051
timesinceelp	-.035	.034	-1.034	.304	-.102	.032

a. This parameter is set to zero because it is redundant.

Univariate Analysis of Variance

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 25th may.sav

Between-Subjects Factors

		Value Label	N
additional procedures?	1	yes	55
(judged by me)	2	no	42

Descriptive Statistics

Dependent Variable: body image scale total score

additional procedures?	Mean	Std. Deviation	N
yes	34.42	13.699	55
no	28.83	12.958	42
Total	32.00	13.601	97

Tests of Between-Subjects Effects

Dependent Variable: body image scale total score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	742.785 ^a	1	742.785	4.147	.045
Intercept	95275.692	1	95275.692	531.884	.000
addprocedures	742.785	1	742.785	4.147	.045
Error	17017.215	95	179.129		
Total	117088.000	97			
Corrected Total	17760.000	96			

a. R Squared = .042 (Adjusted R Squared = .032)

Parameter Estimates

Dependent Variable: body image scale total score

Parameter	B	Std. Error	t	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Intercept	28.833	2.065	13.962	.000	24.733	32.933
[addprocedures=1]	5.585	2.743	2.036	.045	.140	11.030
[addprocedures=2]	0 ^a	.	.	.	.	.

a. This parameter is set to zero because it is redundant.

Univariate Analysis of Variance

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 25th may.sav

Between-Subjects Factors

		Value Label	N
additional procedures?	1	yes	55
(judged by me)	2	no	42

Descriptive Statistics

Dependent Variable: body image scale total score

additional procedures?	Mean	Std. Deviation	N
yes	34.42	13.699	55
no	28.83	12.958	42
Total	32.00	13.601	97

Tests of Between-Subjects Effects

Dependent Variable: body image scale total score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1158.785 ^a	3	386.262	2.164	.098
Intercept	1356.015	1	1356.015	7.596	.007
addprocedures	563.013	1	563.013	3.154	.079
timesincelp	141.867	1	141.867	.795	.375
Age	360.288	1	360.288	2.018	.159
Error	16601.215	93	178.508		
Total	117088.000	97			
Corrected Total	17760.000	96			

a. R Squared = .065 (Adjusted R Squared = .035)

Parameter Estimates

Dependent Variable: body image scale total score

Parameter	B	Std. Error	t	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Intercept	19.061	7.837	2.432	.017	3.498	34.624
[addprocedures=1]	4.934	2.778	1.776	.079	-.583	10.451
[addprocedures=2]	0 ^a	.	.	.	.	.
timesincelp	-.120	.134	-.891	.375	-.386	.147
Age	.213	.150	1.421	.159	-.085	.511

a. This parameter is set to zero because it is redundant.

APPENDIX H

- Demographic differences between BR and BR-AP groups
- Further significant analyses

Demographic Differences Between BR and BR-AP Groups

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 25th may.sav

Group Statistics

		additional procedures undertaken?	N	Mean	Std. Deviation	Std. Error Mean
time since last procedure	yes		55	8.118	8.9007	1.2002
	no		42	10.774	12.3586	1.9070

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Std. Error Difference
time since last procedure	Equal variances assumed	2.369	.127	-1.230	95	.222	2.1584
	Equal variances not assumed			-1.179	71.406	.242	2.2532

Crosstabs

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 25th may.sav

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
timing of breast reconstruction * additional procedures undertaken?	97	100.0%	0	.0%	97	100.0%

timing of breast reconstruction * additional procedures undertaken? Crosstabulation

Count

		additional procedures undertaken?		Total
		yes	no	
timing of breast reconstruction	immediate	32	27	59
	delayed	23	15	38
Total		55	42	97

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.372 ^b	1	.542		
Continuity Correction ^a	.160	1	.689		
Likelihood Ratio	.374	1	.541		
Fisher's Exact Test				.675	.345
Linear-by-Linear Association	.369	1	.544		
N of Valid Cases	97				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 16.45.

Crosstabs

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 25th may.sav

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Type of breast reconstruction - final categories * additional procedures undertaken?	97	100.0%	0	.0%	97	100.0%

Type of breast reconstruction - final categories * additional procedures undertaken? Crosstabulation

Count

		additional procedures undertaken?		Total
		yes	no	
Type of breast reconstruction - final categories	abdominal flaps	11	16	27
	LD flaps	20	18	38
	expanders/implants	24	8	32
Total		55	42	97

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.422 ^a	2	.024
Likelihood Ratio	7.661	2	.022
Linear-by-Linear Association	7.091	1	.008
N of Valid Cases	97		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 11.69.

T-Test

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 25th may.sav

Group Statistics

	additional procedures undertaken?	N	Mean	Std. Deviation	Std. Error Mean
Age of participant	yes	55	53.49	8.994	1.213
	no	42	51.93	9.981	1.540

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
Age of participant	Equal variances assumed	.272	.603	.808	95	.421	1.562
	Equal variances not assumed			.797	83.289	.428	1.562

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 25th may.sav

Crosstabs

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 25th may.sav

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
ethnic origin * additional procedures undertaken?	97	100.0%	0	.0%	97	100.0%

ethnic origin * additional procedures undertaken? Crosstabulation

Count

		additional procedures undertaken?		Total
		yes	no	
ethnic origin	White (British)	47	40	87
	Pakistani	1	1	2
	not known	7	1	8
Total		55	42	97

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	3.382 ^a	2	.184	.193		
Likelihood Ratio	3.878	2	.144	.167		
Fisher's Exact Test	3.507			.159		
Linear-by-Linear Association	3.022 ^b	1	.082	.101	.055	.030
N of Valid Cases	97					

a. 4 cells (66.7%) have expected count less than 5. The minimum expected count is .87.

b. The standardized statistic is -1.738.

