UNIVERSITY OF SURREY

Portfolio of Study, Practice and Research Submitted for the

DOCTORATE OF PSYCHOLOGY

Clinical Psychology Conversion Programme

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Dedication

To Jo for providing the quotation, being there and even though you had no choice, putting up with this. To Maureen and Tony and to all those patient people who know who they are and who have helped and encouraged me, this is dedicated to you.
"A person who has good thoughts cannot ever be ugly. You can have a wonky nose and a crooked mouth and a double chin and stick out teeth, but if you have good thoughts they will shine out of your face like sunbeams and you will always look lovely."

The Twits by Roald Dahl
Acknowledgements

Thanks are due to the following consultant cosmetic surgeons (in alphabetical order) Mr Chapman, Mr Davies, Mr Dixon, Mr Godfrey, Mr Harris, Mr Latimer-Sayer, Mr Wilson and Ms Dobson-Spinks, Personal assistant to Mr Latimer-Sayer for agreeing to participate in the research.

I am very grateful to Dr Marie Clark for her patience and perseverance without her, this would not have been possible.

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To those who have contributed in so many different ways I am in debt: Dr Anne Miles, Dr Mary Rome, Dr Kate Baylis, Dr Jacqueline Hetherton, Karen and Alison.
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SECTION 1

PERSONAL STUDY PLAN
SECTION 1. PERSONAL STUDY PLAN

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1.1 AIMS AND OBJECTIVES

The main aim of this portfolio is to gain increased professional competence, both clinically and academically, in the chosen specialist area of Body Dysmorphic Disorder (BDD) and other closely related topics. A related aim is to increase the knowledge into this under-recognised and disabling condition, which although increasingly researched, still would appear to go undetected.

The main objective is to produce the required dossiers of professional, research and clinical practice, which will demonstrate a competent professional level. It is also hoped that the portfolio will demonstrate an ability to integrate empirical and theoretical understanding of the topics, which will be discussed, and how these concepts are subsequently applied to every day clinical practise.
1.2 PROFESSIONAL DOSSIER

1.2.1. Curriculum vitae

Since qualifying as a clinical psychologist in 1996, I have worked for West London Mental Health NHS Trust, (Previously Ealing, Hammersmith and Fulham NHS Mental Health Trust; Previously Riverside) in a number of different posts:
Primary care
Adult mental health
Community mental health team
Co-ordinator of the Fulham Primary Care Group Psychological Therapies Service.
I have also worked in the private sector for the Priory Hospital Roehampton for a period of nine months.

Qualifications

<table>
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<tr>
<th>Date</th>
<th>Institution</th>
<th>Course/Placement</th>
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| Oct 1998 - June 2003 | University of Surrey | Doctorate in Clinical Psychology: conversion course  
Title: 'Body Dysmorphic Disorder and Predictors of Satisfaction in Volunteers undergoing Cosmetic Rhinoplasty (in progress) |
| Oct 1993 - Oct 1996 | University College London | Clinical Psychology MSc  
Core placements in Learning Disability, Child, Rehab., and Adult Mental Health.  
Final year specialist placement in primary care. |
| Sept 1988 - Sept 1991 | University College London | Psychology BSc: (2nd Class Honours 2:1)  
Attended options:  
Psychotherapy  
Atypical Development  
Learning and Motivation, Neuro-psychology. |
BSc Dissertation: 'Attitudes of first time mothers to the experience of childbirth'

Sept 1987 - Aug 1988
Hammersmith & West London College
Psychology A-Level (A Grade)

Sept 1976 - June 1977
Instituto de Fuengirola, Malaga, Spain:
Primero de Bachillerato

Sept 1974 - Sept 1976
Colegio San Francisco de Asis, Fuengirola, Malaga:
Certificado de Educacion General Basica (EGB)

Occupational and research experience:

Nov 2001 - To Present
**Chartered Clinical Psychologist**
West London Mental Health Trust
Community mental health team, area 3
Individual and group treatment for individuals with enduring mental illness.

Mar 2001 - Nov 2001
**Chartered Clinical Psychologist**
The Priory Hospital Roehampton
Individual and group therapy.

Nov 2000 - Mar 2001
**Chartered Clinical Psychologist**
Ealing, Hammersmith and Fulham Mental Health NHS Trust
Co-ordinator of the Fulham Primary Care Group
Psychological Therapies Service and clinician within this service. Individual, group and computer therapies.

Sept 1999 - To present
**Chartered Clinical Psychologist**
Plastic Surgery Partners at the Stamford Hospital
Psychological assessment and research of cosmetic surgery patients, lecturing to surgical registrars.

**Chartered Clinical Psychologist**
Ealing, Hammersmith and Fulham Mental Health NHS Trust (formerly Riverside Mental Health NHS Trust)
Department of Clinical Psychology, Charing Cross Hospital
Chartered Clinical Psychologist
Riverside Mental Health NHS Trust
Department of Clinical Psychology
Charing Cross Hospital

Split post:
0.5 FTE: Adult Mental Health. Special interest in Gender Dysphoria and Body dysmorphic disorder
0.5 FTE: Primary Care in 2 GP surgeries:
Richford Gate Primary Care Centre, Shepherds Bush
Knightsbridge Medical Centre, Knightsbridge

Jun 1992 - Oct 1993
Assistant Psychologist
Medical Research Council (MRC)

0.5 FTE on C.O.P.E. Pain Management Programme: Three-year research programme run jointly by the Academic Departments of Clinical Psychology (UCL) and the Middlesex Hospital.

Research Assistant
Medical Research Council (MRC)

0.5 FTE at the Eastman Dental Hospital, where I co-developed and co-ordinated a research project examining the efficiency of 4 different treatment approaches (psychological and pharmacological) to chronic atypical facial pain. For this purpose, the Eastman Dental Hospital awarded me 2 honorary research fellowships.

Sept 1991 - May 1992
Research Assistant:
Department of Health (DOH)

COPE Pain Management Programme: Orientating chronic pain patients to the pain management programme and administering assessment questionnaires. Also involved in conducting a study to evaluate the feasibility of providing pain management for Oncology Outpatients.
Jun 1990 - Volunteer at MIND
Jan 1991 MIND in Camden.
Giving practical and emotional support with a view to increasing the users independence and self-reliance.

Jan 1984 - Psychiatric Assistant/Administrator
Dec 1986 Centro De Salud, Junta De Andalucia, Malaga, Spain (Regional Health Department)
I was responsible for the translation of assessments of acute psychiatric admissions from English to Spanish for psychiatric staff. Further responsibilities also included contacting and liaising with patients' relatives and acting as liaison between relatives and medical staff in cases of language or administration difficulties. I worked under the supervision of multidisciplinary team.

Jun 1980 - Play Group Project Leader
Dec 1983 Ayuntamiento de Fuengirola (Town Hall), Malaga, Spain.
Three consecutive summers on project for young children (3-6 years) from underprivileged homes, providing day care and activities.

Current activities and special interests:

- Member of the British Psychological Society.
- Member of the British Association for Cognitive and Behavioural Psychotherapies
- Member of Obsessive Action
- Research in psychological aspects of cosmetic surgery and Body Dysmorphic Disorder

1.2.2. Post qualification, CPD conferences and courses

- National Primary Care Conference, York, 1997.
- Introduction to Cognitive Therapy (Dr Helen Kennerley), Chelsea and Westminster Hospital, London 1997.
• Introduction to Dynamic Psychotherapy (Louise Lyons), Chelsea and Westminster Hospital, London, 1997.
• Conference on Personality Disorders, Body Dysmorphic Disorder workshop (Dr David Veale) Manchester University, 1997.
• National Primary Care Conference, York, 1998.
• Introduction to Schema Focussed Cognitive Therapy (Dr Helen Kennerley), Chelsea and Westminster Hospital, London, 1998.
• Brief Cognitive Therapy Workshop (Dr Christine Padesky), Imperial College, London, 1998.
• Mental Health Act. One Day Course, Riverside Mental Health, Charing Cross Hospital, 1999.
• British Association for Behavioural and Cognitive Psychotherapies annual conference, Bristol, 1999.
• Assessment for Cognitive Therapy. One Day Course, Dr Helen Kennerley, Riverside Mental Health, Charing Cross Hospital, 1999.
• Eating Disorders. One Day Course, Dr Helen Kennerley, Riverside Mental Health, Charing Cross Hospital, 1999.
• Survivors of Childhood Trauma. Two Day Course. Dr Helen Kennerley, Riverside Mental Health, Charing Cross Hospital, 1999.
• CBT with Schizophrenia - Supervisors Course, 2 day update course, Dr Hazel Nelson, Ealing, Hammersmith, Fulham Mental Health NHS Trust, 1999.
• CBT with Schizophrenia - Level One, 3 day course, Dr Hazel Nelson, Ealing, Hammersmith, Fulham Mental Health NHS Trust, 1999.
• CBT with Schizophrenia - Level Two, 3 day course, Dr Hazel Nelson, Ealing, Hammersmith, Fulham Mental Health NHS Trust, 1999.
• British Association for Behavioural and Cognitive Psychotherapies Annual Conference, Warwick, 2002.
• Innovation in Cognitive Behavioural Therapy for BDD, The Priory Hospital, North London, May 2003

1.2.3 Publications


Murphy, D. J. & De Haro, L. (in preparation). Psychological distress, social support and dietary adherence in women with gestational diabetes mellitus.

1.2.4. Service related research: Cognitive Behaviour Therapy for an Individual Diagnosed with Body Dysmorphic Disorder, in a National Health Service Setting.

This service related research project will evaluate the effectiveness of cognitive behavioural therapy for an individual diagnosed with Body Dysmorphic Disorder.

1.2.4.1 Brief introduction

Body Dysmorphic disorder is a preoccupation with a perceived defect in appearance that causes significant distress or impairment in functioning. Patients with this disorder show high associated co-morbidity and are at risk, in severe cases, of suicide (Veale et al, 1996). Treatments up to now have received little empirical investigation and have concentrated largely on pharmacological interventions. There is however promising evidence that cognitive behavioural intervention may alleviate the condition (Rosen, Reiter and Orosan, 1995) and provide a useful adjunct to the newer and traditional pharmacotherapies. In an American study Wilhelm, Otto, Lohr, and Deckersbach (1998), describe a group for Body Dysmorphic Disorder patients, using cognitive behavioural techniques. In their group, emphasis is placed on patient education, exposure, response prevention and cognitive restructuring. The techniques will be later described in greater detail. In the present study an attempt will be made to replicate elements of this group work with an individual within a National Health Service setting.

1.2.4.2 Method

An appropriate patient will be recruited from the Psychology or Psychiatry waiting list. Referring professionals will be either clinical psychologists or psychiatrists. The patient must meet DSM IV criteria for Body Dysmorphic Disorder. The patient will be contacted by letter and offered intensive cognitive behavioural treatment.
Arrangements will be made for the pre-treatment questionnaires to be posted before the start of treatment. On the first day of treatment, all the questionnaires will be re-administered. The Hospital Anxiety and Depression Questionnaire and the Modified Yale Brown Obsessive Compulsive Scale for BDD will be administered weekly. On the last day of treatment again, all the questionnaires will be administered. Four follow-up appointments at monthly intervals will be scheduled.

1.2.4.3 Measures

1. Body Dysmorphic Disorder Questionnaire (Philips et al, 1996)
3. Hospital Anxiety Depression Scale (Zigmond & Snaith, 1983).

1.2.4.4 Timetable

Recruitment for the participating patient will start in October 1998. Depending on the availability of a suitable candidate, the patient may be recruited directly from Riverside Mental Health Trust's Department of Clinical Psychology. However, a circular, requesting appropriate referrals, will also go to the psychiatrist leading each of the four community mental health teams within Riverside Mental Health Trust. Treatment will start in May 1999 and run for 20 weeks. Four follow-up appointments will be arranged at the end of treatment.

1.2.4.5 Outcome evaluation

The study will be evaluated by comparing the questionnaires completed by the patient at the three time points (3 weeks pre-treatment, pre-treatment, post-treatment) and those completed throughout the treatment phase and follow-up period.
1.2.4.6 References


1.3 ACADEMIC DOSSIER

As part requirement of the PsychD qualification, the academic dossier contains two critical reviews summarised as follows:

1.3.1 Is Negative Body Image an Important but Neglected Aspect of the Treatment of Obesity? A Critical Review of the Literature

Obesity is the excess of body fat stores and defined as body weight, which is over 20% that of the "ideal" body weight. Body image is a multi-dimensional concept concerned with the internal subjective representation of physical appearance and bodily experience. Negative body image is associated with poor self-esteem, depression, anxiety, significant distress and eating disturbances.

It seems that up until now clinicians have assumed that body image would improve following various types of interventions such as diet, behaviour therapy and prescription drugs, which would lead to subsequent weight loss. However negative body image is found in the obese, the previously obese, in those with normal weight and in those suffering from the psychiatric disorder Body Dysmorphic Disorder.

It would appear that given the biodeterminants of obesity, the overall poor long-term maintenance of weight loss and the presence of negative body image in the previously obese, many individuals seeking an improved body image from obesity treatment are likely to continue with some form of psychological distress in the form of negative body image if this is not directly addressed. A literature review was conducted to ascertain if the negative body image issue is being addressed by current treatments.

1.3.2 Breast Reduction: What is the Psychological Impact? A Critical Review of the Literature

The second critical review will look at the psychological impact of breast reduction. Reduction mammaplasty is performed for both functional and aesthetic reasons.
Given the increasing need for evidenced based treatment to inform cost effective allocation of NHS funds, it is important to consider not just physical, but also the psychological impact and patient satisfaction when making decisions about resources. There is a need to demonstrate that those procedures, which are under the threat of health authority funding restrictions, are given careful consideration before they are deemed low priority. For this reason a literature review was conducted to ascertain what exactly are the benefits in terms of both physical outcome and psychological functioning.
1.4 RESEARCH DOSSIER

1.4.1 Body Dysmorphic Disorder and predictors of satisfaction in volunteer undergoing cosmetic rhinoplasty

Research supervisor (academic): Dr Marie Clark, University of Surrey
Research supervisor (clinical): Dr David Veale, The Priory Hospital, North London

1.4.1.1 Introduction

Body Dysmorphic Disorder (BDD) is a preoccupation with a perceived defect in appearance that causes significant distress or impairment in functioning. Patients with this disorder show high associated co-morbidity and are at risk in severe cases, of suicide (Veale, Boocock, Gournay, Dryden, Shah, Wilson, & Walburg, 1996). There is a need to identify those people who may be seeking a surgical answer to a psychiatric problem, but also to accumulate information which will help guide clinicians in recognising and treating this disabling disorder and, eventually to shed light on its aetiology. Conclusions reached in several recent papers (Veale 1996; Phillips 1991; Phillips, McElroy, Keck, Pope, & Hudson, 1993), point towards the need for more research into this chronic handicapping disorder, as patients are not being adequately identified and hence treated by health professionals and may not be identified prior to undergoing surgery.

1.4.1.2 Brief literature review

Body Dysmorphic Disorder (BDD) is characterised by an intense preoccupation with a perceived defect in appearance. Diagnostic criteria as specified by DSM-IV (APA, 1994), is as follows:

- Preoccupation with an imagined defect in appearance. If a slight physical anomaly is present, the person's concern is markedly excessive.
• The preoccupation causes clinically significant distress or impairment in social, occupation or other important areas of functioning.
• The preoccupation is not better accounted for by another mental disorder (e.g. dissatisfaction with body shape and size in Anorexia Nervosa).

BDD is thought to be more common than generally realised and diagnosis can have serious implications for the sufferer. Andreasen and Bardach suggested a 2% prevalence rate in their 1977 paper and, Faravelli, Salvatori, Galassi, aiazzi, Drei and Cabras (1997) in a community survey in Florence, cite a one-year prevalence rate of 0.7% but as yet figures remain uncertain. In terms of future research most of the literature points towards the importance of exploring the prevalence of BDD amongst cosmetic surgery patients (Sarwer, 1997; Philips, 1993 etc).

BDD can lead to social isolation, inability to work, and unnecessary ‘corrective surgery’ and in some severe cases, suicide (Philips, 1991). Interference with relationships and social activity is the most common effect of BDD. Philips (1996), found that ninety eight per cent of the people she interviewed reported varying degrees of severity in this respect. The disorder makes sufferers feel self conscious and anxious in social situations and avoidance of such situations perpetuates the anxiety, The effect of having the disorder can seriously affect a persons ability to work and school attendance in the younger population. Again, there is a range of severity varying from discomfort whilst in the situation to complete avoidance.

The main focus of attention seems to be the nose, skin and hair, however any other body part can be cause for excessive concern. Information about the course and outcome of BDD is not comprehensive but some authors suggest that the preoccupation with the physical defect can change over time (Philips, 1991), and can shift to other body parts.
Patients are often motivated to seek extreme measures to alleviate their distress; one estimate suggests that BDD volunteers account for 5% of those seeking plastic surgery (Sarwer, 1998). The figures vary, but in a recent publication up to 48% of a sample of BDD patients had consulted a plastic surgeon and up to 26% of this particular sample had undergone one or more operations on their perceived defect (Veale et al, 1996). Philips (1993) suggests that patient's attempts to alleviate their distress with cosmetic surgery are simply not effective. The data suggests that consequently cosmetic surgery should not be used to treat these individuals. Results showed that in a study of 30 patients diagnosed with BDD, 8 had undergone 25 cosmetic surgery or dental procedures between them. Two of these procedures led to a remission or improvement of symptoms whilst 20 procedures resulted in an exacerbation of symptoms. In another study of 50 BDD patients, 40% were found to have resorted to plastic surgery (Hollander, Cohen, & Simeon, 1993).

There is however a paucity of literature on the effects of cosmetic surgery on BDD (Philips et al, 1993). Sarwer points out that there are, "no studies that systematically examine the relationship between baseline measures of psychopathology and either patient satisfaction with surgery or changes in psychosocial status postoperatively" (Sarwer, 1997).

There are studies that show positive psychological change following cosmetic surgery but very few which have used standardised tests to assess psychological outcome. Given that it is widely believed that people who undertake cosmetic surgery do so to change their appearance and presumably their body image it is surprising that there are no studies that use accepted and validated measures of body image with cosmetic surgery volunteers.
Aims of study

The main aims of the study are to increase knowledge about the course and outcome of BDD, associated co-morbidity and other factors associated with satisfactory cosmetic surgery outcome.

Objectives of study

The main objective of this research is to isolate psychological, demographic or other factors that will eventually help identify volunteers who might be seeking a surgical answer to a psychiatric disorder.

1.4.1.3 Research questions

1. What proportion of people undergoing cosmetic surgery have BDD?
2. Does prior BDD continue after cosmetic surgery?
3. What are the differences in BDD, (and anxiety, depression & satisfaction with Rhinoplasty over the three time points of the study?
4. Do prior BDD, anxiety of depression predict satisfaction with surgery?
5. Do new concerns about other physical defects emerge after surgery?

1.4.1.4 Experimental design and method

Experimental design: The study follows a repeated-measures experimental design with volunteers surveyed at three time points: pre, three months-post and nine months-post surgery (Time 1, Time 2 & Time 3).

Method: A letter outlining the proposed research project will be sent to private cosmetic clinics in the London area. These clinics will have been randomly selected from a cross section of women's magazines and the "Yellow Pages" The clinic directors will be asked to contact the principal researcher via a prepared reply letter
and an SAE. The entire membership of the British Association of Aesthetic Plastic Surgeons and the membership of the British Association of Cosmetic Surgeons will be contacted by post to request participants.

Volunteer recruitment: The clinic receptionist will ask patients, whom the clinic or operating surgeon, has accepted for Rhinoplasty, if they would agree to participating in the research project. They will be offered a Research Project Information Sheet, detailing the research, what will be expected from them and a Consent Form to sign. Having read the Research Project Information Sheet, agreed to participate and had their signature witnessed, volunteers will be then be given the Volunteers Details Form to complete, asking mainly demographic data.

Time One: Volunteers are asked to complete the study questionnaires and return them to the principal researcher in a stamped addressed envelope.

Time Two: three-month postal, post Rhinoplasty follow-up questionnaires: Three months following the Rhinoplasty, volunteers will be sent by post, the same set of questionnaires, with an SAE. Questionnaires will also be sent to those volunteers who were either refused or decided not to follow up the offer of Rhinoplasty, but did agree to participate in the research project, accompanied by an SAE. Volunteers will also be asked to complete a form rating their satisfaction with their Rhinoplasty procedure, and asked for any comments, regarding how they felt about the Rhinoplasty procedure. They will also be asked if they or are contemplating further cosmetic surgery.

Time three: nine-month post-Rhinoplasty postal follow-up of volunteers: nine months following the Rhinoplasty, volunteers will be sent the same questionnaires. Volunteers will be asked for comments on the outcome of the procedure. Volunteers will also be asked if they are contemplating, further cosmetic surgery.
1.4.1.5 Participant characteristics

Participants will be female or male volunteers over the age of 18, seeking Rhinoplasty (one of the most common cosmetic surgery procedures and a common concern in BDD), from participating cosmetic surgeons working in private practise. The aim of the study is to recruit 100 of these volunteers or the nearest possible figure. Volunteers would be excluded from the research under the following conditions:

Patients who are seeking cosmetic surgery to correct defects resulting from trauma or medical pathology.
Patients who are unwilling to participate in long-term follow-up data collection.
Patients who are to simultaneously, undergo more than one procedure would also be excluded from the research project.

1.4.1.6 Measures

1. Volunteer information sheet: demographic data, previous surgical history, previous and current medication.
2. Body Dysmorphic Disorder Questionnaire (Philips et al, 1996)
4. Hospital Anxiety Depression Scale (Zigmond & Snaith, 1983).
5. Satisfaction with Rhinoplasty Questionnaire: Purpose designed visual analogue scale to assess volunteer satisfaction with surgery outcome (purpose designed for study).

1.4.1.7 Data analysis and interpretation

A mixture of standardised questionnaires and a measure, which was designed by the investigator for the study, will be used to collect the data. Other information collected
from the volunteers such as demographic data and volunteer opinion on Rhinoplasty outcome will also be evaluated.

The principal dependant variable is patient satisfaction with surgery. The statistical data of this repeated measures design study will be analysed in order to isolate factors, which predict satisfaction with Rhinoplasty. A variety of statistical tests will be used to address the research questions outlined in section 4.1.3. All analyses will be performed using an SPSS computer package on a personal computer.

1.4.1.8 Research dossier timetable

Letters and visits to Cosmetic surgery clinics will commence in March 1998. The first study participants will be surveyed starting in the month of May 1998. Data collection of time one questionnaires will cease in December 2000 to allow for 9-month follow up data to be collected.

1.4.1.9 Ethical approval

Given that the study is located within the private sector and likely to span several health authorities, ethical approval will be sought both from Riverside Research Ethics Committee and from the University of Surrey. Consent will be sought both from the individual clinic directors and from individual patients.

1.4.1.10 References


1.4.2 Factors Affecting Compliance in Gestational Diabetes Mellitus

This research dissertation (part of the Clinical Psychology MSc, 1996) will be resubmitted.
SECTION 2

ACADEMIC DOSSIER
2.1

IS NEGATIVE BODY IMAGE AN IMPORTANT BUT NEGLECTED ASPECT OF THE TREATMENT OF OBESITY?

A CRITICAL REVIEW OF THE LITERATURE
2.1 IS NEGATIVE BODY IMAGE AN IMPORTANT BUT NEGLECTED ASPECT OF THE TREATMENT OF OBESITY? A CRITICAL REVIEW OF THE LITERATURE

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2.1.1 INTRODUCTION

Negative body image is found in the obese population (Rosen 1996; Garner, 1997), in both men and women (Cash, Winstead & Janda, 1986; Thompson, 1990), in normal weight individuals (Butters & Cash, 1987; Rosen, Cado, Silberg, Srebnik & Wendt, 1990) and in individuals with body dysmorphic disorder (Veale, Boocock, Gournay, Dryden, Shah, Willson, & Walburn, 1996; Wilhelm, Otto, Lohr & Deckersbach, 1999). Negative body image is a multidimensional concept concerned with the internal subjective representations of physical appearance and bodily experience. It is associated with poor self-esteem, depression, anxiety, significant distress and impairment and eating disturbances (Rosen, 1996).

It presents a particular problem for the obese, whose main motivation for seeking obesity treatment, is often that of improving body image (Hayes & Ross, 1987; NIH, 1992), in that it can remain present when target weights are achieved (Cash, Counts & Huffine, 1990) and when weight is regained (Wadden, Stunkard & Liebshutz, 1988).

Hitherto many clinicians have assumed that improved body image would automatically follow diet and weight loss (Rosen, 1996). Traditionally treatments have concentrated on very low calorie diets (Wadden, Van Itallie, & Blackburn, 1990; Garner & Wooley, 1991), pharmacotherapy (Munro, & Ford, 1982; Guy Grand, 1992; Nutley, 1999), behavioural interventions (Kramer, Jeffery, Forster, & Snell, 1989; Brownell & Wadden, 1992; Stuart & Davis, 1993; Wadden, Forster, Letizia & Stunkard, 1992) and in extreme circumstances gastric surgery (Kral & Kissileff, 1987; Hall, Watts, O'Brien, Dunstan, Walsh, Slavotinek & Elmslie, 1990).
Glenny & O'Meara (1997) compiled a systematic literature review of the
treatment and prevention of obesity. They summarised the evidence from
randomised controlled trials involving the treatments noted above as well as
exercise and complementary interventions for the NHS Research and
Development division. Their main conclusion, reached despite the largely poor
methodological quality of the studies, was that there are some effective
interventions for obesity but weight gain was extremely common.

None of these interventions specifically targeted negative body image yet from
the above it would seem an important aspect of treatment given that many will
continue to experience distress whether they lose weight, regain weight or even in
the seemingly unlikely event that they maintain a target weight.

Given the biodeterminants of obesity (Keesey, 1986; Stunkard, Harris, Pedersen
& McClearn, 1990), the overall poor long-term maintenance of weight loss
(Glenny & O'Meara, 1997), the presence of negative body image in normal
weight individuals and in the formerly obese, it seems that many who seek obesity
treatment with the hope of improved body image are likely to continue with some
degree of psychological distress in the form of negative body image, if this is not
addressed directly.

2.1.1.1 Hypothesis

The hypothesis motivating this review is that negative body image is distressing
and is frequently closely associated with obesity. Treatments have historically
concentrated on the physical aspects of obesity i.e. to lose weight and to maintain
weight loss by a variety of methods often unsuccessfully. But obesity affects the
individual both physically and psychologically, and it seems this latter aspect has
been neglected.
2.1.1.2 Definitional issues

Body image

Body image is a multidimensional concept concerned with the internal subjective representations of physical appearance and bodily experience. Difficulties with body image range along a continuum, which starts with mild and widely prevalent feelings of dissatisfaction with the body to serious and extreme preoccupation the physical appearance. At the extreme end of the continuum, the preoccupation can reach clinical significance and interfere with normal functioning.

Obesity

Obesity refers to the excess of body fat stores. As a general standard obesity is defined as body weight that is 20% over the ideal weight. The most widely used method to measure ideals of weight is the body mass index (BMI) which is obtained by dividing a person's weight (in kilos) by their squared height (in metres). The 'normal' BMI is set at between 20 and 25. A person scoring between 25 and 30 is classified as overweight and those with a score of over 30 are said to be obese (British Heart Foundation, 1994).

2.1.2 METHODS OF SEARCH STRATEGY AND SELECTION

Studies in this review were identified via computerised literature searches using the PsychINFO and Medline databases. Journal articles of the time period 1984 to 2002 (18 years) were included if they specifically addressed the relationship between negative body image and obesity and psychological treatment. Based on a literature review by Rosen (1996) no studies were found that included any psychological techniques specifically designed to modify body image in the
obese population. The specific search terms used were body image, negative body image, obesity, treatment, therapy, cognitive behavioural therapy and combinations thereof.

The searches of the two databases generated fifty-nine references. After the titles and abstracts had been assessed, copies of the references were obtained. On further assessment of the obtained papers, twelve papers were found to address the psychological treatment of body image. Two of these looked at the treatment of body image in individuals diagnosed with Body Dysmorphic Disorder (BDD) and five addressed the treatment of negative body image in individuals who were of normal weight. Five of the papers specifically addressed the title of the review. The remaining papers were used for background information and to place the review in context. These twelve papers are set out in Table one.
Table 1. Twelve papers reviewed which address the treatment of negative body image

<table>
<thead>
<tr>
<th>Title of Paper</th>
<th>Authors</th>
<th>Date of publication</th>
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<tbody>
<tr>
<td><strong>In BDD (2):</strong></td>
<td></td>
<td></td>
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<tr>
<td><strong>In normal weight individuals (5):</strong></td>
<td></td>
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<tr>
<td>Comparison of interventions for women experiencing body image problems.</td>
<td>Dworkin, S.H. &amp; Kerr, B.A.</td>
<td>1987</td>
</tr>
<tr>
<td>Cognitive-behavioural body image therapy: Comparative efficacy of group and modest-contact treatments.</td>
<td>Grant, J.R. &amp; Cash, T.F.</td>
<td>1995</td>
</tr>
<tr>
<td>Cognitive behaviour therapy for negative body image</td>
<td>Rosen, J.C., Saltzberg, E. &amp; Srebnik, D.</td>
<td>1989</td>
</tr>
<tr>
<td>Cognitive behaviour therapy with and without size perception training for women with body image disturbance.</td>
<td>Rosen, J.C., Cado, S., Silberg, S., Srebnik, D. &amp; Wendt, S.</td>
<td>1990</td>
</tr>
<tr>
<td><strong>In obese individuals (5):</strong></td>
<td></td>
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</table>
2.1.3 RESULTS

Twelve studies were found, which have used psychological methods to treat negative body image mainly in the form of cognitive behavioural therapy or modified versions of this (see Table one). Cognitive behavioural approaches for negative body image generally incorporate strategies to address preoccupation and distress related to body appearance, negative self-talk, and unhelpful beliefs about appearance. They also aim to encourage people to expose themselves to particular situations they have been avoiding due to self-consciousness about their appearance (e.g. attending social engagements). The studies presented here examine negative body image in individuals with severe body image disorder (BDD) but normal weight, individuals of normal weight and obese individuals. The first two areas are relevant to this review as they suggest that negative body image is a distinct concern for individuals regardless of actual weight and therefore requires a treatment package, which will address this aspect.

2.1.3.1 Treatment of body image in individuals with body dysmorphic disorder

Two studies, used cognitive behavioural therapy (CBT) to treat the most extreme form of negative body image dissatisfaction: body dysmorphic disorder (Veale et al, 1996 & Wilhelm et al, 1999) and therefore are relevant to this review of treatment. The Veale et al study, a randomised controlled trial, treated nine patients over twelve weeks with CBT and compared outcome measures with a waiting list control group. The CBT specifically targets the overvalued ideation, avoidance and checking (appearance) behaviour found in negative body image. The results were promising in that they obtained a 50% reduction in the severity of symptoms expressed by the experimental group. There were also significant changes in the treated group on measures of depression. No mention is made in the paper however as to whether the patients were on medication or whether this was commenced during the trial. Furthermore, the total number of
1990. Although participants were not obese these studies were included as they illustrate the fact that negative body image is a distinct concern even without the further complications of obesity.

Butters & Cash (1987) treated fifteen college women with six weeks of cognitive behavioural therapy in a randomised-controlled trial, which specifically targeted negative body image and followed them up at seven weeks. Results showed that following treatment participants judged their body size to be smaller and closer to the norm. High levels of preoccupation with appearance were found to be reduced and they were less likely to endorse dysfunctional beliefs about physical appearance. In sum the authors feel that the study supports the effectiveness of cognitive behavioural therapy in the 'amelioration' (p.895) of negative body image. Although the study benefits from a waiting list control group it would seem more appropriate to have a control group actually receiving an alternative type of therapy such as interpersonal therapy to minimise non-specific effects and demand characteristics.

Addressing the control group issue above Dworkin & Kerr (1987) compared cognitive therapy techniques, cognitive behavioural therapy techniques, reflective therapy techniques and a waiting list control in the treatment of negative body image for normal weight women. They found that all therapies were more effective than the control group in improving negative body image, the most effective intervention being the use of cognitive therapy techniques. What is most surprising is that the researchers achieved significant improvements in only three thirty-minute sessions of therapy. It seems that they may have been dealing with an unusually highly motivated sample in that the participants self referred, but most importantly there was no long-term or even short-term follow-up of these women so it is impossible to say how stable the improvement in body image was. The results need to be interpreted cautiously,
particularly as there are limitations to the generalisibility of the findings to other populations.

Grant & Cash (1995) randomly assigned twenty-three normal weight female participants to either group CBT therapy or a self-directed format with 'modest therapist contact' for the treatment of negative body image. Both of the conditions led to significant gains on all three affective/evaluative body image measures. The authors report that participants became less invested in their looks, reported fewer negative body image thoughts, fewer cognitive errors in thinking about their appearance and less worry about being or becoming fat. Whilst this is a small sample and there was no control group it is important study in that Grant and Cash conduct systematic analysis of the clinical significance of the participants outcomes, unlike the other studies mentioned in this section. They found at the two-month post-treatment follow-up that 52% of the clients were 'reliably improved' and 65% were 'functionally recovered' (p.81). A longer follow-up period would provide interesting data on the long-term effect on body image.

Rosen et al (1989) conducted a trial involving twenty-three women again 'within normal weight range' but with negative body image who were randomly assigned to a six week CBT intervention focussing on body image (N=13) or 'minimal treatment'. The latter paralleled the structure of the CBT group but excluded challenging of irrational thoughts, cognitive restructuring, cognitive self-monitoring forms and behavioural assignments. As the authors predicted CBT was more effective in improving body image than non-directive therapy. The participants improved on all three dimensions of body image targeted in the treatment i.e. perceptual, cognitive and behaviour and the improvements were found to be clinically significant. It is noted that before treatment the participants scored in the clinical or pathological range on the measures and after treatment their scores fell to within the normal range. These changes were
maintained at two-month follow-up. Again an American study, using young female college students (average age, nineteen) makes generalising the results to other populations questionable. The study can also be criticised on the grounds of having a small sample size and a brief follow-up period of only two months. Nevertheless the improvements shown in negative body image are encouraging.

Rosen et al, 1990) expanded on the above study by conducting a study with female college students of normal weight (as determined by the Metropolitan Life Insurance Height and Weight charts, 1983) which randomised participants to conditions of CBT with and without size perception training. They found clinically significant improvements on all three features of body image targeted (perceptual, cognitive and behavioural). Interestingly they found that size perception training did not add to the effect and both conditions showed a decrease in size overestimation to a normal level. The study is subject to the same criticisms as those above in having results that cannot necessarily be generalised to other populations.

Taking into account the limitations of the five studies explored above, all find improvements in measures of body image following psychological treatment in individuals who presented with negative body image but who were within normal weight. As with the previous section on treatment of body image in BDD these studies suggest that negative body image can be treated in the absence of observable physical complaint.

2.1.3.3 Treatment of body image in obese individuals

Five were found that investigated the use of CBT to treat obese individuals for negative body image. (Rosen et al, 1995; Rapoport et al, 2000; Ramirez & Rosen, 2001; Nauta et al, 2001; Cooper & Fairburn, 2001).
In the Rosen et al (1995) study, the target of the intervention was specifically negative body image in obese women (BMI > 27.3, mean BMI: 33.60) and no assistance was provided by the authors to change eating patterns or exercise behaviours. This randomised, controlled study used 51 overweight women, who requested treatment of their negative body image following referral by mental health professionals, GPs or in response to a newspaper advertisement. Subjects were randomly assigned to either no-treatment condition or small group (4-5 subjects) CBT condition.