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 25th may.sav

Crosstabs

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 25th may.sav

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
marital status * additional procedures undertaken?	97	100.0%	0	.0%	97	100.0%

marital status * additional procedures undertaken? Crosstabulation

Count

		additional procedures undertaken?		Total
		yes	no	
marital status	married/living with partner	40	26	66
	single	3	2	5
	divorced/separated	10	11	21
	widowed	2	3	5
Total		55	42	97

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	1.706 ^a	3	.636	.666		
Likelihood Ratio	1.695	3	.638	.690		
Fisher's Exact Test	1.874			.597		
Linear-by-Linear Association	1.618 ^b	1	.203	.217	.122	.037
N of Valid Cases	97					

a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is 2.16.

b. The standardized statistic is 1.272.

Crosstabs

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 25th may.sav

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
medication for anxiety * additional procedures undertaken?	97	100.0%	0	.0%	97	100.0%

medication for anxiety * additional procedures undertaken? Crosstabulation

Count

		additional procedures undertaken		Total
		yes	no	
medication for anxiety	yes	2	4	6
	no	53	38	91
Total		55	42	97

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.422 ^b	1	.233		
Continuity Correction ^a	.589	1	.443		
Likelihood Ratio	1.416	1	.234		
Fisher's Exact Test				.398	.221
Linear-by-Linear Association	1.408	1	.235		
N of Valid Cases	97				

a. Computed only for a 2x2 table

b. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 2.60.

Crosstabs

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 25th may.sav

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
medication for depression * additional procedures undertaken?	97	100.0%	0	.0%	97	100.0%

medication for depression * additional procedures undertaken? Crosstabulation

Count

		additional procedures undertaken?		Total
		yes	no	
medication for depression	yes	10	5	15
	no	45	37	82
Total		55	42	97

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.718 ^b	1	.397		
Continuity Correction ^a	.318	1	.573		
Likelihood Ratio	.733	1	.392		
Fisher's Exact Test				.572	.289
Linear-by-Linear Association	.710	1	.399		
N of Valid Cases	97				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.49.

Crosstabs

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 25th may.sav

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
treatment for anxiety/depression in last 3 years * additional procedures undertaken?	97	100.0%	0	.0%	97	100.0%

treatment for anxiety/depression in last 3 years * additional procedures? (judged by me) Crosstabulation

Count

		additional procedures undertaken?		Total
		yes	no	
treatment for anxiety/depression in last 3 years	yes	15	12	27
	no	40	30	70
Total		55	42	97

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.020 ^b	1	.888		
Continuity Correction ^a	.000	1	1.000		
Likelihood Ratio	.020	1	.888		
Fisher's Exact Test				1.000	.533
Linear-by-Linear Association	.020	1	.888		
N of Valid Cases	97				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 11.69.

Crosstabs

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 25th may.sav

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
chemotherapy * additional procedures undertaken?	97	100.0%	0	.0%	97	100.0%

chemotherapy * additional procedures undertaken? Crosstabulation

Count

		additional procedures undertaken?		Total
		yes	no	
chemotherapy	yes	25	23	48
	no	30	19	49
Total		55	42	97

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.825 ^b	1	.364		
Continuity Correction ^a	.495	1	.482		
Likelihood Ratio	.826	1	.363		
Fisher's Exact Test				.416	.241
Linear-by-Linear Association	.817	1	.366		
N of Valid Cases	97				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 20.78.

Crosstabs

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 25-h may.sav

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
radiotherapy * additional procedures undertaken?	97	100.0%	0	.0%	97	100.0%

radiotherapy * additional procedures undertaken? Crosstabulation

Count

		additional procedures undertaken?		Total
		yes	no	
radiotherapy	yes	31	18	49
	no	24	24	48
Total		55	42	97

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.738 ^b	1	.187		
Continuity Correction ^a	1.240	1	.266		
Likelihood Ratio	1.743	1	.187		
Fisher's Exact Test				.222	.133
Linear-by-Linear Association	1.720	1	.190		
N of Valid Cases	97				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 20.78.

T-Test

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 25th may.sav

Group Statistics

treatment for anxiety/depression in last 3		N	Mean	Std. Deviation	Std. Error Mean
HADS total anxiety score	yes	27	9.11	4.933	.949
	no	70	6.26	3.467	.414

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
HADS total anxiety score	Equal variances assumed	7.746	.006	3.211	95	.002	2.854	.889
	Equal variances not assumed			2.755	36.354	.009	2.854	1.036

T-Test

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 25th may.sav

Group Statistics

treatment for		N	Mean	Std. Deviation	Std. Error Mean
HADS total depression score	yes	27	4.89	4.218	.812
	no	70	2.87	2.864	.342

Independent Samples Test

		Levene's Test for Equality of Variances	
		F	Sig.
HADS total depression score	Equal variances assumed	10.771	.001
	Equal variances not assumed		

Independent Samples Test

		t-test for Equality of Means				
		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
HADS total depression score	Equal variances assumed	2.706	95	.008	2.017	.745
	Equal variances not assumed	2.290	35.640	.028	2.017	.881

T-Test

[DataSet1] C:\Documents and Settings\Administrator\Desktop\thesis data 25th may.sav

Group Statistics

treatment for anxiety/depression in last 3		N	Mean	Std. Deviation	Std. Error Mean
body image scale total score	yes	27	33.63	14.721	2.833
	no	70	31.37	13.202	1.578

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower
body image scale total score	Equal variances assumed	1.215	.273	.731	95	.467	2.258	3.089	-3.874
	Equal variances not assumed			.696	43.072	.490	2.258	3.243	-4.281