The cognitive behavioural therapy treatment consisted of 8 sessions, which addressed the following aspects:

Session 1: Education regarding the acquisition of negative body image
Session 2: The independence of physical appearance and negative body image. Self monitoring with diaries and relaxation techniques.
Session 3: The cause and maintenance of body image, tolerating the distress of exposure to physical appearance.
Session 4: Identifying maladaptive assumptions re: appearance & cognitive restructuring.
Session 5: Stress inoculation.
Session 6: Exposure therapy assignments.
Session 7: Response prevention.
Session 8: Planning future exposure and response prevention assignments.

As is standard practice in cognitive behavioural therapy the subjects were required to complete homework assignments to complement the topics and exercises covered in the group and to promote practice of new skills.

Rosen et al (1995) found that although the therapy did not result in a complete elimination of negative body image the participants did significantly improved
on measures of body image. What was also observed was an improvement on measures of global self-esteem which, improved to the range of non-clinical subjects. Weight was unchanged for most of the participants and was reportedly unrelated to treatment outcome overall.

There are limitations to the study, most notably the short follow-up time. The subjects showed no deterioration in body image but the follow-up time was only four months, and short follow-up time is a criticism frequently directed at obesity research. It is also noted that the study's findings cannot be generalised to males. Another important consideration is that the study does not control for the non-specific effects of therapy and a "placebo" would be advisable in future studies. However, Rosen et al (1995) does seem to show, that cognitive behavioural therapy can be an effective treatment for obese women suffering from negative body image at least in the short-term. Furthermore, this effect is achieved in the absence of weight loss as there were no differences in weight change between the CBT and the control condition at the end of the study period. Rosen et al concluded that although there are limitations to the study as discussed, it suggests that there are benefits to integrating body image therapy into more traditional weight management programmes.

Whilst focussing on weight management as opposed to reduction, the following study integrates a psychological approach in the form of CBT to the management of obesity. Rapoport et al (2000) compared standard CBT (S-CBT goal being weight loss through energy restriction) with modified CBT (M-CBT goal being life-style change and prevention of weight gain) on a sample of sixty-three women with a mean BMI of 35.4. Both conditions covered various topics in each session. The M-CBT condition approached dissatisfaction with negative body image using a combination of cognitive and behavioural strategies such as gradual exposure to avoided activities and advice on how to cope with the stigma of obesity, which the S-CBT condition did not. In the M-CBT condition,
the focus was on prevention of further weight-gain and not on weight loss. The study used two questionnaires specific to the body image issue: Body dissatisfaction as assessed by The Body Satisfaction Scale and the Body Image Avoidance questionnaire. It predicted that those in the M-CBT condition would show greater improvements than those in the S-CBT condition. It was found however that both groups improved significantly on all psycho-social measures. Furthermore it was found that both the S-CBT and M-CBT groups maintained these improvements at one-year follow-up. However, the total sample of sixty-three women also showed modest weight loss despite that not being the primary aim, these results were also maintained at 1-year follow-up.

Given these results it is difficult to ascertain exactly what elements contributed to the improvements in body image dissatisfaction as both groups improved despite body image not being directly targeted in the S-CBT condition and both groups experienced modest weight-loss. It may be that even though not specifically targeting body image, S-CBT (which would promote the idea that it is not the situation itself i.e. being obese, that causes distress, but how one views the situation) was sufficient to help the participants view their difficulties in a more neutral or less catastrophic manner. The authors conclude that the M-CBT approach is a viable treatment for obesity. What is clear from the study is that the intervention, which neither targeted nor promised weight loss was found to be acceptable to the participants and it was found that 90% of the women felt positive about the focus of the group.

Ramirez & Rosen (2001) conducted a randomised control trial with 14 obese men and 51 obese women, comparing a behavioural weight control treatment (16 sessions to promote eating and exercise change) with weight control plus body image therapy (consisting of 12 two hour sessions of cognitive behavioural body image therapy and weight control and 4 one hour sessions of weight control only).
Clinical improvements in negative body image were found in both treatment groups following treatment and at three month and one year follow-up. The average reduction in body image distress was greater in the weight control plus body image therapy group than the weight control only group. Individuals in the weight control plus body image therapy group also reported fewer negative attitudes and feelings about eating at post treatment, and this continued to the one-year follow-up. Interestingly there were no significant differences between the two groups regarding weight loss at any point.

The authors reported that including body image therapy to a behavioural weight control treatment did not result in more overall body image improvement for individuals. This finding may be due to the fact that both treatment groups lost weight, producing a positive effect on body image for each group. Due to the fact that the behavioural weight control intervention included cognitive restructuring of negative attitudes toward self and weight control, it is likely that this had an impact on participants' self-image.

What the study does demonstrate is the need for more studies of this kind. In order to yield more conclusive results further studies would need to minimise the cognitive content in behavioural weight control treatments.

Nauta et al (2001) examined the effectiveness of group cognitive therapy and group behavioural therapy for seventy-four obese and overweight women (BMI of 27 or higher), with and without binge eating behaviour at one year follow-up. The authors were particularly interested in this sub-group of obese binge eaters as they are thought to have more severe psychological problems than obese non-binge eaters. Specifically this sub-group presents with more concern regarding shape, weight, and eating (Elderidge & Agras, 1996), are more vulnerable to depression (Wadden et al, 1994), and have lower self-esteem (Telch & Agras, 1994).
The authors proposed that long-term weight loss would be related to improving psychological well-being and normalising eating patterns. Psychological well-being included body-image and it was hypothesised that cognitive therapy would provide better improvements in psychological well-being than behavioural therapy. Therapists were either randomly assigned to a therapy group or conducted both a cognitive and a behavioural one. Participants were identified as being a binge eater or non-binge eater according to DSM-IV criteria for Binge Eating Disorder and then randomly assigned to a therapy group.

Improvements were made on psychological well-being (e.g. concerns about shape, weight and eating, self-esteem and depression) for participants in both therapy conditions, and were equally maintained at one year follow-up. There was modest weight loss in all groups. At first glance it appears that both the cognitive and behavioural interventions are equally effective though with closer scrutiny it appears that these results may have been influenced by selective drop-out. At the one-year follow-up period all those participants refusing to take part in this phase of the study were in the behavioural therapy group. Participants cited disappointment with the therapy as their reason for not participating. Further analysis of the data also revealed that while drop-out rates during treatment did not differ between the therapy groups, obese binge eaters who dropped out or refused follow-up had significantly lower self-esteem and more shape concern than other obese eaters.

Psychological well-being did significantly improve for both groups between pre treatment and one year follow-up, though this was not related to long-term weight loss. The study is limited by its lack of a no-treatment control group to monitor placebo effects and the selective drop-out may have affected the results. It would be interesting to examine more closely the dissatisfaction individuals
had with the behavioural therapy and ascertain if this is unique to this study or a broader phenomenon.

Cooper and Fairburn (2001) proposed an innovative type of cognitive behavioural therapy which addresses not only the initial treatment of obesity in terms of weight loss, but particularly concentrates on minimising weight re-gain.

The treatment addresses three key issues which the authors have identified are necessary to decrease the incidence of weight re-gain after treatment: 1) Help patients accept and value the weight loss that they have achieved. 2) Encourage the adoption of weight stability and not weight loss as their goal. 3) Help patients acquire and then use the behavioural skills and cognitive responses required for successful weight control. Body image is specifically focused on during the beginning phase of treatment and deals particularly with improving self-acceptance.

The treatment is currently being evaluated in randomised control trials and the authors are optimistic of its outcome based on early evaluations. It will be interesting to see what sort of outcomes this type of intervention produces.

Whilst not conclusive the studies, which included CBT directed specifically at body image in obese individuals, support the importance of treatments that address negative body image, but also generate more hypotheses as to what a well-rounded, effective treatment for obesity might be. All studies show improvements on various measures of psychological well being including body image, however whilst one showed that weight remained unchanged (Rosen, 1995) three of them found that there was modest weight loss in the participants.
2.1.4 METHODOLOGICAL LIMITATIONS OF RESEARCH

Research into obesity has frequently been criticised for lacking long-term follow-up and to an extent the research cited here could be said to be lacking in this aspect. Studies frequently use women as participants and so results can not be generalised to the male population, indeed only one study was found that had a focus on male negative body image and obesity (Ramirez & Rosen, 2001). As is often the case, much of the research is based on the outcome of studies which use young American, female, college students and it is also debatable whether the results of these can be generalised. However, when trying to reach conclusions as to whether body image is an important but neglected aspect of obesity treatment the main limitation appears to be in the lack of studies that report specifically on these issues.

The studies outlined in this review also suffer from difficulties that Glenny & O'Meara (1997) comment on when drawing their conclusions, in particular small sample sizes. They also comment on high drop-out rates in the studies they identified, although drop-out rates are not particularly high in the present studies. Another difficulty when assessing this body of research is whether or not the strong commitment of the researchers/therapists to the psychological model used, affects outcome. This factor coupled with the finding that outcome measures used are largely self-report questionnaires, could also lead one to question whether positive outcomes are the result of demand characteristics and or therapist effect and attention.

2.1.5 SUMMARY AND CONCLUSIONS

Negative body image is a frequent motivation for weight reduction attempts and can be the source of significant impairment and distress. It seems that one can safely assume that weight loss alone is not the best way to deal with the problem
at hand and to refer to the title, negative body image would appear to be an important but neglected aspect of the treatment of obesity, given the relatively few studies which have concentrated on this area. The provision of treatments for obesity without addressing negative body image is curious since body image difficulties exist for both men and women, is cited as a prime motivator for wanting to diet, and is associated with weight gain following weight loss. Furthermore, there are also few obesity studies, which give importance to the assessment of body image. However it seems from this review that there is a recent shift in thinking reflected in the most current studies, which include body image in treatment.

Research into the effectiveness of psychological interventions directed at ameliorating negative body image indicates that this can be successful with individuals of normal weight, those with body dysmorphic disorder and with the obese population as well.

The studies reviewed seem to illustrate that CBT, which has already been shown to be highly effective in the treatment of many psychological difficulties, can successfully provide a framework within which to address some of the issues. This is due to the emphasis on how a situation is perceived and not on the situation itself and also that the approach is collaborative and educational. Body image is a psychological construct, which refers to people's perception of their physical attractiveness and although it is related to objective physical attractiveness, Feingold (1992) claims the correlation between the two is low. CBT is able to address all four components of body image, perception, cognition, affect and behaviour and this appears to work successfully in group situations.

The educational aspect of CBT may be especially important, as it is clearly a difficult task to convince the weight conscious public that this is the way
If the poor success rate of the majority of weight-loss methods (in the long term) were more widely disseminated, and the fact that weight is due to hormonal, neural, metabolic factors and genetic predisposition, not just how much fat is ingested or how much exercise is taken, were more widely understood it could enable the general public to prioritise the way they feel about weight, as opposed to trying to lose it all costs.

2.1.5.1 Implications for practice and future research

The literature suggests that body image represents a critical factor to be considered in the assessment and treatment of obese individuals. Body image should ideally be assessed at the start of all obesity treatments with multidimensional measures, which address the cognitive, affective and behavioural aspects of body image. Whilst body image problems are likely to exist for this group, further research should seek to identify the individual cases and subgroups for whom negative body image intervention is most likely to benefit much in the same way one would address binge eating or depression within any standard treatment programme.

Consistent and repeated body image assessments throughout treatment could alert clinicians to those who are continuing to have difficulties and improvements in measures could serve as reinforcement. It may be that monitoring the course of negative body image over treatment could also in this way help to prevent dropping-out of treatment.

Given the emphasis up until recently on weight loss as the most important goal it would seem vital to include an educational component about body image, its development and how it applies to the individual in any treatment programme. It may for example be important to point out that weight reduction does not, according to research always lead to an improved body image. Clearly
information on the nature and causes of obesity and the physiological and genetic barriers to weight-loss are also important aspects of treatment. Given that weight re-gain appears to be so prevalent treatments should as a matter of course, offer long-term follow-up and maintenance strategies. In particular peer support groups could be an important adjunct to treatment.

Clearly the treatment of negative body image in the context of obesity would benefit from further research. In particular male participants are under-represented in the literature, as are older females and local populations. The long-term effectiveness of treatment for negative body image has not as yet been established. As is the case with so many investigations it is imperative that future research addresses the long-term effectiveness of these psychological and combination treatments, not just at six months or a year, but five and ten years down the line. It would also be interesting to see what effect, if any, establishing treatment and post-treatment peer support groups has on attrition and weight maintenance. However, whilst there is undeniably a world-wide obesity epidemic (James, 2001) which needs attending to now, it may be that what future research really needs to focus on is the effective prevention of negative body image and obesity starting with the youngest members of the population.
6. REFERENCES


2.2

BREAST REDUCTION: WHAT IS THE PSYCHOLOGICAL IMPACT?

A CRITICAL REVIEW OF THE LITERATURE
2.2 BREAST REDUCTION: WHAT IS THE PSYCHOLOGICAL IMPACT? A CRITICAL REVIEW OF THE LITERATURE

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2.2.1 INTRODUCTION

In 1982, Khoo asked the question:

In a world, which is short of medical skills...can cosmetic surgery, compete for priority with the eradication of disease and the elimination of starvation? The answer must be a resounding "no". Even within the specialisation of plastic surgery itself, the operations of cosmetic surgery can never enjoy as much priority as the treatment of cancer, cleft lip or burns. Within the national health system there is a need to allocate resources to areas of acute need, rather than offer a comprehensive cosmetic surgery service that is open to all (Khoo, 1982, pg.280).

Many would intuitively agree with the above statement and indeed NHS rationing of surgical procedures like breast reduction has begun (Souza-Faria, Guthrie, Bradbury & Brain, 1999). It seems that breast reduction may be suffering from an image problem in that in the absence of congenital or acquired deformity the procedure is considered cosmetic (i.e. elective and by definition, non-essential) by both clinicians and the general public.

In this review, research which, argues that there are justifiable reasons for having this operation in terms of psychological impact, quality of life and reduction of psychological morbidity, will be considered. In addition research, which identifies the important psychological benefits of breast reduction, for example improved body image and the amelioration of psychological problems associated with specific eating disorders will be discussed. It will be shown that breast reduction can improve body image difficulties and ameliorate psychological problems such as anorexia and bulimia nervosa and it will be concluded that in many cases breast reduction surgery can be seen to have a beneficial psychological impact.
Before addressing the above, it is important to clarify what is meant by the term cosmetic surgery, plastic surgery and breast reduction.

2.2.2 BACKGROUND TO THE REVIEW

2.2.2.1 What is cosmetic & plastic surgery?

There are several terms that are often used interchangeably when discussing plastic surgery; therefore a brief clarification and some background history is required. The term plastic surgery, derived from the Greek plastikos meaning to shape or to mold, encompasses both reconstructive and cosmetic surgery. During World War I, practitioners of the speciality used the term plastic surgery to distinguish their work from that of the "beauty doctors" and what was variously described as "featural", "cosmetic" or "aesthetic surgery". The latter category actually has a much longer history dating from approximately 600BC. An early Indian practitioner, Sushruta, used forehead or cheek skin to reconstruct the noses of criminals who had had them amputated as a punishment and also to reconstruct noses that had been mutilated by jealous husbands.

The father of modern plastic surgery is said to be Gaspare Tagliacozzi who in 1597 wrote what is considered the first textbook on the subject (Stark, 1975). He also pioneered the Italian method of nasal reconstruction by using a flap of skin from the upper arm. A number of textbooks were written after the first world war detailing the medical response to the injuries of war. Later in the 1920's there was again a move towards surgery that would improve facial features rather than correct injury or deformities, commencing with the 'bobbing' of Fanny Brice's nose, a popular American vaudeville actress of the time.

Briefly, with regards to society's changing attitudes to plastic surgery, Haiken notes the difference between an American society intrigued by why Ms Brice had
bobbed her nose and that which forty years later questioned why Barbara Streisand had not (Haiken, 1997, p5.).

Haiken (1997) offers the generally accepted definition, (that is by the medical profession and the lay population) of the term "cosmetic" as being an operation, which "is undertaken solely because of appearance [elective, concerned with improving appearance and not undertaken because of congenital or acquired deformities resulting from injuries and disease]" (p.4).

2.2.2.2 What is breast reduction?

The procedure of breast reduction involves the removal of glandular tissue, fat and skin.

The size of the aureola can also be reduced. It is usually performed as an in-patient procedure and almost always under a general anaesthetic, taking anywhere between 2 to 4 hours depending on the case.

There are several techniques but the most widely used is that employing an inverted 'T' shaped incision which goes from the aureola, extending down towards the submammary fold (please see figure 1, below). Excess fat, glandular tissue and skin can then be removed and the nipple and aureolar complex repositioned. Skin from both sides of the breast is brought down and around the aureola, which shapes the new contour of the breast. In some cases liposuction is used to remove excess fat.

Figure 1: Position of scars following breast reduction
In very large breasts the nipple and aureolar complex may have to be completely removed and grafted to another position, which may result in loss of sensation. In many cases however the nipple can be moved on a bed of tissue, still attached to its own blood supply which minimises the risk of this occurring. Breast-feeding may be possible after breast reduction but most surgeons would advise the patient to postpone surgery until she has finished her family. This is not only due to possible difficulties with breast-feeding, but also due to the fact that pregnancy can enlarge the breasts and cause them to lose their new shape.

There can be complications associated with the procedure apart from those resulting from the use of anaesthesia in general. Breast reduction can result in the development of haematoma or clotted blood, which may require surgical removal. On occasion the procedure can lead to the partial or complete loss of the nipple. The nipple can change in colour or in some cases the nipple tissue can die completely and detach from the breast. It is possible to construct a nipple from tissue grafted from elsewhere on the body. The most common physical complications tend to be bad scarring and lopsided breasts.
2.2.3 AIMS AND METHODS OF THE REVIEW

The aim of this review was to focus on the relationship between cosmetic surgery in the form of breast reduction and the psychological impact of this procedure.

To be included, studies had to satisfy criteria of relevance and outcome. Studies were thought to be relevant if they reported evaluations of the psychological impact of breast reduction procedures. To be included studies had to report on outcome in terms of a psychological variable such as body image.

Studies in this review were identified via computerised literature searches using the PsycINFO and Medline databases. Journal articles of the time period 1984 to 2002 (18 years) were included if they specifically addressed the relationship between breast reduction and psychological impact. The specific search terms used were: breast reduction, reduction mammaplasty (the medical term), psychological, psychology, body image, plastic surgery and combinations thereof.

The searches of the databases listed generated 198 references. After the titles (and where available, abstracts) had been assessed, hard copies of the 198 papers or articles were obtained. On further assessment of the obtained papers, five papers were found to specifically address the title of the review (Souza Faria, Guthrie, Bradbury & Brain 1999; Hollyman, Lacey, Whitfield & Wilson, 1986; Maxwell-Davis, Ringler, Short, Sherick, & Bengtson, 1994; Guthrie, Bradbury, Davenport & Souza Faria, 1998 and Klassen, Jenkinson, Fitzpatrick and Goodacre, 1996). The remainder, were used for background information to place the review in context.
2.2.4 RESULTS

2.2.4.1 Psychological profile of patients who seek breast reduction

The link between psychology and plastic surgery has a long history. During World War I, plastic surgeons noted the positive psychological impact that their work had on their patients. One of the early plastic surgeons, Bettman, commented that the ancient art of plastic surgery had been perfected to such a degree that it is now available for the improvement of patients' mental well-being and their pursuit of happiness (Bettman, 1929).

By 1927 the belief that appearance could be responsible for negative self-image had become so widely accepted that prisoners at San Quentin Jail were offered plastic surgery to aid their rehabilitation. Haiken writes that "Surgeons laid claim to the whole body and mind of healthy individuals by linking physical abnormalities to psychological problems for which cosmetic surgery was the prescribed cure" (Haiken, p.109, 1997).

One of the first papers to investigate the psychological aspects of women seeking cosmetic breast reduction (American private health care patients) reported a number of sequelae relating to macromastia, the medical term for overly large breasts (Goin, Goin & Giannini, 1977). The authors found using questionnaire data that shyness, self-consciousness, sexual difficulties and depression were common in their albeit, small, eight patient descriptive study.

Hollyman et al (1986), had their small sample study of 11 NHS patients with breast size "not grossly inappropriate for their body size" but "suffering profound distress" complete the Crown-Crisp Experimental Index (CCEI, Crown & Crisp, 1979). This is a measure of psycho-neurotic profile, in the form of visual analogue scales measuring anxiety, sexual attractiveness, femininity, depression,
self-confidence and anger. The participants also completed measures of body perception, which included estimating the body width at the level of the bust, waist and hips. Their results suggested that the women tended to overestimate their size particularly at the bust level but interestingly at the other measurements as well. Hollyman et al (1986) suggested that this could be as a result of concern about breast size, which created a tendency to overestimate body image in general. It is interesting to note that the patients showed significantly higher psycho-neurotic disturbance at assessment than the control group of women that had large breasts of a similar size to the experimental group but who had no desire for a surgical change in appearance (Hollyman et al, 1986).

In contrast to the previous investigation, the researchers in a much larger study of 110 NHS breast reduction patients, concluded that their patient group were "not unduly preoccupied by problems of self image or aesthetic considerations". Of the 110 patients, only 4 cited problems of self-image or aesthetic considerations as the main reason for referral (Shakespeare & Cole, 1997, p. 246). However two patients cited new relationship/sexual factors, four cited depression due to body image and 12 cited their reason somewhat surprisingly as having been "informed by friend, or magazine /newspaper article of the availability of the operation on the NHS". Twenty-four, or less than a quarter, of the sample, cited pain or discomfort as their main motivation for surgery.

The fact that only four of the patients gave image and aesthetics as a reason for requesting plastic surgery is perhaps not surprising. Given that the sample consists of NHS patients, the low figure could simply demonstrate awareness on the patients' behalf that the financially straightened NHS would be more likely to prioritise an operation for the alleviation of physical pain than a cosmetic, interpersonal or psychological reason. However: No matter how severe the physical symptoms, the cosmetic component though well camouflaged, has always been there and the aesthetic improvement entertained.
As there has been a dichotomy of indication, there has been dual benefit of reduction mammaplasty: psychosocial and physical (...). Macromastia has been well known to cause a distorted body image. (Losee, Serletti, Kreipe, & Caldwell, p. 445, 1997).

2.2.4.2 Psychological benefits of breast reduction

Large breasts have been shown by the following authors to be associated with psychological distress Souza Faria et al (1999), Hollyman et al (1986), Maxwell-Davis (1994), Guthrie et al (1998) and Klassen et al (1996).

Table 1. Details of studies, which have examined the relationship between large breasts and psychological distress

<table>
<thead>
<tr>
<th>Authors</th>
<th>N</th>
<th>Source</th>
<th>Repeated Measures Designs*</th>
<th>F- up</th>
<th>Psych. Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Souza Faria et al (1999)</td>
<td>19</td>
<td>NHS</td>
<td>Hospital Anxiety/Depression Scale, Body Satisfaction Scale, Body Image Questionnaire, Short form 36 health status questionnaire (SF-36)</td>
<td>4 mths</td>
<td>Following surgery: Significant Improvements in anxiety, depression, body image &amp; body satisfaction</td>
</tr>
<tr>
<td>Maxwell Davis et al (1994)</td>
<td>406</td>
<td>USA Insurance patients</td>
<td>Retrospective analysis of medical records Open ended questions on motivation etc.</td>
<td>N/A</td>
<td>Following surgery Improvement in self-esteem</td>
</tr>
<tr>
<td>Guthrie et al (1998)</td>
<td>22</td>
<td>NHS</td>
<td>Hospital Anxiety/Depression Scale, Rosenberg Self-Esteem Questionnaire, Inventory of Interpersonal problems-32 SF-36, Eating Attitude Test, Body Satisfaction Questionnaire, Body Image Questionnaire</td>
<td>N/A</td>
<td>Patients reported greater psych. Difficulties, were more anxious &amp; depressed, poorer self-esteem, body image, interspers.functioning &amp; health status prior to surgery than control group.</td>
</tr>
</tbody>
</table>

* With the exception of: 1) Retrospective analysis & 2) Group seeking surgery compared to large breasted control group of 33, not seeking surgery
In view of this, a pertinent question is the following:

Will psychological disorder, disorder of body perception or psychological distress be altered by surgical treatment? (Mr N Percival, Consultant Plastic Surgeon, personal communication).

It may be argued that this is so, if it can be shown that improved appearance can effect changes that are of clinical concern, specifically psychosocial functioning.

Souza Faria et al (1999) conducted a study in which thirty-three patients waiting for breast reduction surgery completed a variety of psychosocial measures (Hospital Anxiety and Depression Scale, Body Satisfaction Scale, Body Image Questionnaire and the SF 36). Twenty of the original sample, were operated on and of these, nineteen were available for reassessment 4 months following the procedure. The patients expressed high levels of satisfaction with the procedure. Scores for anxiety, depression, and body image and body satisfaction improved significantly. The authors conclude that the study provides evidence for overall improvement in health status and psychological functioning in that they found significant improvements on 5 out of 8 sub-scales of the SF-36 (specifically these were: physical function, role limitation, mental health, health perception & energy/vitality). Following surgery the patient's scores were compared to normative data for the general female population and they found that the post-op scores had improved to either normal or above normal levels.

Whilst the above results seem very promising, it should be noted that there was no appropriate control group and the response rate cited (63.5%) was relatively low. Additionally the sample size of twenty patients could be considered to be small and it could be argued that there was a fundamental difference between those patients who chose to participate and those who did not. With regards to the reduction in anxiety scores one could question whether being on a waiting list for
surgery was in itself responsible for initially elevated scores on the HADS. Getting the procedure 'over with' may account for the reduction in scores as opposed to being directly attributable to the breast reduction. Due to these factors it could be argued that the study design does not allow one to infer causal mechanisms.

Hollyman et al (1986) looked at eleven women who were interviewed two weeks prior to undergoing reduction mammoplasty on the NHS. The women were followed up at 2, 16 and 26 weeks post-operatively. Using both psychological (Crown-Crisp Experimental Index) and interestingly, physical measures such as body perception apparatus, the participants were compared to nineteen women with similar breast size recruited from hospital staff and students, who had no desire for breast reduction surgery. The researchers also used visual analogue scales, which looked at anxiety, femininity, depression, self-confidence, sexual attractiveness and anger. All of the measures were repeated at the two post-operative interviews however only eight of the original sample, were available at the twenty-six week follow-up. The pre-surgery measures showed that the eleven women had distorted body image, low self-esteem and abnormal psycho-neurotic profiles.

Following surgery at twenty-six weeks follow-up, it was found that body image had returned to a normal range as measured by Slade and Russell's (1973) body perception apparatus; their self-confidence and view of their femininity and sexual attractiveness had also improved. Hollyman et al conclude that breast reduction is effective for relieving what they call "psychological distress" (i.e. significant psycho-neurotic disturbance as evidenced by the Crown-Crisp Experimental Index, Crown-Crisp, 1979) in women who undergo this procedure for minimal deformity. That is, participants who had no breast disease and whose breast size (bra size 34D to 40DD) was not grossly inappropriate for their build. These results would seem to suggest that the procedure had a beneficial effect on
the sample but as with other studies it is again using a very small number of participants (eight at follow-up) and it is noted that only seven completed the body perception apparatus tests, one having been excluded for severe depression. As with the Souza Faria (1999) study, it could also be argued that the initial high levels of anxiety could be due to the anticipation of surgery and the subsequent reduction due to the fact that the participants were no longer anticipating major surgery. Another reasonable explanation for the change in scores could also be due to social conformity or indeed cognitive dissonance i.e., the patients, having had the benefit of a considerable amount of costly surgical expertise along with great physical discomfort, would feel compelled to view the procedure positively. The researchers also note that there was a significant difference in weight between the control group and the patient group. Given the known adverse impact of weight on body image it would seem to be important to have similar sized groups when researching this area.

In the Maxwell Davis et al (1995) retrospective study, seven-hundred and eighty women who had had breast reduction surgery between the years of 1981 and 1992, were contacted. The aim was to determine if surgery had relieved preoperative concerns with large breasts, both physical (e.g. shoulder grooves, breast pain, skin rashes) and psychological (self-consciousness). There was a total response rate of fifty six per cent or 406 patients. Whilst the emphasis in this study was mainly physical, participants were also asked about their motivation for surgery, if they were satisfied with the results and "their feelings about the operation". The authors report that self-esteem had improved in 88 percent of the women, however no mention is made on how this was measured. Seventy-eight percent stated that their motivation for surgery was largely self-consciousness because of the appearance of large breasts and 87 percent said that they were "satisfied with the results". Whilst the sample size in this study is impressive (406) its contribution to the literature is debatable in that it is based entirely on retrospective data. The methods used for the assessment of the concept of self-
esteem are unclear and even if they were, the accuracy of a person's retrospective analysis of how self-esteem was before (possibly up to 10 years ago), in comparison to how it was after surgery, would seem to be questionable. Also it is noted that this is no control group.

Guthrie et al (1998) compared 33 patients on a breast reduction waiting list with 22 similarly large breasted controls (volunteers from hospital administration, unconcerned by their breast size). Twenty-one of the patients reported "severe" physical problems resulting from their breast size in contrast to the controls that reported only minor problems. The psychological difficulties were found to be significantly more common in the patients seeking breast reduction. Consistent with previous research, Guthrie et al (1998), found that the patients reported self-consciousness, anxiety symptoms causing avoidance, decreased self-confidence, poor self-esteem and negative body image. Higher levels of depression and anxiety were also found, with 16% scoring above the clinical threshold on the anxiety sub-section of the Hospital Anxiety & Depression Scale (HADS). Furthermore, whilst none of the control group scored in the depressed range on the HADS, 32% of the patient group scored above the clinical threshold. In addition patients were found to have significantly lower self-esteem and reported more problems and difficulties with regards to interpersonal functioning than the control group. However, the over-reporting of the physical symptoms could be found to support the view that there is now an awareness of NHS rationing. It is worth noting that in this as with the other studies cited no mention is made as to whether or not the participants received counselling prior to surgery. Certainly no mention is made of controlling for the effect of the extra attention (and/or counselling) that participants who underwent surgery would have received from clinic personnel, surgeons, family and other interested parties.

Some of the most important findings in the Guthrie et al (1998) study are those relating to health status, body image and body satisfaction. Findings of this type
are arguably most likely to carry weight when attempting to justify the allocation of scarce NHS funding. Patients scored significantly lower than the control group on six of the eight sub-scales of the SF 36 Questionnaire including that pertaining to mental health. Body image and body satisfaction, were also found to be significantly lower in patients than in controls. These body image and body satisfaction findings are particularly important since the distortion of body image is considered to be an important component in the aetiology of many disorders, including depression, body dysmorphic disorder, anorexia and bulimia nervosa (McIntosh, Britt, & Bulik, 1994).

Klassen et al (1996), conducted a large-scale study in which they surveyed patients before and six months after surgery. Several types of surgery were included in the study: breast reduction, breast reconstruction (124 primary reductions & four revision reductions), pinnaplasty, rhinoplasty and abdominoplasty. Klassen et al (1996) found that the health status of the surgical groups as measured by the SF-36, was within the range of the general population or was more favourable than the general population, following their various surgical procedures. With regards to psychological health, the researchers used the General Health Questionnaire - 28 item (GHQ - 28), which is used to assess for the presence of non-psychotic psychiatric disturbance. Interestingly the breast reduction group had the highest proportion of 'cases' (i.e. those scoring greater than 4 out of a possible 28 on the GHQ) preoperatively and the lowest proportion postoperatively. Furthermore this was the only group for whom this change was statistically significant. This would seem to suggest that the surgery did indeed alleviate their psychological distress.

2.2.4.3 Body image, eating disorders, and breast reduction

Dissatisfaction with overall body image was found by Sarwer, Wadden, Pertschuk & Whittaker (1998), in women requesting breast reduction. Sarwer & Whitaker
(1996), found overall body image dissatisfaction when looking at patients seeking a range of cosmetic procedures. Glatt, Sarwer, O'Hara, Hamori, Bucky, & LaRossa (1999), report that women frequently present with "increased body image dissatisfaction and maladaptive behavioural changes (for example camouflaging the perceived defect with clothing or postural changes), in response to their breast size" (Glatt et al, 1999 p76.).

Glatt et al (1999), strongly suggest that not only did their breast reduction patients report substantial improvements in their physical signs and symptoms e.g. elimination of breast pain with exercise, but significant improvements were found in body image. In discussing large breasts, Glatt et al (1999), assert that "Although psychotherapy may be helpful in relieving some of the distress [of large breasts], it is certainly not curative".

Whilst not citing any relevant research evidence, and therefore to be viewed with some reservations, Glatt, who one notes is a plastic surgeon, goes on to add, "Surgery is the only way to definitively correct a distorted body image [in those that have it]" (Glatt et al, 1999, p.83). The study concluded that breast reduction patients reported significantly greater satisfaction with their body image after surgery than women seeking all other forms of cosmetic surgery, or women who were not contemplating cosmetic surgery. Edgerton & Langman (also cosmetic surgeons) go so far as to state that "the only rationale for performing aesthetic plastic surgery is to improve the patient's psychological well-being" (Edgerton & Langman, 1982).

Clearly psychotherapy will be of little use to those suffering from the physical sequelae of large breasts. However, there is indeed research to suggest that surgery is not the only way to correct body image per se, and there are several authors who advocate psychological interventions in the form of cognitive behavioural therapy (Rosen, Reiter & Orosan, 1995; Thompson, 1997).
In contrast to the above studies, Souza Faria et al (1999) found no evidence of body image disturbance or high levels of psychiatric disturbance in their study of psychosocial outcome and patient satisfaction following breast reduction surgery and maintain that the majority of patients seek breast reduction to alleviate physical discomfort. However the researchers also provide substantial support for the finding that there is overall improvement in health status and psychological functioning in those patients who have undergone breast reduction.

With regard to other beneficial effects of breast reduction there are tentative reports that this procedure can ameliorate certain eating disorders (Losee, Serletti, Kreipe, Caldwell, 1997). Furthermore, in a study based on patient self-report, the authors suggest that large breasts can be a cause of eating disorders, the latter characterised by extreme weight control practises due to severe dissatisfaction with body image. Yates, Shisslak, Allender & Wolman (1988), also report some temporary improvements in eating disorder symptomatology following a range of procedures such as breast reduction, augmentation mammoplasty, chin augmentation, and rhinoplasty.

Losee et al (1997) discuss the finding that large breasts can result in one of two eating disorders. They found that one group of their eating disordered breast reduction patients had a tendency to overeat in an attempt to disguise or "de-emphasize" the size of their breasts. The second group were more likely to try to decrease weight by dieting and hence decrease the size of their breasts. The authors say that this second group went on to develop dysfunctional eating patterns which they found to be consistent with diagnoses of anorexia nervosa or bulimia nervosa. Losee et al (1997) report that following surgery the patient's body satisfaction was significantly increased and that four out of five of the patients reported dramatic improvements in their eating disordered behaviour. The report does not suggest that breast reduction is a cure for eating disorders but that
reduction mammaplasty can play an important role in ameliorating these examples of severe body image distortions.

These optimistic studies should be seen with some caution, as there are conflicting views in the literature. It should be noted that those patients in the Losee et al (1997) study were enrolled in an ongoing eating disorder programme and the sample was selective in including a highly motivated sample of individuals. McIntosh, Britt & Bulik (1994) for example do not share the view that surgery can help alleviate the symptoms of eating disorders. They report poor outcomes in the form of unaltered body dissatisfaction and the continuation of eating disordered behaviours when surgery is undertaken as a result of poor body image, rather than a physical defect.

2.2.4.4 A model of body image change in cosmetic surgery

Much of the research cited up until now suggests that the reason breast reduction results in satisfied patients, is because the intervention is not just cosmetic or physical but psychological in that it improves body image.

The psychological model highlighted by Pruzinsky and Edgerton (1990), which accounts for the changes in body image following breast reduction and indeed other procedures, takes into account that there are perceptual, cognitive, affective and behavioural aspects of body image and that these elements interact. The relevance of this model to breast reduction is as follows:

Perception:
The outcome of breast reduction is influenced by a number of variables such as perception of surgical change. Even though this may not coincide with the objective reality it is the patient's perception of reality which is most important (Albino & Tedesco, 1988). Of equal importance are the patient's expectations and
whether these are realistic or not as perception of the outcome can be dramatically affected. It can for example be possible to have a technically perfect result that does not match the patient's pre-surgical prediction, post-surgically. Fortunately it would appear that breast reduction is a procedure which is generally very well received (Hughes & Mahoney, 1993; Glatt et al 1999) despite its drawbacks such as scarring and other sequelae.

Pruzinsky & Edgerton (1990), suggest in their model of body image change in cosmetic plastic surgery, that it is not only the perceptual but also the sensory changes that are important in the process of body image change, that is whether the patient perceives the surgical change positively or not. They note that perceptual changes also include sensory modifications, which are important when considering their role in the development and maintenance of body image. In the case of reduction mammaplasty there are often changes in sensation in the skin, the weight, firmness and position of the breast. Pruzinsky & Edgerton (1990) write that there is nothing more fundamental than the physical sensation that something feels "different" than before, in addition to seeing that something has changed. Furthermore the perceptual changes in appearance and sensation are suggested to be the foundation for the cognitive, emotional and behavioural changes that result from cosmetic surgery.

Cognition:
Patients seeking breast reduction are said to experience anxious preoccupation with their physical appearance (Harris, 1983), this is perpetuated by self-criticism and comparison with others which in turn can reduce self-esteem and foster anxiety or depression (Cash, Cash & Butters, 1983). If the patient perceives the surgical change positively it is hypothesised in the cognitive model that they can become more positive in their self-statements and in their self-image as well as in their beliefs about themselves.
With regards to the cognitive changes following cosmetic surgery, Pruzinsky and Edgerton (1990) suggest that patients are strongly motivated to reduce self-consciousness, an important consideration in breast reduction. Shakespeare and Postle (1999) support this finding. In their qualitative study of patient's views on the effects of breast reduction surgery, they found greatly increased self-confidence in all areas of life. These findings were maintained at the two-year follow-up in their qualitative study.

Pruzinsky & Edgerton (1990), suggest that with the cognitive change comes a reduction in the amount of time spent thinking about appearance and comparing appearance. It may be therefore that this leads to an increased amount of time and emotional energy being focused onto other areas of life. This may well in part account for the findings in the Shakespeare & Postle (1999), study where patients reported enhanced relationships, and improved personal and social lives. Furthermore the interaction of these factors led to a reported improved self-image and improved quality of life.

Emotion:
Pruzinsky and Edgerton (1990) stress the importance of the emotional impact of cosmetic surgery and many studies document the positive emotional impact of cosmetic surgery. The most frequently found psychological changes are in increased self-esteem and reductions in anxiety and depression associated with self-consciousness. For example the Hollyhead et al (1986) study found positive psychological changes in the form of an overall improvement in body image and increased self-esteem. They also found that there was an improvement in perception of sexual attractiveness and feelings of femininity in women who had undergone breast reduction. Glatt et al (1999), in a study looking at positive physical and psychological changes after reduction mammoplasty in the medical records of 110 consecutive patients, found a reduction in "personal embarrassment" following breast reduction.
Behaviour:

Behaviour is identified as an important factor in the Pruzinsky and Edgerton (1990) model. There is not a great deal of empirical research on behaviour change following cosmetic surgery. Nevertheless it is frequently reported that women with large breasts often encounter difficulties and pain with exercise. Glatt et al (1999) report that more than 80% of their sample of breast reduction patients reported improvements or elimination of shoulder grooving, and breast pain following exercise, which could lead to behaviour change. Similarly, Shakespeare and Postle (1999) found an increase in sports activity following breast reduction.

Adverse negative behaviours can also decrease following surgery. Camouflaging or attempting to conceal the breasts becomes unnecessary as self-consciousness about the body parts is no longer an issue (Harris, 1982). Harris argues that that individuals who feel better about themselves may alter their way of interaction with others, becoming perhaps more open, less withdrawn and consequently more likely to receive positive social reinforcement (Harris, 1982). Shakespeare and Postle (1999), also highlight that their patients reported an improved social life.

In summary the model would suggest that when positive perceptual, cognitive and emotional changes result from cosmetic surgery, behavioural change follows. For cosmetic surgery to have a beneficial effect on the patient it is necessary that the surgical outcome is perceived in a positive light. Should the perception be negative, the patient will by definition, not benefit from the favourable cognitive, emotional and behavioural effects.

Given that some researchers suggest that large breasts can be factor in poor body image it is surprising that there is no literature on whether the psychological distress caused specifically by large breasts is amenable to treatment with psychological as opposed to surgical methods. In two studies mentioned earlier (Guthrie et al, 1998 & Hollyman et al, 1986) the control groups had similar sized
breasts to the patients yet, were not showing distress and reported no desire for surgery. In the cognitive behavioural model of psychological therapy, distress associated with any given situation is held to be due to a person's perception rather than the situation itself. It may be that attention should be directed towards psychological treatments of this problem particularly when physical symptoms such as back pain and skin rashes are minor or non-existent. Successful cognitive-behavioural treatments already exist to help those with poor overall body image and it may be that these techniques could be modified to address concerns with specific body parts much in the way that CBT has been used in the treatment of Body Dysmorphic Disorder (Rosen, Reiter & Orosan, 1995).

2.2.5 METHODOLOGICAL LIMITATIONS OF RESEARCH

It is important to draw attention to the fact that there are a number of problems, when trying to draw conclusions from this body of research. Firstly, it has to be taken into account that there is a paucity of research into this particular area and few papers which involve appropriate control groups. Many of the studies do not control for social conformity, anxiety on waiting lists or response bias, furthermore most studies use small sample sizes. It is difficult to compare samples of patients and research articles as authors often fail to mention or are ambiguous regarding the cut-off point between what they are referring to by the terms 'normal sized' breasts and large breasts and macromastia. It is also perhaps worth taking into account the source of some of the research. As seen in this review, strong support for the psychological benefits of the procedure comes from the plastic surgery community and whilst one would hope for unbiased views, these views are sometimes expressed without adequate empirical evidence.

Another issue which makes drawing firm conclusions problematic is the possibility that women over-report physical discomfort which may be more favourably received as motivation for surgery (simply an issue of demand
characteristics), when their actual request is due to psychological distress. Overall there is a lack of any kind of longitudinal or prospective studies, which might help to elucidate causal mechanisms in this area.

2.2.6 SUMMARY AND CONCLUSIONS

NHS funding for breast reduction is currently justified on the grounds of the irrefutable evidence that large breasts cause adverse physical sequelae such as, neck, back, shoulder pain, grooving from bra straps, poor posture, leading to serious spine pathology and chronic skin irritations. The consideration of benefits to patients is of course paramount when considering the cost-effective allocation of resources available for health care.

However, it would appear that to dismiss the provision of breast reduction on the NHS, for psychological reasons, and it is already a restricted procedure in many health authorities (Souza Faria et al, (1999), Dr M. Hunjan, Medical Epidemiologist, Ealing, Hammersmith and Hounslow NHS Health Authority, personal communication), may be short sighted. To favour physical health problems at the expense of the potential mental health problems that can result from dissatisfaction with breast size and resulting body image problems may be false economy.

Overall and given the limitations already cited the research suggests that breast reduction is a procedure, which benefits from almost universal approval by patients, surgeons and researchers. With regards to the question:

**Breast Reduction: What is the Psychological Impact?**

The straightforward answer appears to be a *positive* one. The research seems to suggest that the majority of those who have had breast reduction would
undoubtedly hold that, it is justifiable because of the psychosocial and physical benefits it can bestow. However as has already been pointed out one is dealing with an area in which there is as yet a paucity of relevant published research, largely involving small samples, a lack of appropriate controls and in some cases from within the plastic surgery community. The conclusion must therefore at this point, be viewed with caution.

What this literature review does perhaps highlight is that in many cases it may be misleading to label breast reduction in the seemingly pejorative way as simply a cosmetic procedure. Whilst few would advocate funding for surgery to everyone on the surgeons waiting list, it is also not appropriate to deny the procedure to those whose request is due primarily to psychological distress. This would result in an unjustifiable prioritisation of the physical over the psychological needs of the population and it is well recognised that the care of mental health problems are ultimately more costly than a breast reduction.

2.2.6.1 Implications for future research

There is a need for studies which can provide comprehensive data on the number of requests made for this type of procedure and the amount of requests that are granted or refused. Comprehensive psychological assessment using reliable measures with long-term follow-up and appropriate controls is long overdue and should be incorporated to help clarify what factors predict good and poor psychological impact, both of those who are operated on and those who are not. In addition another area, which seems to have been neglected in the research, is the long-term effect of not having the operation and the possible implications for mental health status over time. It could be hypothesised that some women may feel that to present with psychological motivation for surgery may be misinterpreted as a cosmetic need and therefore unnecessary. In other words there is public awareness of NHS rationing for procedures largely considered cosmetic.
Thus psychological motivation may be under-reported and this could possibly be an interesting area for research.

Further investigation into the impact that psychological techniques have on limiting or removing distress surrounding individual body parts would also seem to be indicated. Overall, it would seem that greater clarity is required and that plastic surgery departments could benefit from the assessment and therapeutic expertise of their colleagues in the mental health sector to inform their practise. It seems that it is essential that these factors are taken into account and implemented, if the needs of these patients are to be understood, met and not dismissed even if this is only for the economical benefits it can bestow. After all the care of mental health problems is ultimately more costly than a breast reduction.
2.2.7 REFERENCES


SECTION 3

PROFESSIONAL DOSSIER
3.1

COGNITIVE BEHAVIOURAL THERAPY FOR AN INDIVIDUAL DIAGNOSED WITH BODY DYSMORPHIC DISORDER, IN A NATIONAL HEALTH SERVICE SETTING

DESIGN AND EVALUATION OF THE TREATMENT
3.1 COGNITIVE BEHAVIOURAL THERAPY FOR AN INDIVIDUAL DIAGNOSED WITH BODY DYSMORPHIC DISORDER, IN AN NHS SETTING

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3.1.1 ABSTRACT

This case study reports on the assessment, formulation and treatment of a man with a diagnosis of Body Dysmorphic Disorder (BDD). The patient (known as LF) was offered 20 sessions of cognitive behaviour therapy, four follow-up appointments were also offered at monthly intervals following treatment. The patient attended 20 treatment sessions. Different treatment strategies were devised within the cognitive behavioural model of therapy (CBT) as it was considered that the disorder was acquired and maintained through separate processes. Given the nature of the patient's particular maintaining factors, an emphasis was placed on behavioural exercises and exposure. These however were supported by the cognitive rationale and elements of schema focused therapy. The cognitive behavioural intervention of body dysmorphic disorder is described in detail. The patient showed improvements on measures of depression and anxiety and the presence of BDD symptomatology. The patient's level of activity had increased by the end of the study period. Outcome issues are discussed.
3.1.2 INTRODUCTION

3.1.2.1 Body dysmorphic disorder: a brief overview

BDD was first described in 1886 by Enrico Morselli (Morselli, 1886), the disorder currently requires the following features to be present for a diagnosis according to the Diagnostic and Statistical Manual of Mental Disorders (APA, 1994, a full description can be found in Section 4 of this portfolio):

The individual shows a preoccupation with an imagined defect in appearance. In the event that there is a slight physical anomaly, the concern is markedly excessive and causes clinically significant distress or impairment in social, occupational, or other important areas of functioning. Lastly, the preoccupation is not better accounted for by another mental disorder such as Anorexia Nervosa.

BDD can cause considerable distress, sufferers can become involved in time consuming checking rituals such as looking in the mirror to see if the defect is as bad as they think (Phillips, 1996). The concern can focus on any physical feature but research has shown that the main areas of difficulty tend to be the nose, skin and/or hair (Hollander, Cohen & Simeon, 1993). BDD is closely related to Obsessive Compulsive Disorder (Veale, Boocock, Gournay, Dryden, Shah, Willson & Walburn, 1996).

This single case study (involving a patient who will be known as 'LF') was undertaken to explore the effectiveness of cognitive behavioural therapy (CBT) in treating Body Dysmorphic Disorder (BDD). The delivery of short-term effective treatments is increasingly demanded of mental health care professionals (for a full description of CBT, rationale and techniques, the reader is referred to Beck, [1976]).
3.1.2.2 Cognitive-behaviour therapy for body dysmorphic disorder

Cognitive-Behaviour Therapy (CBT) has been extensively and successfully applied to a wide range of emotional problems in particular anxiety and depression (Beck, Emery & Greenberg, 1985). There are now various studies reporting that CBT can also be successful in treating the disturbed body image of those diagnosed with BDD.

From a CB perspective, body image distortion and the resulting low mood are a result of relevant thoughts being distorted and negative expectations of the outcome of certain situations together with skewed or dysfunctional thoughts. Following on from this, CB models would hold that it is not the physical feature per se which is causative of the distress but the way the physical feature is viewed.

There are two recent studies that have used versions of CBT successfully in the treatment of BDD (Veale, Gournay, Dryden, Boocock, Shah, Willson, & Wallburn, 1996; Wilhelm, Otto, Lohr & Deckersbach, 1999). Of particular relevance is that by Veale et al (1996) who presented a CB model of BDD and tested out the model in a randomised-controlled trial of treatment for BDD with CBT. They found significant changes in the treated group on specific measures of BDD and depressed mood.

Veale et al (1996) have hypothesised that BDD develops, in response to a combination of "biological predisposition, early childhood experiences and cultural factors" (Veale et al 1996, p.722). Once an individual develops the disorder, mirror gazing is the crucial maintaining factor (Veale & Riley, 2000). Mirror gazing is said to increase self-consciousness and most importantly selective attention (Veale & Riley, 2000) and is found in 80% of BDD sufferers.
(Veale et al, 1996), please see figure 1 below. Selective attention plays a similarly important role in the cognitive model of social phobia and the interested reader is referred to Clark & Wells (1995) and Wells & Clark (1997).
Figure 1: A Cognitive Behavioural Model for Body Dysmorphic Disorder*

**Figure 1: Trigger situation in this case, a mirror.**

*From Veale & Riley (2000)*
The above model suggests that, individuals attend, selectively, to specific aspects of his/her external reflection in the mirror. This increases their awareness of their appearance leading to a relatively magnified internal representation. Veale hypothesises that if the focus of attention were only on the external reflection then this process might predict that the individual would see certain aspects of their appearance with increased accuracy. There is some evidence for this in that Jerome (1992) found that non-BDD patients who were on a waiting list for cosmetic rhinoplasty were actually more accurate than controls in estimating the size of their nose perhaps indicating that scrutiny had led to greater accuracy.

Veale & Riley (2000), suggest BDD patients are more likely to attend to an internal mental representation of their body image and that furthermore this internal body image is more likely to be unstable and distorted than in controls. Their hypothesis being that these internal images are influenced by the individual's mood and their values i.e., the importance of appearance to their identity.

Once the disorder develops, cognitive, behavioural, somatic and affective factors will maintain and strengthen dysfunctional assumptions. It is hypothesised that the BDD sufferer may also become hypervigilant for any minor changes.

Veale and colleagues also suggest that BDD patients compare three different images when looking at themselves, that is their reflection, their ideal image and their distorted body image. It is therefore understandable that frequent comparisons would result in a confused mental representation, leading to a vicious cycle of further mirror gazing. It is this confusion and uncertainty, which may well generate the distress associated with BDD. Hypothetically, the individual starts to overvalue the meaning of the discrepancies between the three images and believes that others share the same views. The individual naturally begins to avoid social situations, which is reinforcing (avoid social situations =
avoid distress), but prevents the individual from disconfirming their beliefs i.e.,
that they will attract ridicule or disgust.

The checking and reassurance seeking, so prevalent in BDD is postulated to be
reinforcing as it can occasionally provide temporary relief from distress. Furthermore it makes it more likely that the individual will acquire information
that they think confirms the worst fears (selectively attending to what they
consider to be their worst feature to the exclusion of all others). In this way
compulsions maintain both the dysfunctional beliefs and the selective attention,
which is similar to the vicious circle observed in OCD.

Veale & Riley (2000), stress the importance of the patient having a good
understanding of the CB model that accounts for the development and
maintenance of BDD. Attentional training, a strategy developed for reducing self-
focus and increasing the flexible control of attention (Wells, 1990), is also
recommended to help diminish self-focus on appearance, in particular when the
patient is exposed to situations that are likely to trigger feelings of anxiety or
disgust. The behavioural components are particularly important to help patients
stop mirror-checking rituals on the basis of external cues (such as agreed time
limits), as opposed to internal cues such as 'I'll stop when it feels just right'.

Cognitive restructuring promotes the development of alternative beliefs, for
example that people are not judged solely on appearance. Veale et al points to the
importance of the BDD patient learning to "accept unconditionally the uncertainty
about whether a 'defect' exists in their appearance" (Veale et al, 1996, p.725). It is
also necessary to identify beliefs like 'I must be perfect in appearance or I am
worthless or unlovable', (a frequently endorsed statement according to Veale et al,
1996) with a view to challenging them and developing alternatives.
The current study uses the above techniques but also uses the Mind Over Mood manual (Greenberger & Padesky, 1993) to help focus on and challenge the participant's schemata or 'prejudices'. This text can help structure the treatment and also encourage consistent and frequent homework tasks. In addition, many of the homework handouts were personalised to LF and his particular concerns (see appendix one).

The aim of the current study was to evaluate the effectiveness of time limited CBT based on Veale's cognitive behavioural model for BDD. Schema-Focussed Therapy homework tasks using 'Mind over Mood, (Greenberger & Padesky, 1993) were used to help structure the treatment of an individual NHS patient diagnosed with BDD.

This single case design employed Repeated Measures of standardised questionnaires on a weekly basis and at four follow-up appointments.

3.1.3 METHOD

Referrals were sought from the four local community mental health teams.

3.1.3.1 The participant

The participant, a single, unemployed 32-year old, white male will be known as LF in this report. He was formally diagnosed, as suffering from BDD four years ago by a psychiatrist, but seemed to have displayed symptoms consistent with BDD since early childhood. His distress revolved around his hair, which he felt made him look "a freak".

Throughout treatment LF continued to receive outpatient appointments with his psychiatrist to monitor his antidepressant medication 'Seroxat', in line with current
recommendations for the pharmacological treatment of BDD (Phillips, 1996). At the start of treatment his dose was increased to 60mgs (from 40mgs) as recommended in the treatment of BDD.

3.1.3.2 Measures

The following three measures were used in this single case study. These have been widely used in the study of BDD.

3.1.3.2.1 Body Dysmorphic Disorder Questionnaire (BDDQ), Phillips, Atala & Pope (1995) (see appendix two for example and properties).

3.1.3.2.2 Modified Yale Brown Obsessive Compulsive Questionnaire (modified Y-BOCS) Phillips, Hollander, Rasmussen, Aronowitz, DeCaria, & Goodman (1997) (see appendix three for example and properties).

3.1.3.2.3 Hospital Anxiety and Depression Scale (HADS) Zigmond & Snaith (1983) (see appendix four for example and properties).

3.1.3.3 Procedure

An assessment was arranged by letter one month prior to the proposed start of treatment. The CBT format of treatment was outlined and it was proposed to offer 20 sessions of treatment and four follow-up appointments at one-month intervals. Following LF's agreement the three study questionnaires were administered (BDDQ, HAD & Y-BOCS, see section 3.2) and it was explained that two of the three questionnaires would be administered on a weekly basis during treatment (HAD & Y-BOCS, see section 3.2). LF was also informed of the necessity of completing the measures again on the last appointment and at the four follow-up appointments. The patient was asked to read through a copy of "The Broken Mirror" (Phillips, 1996), to increase his understanding of the disorder.
Furthermore LF was asked to complete a simple thought diary (appendix five) relating to his thoughts and moods. Consent was sought and granted, to write the case up for research purposes.

3.1.4 ASSESSMENT

3.1.4.1 Presenting problems:

1. Obsessive thoughts about appearance
2. Compulsions, ritualising and checking
3. Depression
4. Low self-esteem

A detailed account of the nature of the presenting problems can be seen in appendix six.

3.1.4.2 Background information and family history:

LF described an unhappy childhood and felt deeply ambivalent about the way he was treated by his emotionally absent parents. LF was one of three siblings. He had one elder sister and a younger brother, with whom he maintained a close relationship, with Downs Syndrome. He reported a very difficult relationship with his older sister who bullied him throughout his childhood and he remembers being frightened by her as she crept up on him at night to intentionally startle him. He also reports that his sister coerced him into touching her in a sexually intimate way. He was later terrified by her suggestion that he would get into terrible trouble when his parents found out that he "had made her pregnant" by touching her thighs. His sister left home at the age of 16 when she became pregnant by her boyfriend. LF says that his sister abused illegal drugs throughout her adolescence.
He felt that she had engineered the pregnancy in order to escape the suffocating and emotionally abusive atmosphere at home.

LF's mother was a chronic alcoholic, spending long periods in bed. He reported that in retrospect he felt like he was her counsellor as she would call him into her bedroom to complain at length about his father. When his younger brother was born he was largely left in charge of his care when his mother was drunk and was frequently left frustrated and angry by having no support in this difficult task. He remembers frequent criticism by his mother who used to comment negatively both on his appearance, his intelligence and the likelihood that he would "not come to much".

His father was described as largely absent and disliked by LF for his harsh treatment. Interestingly LF inherited a facial feature from his father i.e. his nose. He remembers how people used to comment how like his father he looked and that he would probably grow up to have a nose like his father's, which was large and prominent. When he was 19 he had cosmetic surgery funded by the NHS to reduce the size of his nose. The surgery was somewhat successful although he still dislikes this feature.

LF describes the atmosphere at home as being "like treading on eggshells" and he described himself as coming from a family whom "for generations had not known how to look after kids". He had intermittent phone contact with his parents and visits about once a year.

**Education and work history:**
LF felt unhappy and unpopular at school. He had few friends and never felt that he fitted in well with the other children and was teased. He did not do well at school and having gained an 'O' level in English and a Maths CSE he left at the age of 16. Due to his increasing difficulties with his appearance he did not attend
his final year at school. The longest period of employment was four months with a YTS in the building trade. By then however he had become increasingly self-conscious about his appearance and felt that colleagues were looking and laughing at him. He later got a job working nights in a warehouse but was only able to tolerate this for a couple of months, due to the above reasons. He has since been unemployed for over 10 years.

Psychiatric history:
LF's first contact with psychiatric services was in 1988, prompted by a period of feeling particularly depressed due, he says, to a dispute with other tenants in his housing trust accommodation. He attended a London day hospital for two years. During this time he had individual counselling. For a year prior to engaging in this course of therapy, he attended sessions with another counsellor arranged for him by his pastor. He continues to receive regular outpatient appointments in the Psychiatry department with a view to monitoring his medication and mental state.

With regards to his medical history there is nothing of note apart from his Rhinoplasty at the age of 19.

Current circumstances:
LF's social circle consists of two close friends. He attends church sporadically, this can be difficult when he is feeling particularly low. He occasionally goes out with his friends, mainly at night and either to their homes or to the cinema. He admits to frequently cancelling appointments with them if hair rituals have taken longer than he anticipated. He has lived in his current housing trust flat in London for approximately 6 years and is relatively content with this situation. Most of his time is spent watching television or playing 'Playstation' computer games.
3.1.4.3 Pre-treatment scores (one month pre-treatment)

Table 1: Pre-treatment scores

<table>
<thead>
<tr>
<th>HADS - depression</th>
<th>HADS - Anxiety</th>
<th>Mod. YBOCS</th>
<th>BDDQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>12</td>
<td>29</td>
<td>Present</td>
</tr>
</tbody>
</table>

It can be seen from the above table that LF's depression score was 18 at one month pre-treatment, indicating that he scored well within 'caseness' (where a score of 11 indicates case level depression). The anxiety score was 12, also within case levels (where a score of 11 indicates case level anxiety. The modified YBOCS score of 29 suggests a severe level of preoccupation with physical features. LF's replies to the BDDQ although not formally diagnostic of BDD indicated the presence of BDD symptomatology.
3.1.5 FORMULATION

Following assessment a cognitive behavioural formulation, was devised with LF. The cognitive behavioural formulation was further justified by the clearly evident dysfunctional beliefs, which could be identified as aetiological and maintenance factors in LF's difficulties.

**Cognitive behavioural formulation:**
It was hypothesised that LF acquired his negative beliefs about his physical appearance in the presence of critical and inconsistent parenting in which detrimental comments linking his supposedly defective appearance to his personality and intelligence, were a constant feature. LF's frequent attempts to please his parents but never being able to satisfy their inconsistent demands seemed to have imbued him with a sense of never being good enough. It would appear that he interpreted his parenting as being indicative of his appearance revealing something about his internal characteristics. Given his early belief that appearance was linked to internal (negative) characteristics, LF reported that comments about the similarity of his facial characteristics to his father's led him to believe that he was (or could become) like his father, a person who he distrusted and disliked. It was put to him that his Rhinoplasty was an attempt to prevent this happening, a hypothesis that he agreed with.

It was further hypothesised that having already developed negative beliefs about both his internal and external qualities as a young child, the onset of puberty (traditionally a time of uncertainty and turmoil) would have been a particularly difficult time for LF. At a time when teenagers are trying to fit in with peer groups and compare themselves with others, LF would have already had a damaged self-esteem and low self-confidence, making interaction with others difficult and traumatic. He would have been particularly sensitive to comments on his dress and appearance, which would lead him to withdraw as opposed to join in
peer groups. He reported never feeling he belonged to a peer group and that he always felt out of place, "I was always wearing the wrong clothes".

The self-scrutiny in the mirror, which is common in adolescents who suffer from skin conditions like adolescent acne (Phillips, 1996), would have led LF to check carefully for change in his appearance. Finding new blemishes would reinforce this behaviour and distress him, indeed LF recalls long periods of time searching for evidence of new spots in the mirror.

Following Rhinoplasty at the age of 19 his concerns about the appearance of his nose decreased. However feelings of low-self esteem can rarely be ameliorated by surgical intervention (Rosen, Reiter & Orosan, 1995) and, in an effort to find a link between his continuing negative feelings about himself and his appearance, the mirror scrutiny continued. Given that LF believed he had been able to "see in the mirror" why he felt negatively about himself all his life, it stands to reason that he would continue to look in the mirror to see if he "looked all right".

The model as put forward by Veale et al (2000), suggests that there may be uncertainty when mirror gazing as the person is trying to compare three different images. It is interesting that LF reports a "sort of confusion and uncertainty" as to whether he looks acceptable, when he has been mirror gazing for a prolonged period of time.

His expressed feelings of being different, bad, stupid and of not fitting in would have been exacerbated by the lack of support within the family and his social isolation outside of the family.

LF's negative feelings would be maintained by his increasingly withdrawn behaviour, avoidance of eye contact and social interaction. The prejudice model described by Padesky (1993) helps explain maintenance. The model would
suggest that well-intentioned comments about his appearance would be interpreted as lies or exceptions to the rule or would be distorted in his mind into negative comments, neatly agreeing with his own opinions of himself. LF was able to recall many examples of occasions when comments had been interpreted as lies, or of people being kind because he was a "freak".

LF's experiences lead to the hypothesis that he developed negative core beliefs about himself. The most important and damaging of which appears to be:

"I am (ugly, repulsive) internally defective and this is apparent to the world by my external appearance (ugly, deformed)"

His constant attempts to groom and correct his external appearance only served, by his own admission to increase his distress and did not as he hoped get rid of his deeply rooted feelings of worthlessness. This left him feeling an outsider ("a freak"), not good enough and unacceptable to others.

The dysfunctional assumptions upon which he bases his view of himself and makes sense of his world are expressed as "If I could look all right then everything would be ok". Other dysfunctional assumptions he expressed were "If you try and think positive, something bad will happen" and "If you are nice to people they will take you for a sucker". These are characteristically rigid, over-generalised and extreme. This formulation was presented in a simplified form to LF who validated its accuracy (please see Figure 2 on the following page).
Figure 2: The cognitive behavioural formulation

Cognitions
- How do I look?
- I wish I had normal hair
- I look stupid
- If I could just get my hair right, I'd be ok
- I'm not in control
- My body conspires against me

Mood
- Frustrated
- Anger
- Despair
- Anxious

Physical reactions
- Muscle tension
- Sweating
- Hyperventilating

Behaviours
- Avoidance
- Washing hair
- Grooming hair
- Checking appearance

Triggers
e.g. Rejection

Dysfunctional Assumptions (Rules)
- If you are nice to people they will take you for a sucker
- If you try and think positive, something bad will happen
- If I could look alright then everything would be ok, I could cope with anything

Self:
- I'm a loser
- I'm not free
- I'm a piece of shit
- I'm really bad

Negative Beliefs

People:
- Everyone is better off than me
- Others are not judged by their appearance
- Others are not trustworthy
- Other people can do anything

World:
- Not got much to offer
- Life is crap, there are just degrees of it

Early Experiences:
- Teasing by people close to me
- Trying hard, but nothing ever good enough
- Feel judged by my appearance and I can't change that, so I will never be any good
- Critical parents
- Un-supportive parents
- Mother alcohol dependant and distant father
- Judged and laughed at
- Lack of encouragement
- No positive regard
- Dysfunctional family
3.1.6 TREATMENT AIMS

LF defined his treatment aims as the following:

1. To decrease time spent on ritualised hair washing.
2. Decrease self-consciousness.
3. To understand his thinking processes surrounding his appearance.
4. Improve mood.

Based on the cognitive behavioural model of BDD it was explained that it was also important to address the following issues:

6. Amount of time spent on mirror checking and the way in which this is performed.
7. Selective attention
8. Identify appearance-related beliefs
9. Increase activity levels with a view to improving general quality of life.
3.1.7 APPLICATION OF INTERVENTION TO TREATMENT AIMS

The treatment was CBT and treatment was guided by the Veale et al cognitive behavioural model of BDD (Veale et al, 1996 & Veale et al, 2000). Elements of schema-focussed therapy (Young, 1990), were introduced to address the existence of early maladaptive schemata identified through the assessment. For a full explanation of these please see appendix seven.

Application of intervention to treatment aims:

1. To decrease time spent on the ritualised hair washing.
   Intervention: Behavioural techniques of self-monitoring length of time washing and drying hair and the prescription of limited washing time so that grooming ceases according to a time limit as opposed to a feeling.

2. Decrease self-conscious.
   Intervention: Gradual desensitisation via exposure to increasingly anxiety provoking places and situations was planned. This also incorporated an educational aspect in the form of providing information on normal eye contact behaviour. Advice was given on distraction techniques to help him to focus attention onto the external world and alternatives to the impact he feared his appearance was having on others.

3. To understand his thinking processes surrounding his appearance.
   Intervention: Thought diaries were used to clarify the automatic negative thinking patterns associated with his appearance and distress. The diaries and discussions were used to identify schema driven behaviours. Discussion was used to help LF to link the presenting problems, childhood experiences and adolescent/adult behavioural patterns. Handouts were given for individual study and discussed in session of elements of CBT and Schema-focussed therapy.
A combination of social isolation/alienation, defectiveness/unlovability and social undesirability schemata were targeted for therapy (see appendix eight for Young's definitions). To make these categories more accessible and personal to LF they were expressed as follows:

"I am (ugly, repulsive) internally defective and this is apparent to the world by my external appearance (ugly, deformed)"

This maladaptive schema (or core belief) was systematically confronted and challenged and an alternative was devised which consisted of a statement containing evidence against the schema.

"I have a very intense feeling that I stand out because of my appearance, but there is a small part of me that knows I am OK. There are several people in my life that love and care for me and do not seem to see me as negatively as I see myself or see the ugliness that I have, through my experiences, been made to feel inside".

4. Improve mood.

*Intervention:* LF was encouraged to keep an activity diary and to gradually introduce pleasant events. The diaries also served to keep LF aware of his areas of progress.

5. Mirror checking

*Intervention:* The maintenance role of mirror checking and gazing was explained and LF was asked to limit the mirror sessions to initially one hour and a half per day and later on in treatment he was asked to reduce this to one hour per day. To help remind him of this agreement, he was given posters to be placed near the bathroom mirror. He was given various suggestions recommended by Veale et al (2000), to help him develop a healthier attitude to using the mirror. These were to focus on the whole face as opposed to just his hair and to avoid the mirror when
he felt particularly low, furthermore he was advised to view himself from a distance as opposed to up close to the mirror. He was advised to keep a record of mirror gazing.

6. Selective attention

*Intervention:* Discussion of the role of self-focused attention in increasing awareness of feelings and the mistaken attribution that such feelings must be attracting the attention of others. Encouragement to experiment by observing others walking in the street and using distraction techniques such as counting amount of red cars passing.

7. Identify appearance related beliefs

*Intervention:* Using diaries to monitor thoughts and the main themes, when identified, challenging techniques used by the therapist and taught to the patient.

8. Activity levels

*Intervention:* LF was asked not to turn down offers to socialise by friends as he frequently did. LF recognised that having a lot of time on his hands could be exacerbating his difficulties. Daily activities were arranged e.g. computer course, computer practise in the psychology department, volunteer as befriender for local learning disabilities housing association, church attendance and a weekly activity with a psychology assistant e.g. Internet cafe.

For a detailed account of the individual treatment sessions please see appendix nine.

The treatment sessions were supplemented with weekly chapters of "Mind Over Mood" (Greenberger & Padesky, 1995). Each chapter contains examples, explanations of CBT and exercises to be completed and discussed with the therapist (please see appendix ten).
The four follow-up sessions were designed to monitor progress via questionnaires although issues that had been raised during the treatment period were discussed.

3.1.8 OUTCOME

The effects on self report measures:
The pre and post-treatment scores for the patient on the HAD, Y-BOCs and BDDQ are summarised in Table 1.

Table 2: Hospital Anxiety and Depression Scale (HAD) and Mod. Yale-Brown Obsessive Compulsive Scale (Y-BOCS) scores at pre (session 1) and post treatment

<table>
<thead>
<tr>
<th></th>
<th>Pre-treatment</th>
<th>Post-treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety (HADS)</td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td>Depression (HADS)</td>
<td>19</td>
<td>12</td>
</tr>
<tr>
<td>Y-BOCS</td>
<td>28</td>
<td>25</td>
</tr>
</tbody>
</table>

In Table 2, the HADS and Y-BOCS scores are shown to have decreased, indicating some reduction in anxiety, depression and severity of BDD symptoms.

Table 3: Shows the outcome measures for the 4 follow-up sessions

<table>
<thead>
<tr>
<th>HADS</th>
<th>Follow-up 1</th>
<th>Follow-up 2</th>
<th>Follow-up 3</th>
<th>Follow-up 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>13</td>
<td>9</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Depression</td>
<td>13</td>
<td>13</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>Y-BOCS</td>
<td>24</td>
<td>23</td>
<td>24</td>
<td>24</td>
</tr>
</tbody>
</table>

In Table 3, the outcome measures are shown for the four follow-up sessions. It can be seen that although there is fluctuation the scores on the measures remain lower, i.e. indicating less severe psychopathology, than at pre-treatment.
Table 4: Graph of the session by session scores of the HAD and Mod. Y-BOCS including the scores for the 4 follow-up sessions

In Table 4 it can be seen that there is fluctuation in the scores. The anxiety scores increase as would be expected when LF is confronted with the need to increase his activities and exposure tasks. An overall decrease in the severity of his BDD symptoms can be observed and depression also appears by the end of treatment, to be on a downward trend.

A subjective account of the therapeutic gains was reported in the last session of therapy and can be seen in appendix 11.
3.1.9 DISCUSSION & CONCLUSIONS

The aim of this study was to treat a 32 year-old man who had been diagnosed with Body dysmorphic disorder. Two randomised controlled trials have been undertaken with BDD patients using CBT (Rosen et al, 1995 & Veale et al 1996) and these studies suggest that CBT is an effective treatment for BDD.

Guidelines regarding the length of treatment required to effect change in these patients have as yet not been produced. Rosen et al (1995) found 16 hours to be effective in their randomised controlled group study and Veale et al (1996) found significant improvements after 12 sessions of group CBT. They did however conclude that 15 to 20 sessions would be more effective in preventing relapse.

LF made improvements particularly in the area of increased activity however the improvements are not as dramatic as those found in the above mentioned studies despite benefiting from individual treatment and a greater number of sessions. There are several reasons, which could account for this. For example the chronicity and severity of the disorder may not have been equal. But it could also imply that being treated within a group format is a crucial component of the treatment itself. Veale points out the hidden nature of the illness (Veale, 2000). People are often too ashamed to reveal the reason behind their distress and often present with depression or social phobia to mental health professionals. Although literature can be helpful to normalise their experience, it may be that the group format provides an important source of support and relief from finding that they are not alone in their distress.

As can been seen in the outcome section, LF fluctuated markedly on anxiety, depression and BDD symptoms, in particular there was a rapid change in anxiety scores. This may be understood in terms of the increasing demands that were made of him in behavioural tasks. For example, he was asked to increase his time
out of the house and decrease his safety rituals, such as going out only at night and his checking/grooming procedures. His voluntary work with MENCAP was also becoming more demanding and he was aware that he continued to fear failure. However it would seem that the addition of the voluntary work played a significant part in his improvement. LF reported for example, that even though he often did not want to go out he felt an obligation not to let his 'client' down. It seemed important to reiterate to LF that the discomforting part of the treatment i.e. the increase in anxiety was natural and indeed a sign of progress.

Given that LF had suffered from his symptoms for many years it could be considered that the period of treatment was too brief to hope for significant changes. However he reported that despite his occasional frustrations ("I'm doing so much more but I'm still not happy") he did derive benefit from therapy. Although mood was still low and fluctuating, the change in his lifestyle was marked.

It is likely that due to the nature of BDD, LF and others with this disorder would benefit from a lengthy follow-up period in order to provide support and continue to monitor progress. Whilst a four month follow-up period was included for the purposes of this case report, the therapist and patient planned to continue with further follow-up appointments.

3.1.9.1 Limitations of the study

According to Veale once BDD is developed it is mirror gazing which is the crucial maintaining factor (Veale & Riley, 2000), as this behaviour is seen to increase selective attention and self-consciousness. It is a limitation of this study that LF did not keep records of his mirror gazing on a consistent basis. He found this very distressing and he was resistant to address his avoidance of this task. Given the relatively short-term nature of the therapy the therapist was reluctant to
be more assertive at possibly the cost of the good therapeutic relationship that had been established.

The literature strongly suggests that the individual with BDD must learn to accept unconditionally the uncertainty about whether a defect exists in their appearance (Veale, 1996). It can be assumed from the outcome measures that LF did not develop this ability. It may be that greater emphasis should have been placed on this particular element of cognitive restructuring.

Another limitation of the study is perhaps that the behavioural tasks were not more explicitly set up as behavioural experiments, which may have had the effect of specifically challenging his firmly held beliefs. Further to this it would have been useful to obtain a rating of the degree of belief in his idiosyncratic beliefs, so that change in these could have been clearly monitored.

In conclusion, the theoretical implications of this study would appear to be that cognitive behaviour therapy and schema focussed therapy techniques are beneficial in the treatment BDD. However due to the chronicity (virtually lifelong in this case) of the disorder it seems unlikely that significant gains will be maintained without a substantial period of support and follow-up to help consolidate the recently acquired cognitive and behavioural skills. A period of supervised response prevention outside the clinic, in the patient's normal environment may have also been beneficial.

Despite limited resources and the need to find economical time limited treatments for distressing psychological problems it seems unlikely that chronic Body Dysmorphic Disorder will be responsive to brief interventions.

The patient in this case report had in theory a lifelong history of BDD. Wilhelm, Otto, Lohr & Deckersbacker (1999) found significant improvements in both BDD
and depression when they treated BDD patients with CBT in group format. Furthermore the treatment was of only 12 weeks duration. No reference is made in the article as to the duration of the patients BDD, the patients were only classified as having "severe BDD" (Wilhelm et al, 1999, p.74). Future research could profitably address whether brief periods of CBT could ameliorate the condition for those BDD patients of recent development.

3.1.9.2 Implications for practise and future research

It would clearly be worthwhile in future research to try and evaluate which particular aspects of individual or group CBT, are particularly helpful for sufferers. It may be for example that the group format is indispensable for normalising this embarrassing and distressing disorder and that the group process is important for mutual support and encouragement.

Lastly, to address these above questions there is a need to compare CBT treatment of BDD with other types of therapy and combinations of psychological therapy and pharmacotherapy with the use of randomised controlled trials.
3.1.9 REFERENCES


Veale, D. (2000b). Overvalued ideas are derived from values that are over-identified with the self. British Journal of Psychiatry (in submission).


3.1.10 APPENDICES
Individualised handout session 2: The cognitive behavioural formulation

Cognitions
- How do I look?
- I wish I had normal hair
- I look stupid
- If I could just get my hair right, I'd be ok
- I'm not in control
- My body conspires against me

Mood
- Frustrated
- Anger
- Despair
- Anxious

Physical reactions
- Muscle tension
- Sweating
- Hyperventilating

Behaviours
- Avoidance
- Washing hair
- Grooming hair
- Checking appearance

Triggers
e.g. Rejection

Dysfunctional Assumptions (Rules)
- If you are nice to people they will take you for a sucker
- If you try and think positive, something bad will happen
- If I could look alright then everything would be ok, I could cope with anything

Self:
- I'm a loser
- I'm not free
- I'm a piece of shit
- I'm really bad

People:
- Everyone is better off than me
- Others are not judged by their appearance
- Others are not trustworthy
- Other people can do anything

World:
- Not got much to offer
- Life is crap, there are just degrees of it

Early Experiences:
- Teasing by people close to me
- Trying hard, but nothing ever good enough
- Feel judged by my appearance and I can't change that, so I will never be any good
- Critical parents
- Un-supportive parents
- Mother alcohol dependant and distant father
- Judged and laughed at
- Lack of encouragement
- No positive regard
- Dysfunctional family
Self-Prejudice Model

Once dysfunctional assumptions (rules) are set up, they are maintained and strengthened by the following processes.

Here we are using the example of being ugly and having unacceptable hair, however this way of looking at things could be applied equally well to other unhelpful rules. The examples below show, because of the rules that you hold very strongly, you can distort information around you so that it fits in with what you already think and in fact makes your belief in your prejudice even stronger.

1. Someone looks at me in the street
   - I bet they were looking critically at my hair

2. "Your hair looks good today"
   - She's lying and saying that to make me feel good
   - She hasn't looked properly
   - Maybe it looks a bit better today anyway
   - It must have looked awful the last time she saw me

3. Hears sarcastic comment in the street about hair
   - So, my hair does look terrible

4. She didn’t mention my hair...
   - She's only being kind

I'm ugly, my hair looks terrible.

In summary we distort, ignore, make exceptions to the rule or selectively seek and attend to information consistent with our prejudice or rules.
Challenging Automatic Negative Thoughts

1. What is the evidence that you are correct?

2. Can you spot any biased thinking (think of the prejudice model)

3. Have you ever had any experiences when this has not been the case?

4. What would your best friend say about the situation?

5. Suppose your best friend did .........., how would you judge her?

6. Imagine it was one of those rare moments when you felt good about yourself and you felt confident, how would you view the situation?

7. What advice would you give to someone else in this situation?

8. When you have thought this way in the past, what has helped?

9. What is the worst thing that could happen?

10. What would you advise a friend to do?

11. How could you test out whether or not .......... is true?

12. What is an alternative way of looking at this?

_____________________________________________________

_____________________________________________________

_____________________________________________________

Evidence for ..........

Evidence against ..........

Worst outcome ..........

How to cope ..........

Action Plan:

_____________________________________________________

_____________________________________________________
**Common Thinking Errors or Biases**

**All or nothing:** Seeing things in black and white categories, missing the grey

**Overgeneralization:** Seeing a negative event as an indication of everything being negative, always.

**Mental Filter:** Picking out a single negative feature and dwelling on it without reference to any good things which might have happened.

**Disqualifying the positive:** Recognising something good in yourself and rejecting it as invalid or unimportant

**Jumping to conclusions:** Making negative interpretations in the absence of facts to support your conclusion. E.g. *mind reading* and *fortune telling*.

**Magnification/minimisation:** Exaggerating the importance of negative events and underestimating the importance of positive events.

**Emotional reasoning:** Assuming that what you feel (is bad) must be true.

**Unrealistic expectations:** Using exaggerated performance criteria for yourself and others. Using "shoulds" and "oughts" in your expectations of yourself and your demands of others.

**Name-calling:** Attaching a highly emotive label to yourself

**Self-blame:** Seeing yourself as the cause of a bad event for which you were not responsible.

**Catastrophisation:** Predicting the very worst.
Handout session: 6

Target List

Instructions:

❖ Make a list of all those situations that you avoid or that make you anxious.
❖ Arrange these in order of difficulty.
❖ Express each one in order of difficulty and write them in the space provided below.

Targets

1. ____________________________________________________________

2. ____________________________________________________________

3. ____________________________________________________________

4. ____________________________________________________________

5. ____________________________________________________________

6. ____________________________________________________________

7. ____________________________________________________________

8. ____________________________________________________________

9. ____________________________________________________________

10. ____________________________________________________________
<table>
<thead>
<tr>
<th>Common Thinking Errors or Biases</th>
<th>Rate of Thoughts</th>
<th>Automatic Thoughts</th>
<th>Moods</th>
<th>Situation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Error of Bias</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*</td>
<td>77%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*</td>
<td>70%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Emotional Reasoning</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*</td>
<td>18%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*</td>
<td>79%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Jumping to Conclusion</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*</td>
<td>65%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Naming the common thinking errors or biases in everyday automatic negative thoughts.
Please think before you do it.

Not, why bother?
Are you 100% sure you can make it better?

That?

What do you really want to do?
it, if you do.

will be happy with yourself, or

it is highly unlikely that you

DONT GO BACK,
Dear LF

I am enclosing the questionnaires that I mentioned on the phone the other day. I would be grateful if you would complete them and then return them to me in the stamped addressed envelope provided.

They are for private use and will be used to monitor your progress. Please do not sign them and they will remain completely confidential.

I will contact you again following your appointment with Dr ***** and we can discuss how and when you wish to proceed with therapy.

I look forward to hearing from you, please do not hesitate to contact me on the above phone number should you have any queries.

Yours sincerely

Louise De Haro
Chartered Clinical Psychologist
Appendix Two: Body Dysmorphic Disorder Questionnaire

This questionnaire was designed by Phillips, Atala & Pope (1995), to screen for the presence of BDD symptomatology but is not diagnostic of the disorder without a clinical interview. It is a brief self-report measure consisting of four main questions. The BDDQ has been shown to have a sensitivity of 100% and a specificity of 89% when administered to patients within a psychiatric setting. This questionnaire was given one month prior to the treatment, at the end of treatment and at the 4 follow-ups.

This questionnaire assesses concerns about physical appearance. Please read each question carefully and circle the answer that best describes your experience. Also write in answers where indicated.

1. Are you very concerned about the appearance of some part(s) of your body that you consider especially unattractive? Yes No

If yes: Do these concerns preoccupy you? That is, you think about them a lot and wish you could think about them less? Yes No

If yes: What are they?

Examples of areas of concern include: your skin (e.g., acne, scars, wrinkles, paleness, redness); hair (e.g., hair loss or thinning); the shape or size of your nose, mouth, jaw, lips, stomach, hips, etc.; or defects of your hands, genitals, breasts, or any other body part.

If yes: What specifically bothers you about the appearance of these body part(s)? (Explain in detail):

(Note: If you answered "No" to either of the above questions, you are finished with this questionnaire. Otherwise please continue.)

2. Is your main concern with your appearance that you aren't thin enough or that you might become too fat? Yes No

3. What effect has your preoccupation with your appearance had on your life?
   - Has your defect(s) caused you a lot of distress, torment or pain? Yes No
   - Has it significantly interfered with your social life? Yes No

Continued
If yes: How?

\[\quad\]

- Has your defect(s) significantly interfered with your school work, your job, or your ability to function in your role (e.g., as a homemaker)?

Yes  No

If yes: How?

\[\quad\]

- Are there things you avoid because of your defect(s)?

Yes  No

If yes: What are they?

\[\quad\]

Have the lives or normal routines of your family or friends been affected by your defect(s)?

Yes  No

If yes: How?

\[\quad\]

4. How much time do you spend thinking about your defect(s) per day on average? (circle one)

(a) Less than one hour per day
(b) 1-3 hours a day
(c) More than 3 hours per day

Thank you for completing this questionnaire
Appendix Three: Modified Yale Brown Obsessive Compulsive Scale

This measure draws heavily on the Yale Brown Obsessive Compulsive Scale (Y-BOCS) which was developed in the 1980's to assess the severity of obsessive compulsive rituals. The measure was modified by Phillips et al (1997), to assess severity of BDD symptoms and has been found to be sensitive to change in BDD severity. It consists of 12 items, both self-report and clinician-rated. The Y-BOCS has been shown to be a reliable and valid measure when used with BDD and is considered to be a suitable and sensitive measure when used in treatment studies (Philips et al, 1997). This questionnaire was administered weekly.

We want to learn about the severity of your concerns about your body image DURING THE PAST WEEK. We would also like to know how often they occur and how much distress they cause.

THE FIRST FIVE QUESTIONS CONCERN YOUR THOUGHTS ABOUT PERCEIVED DEFECTS

Please read each statement carefully and circle the number identifying the response which best characterises you DURING THE PAST WEEK.

1. How much of your time is occupied by THINKING about a defect or flaw in your appearance (such as your nose, face, hair, skin, breasts, genitals and hands)?

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Less than 1 hour per day</td>
<td>1 - 3 hours per day</td>
<td>More than 3 hours and up to 8hrs/ day</td>
<td>More than 8 hours per day</td>
<td></td>
</tr>
</tbody>
</table>

2. How much do your THOUGHTS about your defect(s) interfere with your social or occupational functioning? Is there anything you aren't doing or can't do because of them?

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>No interference</td>
<td>Slight interference with social or occupational activities, but overall performance not impaired</td>
<td>Definite interference with social or occupational performance, but still manageable</td>
<td>Causes substantial impairment in social or occupational performance</td>
<td>Extreme, incapacitating</td>
<td></td>
</tr>
</tbody>
</table>

3. How much distress do your THOUGHTS about your body defect(s) cause you?

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Mild, and not too disturbing</td>
<td>Moderate, and disturbing but still manageable</td>
<td>Severe, and very disturbing</td>
<td>Extreme, and disabling distress</td>
<td></td>
</tr>
</tbody>
</table>

Continued
4. How much of an effort do you make to resist these THOUGHTS about your defect? How often do you try to disregard them or turn your attention away from these thoughts as they enter your mind? (Only rate the effort you have made to resist them, not your success or failure in actually controlling these thoughts).

<table>
<thead>
<tr>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>I make an effort to always resist the thoughts or they are so infrequent that there is no need to resist them</td>
</tr>
<tr>
<td>1</td>
<td>I try to resist them most of the time (i.e. more than half the time I try to resist)</td>
</tr>
<tr>
<td>2</td>
<td>I make some effort to resist</td>
</tr>
<tr>
<td>3</td>
<td>I allow all such thoughts to fill my mind without attempting to control them, but I do so with some reluctance</td>
</tr>
<tr>
<td>4</td>
<td>I completely and willingly give in to all such thoughts</td>
</tr>
</tbody>
</table>

5. How much control do you have over your THOUGHTS about your body defect(s)? How successful are you in stopping these thoughts?

<table>
<thead>
<tr>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>I am in complete control, or I do not need to control them because the thoughts are so minimal</td>
</tr>
<tr>
<td>1</td>
<td>Much control, I am usually able to stop or divert these thoughts with some effort and concentration.</td>
</tr>
<tr>
<td>2</td>
<td>Moderate control, I am sometimes able to stop or divert these thoughts</td>
</tr>
<tr>
<td>3</td>
<td>Little control, I am rarely successful in stopping thoughts and I can only divert my attention with difficulty</td>
</tr>
<tr>
<td>4</td>
<td>I have no control over them and I experience them as completely involuntary. I am rarely able to even momentarily divert my attention</td>
</tr>
</tbody>
</table>

THE NEXT FIVE QUESTIONS WILL FOCUS ON THE BEHAVIOURS THAT YOU ENGAGE IN WITH REGARD TO YOUR CONCERN ABOUT YOUR DEFECT

Before you answer the following questions please record the main activities and behaviours, which you perform, associated with your body defect by ticking, from the following list, those which apply to you.

For example:

- Checking the "defect" in mirrors or other reflecting surfaces (or checking it directly if visible without the use of a mirror).
- Seeking reassurance from others about the appearance of the body part
- Asking others to look at or verify the existence of the "deformity"
- Comparison of the body part with the same body part of others
- Touching the body part
- Grooming behaviours (for example, hair combing, hair styling, or shaving)
- Skin picking
- Applying make-up
- Camouflaging (for example, with make-up or with hats or other clothing)
- Rearranging clothing to hide the "defect"
- Using your hands or other objects to hide your defect
6. How much time do you spend (per day) in engaging in these ACTIVITIES?

<table>
<thead>
<tr>
<th>None</th>
<th>Less than 1 hr per day</th>
<th>1 - 3 hrs per day</th>
<th>More than and up to 8 hrs per day</th>
<th>More than 8 hrs per day engaged in these activities</th>
</tr>
</thead>
</table>

7. How much do the above ACTIVITIES interfere with your social or occupational functioning? Is there anything you don’t do because of them?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Mild, they interfere slightly with social or occupational functioning, but overall my performance is not impaired</th>
<th>Moderate, these activities definitely interfere with social or occupational performance, but they are still manageable</th>
<th>Severe, these activities cause substantial impairment in social or occupational performance</th>
<th>Extreme, these activities are incapacitating for my social and occupational functioning</th>
</tr>
</thead>
</table>

8. How would you feel if you were prevented from performing these ACTIVITIES? How anxious would you become?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>I would feel only slightly anxious if these activities were prevented</th>
<th>My anxiety would mount but remain manageable if these activities were interrupted</th>
<th>I would experience a prominent and very disturbing increase in anxiety if these activities were interrupted</th>
<th>I would experience extreme incapacitating anxiety from any intervention aimed at reducing these activities</th>
</tr>
</thead>
</table>

9. How much of an effort do you make to resist these ACTIVITIES?

<table>
<thead>
<tr>
<th>I make an effort to always resist</th>
<th>I try to resist most of the time (i.e. more than half of the time)</th>
<th>I make some effort to resist</th>
<th>I yield to all these behaviours without attempting to control them, but I do with some reluctance</th>
<th>I completely and willingly yield to all behaviours related to the body defects</th>
</tr>
</thead>
</table>

10. How strong is the drive to perform these behaviours? How much control do you have over them?

<table>
<thead>
<tr>
<th>I have complete control over them (although I may experience pressure to perform the behaviour, I am usually able to exercise voluntary control over it)</th>
<th>I have a lot of control over them (although I may experience strong pressure to perform the behaviour, I can control it only with difficulty)</th>
<th>I have some control over them (I have a very strong desire to perform the behaviour and it must be carried out to completion and I can delay it only with difficulty)</th>
<th>I have no control over them (the drive to perform these behaviours is experienced as completely involuntary, overpowering such that I am rarely able to even momentarily delay this activity)</th>
</tr>
</thead>
</table>

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Appendix Four: HADS Questionnaire (for details see below)

This questionnaire is designed to help your clinician to know how you feel. Read each item and tick the reply that comes closest to how you have been feeling in the past week. Don’t take too long over your replies; your immediate reaction to each item will probably be more accurate than a long thought out response.

<table>
<thead>
<tr>
<th>Item</th>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I feel tense or 'wound up':</td>
<td>□ Most of the time □ A lot of the time □ From time to time □ Not at all</td>
</tr>
<tr>
<td>2.</td>
<td>I get a sort of frightened feeling as if something awful is about to happen:</td>
<td>□ Very definitely and quite badly □ Yes, but not too badly □ A little, but it doesn’t worry me □ Not at all</td>
</tr>
<tr>
<td>3.</td>
<td>I can laugh and see the funny side of things:</td>
<td>□ As much as I always could □ Not quite so much now □ Definitely not so much now □ Not at all</td>
</tr>
<tr>
<td>4.</td>
<td>Worrying thoughts go through my mind:</td>
<td>□ A great deal of the time □ A lot of the time □ From time to time, but not too often □ Only occasionally</td>
</tr>
<tr>
<td>5.</td>
<td>I feel cheerful:</td>
<td>□ Not at all □ Not often □ Sometimes □ Most of the time</td>
</tr>
<tr>
<td>6.</td>
<td>I can sit at ease and feel relaxed:</td>
<td>□ Definitely □ Usually □ Not often □ Not at all</td>
</tr>
<tr>
<td>7.</td>
<td>I feel as if I am slowed down:</td>
<td>□ Nearly all the time □ Very often □ Sometimes □ Not at all</td>
</tr>
<tr>
<td>8.</td>
<td>I get a sort of frightened feeling like ‘butterflies’ in the stomach:</td>
<td>□ Not at all □ Occasionally □ Quite often □ Very often</td>
</tr>
<tr>
<td>9.</td>
<td>I have lost interest in my appearance:</td>
<td>□ Definitely □ I don’t take as much care as I should □ I may not take quite as much care □ I take just as much care as ever</td>
</tr>
<tr>
<td>10.</td>
<td>I feel restless as if I have to be on the move:</td>
<td>□ Very much indeed □ Quite a lot □ Not very much □ Not at all</td>
</tr>
<tr>
<td>11.</td>
<td>I look forward with enjoyment to things</td>
<td>□ As much as I ever did □ Rather less than I used to □ Definitely less than I used to □ Hardly at all</td>
</tr>
<tr>
<td>12.</td>
<td>I get sudden feelings of panic</td>
<td>□ Very often indeed □ Quite often □ Not very often □ Not at all</td>
</tr>
<tr>
<td>13.</td>
<td>I can enjoy a good book or TV programme</td>
<td>□ Often □ Sometimes □ Not often □ Not at all</td>
</tr>
</tbody>
</table>
Designed by Zigmond & Snaith (1983) the 14-item questionnaire on the previous page was designed to detect anxiety and depression in general medical out patient populations. The authors point out that despite its 'hospital' title it is also valid for community work. The scale consists of seven depression and seven anxiety items. Particular care has been taken to distinguish the effects of physical illness from mood disorders. The distinction that is made between anxiety and depression items has been supported by further research (Moorey, 1991). The HAD is a well-known and valid instrument for assessing anxiety and depression and is well accepted by patients. This questionnaire was administered weekly.
Appendix Five: Simple thought diary

<table>
<thead>
<tr>
<th>Situation</th>
<th>Thoughts</th>
<th>Mood</th>
<th>Behaviours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday afternoon</td>
<td>Need to go to the post office because I have no money or food in the house.</td>
<td>Depressed</td>
<td>I look in the mirror, it's worse than I thought.</td>
</tr>
<tr>
<td></td>
<td>I'm tired I slept very badly. It is already 12:00</td>
<td>Angry</td>
<td>I start washing my hair, then I sit down for a while so it dries ok.</td>
</tr>
<tr>
<td></td>
<td>My hair looks stupid, what a mess. People will stare at me. People have laughed at me in the street before now and today it looks really bad. They will know I'm weird, what a state I'm in.</td>
<td>Irritated</td>
<td>I start combing it with my hands.</td>
</tr>
<tr>
<td></td>
<td>I don't want to go out</td>
<td></td>
<td>I go to the door but go back to the mirror just to check. It still doesn't look ok, so I have another go. In the end I decide that I won't go out after all. It's 3:00pm.</td>
</tr>
<tr>
<td></td>
<td>I could stay in</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I'll have to try and fix my hair</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Appendix Six: Presenting problems

1. Obsessive thoughts about appearance:
These thoughts related mainly to LF's hair and to a lesser extent, quality of his skin (acne scars), nose and stomach. LF was concerned that his hair "stuck up" and was "unmanageable", he felt his hair made him look stupid.

Whist his thoughts regarding appearance were always present, these became unbearable whenever he had to go out to collect his benefits or to buy food. LF was deeply distressed and embarrassed by the intrusive nature of the thoughts. He often wished that he had Cancer so that people would be able to understand and sympathise with him.

2. Compulsions, ritualising and checking:
LF was unable to leave the house without washing or at least wetting his hair. The hair grooming process, which was meticulous in detail, could take up to four hours. When dry, he went through careful grooming in front of a mirror until the hair looked "just right". Should LF see his reflection prior to leaving the house and perceive the hairstyle to have changed in any way, wetting and grooming would start again, often resulting in him not leaving the house. Outside, he would be prone to checking himself in shop windows to see if he still looked "alright". Distressing thoughts and could result in him going home again. The fear of ridicule meant that his outings were frequently nocturnal and only to small corner shops. He was unable to go to supermarkets because of the quantity of mirrors.

3. Depression:
LF suffered from depression secondary to the above concerns. He exhibited the cognitive triad of depression described by Beck (1979) and saw himself as defective, inadequate, undesirable and worthless.
Consistent with clinical depression, LF had poor appetite, sleep disturbance in the form of early morning waking, fatigue, very low mood with low self-esteem, concentration difficulties, irritability, self-hatred and feelings of hopelessness. He experienced frequent suicidal ideation and had superficially self-harmed his arms with razor blades, out of frustration and despair.

4. Low self-esteem:
Low self-esteem had been a lifelong problem for LF. He had a very low opinion of himself and felt that his unworthiness as a person was reflected in his appearance and that this could be clearly seen by everyone he passed. He would often refer to himself using derogatory language and could not understand why the few people that he considered friends, chose to spend their time with him. He felt himself to be not only ugly but visibly repulsive, intrinsically bad and of low intelligence.
Appendix Seven: Young's schemata

Early Maladaptive Schemas:

Disconnection and Rejection
Expectation that one's needs for security, safety, stability, nurturance, empathy, Sharing of feelings. Acceptance and respect will not be met in a predictable manner. Typical family origin is detached, explosive, unpredictable, rejecting, punitive, unforgiving, withholding, inhibited or abusive.

1. Abandonment/Instability. The perceived instability or unreliability of those available for support or connection. Involves sense that significant others will not be able to continue providing emotional support, connection, strength, or practical protection because they are emotionally unstable and unpredictable (e.g. angry outbursts), unreliable or erratically present; because they will die imminently; or because they will abandon the patient in favour of someone better.

2. Mistrust/Abuse. The expectation that others will hurt, abuse, humiliate, cheat, lie, manipulate, or take advantage. Usually involves the perception that the harm is intentional or the result of unjustified and extreme negligence. May include the sense that one always ends up being cheated relative to others of "getting the short end of the stick."

3. Emotional deprivation. Expectation that one's desire for a normal degree of emotional support will not be adequately met by others. The three major forms of deprivation are:

- Deprivation of Nurturance - Absence of attention, affection, warmth or companionship.
- Deprivation of Empathy - Absence of understanding, listening, self-disclosure, or mutual sharing of feelings from others.
- Deprivation of Protection - Absence of strength, direction, or guidance from others.
4. **Defectiveness/Shame.** - The feeling that one is defective, bad, unwanted, inferior, or invalid in certain respects; or that one would be unlovable to significant others if exposed. May involve consciousness, comparisons, and insecurity around others; or a sense of shame regarding one's perceived flaws. These flaws may be *internal* (e.g. selfishness, angry impulses, unacceptable sexual desires) or *external* (e.g. undesirable physical appearance, social awkwardness).

5. **Social Isolation/Alienation** - The feeling that one is isolated from the rest of the world, different to other people, and/or not part of any group or community.

**Impaired Autonomy and Performance**

*Expectations about oneself and the environment that interfere with one's perceived ability to separate, survive, function independently or perform successfully.* Typical family origin is enmeshed, undermining of child's confidence, overprotective, or failing to reinforce child for performing competently outside the family.

6. **Dependence/Incompetence.** Belief that one is unable to handle one's *everyday responsibilities* in a competent manner, without considerable help from others (e.g. take care of oneself, solve daily problems, exercise good judgement, tackle new tasks, make good decisions). Often presents as helplessness.

7. **Vulnerability to Danger.** Exaggerated fear that "random" catastrophe could strike at any time and that one will be unable to prevent it. Fears focus on one or more of the following: (a) *Medical*: heart attack, AIDS; (b) *Emotional*: go crazy; (c) *Natural/Phobic*: elevators, crime, airplanes, earthquakes.

8. **Enmeshment/Undeveloped self.** Excessive emotional investment and closeness with one or more significant others (often parents), at the expense of full individuation or normal social development. Often involves the belief that at least one of the enmeshed individuals cannot survive of be happy without the constant support of the
other. May also include feelings of being smothered by, or fused with, others or insufficient individual identity. Often experienced as a feeling of emptiness and floundering, having no direction, or in extreme cases questioning one's existence.

9. *Failure*. The belief that one has failed, will inevitably fail, or is fundamentally inadequate relative to one's peers, in areas of achievement (school, career, sport, etc.). Often involves beliefs that one is stupid, inept, untalented, ignorant, lower in status, less successful than others, and so on.

**Impaired Limits**

*Deficiency in internal limits, responsibility to others, or long-term goal-orientation.*

Leads to difficulty respecting the rights of others, making commitments, or setting and meeting personal goals. Typical family origin is characterised by permissiveness, indulgence, or lack of direction, rather than appropriate confrontation, discipline, and limits in relation to taking responsibility and setting goals. Child may not have been pushed to tolerate normal levels of discomfort, or may not have been given adequate supervision, direction or guidance.

10. *Entitlement/Domination*. Insistence that one should be able to do or have whatever one wants, regardless of what others consider reasonable or the cost to others; or the excessive tendency to assert one's power, force one's point of view. Or control the behaviour of others in line with one's own desires - without regard to other's needs for autonomy and self-direction. Often involves excessive demandingness and lack of empathy for other's needs and feelings.

11. *Insufficient Self Control/Self-discipline*. Pervasive difficulty or refusal to exercise sufficient self-control and frustration tolerance to achieve one's personal goals, or to restrain the excessive expression of one's emotions and impulses. In its milder form, patient presents with an exaggerated emphasis on discomfort-avoidance: avoiding
pain, conflict, confrontation, responsibility, or overexertion - at the expense of personal fulfilment, commitment, or integrity.

**Other-Directedness**

An excessive focus on the desires, feelings, and responses of others, at the expense of one's own needs - in order to gain love and approval, maintain one's sense of connection or avoid retaliation. Usually involves suppression and lack of awareness regarding one's own anger and natural inclinations. Typical family origin is based on conditional acceptance: Children must suppress important aspects of themselves in order to gain love, attention, and approval. In many such families, the parents' emotional needs and desires - or social acceptance and status - are valued more than the unique needs and feelings of each child.

12. **Subjugation.** Excessive surrendering or control over one's behaviour, emotional expression, and decisions, because one feels coerced - usually to avoid anger, retaliation, or abandonment. Involves the perception that one's own desires, opinions, and feelings are not valid or important to others. Frequently presents as excessive compliance combined with hypersensitivity to feeling trapped. Almost always involves the chronic suppression of anger toward those perceived to be in control. Usually leads to a build-up anger that is manifested in maladaptive symptoms (e.g. passive-aggressive behaviour, uncontrolled outbursts of temper, psychosomatic symptoms, withdrawal of affection, "acting out", and substance abuse).

13. **Self-sacrifice.** Excessive focus on voluntarily meeting the needs of others in daily situations, at the expense of one's own gratification. The most common reasons are to prevent causing pain to others, to avoid guilt from feeling selfish, or to maintain the connection with others perceived as needy. Often results from an acute sense that one's own needs are not being adequately met and to resentment of those who are taken care of (overlaps with concept of co-dependency).
14. Approval seeking. Excessive emphasis on gaining approval, recognition, or attention from other people, or fitting in, at the expense of developing a secure and true sense of self. One's sense of esteem is dependent primarily on the reactions of others, rather than one's own internalised values, standards, or natural appearance, social acceptance, money, competition, or achievement - being among the best or most popular - as means of gaining approval. Frequently results in major life decisions that are inauthentic or unsatisfying, hypersensitivity to rejection, or envy of others who are more popular or successful.

Overvigilance and Inhibition
Excessive emphasis on controlling one's spontaneous feelings, impulses, and choices in order to avoid making mistakes or on meeting rigid, internalised rules and expectations about performance and ethical behaviour - often at the expense of happiness, self-expression, relaxation, close relationships or health. Typical family origin is grim (and sometimes punitive): performance, duty, perfectionism, following rules, and avoiding costly mistakes predominate over pleasure, joy, and relaxation. There is usually an undercurrent of pessimism and worry - that things could fall apart if one fails to vigilant and careful at all times.

15. Vulnerability to Error/Negativity. Exaggerated expectation - in a wide range of work, financial, or interpersonal situations that are typically viewed as "controllable" - that things will go seriously wrong, or that aspects of one's life that seem to be going well will fall apart at any time or a pervasive, lifelong focus on the negative aspects of life (pain, death, loss, disappointment, conflict, guilt, resentment, unsolved problems, potential mistakes, betrayal, things that could go wrong, etc.) while minimising or neglecting the positive or optimistic aspects. Usually involves an inordinate fear of making mistakes that might lead to financial collapse, loss humiliation, being trapped in a bad situation, or loss of control. Because potential negative outcomes are exaggerated, these patients are frequently characterised by chronic worry, vigilance, pessimism, complaining of indecision.
16. **Over-control.** The excessive inhibition of spontaneous action, feeling, or communication - usually to avoid making mistakes, disapproval by others, catastrophe, and chaos, or losing control of one's impulses. The most common areas of excessive control involve (a) inhibition of *anger* and aggression, (b) compulsive *order* and planning, (c) inhibition of *positive impulses* (e.g. joy, affection, sexual excitement, play), (d) excessive adherence to routine or ritual. And (e) difficulty expressing ones feelings, needs, and so forth. Often the over-control is extended to others in the patients environment.

17. **Unrelenting Standards.** The underlying belief that one must strive to meet very high *internalised standards* of behaviour and performance, usually to avoid criticism. Typically results in feelings of pressure or difficulty slowing down, and in hyper-criticalness toward oneself and others. Must involve significant impairment in pleasure, relaxation, health, self-esteem, sense of accomplishment, or satisfying relationships. Unrelenting standards typically present as (a) *perfectionism*, inordinate attention to detail, and an underestimate of how good one's own performance is relative to the norm; (b) *rigid rules* or "shoulds" in many areas of life, including unrealistically high moral, ethical, cultural, or religious precepts; or (c) preoccupation with *time and efficiency*, so that more can be accomplished.

18. **Punitiveness.** The tendency to be angry, intolerant, harshly critical, punitive, and impatient, with those people (including oneself) who do not meet one's expectations or standards. Usually includes others, because of a reluctance to consider, extenuating circumstances, allow for human imperfection, empathise with feelings, be flexible, or to see alternative points of view.
Appendix Eight: Schema-Focussed Therapy applied to LF

Early maladaptive schemata refer to "extremely stable and enduring themes that develop during childhood and are elaborated upon throughout an individual's lifetime. These schemas serve as templates for the processing of later experience" (Young, 1990).

The main schemata operating in the case of LF appear to be a combination of social isolation/alienation, defectiveness/unlovability and social undesirability (see appendix 3 for Young's complete definitions).

In order to understand how the maladaptive schemata exert their influence it is necessary to identify three different processes which Young terms Schema maintenance, schema avoidance and scheme compensation (Young 1994).

Schema maintenance is the process by which schemas perpetuate themselves. In LF this was achieved by cognitive distortions and self defeating behaviour patterns such as assuming comments intended as encouragement and/or praise by his well meaning friends were twisted to fit in with a negative self-view. Self-defeating behaviour patterns would be for example his habit of avoiding eye contact in the street and in shops so that he would not see if people were staring at him. Clearly by not looking he would not notice that people did not stare at him. The maintenance works both behaviourally and cognitively. It is the cognitive distortions that highlight and exaggerate events that confirm maladaptive schemata but can also minimise events, which are schema-contradictory.

Schema avoidance is the process by which people avoid triggering off maladaptive schemata. The experience of an activated schema is uncomfortable and the avoidance can be cognitive, emotional and behavioural. LF displayed cognitive avoidance by frequently trying to avoid thinking about his difficulties and on occasion managing to persuade himself that in fact his isolated existence was ego-syntonic. Behaviourally he would
regularly avoid challenging situations such as church meetings, invitations and outings. He would also try to spend as much time as possible, during the day, asleep.

With regards to schema compensation, LF seemed to increasingly express the idea that in fact the world was such a negative place, inhabited by a cruel and uncaring society that he did not want to be a participant.
Appendix Nine: Outline of Treatment Sessions

First visit: Study outlined, agreement to participate obtained and first study questionnaires administered.

Session 1 (assessment): Start of assessment, history taken and presenting problems reviewed. Outline of treatment and consent to engage in treatment sought. Homework consisted of reading the first chapter of "Mind over Mood" ("Understanding your problems", see appendix ten) and completing the exercise therein. LF was also asked to complete a simple thought diary (appendix one) detailing a stressful situation, and the related thoughts and emotions. LF was also given a handout, which summarised the CBT model in diagrammatic form (see appendix one). Study questionnaires were completed (See section 3.2).

Session 2 (assessment): This session consisted of a continuation of the assessment procedure and involved a review of the diary that had been completed at the first appointment (see appendix one for the completed thought diary). The first chapter of "Mind over Mood" was discussed to ensure a full understanding of its contents and the exercise reviewed. Homework consisted of a situation, thought and emotion diary again, together with Chapter two of "Mind over Mood" (It's the thought that counts, see appendix ten). LF was asked to accurately record the amount of time spent in hair-grooming/washing. Study questionnaires completed.

Session 3 (assessment): In this session the formulation was presented to LF and discussed to ensure agreement of the main components. A diagrammatic form of the formulation can be seen in Figure 2. The previous weeks' chapter was discussed and the two brief exercises reviewed to insure understanding. The thought diary was reviewed and further background information was sought. Homework consisted of Chapter 3. (Identifying and rating moods, see appendix ten). Two exercises are included in this chapter for completion. LF was also asked to complete a simple thought diary and a hair-grooming diary. LF also agreed to leave the house at least once every day. Study questionnaires were completed.
Session 4: The homework was reviewed, discussed and checked. LF was given a handout and the concept of the self-prejudice model that was personalised to him was introduced and discussed at length to deal with his concerns of understanding CBT intellectually but not "feeling it" (see appendix one). The homework for this session was Chapter 4 (Situations, moods, and thoughts, see appendix ten). This Chapter introduces a more detailed thought diary and also contains an exercise. LF was asked to read this, complete the exercises and to continue to fill in a simplified thought record as in previous sessions. Having kept a hair-grooming record for two weeks, LF was asked to limit hair-grooming to a period not exceeding one hour, once per day. He was given some 'STOP' signs to place at strategic points around the house and bathroom to remind him of this (please see appendix one for an example). He agreed with the rationale given that if he could not be guaranteed a good result with non-time limited grooming that he might as well limit the time on minutes passed as opposed to going on until it felt "just right". This was agreed to. Study questionnaires were completed.

Session 5: Homework was reviewed and some queries were discussed. At this point LF was asked to start challenging automatic negative thoughts that had been coming up regularly in the simplified thought record. LF was provided with a handout to help him do this (see appendix one for the challenging automatic negative thoughts form). Homework for this session consisted of the exercises in chapter 5 (Automatic thoughts, please see appendix ten). These consist of situation, moods and automatic thought diaries and an explanation of the importance of identifying 'hot thoughts'. Study questionnaires were completed.

Session 6: Review of homework, discussion of thought diaries and monitoring of the behavioural tasks (going out every day, monitoring hair-grooming times). Homework was that contained in chapter 6 (Where's the evidence, see appendix ten). Study questionnaires were completed.

Sessions 7 to 10: These sessions were similar in format to the previous but contained much repetition of previously discussed material in particular the prejudice model as well as monitoring of homework. As the weeks went by LF was encouraged to widen his activities such as visiting friends and going to the cinema. Chapter 7 (Alternative or
balanced thinking, see appendix ten) was difficult for LF and worked on over several sessions. Chapter 8 (Experiments and action plans, see appendix ten) was also discussed at length. It was proposed to start further reducing the hair-grooming time to 30 minutes and to commence shopping in a small supermarket (one of his avoided areas because of mirrors and queues). Chapter 9 focuses on assumptions or core beliefs (see appendix ten), which had largely been identified with the help of the thought diaries. The core belief that had been identified was:

"I am (ugly, repulsive) internally defective and this is apparent to the world by my external appearance (ugly, deformed)"

This statement was the one used in the exercise in chapter 9, which asks the patient to identify evidence that a core belief is not 100% true. A pocket sized 'flash card' was produced with this statement and an alternative balanced statement to remind LF of the work he had done on this area (see appendix one for the flashcard). Study questionnaires were completed.

Sessions 11 to 16: LF continued to keep thought diaries as regular homework and to increase his outings to avoided situations. LF's feelings regarding the end of the therapy period was discussed. Study questionnaires were completed at all sessions.

Sessions 17 to 20: In these sessions, it was proposed to start thinking what other activities LF could do to continue testing out and challenging his assumptions. LF considered the possibility of doing part-time voluntary work. It was hoped that he would benefit from having a regular activity to help him plan his week, increase his exposure to others and to help increase his self-esteem. These proposals were discussed over the next weeks with LF fluctuating between feeling incapable of working to feeling some optimism. Eventually he was encouraged to make some enquiries of local learning disability organisations as to the possibility of contributing some of his time. At sessions 19 and 20 a complete review was held of the material covered and preventing relapse was discussed at length. In order to help refresh his memory he was provided with sheets to test his ability to identify common thinking errors (see appendix one). Study questionnaires were completed at all sessions. At session 20 it was agreed to have 3 follow-up sessions, to monitor his progress.
Follow-up session 1: One month following end of treatment

LF was still considering an offer of voluntary work that had been made to him by the local learning disability organisation. He reported feeling low and that he had experienced some increases in the time he had spent on hair-grooming. He was questioning whether the job offer was genuine or whether he had been considered because of the recommendations made by the therapist to the organisation. LF was reminded again of the self-prejudices that would lead to thinking that way and seemed reassured. Questionnaires were completed.

As an adjunct to therapy LF was encouraged to become a member of "Obsessive Action" a charitable organisation which seeks to support and inform those suffering from obsessive spectrum disorders. He attended the yearly conference in the company of his therapist and attended a workshop for sufferers of BDD. He was able to listen to the stories of current and past sufferers and confirm that despite feeling different and isolated, he was not alone in his problem and that others had managed to overcome the disorder and its effects.

Follow-up session 2: Two months following the end of treatment

LF had been volunteering as an advocate for a MENCAP client for the last 3 weeks. He was beginning to feel that his client liked him and noticed that he (the client) said that he was looking forward to LF's visits. He was surprised at how much he enjoyed going out in this new capacity and commented that it took his mind away from his own concerns. He was of course still inclined to be very self-conscious, especially with other staff members. He still questioned whether or not he deserved to have this job and continued to worry about letting everyone down. Hair-grooming had increased to at least 45 minutes and he was advised to try to maintain the 30 minute limit. His mood remained the same as follow-up session 1.
Follow-up session 3: Three months following end of treatment
LF had reduced his grooming to 20 minutes per day and continued to work in the learning
disability service on a voluntary basis he now had two clients and the possibility of
acquiring a third. His mood had improved but he still remained very self-conscious about
his appearance when out. He felt that overall he had improved but also felt that he had a
long way to go before he could consider himself "normal".

Follow-up session 4: four months following end of treatment
LF continued well although had had several bouts of feeling very depressed. He
continued with MENCAP and now had 3 clients in his role as advocate and befriender.
The director of service continued to praise his skills in the job and had suggested that he
could receive further training. The director of service mentioned to LF that she would be
pleased to offer him paid employment in the future. LF remained suspicious as to how
"real" this information was. It was agreed to meet for a further four months follow-up
sessions as LF felt, as did the therapist, that further support was indicated at a time when
he was undertaking new and challenging tasks.
Appendix Ten: Mind Over Mood Chapter Summaries
CHAPTER 1

Understanding Your Problems

BEN: I hate getting old.

One afternoon a therapist received a telephone call from Sylvie, a 68-year-old woman who was concerned about her husband, Ben. She had read an article in *Reader’s Digest* about depression and wondered if that was what was troubling him. For the past six months, Ben had complained constantly about feeling tired, yet Sylvie would hear him pacing around the living room at three in the morning, unable to sleep. In addition, she said he was not as warm toward her, he was often irritable, and he showed no interest in golfing or visiting friends. After an annual medical checkup cleared Ben of any physical problems, Ben complained to his wife, “I hate getting old, it feels lousy.”

The therapist asked to talk with Ben on the phone, and Ben reluctantly came on the line. He told the therapist not to take it personally, but he didn’t think much of “head doctors” and didn’t want to see the therapist because he wasn’t crazy, just old. “You wouldn’t be happy either if you were 71 and ached all over!” He said he would go to one appointment just to satisfy Sylvie, but he hoped it wouldn’t cost too much because he was sure it wouldn’t help.

(Please see chapter one summary on the next page)
If you are having trouble filling out Worksheet 1.1, the following questions will help you:

Environmental changes/Life situations: Have I experienced any recent changes? What have been the most stressful events for me in the past year? 3 years? 5 years? In childhood? Do I experience any long-term or ongoing difficulties (including discrimination or harassment by others)?

Physical reactions: Do I experience any physical symptoms that trouble me, such as changes in energy level, appetite, and sleep, as well as specific symptoms, such as heart rate fluctuations, stomachaches, sweating, dizziness, breathing difficulties, or pain?

Moods: What single words describe my moods (sad, nervous, angry, guilty, ashamed)?

Behaviors: What things do I do that I would like to change or improve? At work? At home? With friends? By myself? Do I avoid situations or people when it might be to my advantage to be involved?

Thoughts: When I have strong moods, what thoughts do I have about myself? Other people? My future? What thoughts interfere with doing the things I would like to do or think I should do? What images or memories come into my mind?


CHAPTER 1 SUMMARY

- There are five components to any problem: environment, physical, moods, behaviors, and thoughts.
- Each of the five components affects and interacts with the others.
- Small changes in any one area can lead to changes in the other areas.
- Identifying the five components of your own distress can help target areas for change (Worksheet 1.1).
In Chapter 1 you learned how thinking; mood, behavior, physical reactions, and environment are all connected to each other. In this chapter you will learn that when you want to feel better, improve your relationships, or change your behavior, your thoughts are often the place to start. This chapter describes how learning more about your thoughts can help you in many areas of your life.

WHAT IS THE THOUGHT/MOOD CONNECTION?

Whenever we experience a mood, there is a thought connected to it which helps define the mood. For example, suppose you are at a party and you have been introduced to Alex. As you talk, Alex never looks at you; in fact, throughout your brief conversation he looks over your shoulder across the room. Following are three different thoughts you might have in this situation. Four moods are listed below each thought. Circle the one mood that you believe would follow each of these interpretations of Alex not looking at you:

(Please see chapter two summary on the next page)
As you complete the worksheets in this book, you will learn how to identify and change your thoughts, moods, behaviors, physical responses, and environment.

CHAPTER 2 SUMMARY

- Thoughts help define the moods we experience.
- Thoughts influence how we behave, what we choose to do and not do, and the quality of our performance.
- Thoughts and beliefs affect our biological responses.
- Environmental influences help determine the attitudes, beliefs, and thoughts that develop in childhood and often persist into adulthood.
- Cognitive therapy can help you look at all the information available; it is not simply positive thinking.
- While changes in thinking are often central, many problems require changes in behavior, physical functioning and environment, as well.
In order to learn to manage or change your moods, it is helpful to be able to identify the moods you are experiencing. Moods can be difficult to identify. You may feel tired all the time and not recognize you are depressed. Or you might feel nervous and out of control and not recognize that you are anxious. Along with depression and anxiety, anger, shame, and guilt are very common moods that are problematic for people (see Chapters 10-12).

IDENTIFYING MOODS

The list below shows a variety of moods you might have during a day. This is not a comprehensive list: You can write additional moods on the blank lines. This list helps you pin down your moods more specifically than simply “bad” or “good.” Notice that moods are usually described by one word. By identifying specific moods, you will be able to set goals for emotional change and track your progress toward those goals. Learning to distinguish between moods will enable you to choose actions designed to alleviate particular moods. For example, certain breathing techniques help nervousness but not depression.

(Please see chapter three summary on the next page)
Since identifying and rating moods are important skills, continue to use Worksheet 3.2 to practice them until you can label and rate your moods easily. You may also want to read Chapters 10–12, which provide detailed descriptions of depression, anxiety, anger, guilt, and shame. The more you learn about moods, the easier it becomes to notice and name them. Once you are comfortable with identifying and rating moods, you are ready to proceed to Chapter 4.

CHAPTER 3 SUMMARY

- Strong moods signal that something important is going on in your life.
- Moods can usually be described in one word.
- Identifying specific moods can help you set and track goals, as well as enable you to choose interventions designed to alleviate particular moods.
- It is important to distinguish among situations, moods, and thoughts (Worksheet 3.2).
- Rating your moods (Worksheet 3.2) allows you to evaluate the strength and track the fluctuations of your emotional reactions.
One warm spring day in central California, a tennis coach was instructing a student on the art of serving the ball. While the student tossed and hit the ball over and over again, the coach focused attention on each part of the student’s motion and swing. The coach never criticized the student, but instead gave feedback after each hit about the position of the racquet, the height of the ball toss, the angle of the racquet as it hit the ball, and the student’s motion during the racquet follow-through.

In tennis, the ball needs to land in a service square in order to be a successful hit. Yet remarkably, the coach never once looked to see where the ball landed after the student hit it. Instead, the coach focused his feedback exclusively on suggestions for improving each part of the student’s service stroke. The coach was confident that once the student learned each of the component skills, the student would be able to combine them so that the ball would consistently land in the proper area.

Just as this coach focused on development of specific skills, music teachers help students become better musicians by teaching notes, rhythms, and performance methods. Skilled laborers instruct their apprentices by showing them how to accomplish individual tasks on a work project. Each of these

(Please see chapter four summary on the next page)
18. Sitting in a restaurant. .....................................Situation
19. I’m out-of-control. .......................................Thought
20. I’m a failure. ...............................................Thought
21. Talking on the phone to my mom. .................Situation
22. She’s being inconsiderate. ............................Thought
23. Depressed. .................................................Mood
24. I’m a loser. ..................................................Thought
25. Guilty. .........................................................Mood
26. At my son’s house. ......................................Situation
27. I’m having a heart attack. ............................Thought
28. I’ve been taken advantage of. .......................Thought
29. Lying in bed trying to go to sleep. ..............Situation
30. This isn’t going to work out. .......................Thought
31. Shame. .......................................................Mood
32. I’m going to lose everything I’ve got ..........Thought
33. Panic. .........................................................Mood

If you had difficulty distinguishing among situations, moods, and thoughts, review Chapters 3 and 4. It is important to distinguish these parts of your experience in order to make changes in your life. By separating these components from each other, you will be better able to make changes that are important to you.

**CHAPTER 4 SUMMARY**

- Thought Records help develop a set of skills that can improve your mood and relationships and lead to positive behavior change.
- The first 3 columns of a Thought Record distinguish a situation from the feelings and thoughts you had in the situation.
- A Thought Record lists evidence that does and does not support thoughts you identified.
- Thought Records provide an opportunity to develop new ways of thinking that can lead to feeling better.
- As in developing any new skill, you will need to practice completing many thought records before consistent results are achieved.
Marissa was working at her desk when her supervisor came in to say hello. While they were talking her supervisor said, “By the way, I want to compliment you on the nice report you wrote yesterday.” As soon as her supervisor said this, Marissa became nervous and scared. She couldn’t shake this mood the rest of the morning.

Vic was putting the dishes on the counter after dinner when his wife said, “I took the car in to get the oil changed today.” With irritation, Vic said, “I told you I was going to change the oil on Saturday.” His wife replied, “Well, you’ve been saying you’d take care of it for two weeks, so I just took care of it myself.” “Fine!” yelled Vic, throwing a dish towel across the room. “Why don’t you just get yourself another husband!” He grabbed his coat and slammed the door as he left the house.

As you begin keeping track of your moods, you will notice times when you, like Marissa, experience a mood that doesn’t seem to fit the situation. Most people don’t feel anxious after getting a compliment. At other times, you will have a quick, strong reaction like Vic. An outsider looking on this scene might think Vic is reacting too much in this situation, yet this reaction might seem to be just the right one to him.

(Please see chapter five summary on the next page)
CHAPTER 5 SUMMARY

- Automatic thoughts are thoughts that come into our minds spontaneously throughout the day.
- Whenever we have strong moods, there are also automatic thoughts present that provide clues to understanding our emotional reactions.
- Automatic thoughts can be words, images, or memories.
- To identify automatic thoughts, notice what goes through your mind when you have a strong mood.
- Hot thoughts are automatic thoughts that carry the strongest emotional charge.
One Thursday evening, Vic and his wife, Judy, were standing in the kitchen discussing their plans for the forthcoming weekend. Vic told Judy that he had made plans for Saturday morning to meet his friend Jim at an Alcoholics Anonymous (AA) meeting. Judy’s expression changed as he spoke and a look of distress came over her face. Vic experienced a surge of anger as he thought, “She’s upset I’m spending time away from her and the kids. It’s not fair that she doesn’t see my recovery program as important. If she cared about me as much as the kids, she’d be happy I was going. She doesn’t care about me.”

Vic exploded at Judy: “If you don’t care about my sobriety, then I don’t care either!” He slammed his fist on the table and stormed out of the house. As he left Judy yelled after him, “How can you expect me to care when you act like this? What’s wrong with you?”

As Vic drove away from the house, his thoughts were racing. “She’s never understood how important AA is to me. She doesn’t know how hard it...

(Please see chapter six summary on the next page)
CHAPTER 6 SUMMARY

When we have negative automatic thoughts, we usually dwell on data that confirm our conclusions.

- It is helpful to consider your hot thoughts as hypotheses or guesses.
- Gathering evidence that supports and does not support your hot thoughts can help clarify your thinking and reduce the intensity of distressing moods.
- Evidence consists of data, information, and facts, not interpretations.
- Column 5 of the Thought Record asks you to actively search for information that contradicts your hot thoughts.
- You can ask yourself the specific questions in the Hint Box on page 70 to help you complete column 5 of a Thought Record.
- It is important to write down all evidence that may demonstrate that your hot thought is not 100% true.
- Considering information that contradicts your hot thought can help you feel better.
Sally was at home with the flu and asked her 7-year-old daughter, Barbara, to play quietly while she rested. An hour later, Sally walked into the kitchen to get a drink of water and was distressed to see crayons spread all over the floor, shredded colored paper and an open bottle of glue on the table, open scissors in the wastebasket, and a half-drunk glass of milk on the counter next to the refrigerator.

Furious about the mess, Sally went hunting for Barbara and found her sleeping soundly in front of the television in the living room. On the cushion near Barbara’s head was a large, brightly colored card, covered in hearts, that read, “I love you, Mom! Please get well soon!” Sally shook her head slowly and smiled. She tucked a blanket around Barbara’s shoulders and returned to the kitchen to get her water.

Sometimes a little bit of additional information shifts our interpretation of a situation 180 degrees. When Sally first walked into the kitchen, she was not expecting a mess and immediately felt angry that Barbara had made one,

(Please see chapter seven summary on the next page)
CHAPTER 7 SUMMARY

• Column 6 of the Thought Record, "Alternative or Balanced Thoughts," summarizes the important evidence collected and recorded in columns 4 and 5.

• If the evidence in columns 4 and 5 does not support the original hot thought, write in column 6 an alternative view of the situation that is consistent with the evidence.

• If the evidence in columns 4 and 5 only partially supports your original hot thought, write a balanced thought in column 6 that summarizes the evidence both supporting and contradicting your original thought.

• Ask yourself the questions in the Hint Box (p. 95) to help construct an alternative or balanced thought.

• Alternative or balanced thoughts are not merely positive thinking or rationalizations. Instead, they reflect new meanings of situations based on all the available evidence.

• In column 7 of the Thought Record, rerate the intensity of the mood(s) you identified in column 2.

• The shift in emotional response to a situation is often related to the believability of the alternative or balanced thoughts you write.

• If there is no shift in emotional intensity after completing a Thought Record, use the Troubleshooting Guide (p. 102) to discover what else you may need to do to reduce your distress.

• The more Thought Records you complete, the easier it will become to think more flexibly about situations and begin to consider alternative or balanced explanations for events automatically without writing out the evidence.
Michelle enrolled in a Spanish class to prepare for a trip to Mexico. She learned to ask directions, order food, and respond to common conversational questions. When Michelle arrived in Mexico, her taxi driver spoke English, as did the people working in her hotel. After unpacking, Michelle decided to go to the neighborhood pharmacy to buy some post cards and stamps.

In the pharmacy, everyone was speaking Spanish rapidly. Michelle reviewed her language book and then stepped hesitantly up to the counter and spoke the phrases in Spanish she believed would order stamps and post cards. To Michelle’s surprise, the woman behind the counter smiled and handed her the number of cards and stamps she wanted to purchase.

Why was Michelle surprised?

Our first learning of something new tends to be intellectual, or “in our head.” We know that a particular language is supposed to work in another country, but when we actually speak that language, we doubt it will be understood because the words and phrases are so different from the language most familiar to us. In the beginning, our native language seems the only true way to speak. A
CHAPTER 8 SUMMARY

- Initially, you may not fully believe your balanced or alternative thoughts.
- Use experiments to test your balanced or alternative thoughts. Experiments can help increase your belief in the new thoughts.
- As your belief in your balanced or alternative thoughts increases, your improved mood will stabilize.
- If the experiments do not support your new beliefs, you can use this information to create different beliefs that reflect your experiences.
- Break experiments into small steps. Small steps are easier to do, and what you learn in each small step can help you make bigger steps later.
- You will usually need to do a number of experiments before you shift old beliefs. For this reason, it is important to keep a written record of experiments in order to track results that accumulate over time.
- Action Plans can help you solve problems that you've identified.
- Action Plans should be specific; they should include coping plans for possible problems, set a time to begin, and record progress made.
In many ways, automatic thoughts are similar to flowers and weeds in a garden. Thought Records, experiments, and action plans are tools that enable you to cut the weeds (negative automatic thoughts) at ground level from your garden, making room for the flowers. With practice, these tools will work for you for the rest of your life. Whenever the weeds flourish in your garden, you will know how to work with them. For many people, the skills learned in Chapters 1–8 are sufficient to cope with problems effectively. Other people find that even after using these tools there are still more weeds than flowers, or that every time they get rid of one weed, two others take its place. If you have developed proficiency with Thought Records, Experiments, and Action Plans, and you want deeper changes, then the solution may lie in learning to remove the weeds by their roots.

There are three different levels of belief. Automatic thoughts, with which you have been working up to now are the most accessible and identifiable. Automatic thoughts are the parts of the weeds or flowers that are above ground. Automatic thoughts are rooted beneath the surface in assumptions and core beliefs. The following diagram illustrates the connection between automatic thoughts, assumptions, and core beliefs.
The learning experiences in this chapter plant the seeds for new core beliefs. These new core beliefs will help you begin to feel happier and, as they become stronger, you will have fewer negative automatic thoughts. However, there will still be times in your life when you feel greater levels of depression, anxiety, anger, or other distressing moods. There will still be life events that are difficult to face. You may have illnesses or other physical experiences that affect your moods, behaviors, and thoughts. During times of distress, you can expect that negative thoughts and negative core beliefs will return. At those times, it will be helpful to review the evidence you have gathered and written in Thought Records, Experiments, Action Plans, Core Belief Records and Ratings, and Historical Tests of Core Beliefs. Keeping and reviewing these records can reinforce new beliefs until they are present in even the most difficult circumstances.

CHAPTER 9 SUMMARY

- Assumptions and core beliefs are the roots of our automatic thoughts.
- Assumptions can be stated in “If ... then ...” terms, while core beliefs are absolutistic statements.
- Maladaptive assumptions and beliefs can be weakened at the same time new assumptions are identified and strengthened.
- Core beliefs can be identified by looking for themes in Thought Records and/or with the downward arrow technique.
- Core beliefs may be about oneself, others, or the world.
- Core beliefs can be tested by looking for evidence that they are true or not 100% true.
- New core beliefs can be strengthened by recording experiences that are consistent with the new belief, rating your confidence in your new belief, conducting experiments to test the new belief, and doing a historical test of the new belief.
- Core beliefs often shift gradually, but over time they become stronger, and more stable and exert a powerful influence over the way you think, behave, and feel.
Although emotions generally enrich our lives, too much emotion can be disruptive. While all the chapters of this book teach general skills for managing moods, the final three chapters provide specialized information that can help you reduce the frequency and severity of five moods that create distress for people: depression, anxiety, anger, guilt, and shame. You can read only those chapters that describe the moods you would like to understand and change.

In *Mind Over Mood*, you learn about depression through the lives of Ben, Vic, and Marissa. Ben’s depression was rather recent and followed important life changes. Vic, in addition to alcoholism, had been struggling for most of his life with low self-esteem and a sense of worthlessness. Marissa’s depression symptoms included suicide attempts, low self-esteem and feelings of guilt. Depression includes not only sad mood but also numerous cognitive, behavioral, physical and emotional symptoms. When these symptoms are severe, chronic, or occur repeatedly, they may interfere with our personal relationships or our work.

(Please see chapter ten summary on the next page)
CHAPTER 10 SUMMARY

- Depression does not just describe a mood; it also involves changes in our thinking, behavior, and biology.

- The *Mind Over Mood* Depression Inventory (Worksheet 10.1) can be used to rate depression symptoms. Weekly scores on the inventory can be charted on Worksheet 10.2 to note changes in depression as you use this manual.

- Learning to change how you think is a main focus of cognitive therapy for depression.

- Medication can also be helpful, especially for people who experience intense or long-lasting depression.

- Rating your moods during activities, written down on a weekly activity schedule, can help you discover the connections between behavior and depression (Worksheet 10.4).

- Analyzing the Weekly Activity Schedule can suggest behavioral changes to make to help you feel better (Worksheet 10.5).

- Pleasurable activities or activities that allow you to accomplish something help you feel better when you are depressed.
Appendix Eleven: Subjective account of therapeutic gains

To decrease time spent on the ritualised hair washing:
LF reported a decrease in the time spent on hair washing and grooming in general. Unfortunately he was unable to reduce this ritual to a period of time that he felt was normal, such as 30 minutes nevertheless he was pleased with the reduction. He was advised to continue working on this area as it was felt that the ritualising time could easily increase at times of stress. Please see appendix two for an example of the record of washing and grooming.

Decrease self-conscious:
LF continued to feel self-conscious when out but had a better understanding of normal eye contact procedure. He also had an improved understanding as to the root of his self-consciousness and a firmer belief that in fact he was not being observed more than the average pedestrian.

To understand his thinking processes surrounding his appearance:
His understanding of his thinking processes improved dramatically and he found that he was able to almost automatically question the negative thoughts that he had previously accepted as fact. He felt that this enabled him to sometimes stabilise his mood and to limit his depressed affect. His understanding of how his past experiences impacted on his self-esteem and self-worth helped to place into context his lifelong negative self-concept.

To improve mood:
LF continued to experience low mood and high anxiety when in challenging situations. Over the sessions a gradual decrease could be seen although he still reached caseness for depression.

Amount of time spent on mirror checking and the way in which this is performed.
LF described this as the most difficult task and he regularly went over the hour agreed. It
seemed positive however, that he had begun to recognise the detrimental side to looking, as opposed to the fleeting benefits.

Selective attention
LF was successful in using the instructions to reduce his selective attention. He was able, on a regular basis, to observe fellow pedestrians and became more adept at attending to his surroundings as opposed to his internal state.

Identify appearance-related beliefs
LF was able to identify these more often than not, but was "still caught out" by self-prejudices. Nevertheless he seemed to have an increased awareness of when this had happened.

Activity Levels
There was a marked increase in LF's activity levels by the end of treatment he became more involved in the voluntary work with the learning disability organisation MENCAP. By the fourth follow-up he was befriending three clients on a regular basis, meaning that he was obliged to leave his house on a regular basis. His church attendance became more frequent and he was more inclined to accept invitations from his friends to go out. Subjectively he reported that even though his activity levels had increased he did not necessarily find going out "easier".
SECTION 4

RESEARCH DOSSIER
4.1

BODY DYSMORPHIC DISORDER AND PREDICTORS OF SATISFACTION IN VOLUNTEERS UNDERGOING COSMETIC RHINOPLASTY
4.1 BODY DYSMORPHIC DISORDER AND PREDICTORS OF SATISFACTION IN VOLUNTEERS UNDERGOING COSMETIC RHINOPLASTY

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One-way repeated measures, Satis. with nose
One-way repeated measures ANOVA, Anx.
Related T-tests, BDD
Related T-tests, Satis. with nose
Related T-tests, BDD, Times 1&2
Related T-tests, Satis. with nose, Times 1&2
Related T-tests, Anxiety, Times 1&2
Related T-tests, Depression, Times 1&2
Related T-tests, Sat. nose intent/treat analysis
Related T-tests, Desire for further surgery
Cochran's Q
The present study aimed to identify factors, which predict satisfaction with outcome in cosmetic rhinoplasty, and to ascertain the prevalence of body dysmorphic disorder (BDD) in those seeking cosmetic rhinoplasty in the private sector. The literature suggests that BDD carries with it high levels of comorbidity in the form of anxiety and depression and can be a contraindication to cosmetic surgery. The aim of the present study was to assess levels of psychopathology before and following cosmetic rhinoplasty. Twenty-nine volunteers participated in this study. Participants were surveyed at three time points: pre-surgery, three months following surgery and nine months post surgery and completed questionnaires to assess levels of anxiety, depression, BDD and severity of symptoms. Measures of satisfaction with nose were also taken. Results indicate firstly, that a large proportion (20.7%) of volunteers who presented for the procedure endorsed questionnaire items, which were consistent with a diagnosis of BDD. It was found that those participants who were tentatively diagnosed as having BDD no longer fulfilled the criteria for BDD nine months following the surgery and there was a significant increase in satisfaction with the nose. Also it was established that none of the predictor variables (severity of BDD symptoms, anxiety and depression) were correlated with satisfaction the outcome of surgery although anxiety, predicted the desire for further surgery at follow-up. The finding that there was a relationship between severity of symptoms and further surgery seeking, approached significance. These results are discussed in terms of both the theoretical underpinnings and methodological limitations of the present study and the implications are highlighted in terms of practice and future research needs.
4.1.2 INTRODUCTION

The current research explores factors, which may help to predict satisfaction with cosmetic Rhinoplasty. Cosmetic surgery is undertaken on the whole to improve the physical appearance of the individuals' chosen feature and in doing so, presumably their self-esteem. Sarwer notes that "in this regard cosmetic surgery can be considered a psychological intervention or at minimum a surgical procedure with psychological consequences" (Sarwer, 1997 pp.1). It is noted that the vast majority of those who voluntarily undergo Rhinoplasty for cosmetic reasons are fully or at least largely satisfied with the outcome of the procedure (Klabunde & Falces, 1964; Hay & Heather, 1973 Reich, 1975; Boone, Wexler & De-Nour, 1996). Sarwer (Sarwer, 1997), amongst others who have expressed similar sentiments in different forms (Thompson, 1972; Edgerton, 1975; Wright & Wright, 1975; Andreasen & Bardach, 1977), in his 1997 paper suggests that satisfaction with cosmetic surgery is most likely if:

1. Prospective patients have specific as opposed to global concerns about their body
2. Prospective patients are internally rather than externally motivated
3. Prospective patients have realistic expectations

It may be that there are situations under which the above three conditions are less likely to occur and the present research hopes to address this issue.

Despite comments such as "if we didn't operate on neurotics we would not operate on many people" (Thompson, 1972, p.174), there is a growing body of literature, which does more than suggest, that there are definite psychological and psychiatric contraindications for cosmetic surgery. It is suggested that along with anxiety, depression and delusional presentations amongst others, a diagnosis of Body Dysmorphic Disorder is unlikely to be consistent with satisfaction with
cosmetic Rhinoplasty. Phillips suggests that cosmetic surgery "can alleviate symptoms rarely...and commonly lead to increased preoccupation and further unsuccessful procedures" (Phillips, McElroy, Keck, Pope & Hudson, 1993). In this 1993 study, Phillips points out that in a group of 30 BDD patients, eight had undergone 25 plastic surgery or dental procedures between them. Of these only two procedures led to an improvement while 20 led to an exacerbation of symptoms.

4.1.2.1 A historical overview of body dysmorphic disorder

Body Dysmorphic Disorder or BDD, is a psychiatric diagnosis, known and described as far back as 1886 by Enrico Morselli, an Italian psychiatrist (Morselli, 1886), under the term "Dysmorphophobia" or fear of ugliness. In 1903, Pierre Janet, the French psychiatrist, referred to "obsession with shame of the body" which he felt described his patients fear of being viewed as ridiculous. In the psychoanalytic literature, Freud's famous Wolf-Man case, although not explicitly stated as such, seems to describe a patient suffering from BDD. The Wolf-Man's second analyst Ruth Brunswick writes "he neglected his daily life and work because he was so engrossed, to the exclusion of all else, in the state of his nose". She adds that "his life was centred on the little mirror in his pocket and his fate depended on what it revealed or was about to reveal" (cited in Brunswick, 1928).

The first author to write in the English language on Dysmorphophobia was G. Hay. Hay noted that: "psychiatrists were wary of patients who complained of minimal nasal deformities, as it has often been considered an ominous symptom in the sense that the patient may be an early psychotic" (Hay, 1970, pp.85). Hay also helps to clarify that the essence of this disorder is not a fear of becoming deformed but that the patient believes they are already is deformed and fearful of others reaction to the deformity.
Despite many references to Dysmorphophobia in the European scientific literature over the years, it was not until much later that it entered the American psychiatric classification system with DSM III as an atypical somatoform disorder. In DSM III-R (American Psychiatric Association, 1987), the category was further modified and is now correctly termed Body Dysmorphic Disorder, the suffix 'phobia' is deleted as it inaccurately implies phobic avoidance.

4.1.2.2 Definition of body dysmorphic disorder

BDD is a body image disorder. What differentiates BDD from normal body concerns, which are so prevalent today as to be considered common place, is the degree of distress, disability and impairment that BDD causes. When the disorder becomes immensely time consuming and interferes significantly with the sufferers work and social life, it may reach psychopathological levels. This serious level of body image dissatisfaction is at the extreme end of a continuum of body image concerns.

The current DSM-IV (American Psychiatric Association, 1994), defines BDD as a somatoform disorder and lists its diagnostic criteria as follows:

- Preoccupation with an imagined defect in appearance. If a slight physical anomaly is present, the persons concern is markedly excessive
- The preoccupation causes clinically significant distress or impairment in social, occupational, or other important areas of functioning
- The preoccupation is not better accounted for by another mental disorder (e.g. dissatisfaction with body shape and size in Anorexia Nervosa).

In addition to the above, if the body image concern reaches delusional intensity, that is, a total lack of insight, the patient also receives an additional diagnosis of delusional disorder, somatic type.
The clinical features, a case history, demographics, co-morbidity, phenomenology, clinical course and aetiology will be discussed in order to familiarise the reader with this under-researched illness.

4.1.2.3 Clinical features

Typically a person presenting with BDD will complain about a flawed or ugly feature. Any physical feature can be a source of distress however the most commonly cited areas are the face and head, specifically the nose, skin and hair. The most common areas of concern are detailed in Table 1. It is interesting to note the figures, which appear in a review by Hollander and his observation that:

...these areas of the body cover a disproportionately large area of the somatosensory and motor strips and are intimately involved with self-esteem and interpersonal functioning (Hollander, Cohen & Simeon, 1993, pp. 360).

Numerous researchers have reported very similar findings (Phillips 1993; Veale, Boocock, Gournay, Dryden, Shah, Willson & Walburn, 1996).

Table 1: BDD Clinical Profile (N= 50) Area of Perceived Body Defect

<table>
<thead>
<tr>
<th>Facial Area</th>
<th>Number of patients</th>
<th>Sex Related</th>
<th>No. of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nose</td>
<td>16</td>
<td>Penis/Testes</td>
<td>6</td>
</tr>
<tr>
<td>Eyes</td>
<td>8</td>
<td>Breasts</td>
<td>4</td>
</tr>
<tr>
<td>Hair</td>
<td>17</td>
<td>Buttocks</td>
<td>1</td>
</tr>
<tr>
<td>Skin</td>
<td>13</td>
<td>Fem./Masculinity</td>
<td>4</td>
</tr>
<tr>
<td>Mouth/Jaw</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Face</td>
<td>17</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Body</strong></td>
<td></td>
<td><strong>Miscellaneous</strong></td>
<td></td>
</tr>
<tr>
<td>Body size (big)</td>
<td>10</td>
<td>Symmetry</td>
<td>15</td>
</tr>
<tr>
<td>Body size (small)</td>
<td>2</td>
<td>Secretion</td>
<td>3</td>
</tr>
<tr>
<td>General body</td>
<td>7</td>
<td>Other Person</td>
<td>2</td>
</tr>
<tr>
<td>Hands/Arms</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legs</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Torso</td>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In her 1993 study Phillips lists hair, nose and skin as the most frequent area of concern. Many BDD patients report more than one area of concern and in the Phillips' et al study of one hundred patients, she reports the mean number of preoccupations as three, with a standard deviation of two (Phillips, McElroy, Keck, Pope & Hudson, 1994). Concerns are typically expressed in a vague and non-specific fashion and sufferers often have difficulties explaining the precise nature of concern i.e. "incorrectly shaped nose", "a flaccid nose" "I look depressed" and "my face is falling". Patients often seem to imagine or grossly exaggerate the presence of flaws.

4.1.2.4 Demographic data

The frequency with which BDD occurs both within the normal population and within the cosmetic surgery population is still open to debate. This is both because BDD is a secretive disorder and therefore can be missed but also because it can be misdiagnosed, commonly as obsessive compulsive disorder (OCD), depression or social phobia. One estimate suggests a prevalence rate ranging from 0.1% to 1.0% of the general population (Hollander & Benzaquem, 1996). Andreasen and Bardach (1977) estimate that 2% of the cosmetic surgery population may suffer from BDD and Faravelli, Salvatori, Galassi, Aiazzi, Drei and Cabras (1997) in a community survey in Florence, cite a one-year prevalence rate of 0.7%. Hollander notes that whilst prevalence rates for BDD are still not fully understood it is "likely that they are considerably higher than previously thought" (Hollander, 1993, p.359). This assumption is based on the fact that there are many similarities between OCD and BDD. "Co-morbidity between OCD and BDD may be as high as 38% and prevalence rates for OCD are estimated at 1.2% to 3.3% of the population" (Hollander, 1993, p.360).

Rich and colleagues estimate the prevalence in females and males as 1.5% in women and at less than 1% in men (Rich, Rosen, Orosan, & Reiter, 1992). Whilst
Phillips suggests that the ratio of women to men appears to be 1:1.3 (Phillips, 1991), this is slightly modified in the 1994 paper where she cites a ratio of 1:1 (Phillips et al, 1994).

The disabling effects of BDD can be seen in relationship and employment statistics. In an American study, 76% were found to be single with 42% unemployed (Phillips, et al 1994). Similar results were found in Britain with 74% single and 50% unemployed (Veale, Boocock, Gournay, Dryden, Shah, Willson & Walburn, 1996). Early adolescence appears to be the most frequently cited period for onset of the disorder (Andreasen & Bardach, 1977; Hollander et al, 1993) but it could remain undiagnosed for many years. The DSM-IV field trial for OCD, in which 51 patients were found to meet diagnostic criteria for BDD, shows the mean age of onset to be 17.8 years with a standard deviation of 8.5. (Simeon & Hollander, 1995). In England, Veale and colleagues similarly, put the figure at 17.9 years (Veale et al, 1996).

4.1.2.5 Co-morbidity

Perhaps not surprisingly, depression appears to be the most frequently cited associated disorder in BDD. Veale, Boocock, Gournay, Dryden, Shah, Willson & Walburn (1996), found 18% of their sample of fifty patients to have a diagnosis of dysthymia (low mood) and diagnosed 8% with major depressive episode. These results are summarised in Table 2.

Phillips (1991) in her review of BDD, similarly finds depression to be the most commonly cited associated disorder and states that "most reports imply that Body Dysmorphic Disorder causes the depression" (Phillips 1991 p.1141). Veale et al (1996) also found their sample to have a high prevalence of past suicide attempts (24%) and previous depressive episodes (36%).
Table 2: Co-morbidity in BDD

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dysthymia</td>
<td>18%</td>
</tr>
<tr>
<td>Major depressive episode</td>
<td>8%</td>
</tr>
<tr>
<td>Social phobia</td>
<td>16%</td>
</tr>
<tr>
<td>OCD</td>
<td>6%</td>
</tr>
<tr>
<td>Anxiety disorders</td>
<td>16%</td>
</tr>
<tr>
<td>Substance misuse/dependence</td>
<td>2%</td>
</tr>
</tbody>
</table>

One of the largest studies yet conducted on BDD patients showed that in a sample of 100 participants, 59% suffered major depression and that the onset of BDD preceded the depression by at least one year (Phillips et al, 1994).

The diagnosis of BDD is invariably accompanied by feelings of shame, embarrassment and low self-esteem. Consistent with this, BDD sufferers also show high levels of social phobia. Social phobia was found in 35% of 100 patients as an associated disorder (Phillips et al, 1994). For a fuller discussion on social phobia the interested reader is referred to Wells, 1997.

As indicated above many researchers are of the opinion that BDD is closely related to OCD (Hollander et al 1993; Veale et al, 1996; Phillips, 1995; Brauman-Mintzer, Lydiard, Phillips, Morton, Czepowitz, Emmanuel, Villareal, Johnson, Ballenger, 1995). This relationship is supported not only by the fact that 37% of OCD patients meet criteria for BDD (Hollander et al, 1993) but by many other common features. The age of onset is thought to be common to both disorders and the symptoms also show similarities such as the need for symmetry and order. A similar sex ratio is found and also there appears to be a temporal transition from one disorder to the other (Veale et al, 1996). The two disorders are also characterised by obsessions and compulsions, and tend to run a chronic course. Another source of evidence that links the two disorders is found in the treatment literature specifically, both BDD and OCD seem to respond to respond...
preferentially in open trials to SSRI antidepressants. This suggests that the underlying neurobiology of BDD may be similar to that of OCD and also involve the neurotransmitter serotonin.

4.1.2.6 Phenomenology

Obsessive thinking about the perceived flaw is one of the defining characteristics of BDD. As in the obsessions characteristic of OCD, the thinking tends to be repetitive, persistent and very difficult to resist. Whereas in OCD the obsessions tend, as a general rule, to revolve around danger to self or others and often relate either to contamination, aggression, sex or religion, the obsessions in BDD revolve around body image and consequently, embarrassment and low self-esteem. The awareness or insight that the BDD patient has with regard to their condition can vary along a continuum from a fair understanding that their thoughts are unrealistic to a delusional level of belief, that is completely without insight into their condition. This level of belief can also be found to fluctuate within the same person. For the latter, there is a separate diagnosis: delusional disorder, somatic type.

BDD patients frequently engage in checking behaviours for example touching and feeling the perceived defect or checking it in the mirror. The checking or self-observation can last for many hours. Hollander et al (1993) found in their sample that 32% engaged in this behaviour whilst Phillips et al (1994), report an even greater level of checking, in that 82% of their sample of 100 patients carried out this behaviour. Other forms of reassurance seeking are common, with patients compulsively asking others to either confirm or refute their worst fears about their defect. It is also reported that 64% of BDD patients showed a tendency to compare their disliked feature with someone else's, e.g. comparing the size of their nose with someone else's' nose either in photographs or observing another person. (Phillips & Taub, 1995).
It is reported in the literature that some BDD patients have resorted to extreme measures to rid themselves of their slight or perceived defect. In the case of those who are distressed with blemishes on, or with the texture of the skin, there are reports of individuals resorting to a form of "self-surgery". This can take the form of picking or scratching themselves with pins, needles or razor blades often causing serious harm and scarring (Phillips & Taub, 1995). With regards to avoidance behaviour, some individuals with BDD will go to great lengths not only to avoid seeing their defect themselves but also to hide it from others. This is generally referred to as "camouflaging". There are numerous reports of patients achieving this through the application of make-up, the wearing of hats, adjusting clothing, positioning the body in a certain way, avoiding bright lights or simply covering the offending area with their hands. (Hollander, Liebowitz, Winchel, Klumker, & Klein, 1987; Phillips, 1991; Hollander et al, 1993; Brawman-Mintzer et al, 1995; Veale, 1996; Penzel, 1997).

Complete avoidance of the outside world, in an attempt to circumvent expected scrutiny and/or ridicule is not uncommon. Many BDD sufferers become so overwhelmed by the thought of going out that it is not unusual for them to sequester themselves at home, often for long periods of time. In one study, 32% of a sample of BDD patients had stayed at home through self-imposed isolation, for at least one week and some had been housebound for many years. Given these figures it is not surprising that up to 74% reported impairments both in the academic and occupational spheres (Phillips et al, 1994).

4.1.2.7 Clinical course

The clinical course of BDD is uncertain due to the relative lack of systematic research in this area and perhaps also because of it being a 'secret disorder'. In view of its similarities with OCD the assumption is that the disorder is likely to run a chronic course.
Interestingly there are reports that the focus of concern may actually change over time. Other researchers have reported similar findings (Phillips, 1991, Hollander et al, 1993), although this is yet another aspect of the disorder which would benefit from further investigation.

### 4.1.2.8 Aetiological factors

The aetiology of BDD is unlikely to be attributable to a unitary explanation. As is the case with many disorders BDD is likely to result from a combination of sociological, neuro-biological and psychological factors.

#### 4.1.2.8.1 Sociological factors

Today's society places emphasis on physical perfection and it may be that this emphasis triggers psychopathology in already vulnerable individuals. There is also a growing perception and acceptance that plastic surgery is an easy option for achieving the desired image and appearance. As Rosen (1997, p.149), stated "Body dissatisfaction is so common today that it has become a normal sign of living in a society that glorifies beauty, youth and health". This is however only likely to be part of the story.

#### 4.1.2.8.2 Neuro-biological factors

Research showing high co-morbidity with obsessive compulsive disorder (see co-morbidity, section 2.6) suggests a similar role for neuro-biological factors in BDD. OCD patients respond well to specific medications that affect the neurotransmitter serotonin (SSRI) and for this reason OCD is no longer attributed only to attitudes learned during childhood. It is widely accepted that treatment response to the SSRI antidepressant family of medications is also promising in the majority of BDD patients (Hollander et al, 1989; Phillips et al, 1994; Phillips,
The role of serotonin is further supported by a case report of a patient who underwent an exacerbation of her BDD symptomatology following tryptophan depletion (Barr, Goodman & Price, 1992). Furthermore there are reports of placebo controlled m-CPP challenge studies (m-chlorophenyl-piperazine, a serotonin agonist) in which BDD patients were found to report an increase in body preoccupation following m-CPP administration, and the interested reader is referred to Hollander & Benzaquem (1996). Clearly this type of research is not suggesting that BDD results purely because of a serotonin imbalance.

4.1.2.8.3 Psychological factors

Early psychological studies identified a number of personality traits in patients with BDD including insecure, sensitive, schizoid, narcissistic and hypochondriacal etc. (Penzel, 1997). Given that BDD is a body image disorder some researchers have been approaching the subject of aetiology from a theoretical perspective that can integrate what is known about more extensively studied body image disorders such as for example, anorexia nervosa and bulimia, with what has been learned about BDD. Rosen, Reiter and Orosan (1995) and Veale et al (1996) have amongst others, viewed BDD within a cognitive-behavioural framework. The model seems to account for many of the research findings (for example: the age of onset and the cognitive, affective and behavioural components of BDD), and furthermore provides a promising treatment rationale.

Within the cognitive-behavioural model (CB/CBT), it makes sense that the preoccupations start in early adolescence when concerns about appearance and social integration are at their most acute (Pliner, Chaiken & Flett, 1990). Adolescents who possess marked physical characteristics such as a large nose, being particularly tall/short, or who develop later or earlier than their peers may be more self-conscious about their appearance. The greater the deviation from the
norm the more likely it is that the adolescent in question will focus on their appearance and the impact it has on others. As Lerner and Jovanovic (1990) note it is the combination of physical appearance and "social feedback" that influences a persons body image development (the interested reader is referred to the Lerner and Jovanovich chapter in Body Images: Development, Deviance and Change, 1990).

In the face of other psychological vulnerabilities such as shyness or low self-esteem, conspicuous features or obvious adolescent conditions such as acne, can lead to further negative self-appraisal. Both negative self-esteem and shyness are identified by Phillips to be common traits in those suffering from BDD (Phillips, 1991). The above conditions may not be sufficient in themselves to lead to psychopathology or dysfunctional assumptions, but when coupled with, or solidified by, traumatic incidents or "triggers" in the form of teasing, bullying or criticism of appearance the risk of developing BDD is held to be greater. Many BDD patients recall the start of their problems being triggered by adverse comments and sometimes a single incident is cited (Hay, 1970). Other critical incidents such as childhood sexual abuse, assault and physical injury were found by Rosen et al (Rosen et al, 1995).

Cognitive-behavioural theory would suggest that the preoccupation with appearance once developed, is maintained by a number of mechanisms:

- **Selective Attention or Hypervigilance to the perceived defect.**

  Once developed, dysfunctional assumptions lead patients to selectively attend to information that is consistent with their having a physical defect and to selectively ignore or discount evidence that indicates normal appearance (Padesky, 1993; Rosen, 1990 p.170).
• **Automatic Negative Thoughts.**

• **Avoidance Behaviour.**
  Anxiety becomes conditioned to various appearance-related stimuli, including the sight or feel of certain bodily characteristics and social situations in which s/he believes that other people will notice appearance defects... these behaviours terminate exposure to the feared stimuli, thereby preventing habituation from occurring (Rosen, 1990 p.171).

• **Checking Behaviour and Reassurance Seeking.**
  Checking behaviour and reassurance seeking keep the patients' attention focussed on aspects of appearance that elicit the thoughts in the first instance (Rosen, 1990 p.171).

It seems likely that as with many psychiatric disorders, there are multiple aetiologic factors underlying BDD and probable that the above mentioned sociological, psychological and neuro-biological factors are all implicated to a greater or lesser extent.

**4.1.2.9 Treatment approaches**

A review of the treatment literature on BDD is problematic and it should be noted that although treatments have been reported since the original description of dysmorphophobia in 1886 (Morselli, 1886), not all have involved patients clearly diagnosed as BDD. There are also limitations in the published treatment studies due to lack of appropriate control groups, retrospective designs and non standardised assessment instruments (Hollander et al, 1993) although this situation is improving.
BDD patients are generally considered as "difficult to treat or to engage..." (Veale et al, 1996, p.724), nevertheless there are reports of treatment approaches from the psychotherapy and pharmacotherapy literature and more recently, reports of effective combinations of both. The effectiveness of these treatments will be briefly outlined.

On the whole the psychodynamic therapies have not been successful in treating BDD and only one case, that was effective in reducing symptoms, figures in the literature (Bloch & Glue, 1988). Cognitive behavioural therapy has shown promising results in the treatment of BDD. Rosen et al (1995) described a randomised control study (RCT) using what they term "Cognitive-Behavioural Body Image Therapy". Fifty-four patients were assigned to either an 8 week, 2 hour programme or no treatment. The treatment consisted of the modification of intrusive thoughts of body dissatisfaction and overvalued beliefs about physical appearance; exposure to avoided body image situations and elimination of body checking. Rosen et al, found that at the end of treatment the BDD symptoms had decreased significantly. Furthermore they found that the disorder had been eliminated in 82% of the cases and remained so in 77% at a 4.5-month post-treatment follow-up. They also noted that overall; psychological symptoms and self esteem improved in the therapy programme patients. Similarly encouraging results are also reported by Wilhelm, Otto, Lohr, & Deckersbach (1999) and Veale et al (1996), amongst others.

The pharmacological agents noted to be beneficial in the treatment of BDD are the selective serotonin re-uptake inhibitors (SSRI), although the evidence to date is based largely on retrospective case reports and open label studies. There are controlled studies in the pipeline but no published data as yet. The specific medications most frequently recorded in the literature as being
effective are the SSRIs such as clomipramine, fluvoxamine and fluoxetine (Prozac).

In 1993, Phillips et al published a report of 19 separate trials with the drug Prozac. Ten of these trials resulted in either full or partial remission of BDD symptoms. Philips et al (1994) report on a study of 316 treatment trials involving 100 patients. Of 65 trials involving SSRI drugs such as those cited above, 42 per cent resulted in "clinically significant improvement". In a clinical series, Phillips et al (1994) report that 70 per cent of a patient series of 61 participants experienced a clinically significant improvement. This was in contrast to only 30 per cent of 23 trials with antidepressants of the monoamine oxidase inhibitor (MAOI) type, resulting in clinically significant improvement. Phillips et al (1994) further report that only 15 per cent of 48 trials with the non-SRI tricyclics were effective, 3 per cent of trials were effective with neuroleptic medications and 6 per cent of trials were effective with other medications such as the benzodiazepines and mood stabilisers. With regards to electro-convulsive therapy (ECT), no trials were found to be clinically effective.

The available data suggests that SSRI treatment of BDD is effective and it is widely agreed that further RCTs are needed to confirm the current open label and retrospective findings.

4.1.2.10 Cosmetic surgery

Another 'treatment option' sought after by some BDD patients with varying results, is that of plastic surgery.

The majority of people with BDD (72% in one series) seek often costly, non-psychiatric treatment, most often cosmetic surgery and dermatologic
treatment. But virtually any type of physician may be consulted, for example, ophthalmologists to evaluate "cross-eyed" eyes, endocrinologists to assess "excessive" body hair, or urologists to evaluate "small genitals" (Phillips, 1996, p.62).

The finding that BDD patients will seek plastic surgery to alleviate their distressing symptoms as opposed to treatment from the mental health professions is a growing concern. This concern is based on evidence, which suggests that plastic surgery can sometimes not only be ineffective but that it can also worsen the original symptoms. The clinical profile of fifty of the patients that took part in a study conducted by Hollander et al (1993), showed that 40% had resorted to plastic surgery and of these many had undergone multiple (up to 15) procedures. In another study, Hollander and Phillips (1995) found that they were assessing patients who had had as many as twenty-three separate plastic surgery procedures.

Evidence also suggests that the preoccupation may shift over time, and following plastic surgery, to other body features (Andreasen & Bardach, 1977; Phillips, 1991). This is not to suggest that surgery will inevitably have a negative outcome. Indeed other research suggests that some patients with BDD can have a good outcome (Crisp, 1981) and that even patients with severe psychiatric disorders can sometimes benefit from plastic surgery (Edgerton, Langman & Pruzinsky, 1990; Napoleon & Lewis, 1989). In view of the above, however, most researchers suggest caution and psychiatric evaluation (Fukuda, 1977). This is supported by Andreasen and Bardach (1977) who argue that the BBD patient's real defect is "emotional rather than physical...(they) are rarely satisfied with the results...(and) often find a new defect" (p. 674). Further, Phillips asserts that whilst "no clear consensus emerges regarding the treatment of choice for BDD... it should be in most cases be psychiatric, not dermatologic or surgical" (Phillips, 1991, p.1144).
Whilst psychiatric treatment is recommended, it is clear that plastic surgery is sought by many sufferers of BDD. Unfortunately it seems that in the majority of cases cosmetic surgery affords them little or no relief from their symptoms, which may in fact intensify, increasing their suffering further. In order to understand why they seek cosmetic surgery, further research into the psychological factors underlying this behaviour is required.

Despite the numerous investigations and clinical reports showing that surgery candidates can be seriously disturbed (Edgerton, Jacobson, & Meyer, 1960; Schlebusch & Levin, 1983; Webb, Slaughter, Meyer & Edgerton, 1965), these do not fit with the very frequent finding that the vast majority of cosmetic surgery patients have a positive psychological outcome (Pruzinsky, 1993). Furthermore they do not, generally, seem to suffer psychological complications following surgery (Sarwer, Pertschuk, Wadden, & Whitaker, 1998). There are even isolated reports that some patients with significant psychological disturbance can benefit from cosmetic surgery if given appropriate psychological support (Edgerton, Langman & Pruzinsky, 1990; Napoleon & Lewis, 1989). For a more complete review on this subject the interested reader is referred to Sarwer et al (1998).

The research has now moved away from purely investigating the 'psychopathology' of potential cosmetic surgery patients and more towards an analysis of patient's thoughts and feelings about physical appearance i.e., body image and understanding and improving brief methods of patient assessment.

Cash and Pruzinsky define body image as "...perceptions, thoughts, and feelings about the body and bodily experiences" (Cash & Pruzinsky, 1990). These factors are influenced and moulded by a person's developmental, perceptual and socio-cultural experience. The understanding of body image is held to be central to the understanding of the psychology of cosmetic surgery.
Sarwer and colleagues have recently formulated a model, which illustrates the relationship between body image and cosmetic surgery (Sarwer, Wadden, Pertschuk & Whitaker, 1997). Essentially the idea is that attitudes regarding body image are two-dimensional. Sarwer and colleagues call the first dimension a "valence" which is defined as the importance of appearance to one's self-esteem. Valence is determined by the interaction between the individual's real physical appearance, their perception of that appearance, developmental and socio-cultural influences and their self-esteem. The second dimension, called the "value", is the degree of satisfaction that one has with one's body. It is a particular interaction of these two dimensions that would lead individuals to have cosmetic surgery. Specifically the model hypothesises that cosmetic surgery patients will have a high "valence" or that their appearance is highly important to them and low "value" that is a low degree of satisfaction with their body or particular body feature. Sarwer's research indicates that there are degrees of dissatisfaction and furthermore, initial studies indicate that most patients show a "heightened dissatisfaction with a specific feature of their appearance, rather than dissatisfaction with the entire body image" (Sarwer et al, 1997). Whilst it is still not clear at what point in the valence/value interaction, patients opt for cosmetic surgery, the model provides promising hypotheses and a way of understanding psychopathological preoccupation with body features such as occurs in BDD (see table 3).
Table 3: A model of the relationship between body image and cosmetic surgery

<table>
<thead>
<tr>
<th>Reality of Physical Appearance</th>
<th>Perceptions of Appearance</th>
<th>Positive Body Image Valance</th>
<th>Body Image Satisfaction</th>
<th>?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Developmental Influences</td>
<td></td>
<td>Body Image Dissatisfaction</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Socio-cultural Influences</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Self Esteem</td>
<td>Negative Body Image Valance</td>
<td>Body Image Satisfaction</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Body Image Dissatisfaction</td>
<td>No</td>
</tr>
</tbody>
</table>

Note: Reprinted from Plastic Surgical Nursing, 1997, Volume 17, Number 4, p.194. Reprinted with permission of the publisher, the American Society of Plastic and Reconstructive Surgical Nurses, East Holly Avenue Box 56, Pitman, NJ 08071-0056; Phone (856) 256-2300; Fax (856) 589-7463.

To summarise, Sarwer and colleagues hypothesise that body image dissatisfaction is the motivational component behind seeking cosmetic surgery. However this has yet to be empirically demonstrated and remains as yet a potentially fruitful area of research (Sarwer et al, 1997).

What follows is a brief review of the issues considered by many, to be important to a satisfactory outcome in cosmetic surgery. Despite not being able to identify specific patient types, there is still a great deal of interest in screening out inappropriate patients (Sarwer, 1997). [There are several comprehensive reviews on patient screening and selection (Goldwyn, 1991; Pruzinsky, 1988; Pruzinsky & Persing, 1991; Wengle 1986b) and the interested reader is referred to these for a more complete understanding of the important factors.]
There is special interest in those patients often termed "insatiable" or "obsessive" or according to Pruzinsky and others, "the minimal deformity patient" (Pruzinsky, 1993). These are of course characteristics often found in the BDD patient who seeks, sometimes repeatedly, cosmetic surgery (Phillips, 1993). Indeed, it is widely believed and there is evidence to suggest that many cosmetic surgeons will have operated on patients who have pathological levels of body image dissatisfaction and patients who have symptoms consistent with BDD and other psychiatric disorders (Sarwer, 1997). In a study by Phillips the reader will recall that 8 out of 30 BDD patients had undergone 25 plastic surgery or dental procedures (Phillips et al, 1993). With regards to surgeons operating on patients with severe psychological morbidity, it is worth remembering that the majority of surgeons do not have the training or expertise to investigate (often well-concealed) psychological disturbance and psychiatric disorders in their potential patients.

One of the most important issues to investigate in outcome satisfaction, is patient's expectations of surgery (Pruzinsky, 1993). According to Pruzinsky it is "the patient's perception of the surgical outcome that determines the ultimate psychological response to the results of the operation and...this perception of the surgical outcome is significantly influenced by patient expectations" (Pruzinsky, 1993, p.65). Pruzinsky & Edgerton (1990), state that the patients have three different expectations for cosmetic surgery:

- Surgical (Physical) e.g. what the end result will look like.
- Emotional (Psychological) e.g. how the patient will 'feel' about themselves.
- Social (Interpersonal) e.g. how the patient is perceived by others.

The assumption is that patients have expectations in all three of these areas, whether or not they are explicitly stated, and that the accuracy of these should be assessed.
Three further aspects, which may operate on a continuum, also seem of paramount importance in the determining of outcome satisfaction. Whilst mentioned in isolation by various researchers (Thompson, 1972; Edgerton, 1975; Wright & Wright, 1975; Andreasen & Bardach, 1977), Sarwer and colleagues (Sarwer et al, 1997), have collated these factors theoretically and have stressed the importance of examining these particular areas in detail during an assessment.

Specific v. Global concerns
It is suggested that the patient should be able to articulate specific as opposed to global concerns. The patient should be clear about the specific defect that requires rectifying and that this should be readily visible to the cosmetic surgeon. Patients who are very distressed about minimal deformities, slight or not readily visible defects or who express vague concerns (e.g. "my face looks sad"), "...may be suffering from BDD" (Sarwer, 1997, p.196), and require further investigation prior to an agreement to operate. If the patient is able to articulate the concern, then the degree of dissatisfaction must also be assessed.

Internal v. external motivation

Patients whose motivation for cosmetic surgery is internally generated (I have always disliked the bump on the middle of my nose) as opposed to externally generated (my partner has suggested surgery would improve the appearance of my nose), are more likely to have a satisfactory outcome.

Realistic expectations of outcome
Sarwer suggests asking the patient "How do you anticipate your life will be different following the surgery?" The aim of this line of questioning is to ascertain how the patient thinks the cosmetic surgery will change them physically but also refers to their expectations of others reactions and their own feelings about themselves.
In summary, patients who have specific appearance concerns, are internally motivated and have realistic expectations (psychologically, surgically and socially) are more likely to be satisfied with the results of a cosmetic surgery procedure than those who do not. Whilst perhaps intuitively accurate, there has been little systematic research into whether fulfilling the above criteria predicts satisfaction with cosmetic Rhinoplasty.

4.1.2.11 Development of the study

This study represents an attempt to answer important questions which the literature indicates have yet to be addressed. The literature remains undecided on the prevalence of serious psychiatric disorders such as BDD in the cosmetic surgery population and as to whether this disorder or indeed other mental health difficulties are contraindications to cosmetic surgery. Specifically there is no clear consensus regarding the quantity or degree of body image dissatisfaction among cosmetic surgery patients. It remains unclear as to whether the degree of body image dissatisfaction (particularly when this is at the severe end of the continuum) increases, decreases or changes focus following cosmetic surgery. It has been suggested that cosmetic surgery on a body feature that causes distress can lead to alleviation in symptoms, but that in time the focus of concern can switch to other body parts. In the literature previously described, reference is also made to the fact that patients suffering from BDD show high co-morbidity in the form of depression and anxiety and seek surgical solutions to their distress and that cosmetic surgery may not alleviate their difficulties. Furthermore it seems that more research is needed to shed light on how accurate cosmetic surgeons are in identifying patient psychopathology, both for their own benefit and that of the patient. Therefore there are five main research questions.

1 What proportion of people undergoing cosmetic surgery have BDD?
2 Does prior BDD continue after cosmetic surgery?
3 What are the differences in BDD, (and anxiety, depression & satisfaction with nose) over the three time points of the study?

4 Do prior BDD, anxiety, or depression predict satisfaction with surgery and further surgery seeking?

5 Do new concerns about other physical defects emerge after surgery?
4.1.3 METHOD

4.1.3.1 Participants

Participants (volunteers) comprised people, over the age of 18, seeking cosmetic Rhinoplasty from clinics and surgeons working in the private sector. The decision to use the private sector was taken on the basis that Rhinoplasty for cosmetic motivation is very rarely performed within the national health system. Largely if the procedure is performed it is because of functional reasons such as the correction of a deviated septum, to open obstructed airways or to restore the appearance following trauma. It is likely that the use of this type of patient would have introduced confounding variables. Whilst cosmetic surgery is performed within the NHS this is now only on the recommendation of a psychiatrist with the proviso that the procedure would alleviate a mental health problem (personal communication, Dr Manjit Hunjan, Medical Epidemiologist, West London Mental Health Trust). It was a requirement of the protocol that volunteers were seeking cosmetic Rhinoplasty for the first time. Furthermore it was a requirement that Rhinoplasty was the only procedure being undertaken at that time and not in combination with other procedures commonly performed such as a face lift or similar.

Clinics and individual surgeons were informed that volunteers would be subject to the following exclusion criteria:

- Patients seeking cosmetic surgery to correct defects resulting from trauma or medical pathology.
- Patients wanting to simultaneously, undergo more than one procedure (e.g. a combined facelift and Rhinoplasty) would also be excluded from the research project.
Patients who would be unwilling to participate in long-term follow-up data collection.

The volunteers consisted of 22 females and seven males presenting to seven independent surgeons in the central London area. Data at all three time points of the study was available from 25 volunteers.

4.1.3.2 Participating clinics

A selection of cosmetic surgery clinics was randomly identified following a search through the Yellow Pages and a variety of popular women's magazines (Cosmopolitan, Elle, Marie-Claire and Vogue). Several London hospitals were approached to contact NHS-based cosmetic surgeons who operate in private practice. A number of private hospitals were also approached. The entire membership of the British Association of Aesthetic Surgeons and the membership of the British Association of Cosmetic Surgeons were also contacted (over 400 members).

4.1.3.3 Consent procedure

The consent process is particularly important when research involves people undergoing medical procedures. Signed consent was sought both from volunteers (see appendix 4) and from the participating clinics and surgeons (see appendix 2). Volunteers were asked to sign the form having read the research project information sheet (see appendix 3) and surgeons having had a verbal explanation of the project and having seen the study materials. Permission to carry out the research was initially sought from the University of Surrey who following a number of minor objections did not grant ethical approval on the basis that permission should be granted by a formally constituted local ethical committee.
The protocol was submitted to the Riverside Research Ethics Committee who approved the study without changes. The University of Surrey then seconded this (for further details, see appendices 10 & 11). Some of the participating surgeons from outside the London area were required to pass the study through their own ethics committees

4.1.3.4 Measures

The following measures were completed:

4.1.3.4.1 The Hospital Anxiety and Depression Scale (HADS; Zigmond and Snith, 1983).

The Hospital Anxiety and Depression Scale (HADS) is a questionnaire designed to detect anxiety and depression in general medical outpatient populations. It is also intended to measure the severity of emotional disorder. The HAD is a 14 item questionnaire consisting of seven items relating to anxiety and seven to depression. These were selected to distinguish the effects of physical illness from mood disorders, and so symptoms likely to be present in both, were not included. The face validity of the HADS is good and it is easy to complete. The content validity of the HADS was based on the use of items found to be important in other instruments (e.g. The Present State Examination) and is found to be highly acceptable. With regards to internal consistency the anxiety scale yields a Cronbach's alpha of .81 and an alpha of .82 for the depression scale. The authors conclude that the HADS is a valid instrument for assessing anxiety and depression and for estimating severity (see appendix 8).

4.1.3.4.2 Body Dysmorphic Disorder Questionnaire (BDDQ; Phillips, Atala & Pope, 1995).

The BDDQ (Phillips, Atala & Pope, 1995) is a brief (four main questions) self-report
screening instrument for BDD that is completed by the volunteer. Available data suggests that there is excellent agreement between the BDDQ and a clinician's judgement of whether BDD is present. The BDDQ was shown to have a sensitivity of 100% and a specificity of 89% among 66 individuals with a psychiatric diagnosis in a psychiatric setting (see appendix 6).

4.1.3.4.3 Modified Yale Brown Obsessive Compulsive Scale for BDD (BDD-YBOCS); (Phillips et al, 1997).

The BDD-YBOCS is based on the Yale Brown Obsessive Compulsive Scale (YBOCS), which was developed in the 1980's to assess severity of obsessive compulsive disorder. Because of the many similarities between OCD and BDD, the Y-BOCS was modified to assess the severity of BDD. It is a 12-item clinician rated instrument and has also been used as a self-report measure. Excellent inter-rater reliability, re-test reliability (intraclass r for total score = .88) and internal consistency are reported (Cronbach's alpha coefficient is .80, indicating adequate homogeneity of the scale). The scale has been found to be sensitive to change in BDD severity. The BDD-YBOCS appears to be a reliable and valid measure of BDD severity and is a suitable outcome measure in treatment studies of BDD (see appendix 7).

4.1.3.4.4 Satisfaction with Rhinoplasty Questionnaire (designed for study: 3-months and 9-months versions).

This questionnaire had to be designed specifically for this study as no appropriate and previously used measures were identified in the literature. It was based on the questions that the participating surgeons reported that they asked patients following surgery. The questionnaire consists of two main questions, answered on an 8-point Likert scale to indicate a rating of satisfaction with the nose following the procedure at Time 1 and Time 2. Volunteers are invited to comment on the procedure. The second question asks if they would seek cosmetic surgery in the future, also answerable on an 8-point Likert scale. Volunteers were asked to
elaborate or specify in a blank space provided (see appendix 9). Clearly there are limitations to using questionnaires, which have not been previously validated however this seemed unavoidable given the paucity of research materials related to this area of investigation and this is addressed in the 'Limitations of Research Section'.

4.13.5 Procedure

The participating clinics were sent a covering letter outlining the aims and objectives of the study (see appendix 1). A prepared reply letter (see appendix 2) was included with a stamped addressed envelope so that the surgeon or clinic could indicate whether or not they wished to be contacted with further information.

From a total of 21 private cosmetic surgery clinics, one nation-wide cosmetic surgery company and over 400 individual surgeons contacted, there were 11 replies from individual surgeons indicating an interest to know more about the study. Appointments were arranged with the surgeons and the research project outlined in greater detail by the main researcher in many cases the study was explained over the phone and further details sent by post. Surgeons were shown all study materials to be completed by volunteers. Seven individuals of those contacted agreed to participate in the research. The large cosmetic surgery company initially agreed however they pulled out of the study as data collection was due to begin.

Questionnaire packs were left with the individual surgeons for distribution. Regular telephone contact was maintained with the participating individuals and clinics.
The first questionnaire packs were presented to the patients either by the surgeon or by the clinic reception desks. Participants were asked to read the information sheet, and if they agreed to participate they were asked to sign the consent form which was then witnessed by the surgeon or receptionist. Following this step the volunteer was then asked to complete the questionnaire pack whilst still on clinic premises. If however, this was inconvenient, patients were given the questionnaire pack to take away with them, with a stamped addressed envelope, addressed to the main researcher.

Three months following the Rhinoplasty the same questionnaire pack was posted to the volunteers. The pack included one extra item, the 'Patient Satisfaction with Rhinoplasty' questionnaire (see appendix 10). A self-addressed envelope, addressed to the main researcher was also included.

Similarly at nine months following the Rhinoplasty, the questionnaires were sent again to the volunteers by post with another 'Patient Satisfaction with Rhinoplasty' questionnaire (see appendix 9), as above with a self-addressed envelope, addressed to the main researcher.

Frequent and regular telephone and personal contact was maintained with the participating surgeons and clinics to encourage constant and active recruitment of volunteers.
4.13.6 Data analysis

The data were analysed in the following way using SPSS version 9 for Windows:

4.13.6.1 Descriptive statistics

Descriptive statistics were used to describe the profile and demographic data of the volunteers in terms of gender, marital status, ethnic origin, occupation and age.

4.13.6.2 Research question one

To establish what proportion of people undergoing cosmetic surgery have Body Dysmorphic Disorder, volunteers were classified by their responses on the Body Dysmorphic Disorder Questionnaire (BDDQ). Those classified as having symptoms consistent with a diagnosis of body dysmorphic disorder are referred to as "possible BDD" case and those who did not, as "non BDD" case.

4.13.6.3 Research question two

To examine whether prior BDD continues after surgery, the data were analysed to assess for change in BDD caseness over the three time points of the study using Cochrans Q.

4.13.6.4 Research question three

To examine, differences over the three time points of the study in BDD, anxiety, depression and satisfaction with nose, repeated measures one-way analysis of variance (ANOVA) was used and related t-tests were used to determine where the significant differences over the three time points were.
4.1.3.6.5 Research question four
To examine whether prior BDD anxiety and depression at Time 1 predicted satisfaction with surgery and further surgery seeking, point biserial correlation was used, with confounding variables partialled out (the satisfaction with nose score at time one was partialled out as initial higher satisfaction may have led to different expectations regarding outcome of the surgery; the demographic variables age and gender were also partialled out as these could have influence the relationships between BDD, mood and satisfaction with surgery and further surgery seeking).

3.6.6 Research question five
To examine whether new concerns about physical defects emerged after surgery, volunteers were asked to respond on an eight point Likert scale to the statement "I will seek further cosmetic surgery in the future" at time two and three. They were asked to elaborate or "specify" what type of surgery they were considering having.
4.1.4 RESULTS

4.1.4.1 Demographics of volunteers presenting for cosmetic rhinoplasty

These results are shown in Table 4. At Time one seven males and twenty-two females completed sets of questionnaires, giving a total of twenty-nine volunteers at this stage. Of these, eleven described themselves as married, eleven as single, four co-habitating, one was divorced and one widowed. One of the participants did not specify their marital status. The average age of the participants was 38 and ranged from 18 to 73. With regards to ethnicity, twenty-four of the volunteers described themselves as white British, two as 'white other', one Pakistani, one 'other' and one volunteer did not describe their ethnic origin. The majority of the volunteers were in full-time employment and the remaining consisted of one student, one housewife, one retired and one who did not describe occupational status.
Table 4: Profile and demographic characteristics of all volunteers (N= 29)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>N or Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>7</td>
</tr>
<tr>
<td>Female</td>
<td>22</td>
</tr>
<tr>
<td>Age</td>
<td>38.04 (12.77)</td>
</tr>
<tr>
<td>Marital Status</td>
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<tr>
<td>Married</td>
<td>11</td>
</tr>
<tr>
<td>Single</td>
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<tr>
<td>Employed</td>
<td>25</td>
</tr>
<tr>
<td>Unspecified</td>
<td>1</td>
</tr>
<tr>
<td>Retired</td>
<td>1</td>
</tr>
<tr>
<td>Student</td>
<td>1</td>
</tr>
<tr>
<td>Housewife</td>
<td>1</td>
</tr>
</tbody>
</table>
4.1.4.2 What proportion of people undergoing cosmetic surgery have BDD?

Using the Body Dysmorphic Disorder Questionnaire, volunteers were classified as having symptoms consistent with a diagnosis of Body Dysmorphic Disorder at Time one. The tentative diagnosis (hence "possible BDD") is made on the basis that questions 1 to 3 are answered with "yes" and question 4 is answered with either 'b" or "c" (Phillips, Atala, & Pope, 1995). These results are shown in Table 5. At Time one, six of the volunteers were "possible BDD". Twenty-three of the volunteers were "non BDD". At Time two, three months following the rhinoplasty, two of the volunteers continued to be "possible BDD" and twenty-seven were "non BDD". At this point one of the volunteers who had been "non BDD" became "possible BDD". This volunteer's data was unobtainable at Time three. At Time three, nine months following the rhinoplasty, four sets of data were unobtainable and the remaining were "non BDD".

Table 5: Number (and percent) of participants with 'possible BDD' at Times 1, 2 and 3 (all participants; N=29).

<table>
<thead>
<tr>
<th>Time</th>
<th>Number with possible BDD</th>
<th>Percent with possible BDD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time 1 (pre-surgery)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>6</td>
<td>20.7</td>
</tr>
<tr>
<td>No</td>
<td>23</td>
<td>79.3</td>
</tr>
<tr>
<td>Time 2 (3 mths follow-up)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>2</td>
<td>6.9</td>
</tr>
<tr>
<td>No</td>
<td>27</td>
<td>93.1</td>
</tr>
<tr>
<td>Time 3 (9 mths follow-up)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>No</td>
<td>25</td>
<td>89.7</td>
</tr>
<tr>
<td>Missing</td>
<td>4*</td>
<td>10.3</td>
</tr>
</tbody>
</table>

* Of these none were classified as BDD at Time 1 and one was classified as BDD at Time 2 (but not Time 1).
4.1.4.3 Does prior BDD continue after surgery?

There was a significant difference in BDD caseness over the three time points of the study (Q=10.3; df=2; p<0.01). The number and percent of people with possible BDD among those who completed the questionnaire at all three time points is shown in Table 6. Whilst the majority of possible cases with BDD at Time 1 became non-cases at Time 2 (5 out of 6), it is noteworthy that none of the volunteers who had been classed as "possible BDD" continued to be within this category at Time 3 (nine months post-surgery).

<table>
<thead>
<tr>
<th>Time 1 (pre-surgery)</th>
<th>Number with possible BDD</th>
<th>Percent with possible BDD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>6</td>
<td>24</td>
</tr>
<tr>
<td>No</td>
<td>19</td>
<td>76</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time 2 (3 mths follow-up)</th>
<th>Number with possible BDD</th>
<th>Percent with possible BDD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>No</td>
<td>24</td>
<td>96</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time 3 (9 mths follow-up)</th>
<th>Number with possible BDD</th>
<th>Percent with possible BDD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>No</td>
<td>25</td>
<td>100</td>
</tr>
</tbody>
</table>

4.1.4.4 What are the differences in BDD, anxiety and depression and 'satisfaction with nose' scores over the three time points of the study?

To test for changes in BDD, anxiety, depression and satisfaction with surgery, repeated one-way ANOVAs were used. The means and standard deviations of those completing the relevant measures at all three time points are shown in Table 7. The repeated measures ANOVAs show that there was a significant decrease in the severity of BDD symptoms over time as measured by the YBOCS (F=11.97; df=2,48; p<0.001), and a significant increase in satisfaction with the nose as measured by the 'Satisfaction with Nose Questionnaire' (F=50.37; df=2,40; p<0.001). There were no significant changes in depression (F=1.17; df=2,50; ns) or anxiety (F=1.28; df=2,50; ns) over time.
Table 7: Means (and standard deviations) of participants' scores on Y-Bocs, anxiety, depression and satisfaction with nose across time points 1, 2 and 3 (only those completing data at all three time points).

<table>
<thead>
<tr>
<th></th>
<th>Y-Bocs¹ (n=25) Mean (SD)</th>
<th>Anxiety¹ (n=26) Mean (SD)</th>
<th>Depression¹ (n=26) Mean (SD)</th>
<th>Satisfaction nose² (n=21) Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time 1</td>
<td>10.64 (5.28)</td>
<td>6.65 (4.23)</td>
<td>2.35 (2.80)</td>
<td>6.24 (1.58)</td>
</tr>
<tr>
<td>Time 2</td>
<td>8.04 (6.13)</td>
<td>6.19 (4.55)</td>
<td>2.19 (2.61)</td>
<td>3.48 (1.33)</td>
</tr>
<tr>
<td>Time 3</td>
<td>6.28 (5.07)</td>
<td>5.89 (3.54)</td>
<td>1.73 (1.59)</td>
<td>3.52 (1.47)</td>
</tr>
</tbody>
</table>

¹Higher scores indicate greater psychopathology  ²Lower scores indicate greater satisfaction

Related t-tests were computed to test where the significant differences in change in BDD were. These showed that there was a significant decrease in levels of BDD between Time 1 and Time 2 (t=2.77; df=1,24; p<0.01), and between Time 2 and Time 3 (t=2.49; df=1,24; p<0.05). However after applying a Bonferroni correction due to the use of multiple significance tests whereby a more stringent level of significance is used (in this case, p<0.01), this result was no longer significant. Hence whilst BDD levels improved immediately following surgery, BDD levels did not continue to improve significant between 3 and 9 months post-surgery. There was, though, a significant difference between BDD levels at Time 1 and Time 3 (t=4.30; df=1,24; p<0.001) showing that the decrease in levels of BDD following surgery was maintained at 9 months.

Related t-tests were also computed on satisfaction with nose to see where the significant changes over time occurred. There was a significant increase in satisfaction with nose between Time 1 and Time 2 (t=8.55; df=1,20; p<0.001), but the change in satisfaction with nose was not significant between Time 2 and Time 3 (t<1; df=1,20; ns) showing that improvements in satisfaction with nose did not continue through the follow-up period between 3 and 9 months. However, there was a significant improvement in satisfaction with nose between Time 1 and Time 3 (t=7.29; df=1,20; p<0.001) showing that 3 month levels of satisfaction with nose were maintained at 9 months.
To check whether these significant changes over time were only apparent among those completing the questionnaires at all three time points, the analyses were repeated on the sample completing the questionnaires at times 1 and 2. Related t-tests were used to test for changes in BDD, anxiety, depression and satisfaction with nose and the means and standard deviations in this sample are shown in Table 8. The same pattern of results was found, with a significant change in BDD ratings over time ($t=3.50; df=1,28; p<0.01$) and a significant increase in satisfaction with nose over time ($t=10.62; df=1,26; p<0.001$), but no change in anxiety ($t=1.51; df=1,28; ns$) or depression ($t=1.17; df=1,28, ns$) following surgery. Whilst all participants completed the questions on BDD, anxiety and depression on both occasions, there were 2 missing data points for satisfaction with nose. Assuming these two people had not changed their levels of satisfaction with nose from Time 1 to Time 2 (i.e. doing an intention-to-treat analysis), still showed a significant increase in satisfaction with nose over time ($t=9.33; df=1,28; p<0.001$). Hence we can conclude that there were significant improvements in both BDD and satisfaction with nose following rhinoplasty.

Table 8: Means (and standard deviations) of participants' scores on Y-Bocs, anxiety, depression and satisfaction with nose across time points 1 and 2 (all participants completing measures at Times 1 and 2).

<table>
<thead>
<tr>
<th></th>
<th>Y-Bocs ($n=29$)</th>
<th>Anxiety ($n=29$)</th>
<th>Depression ($n=29$)</th>
<th>Satisfaction with nose ($n=27$)</th>
<th>Satisfaction with nose, assuming no change in those with missing data at Time 2 ($n=29$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time 1</td>
<td>11.00 (5.59)</td>
<td>6.76 (4.32)</td>
<td>2.66 (3.07)</td>
<td>6.26 (1.46)</td>
<td>6.28 (1.41)</td>
</tr>
<tr>
<td>(n=29)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 2</td>
<td>7.97 (5.86)</td>
<td>6.03 (4.59)</td>
<td>2.24 (2.54)</td>
<td>3.26 (1.29)</td>
<td>3.48 (1.50)</td>
</tr>
<tr>
<td>(n=29)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* change over time significant at $p<0.01$  
* change over time significant at $p<0.001$

4.1.4.5 Do prior BDD, anxiety or depression at Time 1 predict satisfaction with Rhinoplasty and seeking further surgery?  

Partial correlations were computed between the baseline predictor variables of Y-Bocs, anxiety and depression and the two key outcome measures of satisfaction.
with nose and desire for further surgery at Time points 2 and 3 (3 and 9 months post-surgery respectively), controlling for initial satisfaction with nose. As Table 9 shows, none of the predictor variables was significantly correlated with satisfaction with nose at either Time 2 or Time 3. However, anxiety at Time 1 uniquely predicted the desire for more surgery at both Times 2 and 3, controlling for initial satisfaction with nose, and the relationship between depression at Time 1 and desire for more surgery at Time 3 approached significance. This suggests that mood disturbance rather than BDD per se, uniquely predicts desire for more surgery following rhinoplasty.

Table 9: Partial correlations between possible body dysmorphic disorder, anxiety and depression at Time 1, with Satisfaction with nose and seeking further surgery at Times 2 and 3 (with initial Satisfaction with nose partialled out).

<table>
<thead>
<tr>
<th></th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Satisfaction with nose</td>
<td>Seeking further surgery</td>
</tr>
<tr>
<td>Y-Bocs (Time 1)</td>
<td>-0.05</td>
<td>0.21</td>
</tr>
<tr>
<td>Anxiety (Time 1)</td>
<td>0.08</td>
<td>0.42*</td>
</tr>
<tr>
<td>Depression (Time 1)</td>
<td>0.03</td>
<td>0.24</td>
</tr>
</tbody>
</table>

+ p<0.10  
* p<0.05  
** p<0.01

To check that these associations were not confounded by age and gender, the latter two variables were partialled out alongside satisfaction with nose at Time 1. The results are shown in Table 10. Significant associations between anxiety at Time 1 and seeking further surgery at both Times 2 and 3 remain. However the relationship between depression at Time 1 and desire for further surgery at Time 3 changed from approaching significance to non-significant, whilst the relationship between Y-Bocs at Time 1 and seeking further surgery at Time 2 now approached significance, suggesting that there may be a relationship between BDD and desire...
for further surgery, but this would need to be tested on a larger sample to demonstrate whether or not this was a robust finding.

Table 10: Partial correlations between possible body dysmorphic disorder, anxiety and depression at Time 1, with Satisfaction with nose and seeking further surgery at Times 2 and 3 (with initial Satisfaction with nose, gender and age partialled out)

<table>
<thead>
<tr>
<th></th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Satisfaction</td>
<td>Seeking</td>
</tr>
<tr>
<td></td>
<td>with nose</td>
<td>further surgery</td>
</tr>
<tr>
<td></td>
<td>(n=20)</td>
<td>(n=21)</td>
</tr>
<tr>
<td>Y-Bocs (Time 1)</td>
<td>0.18</td>
<td>0.39⁺</td>
</tr>
<tr>
<td>Anxiety (Time 1)</td>
<td>0.34</td>
<td>0.47⁺</td>
</tr>
<tr>
<td>Depression (Time 1)</td>
<td>0.11</td>
<td>0.25</td>
</tr>
</tbody>
</table>

⁺ p<0.10
* p<0.05
**p<0.01

4.1.4.6 Do new concerns about other physical defects emerge after surgery?

At Time points 2 and 3 volunteers responded to an eight point Likert scale on the following statement: "I will seek cosmetic surgery in the future". Twenty-nine percent definitely agreed with this statement at Time 2 (n=28) and 35% definitely agreed at Time 3 (n=23). However, although roughly one third of participants definitely agreed with this statement, none of the volunteers elaborated on this, hence no-one specified the physical characteristic that they would choose to have future cosmetic surgery on.

Looking at those who completed the question on future cosmetic surgery at Times 2 and 3 (n=23), the mean score at time 2 was 2.48 and the mean score at Time 3 was 2.65. However, related t-tests showed that this difference was not significant (t<1; df=1.22; ns), so there was no change in attitude towards having further cosmetic surgery between 3 and 9 months.
4.1.5 DISCUSSION

The aim of the study was to identify factors, which predict satisfaction with outcome in cosmetic rhinoplasty. This is the first study to survey patients for psychological morbidity (body dysmorphic disorder [BDD], depression and anxiety) before and after rhinoplasty. Rhinoplasty was chosen as the nose is a common area of concern in patients suffering from BDD.

The study assessed whether the presence of BDD was incompatible with satisfaction with surgery as previous research suggests that cosmetic surgery is not an effective treatment (Phillips, McElroy, Keck, Pope & Hudson, 1993). The study also aimed to increase knowledge about the course and outcome of BDD.

It is important to note that the questionnaire used to diagnose body dysmorphic disorder (the Body Dysmorphic Disorder Questionnaire or BDDQ) has not been validated on a cosmetic surgery population. In the absence of a diagnostic interview, the volunteers who endorsed items consistent with a diagnosis of BDD will be termed "possible BDD" and those who did not are termed "non BDD" volunteers. This implications of this issue are discussed in the limitations of research, section 5.1.

The measure of satisfaction used in this research was designed for the study in the absence of available, appropriate measures. Whilst this consisted of questions generally used by plastics surgeons the questionnaire had not been validated, this has to be born in mind when considering the findings. Again the implications are discussed in section 5.1.

The first research question was what proportion of people undergoing cosmetic surgery have BDD.
As predicted a proportion of volunteers who presented for cosmetic rhinoplasty were "possible BDD". At 20.7%, this figure is a far higher prevalence rate than any other published study, vastly in excess of the 2% quoted by Andreasen and Bardach (1977). The highest figure quoted to date in a cosmetic surgery population is a prevalence of 7% (Sarwer, 1998).

This is a particularly interesting result as people suffering from this disorder tend to be quite secretive about the severity of their symptoms (Phillips, 1996). Previous studies have tended to rely on questionnaires and interview. One could speculate that the anonymity afforded by postal questionnaires allows for people to be more open about their concerns and thus more sufferers are identified by this method. Alternatively, it may be that this population was unusual in being particularly lacking in insight and therefore they expressed concerns that they did not consider psychopathological but felt to be justifiable. It has to be said however that there is no reason to suspect that this population was exceptionally unusual.

What is of interest is the finding that contrary to previous research, there is a significant decrease in the severity of BDD symptoms as measured by the Y-BOCS scores following the rhinoplasty, and this decrease continues to be significant for the duration of the study period. A related finding is that the volunteers were significantly more satisfied with their nose at Time 2 and this improved level of satisfaction was maintained at the Time 3 follow-up.

The above finding is particularly notable as type-changing procedures are thought to have a more profound psychological impact (Goin & Goin, 1986) than restorative procedures in general. Essentially, those cosmetic procedures, which change the person's feature completely, for example making a prominent nose shorter, are referred to as type changing. Those procedures, which restore the person's features to the way they have been in the past such as the
rejuvenating effect that a face-lift can have, are referred to as restorative procedures.

One of the most frequent areas of concern in BDD patients is the nose (Phillips et al, 1993; Veale et al, 1996). However rhinoplasty is also a very commonly requested procedure in cosmetic surgery clinics, presumably implying that in the absence of psychopathology many people desire to change this feature. The increase in satisfaction may reflect the fact that this particular sample did have albeit slight, actual and observable defects, which when corrected surgically caused their symptoms to remit. Without an independent rating of the degree of deformity this is difficult to explain. This is a complex issue as the difference between "slight" and "perceived defect" is a very grey area. It is possible that a plastic surgeon trained in specific aesthetic standards will see "slight defects" that an average observer would miss or consider irrelevant (Mr Davies, consultant plastic surgeon, personal communication). Whilst an independent rating was planned in the initial stages of the research, because of the wide geographical area covered in the study and time restraints, this was not possible to arrange.

The second research question asks if BDD continues after cosmetic surgery. There was a significant decrease in BDD caseness as measured by the BDDQ and over the three time points of the study. As noted there was also a significant decrease in the severity of symptoms of BDD as measured by the Y-BOCS. At Time 2, five of the six volunteers no longer continued to be possible BDD and by Time 3, none of the volunteers continued to be possible BDD.

Most of the available research has so far suggested that cosmetic surgery is not a cure for BDD. However there have been reports of surgery leading to a positive outcome in those suffering from BDD (Crisp, 1981; Edgerton et al, 1990 & Napoleon & Lewis, 1989). The current findings seem to concur with this latter
view as "possible BDD" volunteers, are classified as "non BDD" following this particular procedure. Alternatively it could be that the symptoms are merely "in remission" and a longer follow-up period may have revealed a very different picture.

The results of this research may point towards another, intriguing possibility, that a sub-group of BDD has been identified. The volunteers in this study are in general satisfied with their new appearance and no longer endorse symptoms consistent with BDD following cosmetic surgery. It may be that the research is tapping into a new diagnosis, that of mild or "pseudo" BDD.

Could it be that "pseudo-BDD" has similar features to health anxiety or somatization disorder? In somatization disorder an actual medical condition is present for example, diabetes mellitus. The physical complaints or resulting social or occupational impairment (from for example excessive glucose testing or multiple visits to the GP) are in excess of what would be expected from the history, physical examination or laboratory findings (American Psychiatric Association, 1994). The candidate for "pseudo-BDD" would therefore actually have a defect, (not very slight or perceived as in BDD) which is observable to others, and is of concern. In the case of "pseudo-BDD, the treatment, cosmetic surgery, would actually be beneficial and "cure" them of their concern. According to the literature cosmetic surgery is unlikely to be an effective treatment for true BDD but it seems to have been effective for the 'possible' BDD volunteers in this study. Clearly this is a concept which would benefit from further investigation.

The third research question was, what are the differences in anxiety and depression over the three time points of the study. As noted there was a significant decrease in severity of BDD symptoms over the course of the study but mean levels of depression and anxiety of the group did not reach clinical
levels either before, during or after surgery, however they did show a downwards trend following the procedure. This is a counterintuitive finding as severe depression and anxiety frequently accompanies BDD. What is not known is whether those who have the economic means to use cosmetic procedures are by definition, going to be less depressed and anxious as they believe that they have a relatively simple albeit, costly solution in the form of elective surgery, to correct their 'defect'. This could suggest that these volunteers have to tolerate their BDD and consequent distress for a briefer period of time. Therefore they have not developed severe levels of anxiety and/or depression. Although a possibility, the mean age of the volunteers was 38 and the available research suggests an average time of onset of BDD around puberty. This factor alone therefore would not account for the low levels of anxiety and depression observed in this sample.

The fourth research question asks whether BDD and mood states such as anxiety or depression predict satisfaction with surgery and further surgery seeking.

None of these factors were significantly correlated with satisfaction with the nose or further surgery seeking at Time 2 or Time 3. What was found was that anxiety at Time 1, did predict further surgery seeking at both Times 2 & 3, which seems to suggest that it is mood disturbance per se which predicts the desire for further surgery rather than BDD. It must be said that the mood disturbance was very mild however, this outcome makes sense if one considers that even mild anxiety is an aversive state, which is uncomfortable to tolerate. If the volunteers associate cosmetic surgery with a reduction in this aversive state then one can assume that they would be more likely to want to repeat the experience. What is surprising is that this effect is not seen with the depression which Phillips finds to be the most commonly cited associated disorder in BDD and in a large study of BDD patients 59% were found to suffer from major depression (Phillips, 1995).
As would be predicted from previous research the relationship between the severity of symptoms (Y-BOCS) of BDD and further surgery seeking approached significance. From the literature we know that the majority of people with BDD seek non-psychiatric treatment (Phillips, 1994) and this would be extremely worthwhile to explore with a larger sample and a longer follow-up period to demonstrate whether or not this was a robust finding.

Finally the fifth research question looked at whether concerns about other physical defects emerge after surgery. In order to address this question the volunteers were asked whether they would seek further cosmetic surgery in the future. Results showed that approximately one third agreed that they would seek further surgery at the last follow-up.

Unfortunately the volunteers did not choose to specify the type of surgery considered, therefore it is impossible to say at this point whether they are referring to having further procedures on the nose or completely different body features. Research suggests that the preoccupation with the feature may shift to another area following cosmetic surgery (Andreasen & Bardach, 1977; Phillips 1991). This does not appear to be the case in this study but what is not known possibly due to the wording of the satisfaction with Rhinoplasty questionnaire or the relatively short follow-up period is whether or not within time, symptoms would have re-emerged and further cosmetic surgery pursued either for the nose or another body feature.

4.1.5.1 Limitations of research

The results of this study must be viewed with caution due to the small sample size, which affects statistical power and makes non-significant results ambiguous.
The study yielded 29 volunteers. At time three, the nine month follow-up, four sets of data were unobtainable, leaving a total of 25 complete data sets for analysis.

At the start of the research, it did not seem unrealistic to expect far in excess of the numbers obtained. A major cosmetic surgery company, with nation-wide clinics had agreed to contribute to the research and over 400 individual surgeons were available to contact. Verbal agreement to contribute had already been secured from four consultant cosmetic surgeons with substantial clinics.

It is perhaps relevant that at the start of the data collection, there were several articles in the national press and television, which were critical some of the practises of the larger cosmetic surgery companies. The poor response to requests for access to patients and patient satisfaction ratings may have been in part due to this adverse publicity and it is perhaps worth noting that the nation-wide cosmetic surgery company pulled out of the study without providing an explanation. The low response rate could of course mean that the sample acquired for this study is biased and the result of the efforts of a small group of particularly conscientious and research orientated surgeons. These surgeons may have encouraged participation from their patients in an effort to inform their own practise. Patients could conceivable have responded to their interest by over-rating satisfaction during the period of study, a factor which needs larger studies to rule out.

It may be that recruitment would have been more successful had NHS clinics and patients been targeted, given perhaps a greater investment in research and evidence based practice. This approach however would have been problematic due to the very small numbers of Rhinoplasties that take place purely for cosmetic reasons. Within the NHS, rhinoplasty is largely undertaken following trauma to the face or for the correction of a functional impairment such as
deviation of the septum. Such procedures could occasionally result in cosmetic change but given the above it was considered that the use of NHS patients would introduce confounding variables.

Whilst the BDDQ questionnaire used to elicit symptoms consistent with BDD is reported to have a sensitivity of 100% and a specificity of 89% it should be noted that these figures were obtained within a psychiatric setting. Phillips notes that the efficacy of the BDDQ has yet to be tested in a surgical setting (Phillips, 1996). It may be that the specificity level of the BDDQ was too low at 89% for use in this study and in this context, and gives rise to false positives.

The findings have to be viewed with caution given the fact that the 'Satisfaction with Rhinoplasty questionnaire had not been validated. The two questions arose following discussion with participating surgeons who suggested what they most wanted to know about their patients following the procedure. The questionnaire was compiled as no comparable measure was identified in the literature, which adequately addressed the precise information needed for this research.

That such a large percentage (20.7%) of the sample returned questionnaires suggesting "possible BDD" is interesting but the vast difference between these figures and those of other researchers leads one to question the accuracy of this result. Participation in this study was voluntary and despite careful monitoring it is uncertain how many questionnaires were actually given out to patients and not returned which may have introduced a sampling bias. For example, one surgeon was given 25 sets of questionnaires, requested more, however only two of his patients returned completed sets to the researcher. Ideally, questionnaires would be given to the volunteers by the researcher. This way the study can be more accurately monitored and volunteers have the opportunity to ask questions about the study and its aims. Any concerns potential volunteers have can be clarified, which might encourage and increase active participation.
Regarding response rate and drop-outs, it is relevant that Sarwer (1988) argues that persons who refuse to participate in this type of study could be potential candidates for the diagnosis of body dysmorphic disorder. He suggests that these individuals are frequently secretive regarding their obsessions and reluctant to seek psychological or psychiatric treatment. If this is the case then it would have serious implications for the sample in that only the most "healthy" are participating in the research. This has implications in that it means that potentially there was an undetected BDD population, which the study did not access.

4.1.5.2 Implications and directions for future research

Future research should attempt to recruit larger samples, possibly through the press or other media. Controlled samples that have been carefully matched on variables like sex, (male volunteers are under-represented in this sample despite increasing amounts of men presenting for cosmetic surgery), socio-economic status, ethnicity and age.

Whilst being able to ensure anonymity may have its benefits in this type of research it is important to get an accurate diagnosis and the pros (accuracy) and cons (time-consuming and possible reluctance of patients to submit to psychiatric interview) of including a diagnostic interview should be considered. The possibility of engaging close relatives to obtain collateral history regarding age of onset, camouflaging and other behaviours would be a useful contribution to the overall picture.

Due to time constraints the maximum follow-up period in this study was of nine months or 6 months post-surgery and although this was considered sufficient in terms of healing (personal communication Mr D Davies, Consultant plastic and
reconstructive surgeon at Charing Cross Hospital). A longer follow-up period is recommended for the following reasons:

a) To allow the variable and idiosyncratic effects of surgery (healing of scar tissue, swelling etc.) to settle down, enabling the volunteer to acquire a more accurate view of the end product, in some cases this can take up to a year.

b) To give those who contemplate further surgery or revision surgery (when the patients asks for a minor modifications to the surgery performed) time to reflect on this.

c) To evaluate whether new or similar physical concerns emerge if given a longer period of time.

An independent opinion (both professional and lay) on the severity of the defect, pre and post surgery, and also a professional view on the outcome of surgery seems to be crucial to assess for "slight or imagined defect". This was attempted in the present study but due the reluctance of many surgeons to participate in this aspect of the research (only one surgeon of those approached was willing to do this) it did not prove feasible. The large geographical area covered also made this impractical.

The possibility that the research has identified a sub-group of mild or "pseudo" BDD cannot at this point be rejected and would benefit from further investigation to clarify this issue.

In the planning of this research assertive attempts were made to encourage the participation of plastic surgeons. A major cosmetic surgery company with nationwide clinics had agreed to contribute to the research and over 400 individual surgeons were available to contact as well as 21 private, London based cosmetic
surgery centres.). Efforts need to be made to engage these colleagues both for the benefit of future cosmetic surgery patients and in the interests of best practice.

Given the poor response of the surgical community to requests for participation in research, this may prove difficult, but perhaps greater efforts could be expended to persuade cosmetic and reconstructive surgeons and allied professions of the potential benefits of this type of investigation. In the interests of both future cosmetic surgery patients and research and investigation into this area, it might be advisable to incorporate a 'psychology of plastic surgery' module into the standard educational framework of the cosmetic, plastic and reconstructive surgeon.

4.1.6 CONCLUSION

The present study was the first to survey patients for psychological morbidity in the form of symptoms consistent with body dysmorphic disorder, anxiety and depression following cosmetic rhinoplasty. It was found that 20.7% of the sample presenting for cosmetic surgery endorsed questionnaire items, which suggest "possible BDD". This prevalence rate is far in excess of previously quoted figures. However following the cosmetic rhinoplasty procedure, the severity of BDD symptoms decreased significantly, BDD caseness decreased and patients were significantly more satisfied with their nose following the procedure, which is contrary to what would have been expected from most of the available literature. Approaching significance was the finding that there was a relationship between severity of symptoms of BDD at Time one and further surgery seeking at Time two. This is a relatively new area in terms of the quantity of research that has been undertaken. Bearing in mind the limitations already discussed, the study has yielded results that are interesting and in some respects, counterintuitive and would therefore benefit from further investigation with larger samples and a longer follow-up period to increase expertise in the field of body dysmorphic disorder. This study also highlights some of the difficulties in conducting research
in this area and the need for encouraging greater collaboration between disciplines.
4.1.7 REFERENCES


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Dear *****

Re: Factors which predict satisfaction with cosmetic surgery

I am a NHS Chartered Clinical Psychologist conducting doctoral research into predictors of patient satisfaction with cosmetic Rhinoplasty. I plan to carry out my research on patients requesting cosmetic Rhinoplasty procedures in private clinics. The research has ethical approval from Surrey University and is conducted under the supervision of Dr David Veale, Consultant Psychiatrist, Grovelands Priory Hospital.

The main aim of my study is to find out what factors predict satisfaction with cosmetic Rhinoplasty. For this purpose I want to collect information relating to patients personal life such as marital status, age and so on. I also want to know if they have ever suffered from depression or anxiety, furthermore, I would want to know if they have ever had cosmetic surgery and whether they have a clear idea as to how the procedure will affect their life and appearance.

My method of study involves quick and easy to fill in questionnaires completed at 3 stages:

• Before first consultation, in your waiting rooms.
• Three months after surgery, by post.
• One year following surgery, by post

The results of this study will provide important data on predictors of good psychological outcome of surgery. I will be happy to discuss the eventual implications of the research with participating clinics and distribute the results at the end of the research period, as I feel this could be of substantial benefit to both patients and cosmetic surgery practise.

I would be pleased to come and further explain the methodology involved and answer any queries that you may have, in person. If you feel that your practise might benefit from being involved in an investigation of this type, I would be grateful if you could contact me on the above address (please find sae enclosed) or alternatively by phone or E-mail.

I look forward to hearing from you

Louise De Haro
Chartered Clinical Psychologist

David Veale
Consultant Psychiatrist
Appendix Two: Prepared Reply Letter

Louise De Haro  
Department of Clinical Psychology  
2 Wolverton Gardens  
Hammersmith  
London W6 7DY

Tel: 0181 846 7765  
E-mail: deharo@clara.net

Research into factors which predict satisfaction with Rhinoplasty

Further to the letter received (please tick):

☐ We are interested:

☐ We are not interested:

in participating in the above mentioned research project:

We understand that the information acquired from patients under the care of this clinic will remain totally confidential. We further understand that the clinic name, the clinicians names and the clinic location will also remain totally confidential and will at no time be mentioned in any publications, scientific journals, commercial or otherwise.

Please contact us at the following address with further details:

Name (BLOCK CAPITALS)__________________________________________

Clinic name and location_________________________________________

_________________________________________________________________

Telephone number__________________________________________

Signed_________________________________________________________________

Position held within this organisation________________________________________

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Appendix Three: Volunteer Research Project Information Sheet

Ms L. De Haro
Department of Clinical Psychology
2 Wolverton Gardens
Hammersmith
London W6 7DY
Tel: 0181 994 9984
E-mail: deharo@clara.net

Research into factors, which predict satisfaction with Rhinoplasty
Patient Information Sheet

Why are we asking for your help?
A small research study is running in this clinic and a few others in this area. We are interested in finding out what may help to predict satisfaction with "Rhinoplasty" or cosmetic surgery on your nose.

What are you being asked to do?
In order to collect the information we require, we would like you to fill in some questionnaires when your surgery date has been agreed. Three months later and nine months later we will post you the same questionnaires again, with a sae.

What will we do with the information you give us?
We will analyse your answers along with those of many other cosmetic surgery patients. Your replies will not be identifiable in the final analysis. With this research we hope to find out more about the normal concerns that people have with regards to their appearance. This type of research will require us to ask questions that a few people may consider to be of a sensitive and private nature. It is important to try and find out what thoughts and feelings motivate people in general, to seek cosmetic surgery. We expect that this information will contribute to more effective assessment and treatment of people requesting cosmetic surgery and help to identify those patients for whom surgery may not be the best option.

What happens if you do not want to take part?
You do not have to take part in this study if you do not want to. If you decide to take part but later change your mind, you can withdraw at any time without having to give a reason for doing so. Whether or not you decide to take part, the care you receive at this clinic will not be affected in any way.

Who will see the information that you give us?
Whilst the research project results, of the overall project, will be discussed with the participating clinics, clinic staff will not have access to individual questionnaires and individual results will not been seen than anyone else but the main investigator whose name appears above.

What if you want to know more about this research?
The clinician conducting this research can be reached at the address and telephone number above. Please do not hesitate to contact her if you have any questions.
Appendix Four: Volunteer Consent Form

Ms L De Haro
Department of Clinical Psychology
2 Wolverton Gardens
Hammersmith
London W4 1TA.
Tel: 0181 846 7765
E-mail: deharo@clara.net

Research into factors predicting satisfaction with Rhinoplasty

Consent Form:

I, the undersigned voluntarily agree to take part in this study:

Factors which predict satisfaction with Rhinoplasty

I have read and understood the Information Sheet provided. I have been given a full explanation by the investigator or her associates, of the nature, purpose, location and likely duration of the study and of what I will be expected to do. I have been given the opportunity to ask questions.

I understand that all documentation held on a volunteer is in the strictest confidence and complies with the Data Protection Act (1984). I agree that I will not seek to restrict the use of the results of the study on the understanding that my anonymity is preserved.

I understand that I am free to withdraw from the study at any time without needing to justify my decision and without prejudice.

I confirm that I have read and understood the above and freely consent to participating in this study. I have been given adequate time to consider my participation and agree to comply with the instructions and restrictions of the study.

Name of volunteer:
(BLOCK CAPITALS)____________________________________________________________

Signed______________________________________________________________

Date______________________________________________________________

Name of witness:
(BLOCK CAPITALS)____________________________________________________________

Signed______________________________________________________________

Date______________________________________________________________
Appendix Five: Volunteers Personal Details Form

Louise De Haro
Department of Clinical Psychology
2 Wolverton Gardens
Hammersmith
London W6 1TA
Tel: 0181 846 7765
E-mail: deharo@clara.net

Research into factors predicting satisfaction with Rhinoplasty

Personal Details:

Name:________________________________________
□ Female
□ Male
Address:_______________________________________
Age:__________________________________________
Occupation:____________________________________

Ethnic origin, please tick appropriate category:
□ White British
□ White other
□ Black Caribbean
□ Black other
□ Indian
□ Pakistani
□ Bangladeshi
□ Chinese
□ Other (please specify_____________)

Marital status, please tick appropriate categories:
□ Single
□ Married
□ Co-habiting with long-term partner
□ Divorced
□ Widowed

How long have you been considering cosmetic surgery?
□ Less than one month
□ One month
□ Six months
□ More than 6 months (please specify______ )
Do you feel your nose is a, or has a, *(please circle appropriate number)*:

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</thead>
<tbody>
<tr>
<td></td>
<td>Perfect Feature</td>
<td>Almost Perfect</td>
<td>Minimal Imperfection</td>
<td>Mild Imperfection</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Mild to Moderate Imperfection</td>
<td>Moderate Imperfection</td>
<td>Moderate to Marked Imperfection</td>
<td>Very Marked Imperfection</td>
</tr>
</tbody>
</table>

Is this the first time you have sought the opinion of a cosmetic surgeon?

- □ Yes
- □ No

Is this your first experience of cosmetic surgery?

- □ Yes
- □ No

If no, could you please list previous interventions?


Have you taken any prescribed medications within the last 3 months?

- □ Yes
- □ No

If yes, could you please list these?


Have you ever suffered from anxiety or depression?

- □ Yes
- □ No

If yes, how does this still affect you?


*Thank you, this information will not be accessible to clinic staff*
Appendix Six: Body Dysmorphic Disorder Questionnaire

This questionnaire was designed by Phillips, Atala & Pope (1995), to screen for the presence of BDD symptomatology but is not diagnostic of the disorder without a clinical interview. It is a brief self-report measure consisting of four main questions. The BDDQ has been shown to have a sensitivity of 100% and a specificity of 89% when administered to patients within a psychiatric setting. This questionnaire was given one month prior to the treatment, at the end of treatment and at the 4 follow-ups.

This questionnaire assesses concerns about physical appearance. Please read each question carefully and circle the answer that best describes your experience. Also write in answers where indicated.

1. Are you very concerned about the appearance of some part(s) of your body that you consider especially unattractive?  
   Yes  No

   *If yes: Do these concerns preoccupy you? That is, you think about them a lot and wish you could think about them less?  
   Yes  No

   *If yes: What are they?

   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________

   Examples of areas of concern include: your skin (e.g., acne, scars, wrinkles, paleness, redness); hair (e.g., hair loss or thinning); the shape or size of your nose, mouth, jaw, lips, stomach, hips, etc.; or defects of your hands, genitals, breasts, or any other body part.

   *If yes: What specifically bothers you about the appearance of these body part(s)? (Explain in detail):

   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________

   (NOTE: If you answered "No" to either of the above questions, you are finished with this questionnaire. Otherwise please continue.)

2. Is your main concern with your appearance that you aren't thin enough or that you might become too fat?  
   Yes  No

3. What effect has your preoccupation with your appearance had on your life?
   * Has your defect(s) caused you a lot of distress, torment or pain?  
     Yes  No
   * Has it significantly interfered with your social life?  
     Yes  No  
     *Continued
If yes: How?


• Has your defect(s) significantly interfered with your school work, your job, or your ability to function in your role (e.g., as a homemaker)?  
  Yes  No

If yes: How?


• Are there things you avoid because of your defect(s)?  
  Yes  No

If yes: What are they?


Have the lives or normal routines of your family or friends been affected by your defect(s)?  
  Yes  No

If yes: How?


4. How much time do you spend thinking about your defect(s) per day on average? (circle one)

  (a) Less than one hour per day
  (b) 1-3 hours a day
  (c) More than 3 hours per day

Thank you for completing this questionnaire
Appendix Seven:  
Modified Yale-Brown Obsessive Compulsive Scale for Body Dysmorphic Disorder

Louise De Haro  
Department of Clinical Psychology  
2 Wolverton Gardens  
Hammersmith  
London W6 7DY  
Tel: 0181 846 7765  
E-mail: deharo@clara.net

Research into factors, which predict satisfaction with Rhinoplasty

We want to learn about the severity of your concerns about your body image DURING THE PAST WEEK. We would also like to know how often they occur and how much distress they cause.

THE FIRST FIVE QUESTIONS CONCERN YOUR THOUGHTS ABOUT PERCEIVED DEFECTS

Please read each statement carefully and circle the number identifying the response which best characterises you DURING THE PAST WEEK.

1. How much of your time is occupied by THINKING about a defect or flaw in your appearance (such as your nose, face, hair, skin, breasts, genitals and hands)?

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<tbody>
<tr>
<td>None</td>
<td>Less than 1 hour per day</td>
<td>1 - 3 hours per day</td>
<td>More than 3 hours and up to 8 hrs/day</td>
<td>More than 8 hours per day</td>
</tr>
</tbody>
</table>

2. How much do your THOUGHTS about your defect(s) interfere with your social or occupational functioning? Is there anything you aren't doing or can't do because of them?

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<th>4</th>
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</thead>
<tbody>
<tr>
<td>No interference</td>
<td>Slight interference with social or occupational activities, but overall performance not impaired</td>
<td>Definite interference with social or occupational performance, but still manageable</td>
<td>Causes substantial impairment in social or occupational performance</td>
<td>Extreme, incapacitating</td>
</tr>
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</table>

3. How much distress do your THOUGHTS about your body defect(s) cause you?

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<tbody>
<tr>
<td>None</td>
<td>Mild, and not too disturbing</td>
<td>Moderate, and disturbing but still manageable</td>
<td>Severe, and very disturbing</td>
<td>Extreme, and disabling distress</td>
</tr>
</tbody>
</table>
4. How much of an effort do you make to resist these THOUGHTS about your defect? How often do you try to disregard them or turn your attention away from these thoughts as they enter your mind? (Only rate the effort you have made to resist them, not your success or failure in actually controlling these thoughts).

| 0 | I make an effort to always resist the thoughts or they are so infrequent that there is no need to resist them |
| 1 | I try to resist them most of the time (i.e. more than half the time I try to resist) |
| 2 | I make some effort to resist |
| 3 | I allow all such thoughts to fill my mind without attempting to control them, but I do so with some reluctance |
| 4 | I completely and willingly give in to all such thoughts |

5. How much control do you have over your THOUGHTS about your body defect(s)? How successful are you in stopping these thoughts?

| 0 | I am in complete control, or I do not need to control them because the thoughts are so minimal |
| 1 | Much control, I am usually able to stop or divert these thoughts with some effort and concentration. |
| 2 | Moderate control, I am sometimes able to stop or divert these thoughts |
| 3 | Little control, I am rarely successful in stopping thoughts and I can only divert my attention with difficulty |
| 4 | I have no control over them and I experience them as completely involuntary. I am rarely able to even momentarily divert my attention |

THE NEXT FIVE QUESTIONS WILL FOCUS ON THE BEHAVIOURS THAT YOU ENGAGE IN WITH REGARD TO YOUR CONCERN ABOUT YOUR DEFECT

Before you answer the following questions please record the main activities and behaviours, which you perform, associated with your body defect by ticking, from the following list, those, which apply to you.

For example:

☐ Checking the "defect" in mirrors or other reflecting surfaces (or checking it directly if visible without the use of a mirror).
☐ Seeking reassurance from others about the appearance of the body part
☐ Asking others to look at or verify the existence of the "deformity"
☐ Comparison of the body part with the same body part of others
☐ Touching the body part
☐ Grooming behaviours (for example, hair combing, hair styling, or shaving)
☐ Skin picking
☐ Applying make-up
☐ Camouflaging (for example, with make-up or with hats or other clothing)
☐ Rearranging clothing to hide the "defect"
☐ Using your hands or other objects to hide your defect
6. How much time do you spend (per day) in engaging in these ACTIVITIES?

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<tr>
<td>None</td>
<td>Less than 1 hr per day</td>
<td>1 - 3 hrs per day</td>
<td>More than and up to 8 hrs per day</td>
<td>More than 8 hrs per day engaged in these activities</td>
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7. How much do the above ACTIVITIES interfere with your social or occupational functioning? Is there anything you don't do because of them?

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<tr>
<td>Not at all</td>
<td>Mild, they interfere slightly with social or occupational functioning, but overall my performance is not impaired</td>
<td>Moderate, these activities definitely interfere with social or occupational performance, but they are still manageable</td>
<td>Severe, these activities cause substantial impairment in social or occupational performance</td>
<td>Extreme, these activities are incapacitating for my social and occupational functioning</td>
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8. How would you feel if you were prevented from performing these ACTIVITIES? How anxious would you become?

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<tr>
<td>Not at all</td>
<td>I would feel only slightly anxious if these activities were prevented</td>
<td>My anxiety would mount but remain manageable if these activities were interrupted</td>
<td>I would experience a prominent and very disturbing increase in anxiety if these activities were interrupted</td>
<td>I would experience extreme incapacitating anxiety from any intervention aimed at reducing these activities</td>
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9. How much of an effort do you make to resist these ACTIVITIES?

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<tbody>
<tr>
<td>I make an effort to always resist</td>
<td>I try to resist most of the time (i.e. more than half of the time)</td>
<td>I make some effort to resist</td>
<td>I yield to all these behaviours without attempting to control them, but I do with some reluctance</td>
<td>I completely and willingly yield to all behaviours related to the body defects</td>
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10. How strong is the drive to perform these behaviours? How much control do you have over them?

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<tr>
<td>I have complete control over them (although I may experience pressure to perform the behaviour, I am usually able to exercise voluntary control over it)</td>
<td>I have a lot of control over them (although I may experience strong pressure to perform the behaviour, I can control it only with difficulty)</td>
<td>I have some control over them (although I may experience strong pressure to perform the behaviour, I can control it only with difficulty)</td>
<td>I have little control over them (I have a very strong desire to perform the behaviour and it must be carried out to completion and I can delay it only with difficulty)</td>
<td>I have no control over them (the drive to perform these behaviours is experienced as completely involuntary, overpowering such that I am rarely able to even momentarily delay this activity)</td>
</tr>
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</table>
Appendix Eight: Hospital Anxiety and Depression Scale

Hospital Anxiety and Depression Scale
This questionnaire is designed to help your clinician to know how you feel. Read each item and tick the reply that comes closest to how you have been feeling in the past week. Don’t take too long over your replies; your immediate reaction to each item will probably be more accurate than a long thought out response.

1. I feel tense or ‘wound up’:
   □ Most of the time
   □ A lot of the time
   □ From time to time
   □ Not at all

2. I still enjoy the things I used to enjoy:
   □ Definitely as much
   □ Not quite so much
   □ Only a little
   □ Hardly at all

3. I get a sort of frightened feeling as if something awful is about to happen:
   □ Very definitely and quite badly
   □ Yes, but not too badly
   □ A little, but it doesn’t worry me
   □ Not at all

4. I can laugh and see the funny side of things:
   □ As much as I always could
   □ Not quite so much now
   □ Definitely not so much now
   □ Not at all

5. Worrying thoughts go through my mind:
   □ A great deal of the time
   □ A lot of the time
   □ From time to time, but not too often
   □ Only occasionally

6. I feel cheerful:
   □ Not at all
   □ Not often
   □ Sometimes
   □ Most of the time

7. I can sit at ease and feel relaxed:
   □ Definitely
   □ Usually
   □ Not often
   □ Not at all

8. I feel as if I am slowed down:
   □ Nearly all the time
   □ Very often
   □ Sometimes
   □ Not at all

9. I get a sort of frightened feeling like ‘butterflies’ in the stomach:
   □ Not at all
   □ Occasionally
   □ Quite often
   □ Very often

10. I have lost interest in my appearance:
    □ Definitely
    □ Very definitely and quite badly
    □ Yes, but not too badly
    □ A little, but it doesn’t worry me
    □ Not at all

11. I feel restless as if I have to be on the move:
    □ A great deal of the time
    □ As much as ever I did
    □ A lot of the time
    □ Rather less than I used to
    □ From time to time, but not too often
    □ Not at all

12. I look forward with enjoyment to things:
    □ As much as ever I did
    □ Rather less than I used to
    □ Definitely less than I used to
    □ Hardly at all

13. I get sudden feelings of panic:
    □ Very often indeed
    □ Quite often
    □ Not very often
    □ Not at all

14. I can enjoy a good book or radio or TV programme:
    □ Often
    □ Sometimes
    □ Not often
    □ Not at all
Appendix Nine
Patient Satisfaction with Rhinoplasty Questionnaire at Time 2 and 3

Research into factors, which predict satisfaction with Rhinoplasty

It is now approximately three/nine months since you underwent your Rhinoplasty and things may not have settled down completely however, can you please circle the number below which indicates how much you agree with the following two statements:

1. "I will seek further cosmetic surgery in the future"

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<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Don't agree</td>
<td>Slightly</td>
<td>Definitely</td>
<td>Markedly</td>
<td>Totally agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please elaborate or specify below if you have considered this:

Please take this opportunity to make any comments on your operation if you would like to:

2. Do you feel your nose is a or has a, (please circle appropriate number):

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perfect feature</td>
<td>Almost perfect</td>
<td>Minimal imperfection</td>
<td>Mild imperfection</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Moderate imperfection</td>
<td>Moderate imperfection</td>
<td>Moderate to marked imperfection</td>
<td>Very marked imperfection</td>
</tr>
</tbody>
</table>
Appendix Ten: Ethical Approval from Riverside Research Ethics Committee
Ms Louise De Haro,
RMHT
2 Wolverton Gardens,
London W4 7DY

Dear Ms De Haro,

RREC 2014 - Body Dysmorphic Disorder and Predictors of Satisfaction in volunteers undergoing Cosmetic Rhinoplasty.

I am writing to inform you that the above submission has now been approved by Chairman’s Action.

Please note the following conditions which form part of this approval:

[1] This approval is for one year only. For projects with an expected duration of more than one year, a letter from the principal investigator will be required in order to further extend consent. This will enable the Committee to maintain a full record of research.

[2] Any changes to the protocol must be notified to the Committee. Such changes may not be implemented without the Committee's approval.

[3] The Committee should be notified immediately of any serious adverse events that are believed to be study related or if the entire study is terminated prematurely.

[4] You are responsible for consulting with colleagues and/or other groups who may be involved or affected by the research, e.g., extra work for laboratories. Approval by the Committee for your project does not remove your responsibility to negotiate such factors with your colleagues.

[5] You must ensure that nursing and other staff are made aware that research in progress on patients with whom they are concerned has been approved by the Committee.

Cont/2...
Pharmacy must be told about any drugs and all drug trials, and must be given the responsibility of receiving and dispensing any trial drug.

The Committee must be advised when a project is concluded and should be sent one copy of any publication arising from your study, or a summary if there is to be no publication.

May I take this opportunity to wish you well in your research. If any doubts or problems of an unexpected nature arise, please feel free to contact me at any time.

Yours sincerely

C G Mackworth-Young MA MD FRCP
Chairman - RREC

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<tr>
<th>Seen and Approved</th>
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<tbody>
<tr>
<td>Submission</td>
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<td>Protocol</td>
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<tr>
<td>Information Sheet</td>
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<td>Consent Form</td>
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<tr>
<td>Letter of Indemnity</td>
</tr>
<tr>
<td>CTX/DDX/Licence</td>
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</tbody>
</table>
Appendix Eleven: Ethical Approval from The University of Surrey
26 March 1999

Ms L De Haro
37 Merton Avenue
Chiswick
London
W4 1TA

Dear Ms De Haro

Body Dysmorphic Disorder and Predictors of Satisfaction in Volunteers undergoing Cosmetic Rhinoplasty. (ACE/99/5/Psych)

I am writing to inform you that the Advisory Committee on Ethics has considered the above protocol and the subsequent information supplied and the Chairman, on behalf of the Committee, has approved it on the understanding that the Ethics Guidelines are observed.

The letter of approval relates only to the study specified in your research protocol (ACE/99/5/Psych). The Committee should be notified of any changes to the proposal, any adverse reactions and if the study is terminated earlier than expected (with reasons). I enclose a copy of the Ethics Guidelines for your information.

Yours sincerely

Helen Schuyler (Mrs)
Secretary, University Advisory Committee on Ethics

cc: Professor L J King, Chairman, ACE
Dr Emma Dunmore, Supervisor, Psychology

Enc.

253
Appendix Twelve: SPSS Data
One-way repeated measures BBD

Multivariate Tests\(^b\)

<table>
<thead>
<tr>
<th>Effect</th>
<th>Value</th>
<th>F</th>
<th>Hypothesis df</th>
<th>Error df</th>
<th>Sig.</th>
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<td>.001</td>
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<tr>
<td>Wilks' Lambda</td>
<td>.559</td>
<td>9.060(^a)</td>
<td>2.000</td>
<td>23.000</td>
<td>.001</td>
</tr>
<tr>
<td>Hotelling’s Trace</td>
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<td>9.060(^a)</td>
<td>2.000</td>
<td>23.000</td>
<td>.001</td>
</tr>
<tr>
<td>Roy's Largest Root</td>
<td>.788</td>
<td>9.060(^a)</td>
<td>2.000</td>
<td>23.000</td>
<td>.001</td>
</tr>
</tbody>
</table>

\(^a\) Exact statistic

Design: Intercept
Within Subjects Design: TIME

Mauchly's Test of Sphericity\(^b\)

<table>
<thead>
<tr>
<th>Within Subjects Effect</th>
<th>Mauchly's W</th>
<th>Approx. Chi-Square</th>
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</table>

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

Mauchly's Test of Sphericity\(^b\)

<table>
<thead>
<tr>
<th>Within Subjects Effect</th>
<th>Epsilon(^a)</th>
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<td></td>
<td>Greenhouse-Geisser</td>
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<tr>
<td>TIME</td>
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</table>

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

\(^a\) May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Design: Intercept
Within Subjects Design: TIME
### Tests of Within-Subjects Effects

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
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<tr>
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<td>Huynh-Feldt</td>
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<td>Huynh-Feldt</td>
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### Tests of Within-Subjects Contrasts

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### Tests of Between-Subjects Effects

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### Estimated Marginal Means

#### TIME

<table>
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<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
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<td></td>
<td></td>
<td></td>
<td>Lower Bound</td>
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One-way repeated measures
Satisfaction with nose

<table>
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<tr>
<td>2</td>
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<tr>
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Multivariate Tests

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<td>Roy's Largest Root</td>
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<td>35.164</td>
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<td>19.000</td>
<td>.000</td>
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</table>

- Exact statistic
- Design: Intercept
- Within Subjects Design: TIME

Mauchly's Test of Sphericity

<table>
<thead>
<tr>
<th>Within Subjects Effect</th>
<th>Mauchly's W</th>
<th>Approx. Chi-Square</th>
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Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

Mauchly's Test of Sphericity

<table>
<thead>
<tr>
<th>Within Subjects Effect</th>
<th>Epsilon</th>
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</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td>TIME</td>
<td>.805</td>
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</table>

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

- May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.
- Design: Intercept
- Within Subjects Design: TIME
### Tests of Within-Subjects Effects

<table>
<thead>
<tr>
<th>Source</th>
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<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
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### Tests of Within-Subjects Contrasts

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### Tests of Between-Subjects Effects

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### Estimated Marginal Means

**TIME**

<table>
<thead>
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<tbody>
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<td>TIME</td>
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<tr>
<td>Mean</td>
<td>Std. Error</td>
</tr>
<tr>
<td>1</td>
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### General Linear Model

#### Within-Subjects Factors

Measure: MEASURE_1

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#### One-way repeated measures

Depression

#### Multivariate Tests

<table>
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<th>Value</th>
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<th>Error df</th>
<th>Sig.</th>
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<tr>
<td>TIME Pillai's Trace</td>
<td>.060</td>
<td>.771a</td>
<td>2.000</td>
<td>24.000</td>
<td>.474</td>
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<td>Wilks' Lambda</td>
<td>.940</td>
<td>.771a</td>
<td>2.000</td>
<td>24.000</td>
<td>.474</td>
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<tr>
<td>Hotelling's Trace</td>
<td>.064</td>
<td>.771a</td>
<td>2.000</td>
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<td>.474</td>
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<tr>
<td>Roy's Largest Root</td>
<td>.064</td>
<td>.771a</td>
<td>2.000</td>
<td>24.000</td>
<td>.474</td>
</tr>
</tbody>
</table>

a. Exact statistic  

b. Design: Intercept  

Within Subjects Design: TIME

#### Mauchly's Test of Sphericity

Measure: MEASURE_1

<table>
<thead>
<tr>
<th>Within Subjects Effect</th>
<th>Mauchly's W</th>
<th>Approx. Chi-Square</th>
<th>df</th>
<th>Sig.</th>
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<td>.039</td>
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Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

#### Mauchly's Test of Sphericity

Measure: MEASURE_1

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<thead>
<tr>
<th>Within Subjects Effect</th>
<th>Epsilona</th>
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<tbody>
<tr>
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<td>Huynh-Feldt</td>
<td>.856</td>
</tr>
<tr>
<td>Lower-bound</td>
<td>.500</td>
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</table>

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

b. Design: Intercept  

Within Subjects Design: TIME
## Tests of Within-Subjects Effects

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
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<th>Mean Square</th>
<th>F</th>
<th>Sig</th>
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<tbody>
<tr>
<td>TIME</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
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## Tests of Within-Subjects Contrasts

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<th>Mean Square</th>
<th>F</th>
<th>Sig</th>
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## Tests of Between-Subjects Effects

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<th>F</th>
<th>Sig</th>
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## Estimated Marginal Means

### TIME

<table>
<thead>
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<th>TIME</th>
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<th>Std. Error</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
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### Measures

- MEASURE 1

### Transformed Variable

- Average

---

260
One-way repeated measures ANOVA

Dependent Variable: MEASURE_1

<table>
<thead>
<tr>
<th>TIME</th>
<th>ANXIETY</th>
<th>ANX2</th>
<th>ANX3</th>
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**Multivariate Tests**

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<tr>
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<th>Wilks' Lambda</th>
<th>Hotelling's Trace</th>
<th>Roy's Largest Root</th>
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<tr>
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- a. Exact statistic
- b. Design: Intercept
- Within Subjects Design: TIME

**Mauchly's Test of Sphericity**

<table>
<thead>
<tr>
<th>Within Subjects Effect</th>
<th>Mauchly's W</th>
<th>Approx. Chi-Square</th>
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<th>Sig.</th>
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<tr>
<td>TIME</td>
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<td>.677</td>
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</tbody>
</table>

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

**Mauchly's Test of Sphericity**

<table>
<thead>
<tr>
<th>Within Subjects Effect</th>
<th>Epsilon³</th>
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<td></td>
<td>1.000</td>
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<tr>
<td></td>
<td>500</td>
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</table>

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

- a. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.
- b. Design: Intercept
- Within Subjects Design: TIME
Tests of Within-Subjects Effects

```markdown
<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME Sphericity Assumed</td>
<td>7.795</td>
<td>2</td>
<td>3.897</td>
<td>1.275</td>
<td>.288</td>
</tr>
<tr>
<td>Greenhouse-Geisser</td>
<td>7.795</td>
<td>1.938</td>
<td>4.022</td>
<td>1.275</td>
<td>.288</td>
</tr>
<tr>
<td>Huynh-Feldt</td>
<td>7.795</td>
<td>2.000</td>
<td>3.897</td>
<td>1.275</td>
<td>.288</td>
</tr>
<tr>
<td>Lower-bound</td>
<td>7.795</td>
<td>1.000</td>
<td>7.795</td>
<td>1.275</td>
<td>.288</td>
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<tr>
<td>Error(TIME) Sphericity Assumed</td>
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Tests of Within-Subjects Contrasts

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<tbody>
<tr>
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<tr>
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Tests of Between-Subjects Effects

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Estimated Marginal Means

**TIME**

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<th>Upper Bound</th>
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```
### Paired Samples Statistics

<table>
<thead>
<tr>
<th>Pair</th>
<th>YBOCS</th>
<th>N</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
<th>Related T-test</th>
</tr>
</thead>
<tbody>
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<td>5.27</td>
<td>1.05</td>
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<td>25</td>
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<td>1.23</td>
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<tr>
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<td>25</td>
<td>5.07</td>
<td>1.01</td>
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<table>
<thead>
<tr>
<th>Pair</th>
<th>YBOCS</th>
<th>N</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
<th>Related T-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10.64</td>
<td>25</td>
<td>5.27</td>
<td>1.05</td>
<td></td>
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<tr>
<td>2</td>
<td>8.04</td>
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<td>6.28</td>
<td>25</td>
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### Paired Samples Correlations

<table>
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<th>Sig.</th>
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</thead>
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<td>.000</td>
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<tr>
<td>25</td>
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<td>.008</td>
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<tr>
<td>25</td>
<td>.817</td>
<td>.000</td>
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</tbody>
</table>

### Paired Samples Test

<table>
<thead>
<tr>
<th>Paired Differences</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
<th>95% Confidence Interval of the Difference</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower</td>
<td>Upper</td>
</tr>
<tr>
<td>Pair 1 YBOCS - YBOCS2</td>
<td>2.60</td>
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<td>.94</td>
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<tr>
<td>Pair 2 YBOCS - YBOCS3</td>
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<td>1.01</td>
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<td>6.45</td>
</tr>
<tr>
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<td>3.54</td>
<td>.71</td>
<td>.30</td>
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### Paired Samples Test

<table>
<thead>
<tr>
<th>df</th>
<th>Sig. (2-tailed)</th>
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</thead>
<tbody>
<tr>
<td>24</td>
<td>.011</td>
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<tr>
<td>24</td>
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### Paired Samples Statistics

<table>
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<th>N</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair 1</td>
<td>NOSE1</td>
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<td>21</td>
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<td>Pair 2</td>
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<tr>
<td>Pair 3</td>
<td>NOSE2</td>
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<td>1.3274</td>
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</table>

### Related T-tests

**Satisfaction with nose**

### Paired Samples Correlations

<table>
<thead>
<tr>
<th>Pair</th>
<th>NOSE1 &amp; NOSE2</th>
<th>NOSE1 &amp; NOSE3</th>
<th>NOSE2 &amp; NOSE3</th>
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</thead>
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<tr>
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<td>21</td>
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<tr>
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<td>.000</td>
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### Paired Samples Test

**Paired Differences**

<table>
<thead>
<tr>
<th>Pair</th>
<th>NOSE1 - NOSE2</th>
<th>NOSE1 - NOSE3</th>
<th>NOSE2 - NOSE3</th>
</tr>
</thead>
<tbody>
<tr>
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<td>2.7143</td>
<td>-4.76E-02</td>
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<tr>
<td>Std. Error Mean</td>
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<td>.3725</td>
<td>.2338</td>
</tr>
<tr>
<td>95% Confidence Interval of the Difference</td>
<td>2.0662 to 3.4356</td>
<td>1.9372 to 3.4914</td>
<td>-5353 to 4400</td>
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<tr>
<td>t</td>
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<td>7.286</td>
<td>-204</td>
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### Paired Samples Test

<table>
<thead>
<tr>
<th>Pair</th>
<th>NOSE1 - NOSE2</th>
<th>NOSE1 - NOSE3</th>
<th>NOSE2 - NOSE3</th>
</tr>
</thead>
<tbody>
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### Paired Samples Statistics

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### Paired Samples Correlations

<table>
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### Paired Samples Test

<table>
<thead>
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<th>Mean</th>
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<th>Std. Error Mean</th>
<th>95% Confidence Interval of the Difference</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.03</td>
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<td>Lower</td>
<td>Upper</td>
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<td>4.81</td>
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<td>3.504</td>
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<table>
<thead>
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<th>Sig. (2-tailed)</th>
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<tbody>
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### Paired Samples Statistics

<table>
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<th>Std. Error Mean</th>
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<tbody>
<tr>
<td>Pair 1</td>
<td>NOSE1</td>
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<td>27</td>
<td>1.4569</td>
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<tr>
<td></td>
<td>NOSE2</td>
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<td>27</td>
<td>1.2888</td>
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</table>

### Related T-tests

**Satisfaction with nose**

Time 1 & Time 2 only

### Paired Samples Correlations

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Correlation</th>
<th>Sig.</th>
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</thead>
<tbody>
<tr>
<td>Pair 1</td>
<td>NOSE1 &amp; NOSE2</td>
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### Paired Samples Test

**Paired Differences**

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<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>95% Confidence Interval of the Difference</th>
<th>t</th>
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</thead>
<tbody>
<tr>
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**Paired Samples Test**

<table>
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<tr>
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### Paired Samples Statistics

<table>
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<td>6.76</td>
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<tr>
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<td>29</td>
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<tr>
<td>Std. Deviation</td>
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<tr>
<td>Std. Error Mean</td>
<td>.85</td>
<td>.80</td>
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### Related T-tests

Anxiety

Time 1 & Time 2 only

### Paired Samples Correlations

<table>
<thead>
<tr>
<th>Pair</th>
<th>ANX2 &amp; ANXIETY</th>
<th>N</th>
<th>Correlation</th>
<th>Sig.</th>
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<tbody>
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### Paired Samples Test

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<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>95% Confidence Interval of the Difference</th>
<th>t</th>
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</thead>
<tbody>
<tr>
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<td>-1.514</td>
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</table>

<table>
<thead>
<tr>
<th>Pair</th>
<th>ANX2 - ANXIETY</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
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</thead>
<tbody>
<tr>
<td></td>
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<td>.141</td>
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## Paired Samples Statistics

<table>
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<th>N</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
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<td>29</td>
<td>3.07</td>
<td>.57</td>
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</table>

## Related T-tests

**Depression**

**Time 1 & Time 2 only**

### Paired Samples Correlations

<table>
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<th>Correlation</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
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<td>DEP2 &amp; DEPRESS</td>
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### Paired Samples Test

<table>
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<td>Std. Error Mean</td>
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### Paired Samples Test

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<tbody>
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</tbody>
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### Paired Samples Statistics

<table>
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<tr>
<th></th>
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<th>N</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
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### Related T-tests
**Desire for further surgery**
**Time 1 & Time 2 only**

### Paired Samples Correlations

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Test Statistics

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* 2 is treated as a success
4.1

FACTORS AFFECTING COMPLIANCE IN GESTATIONAL DIABETES MELLITUS

Research previously submitted for MSc. in Clinical Psychology
University College London
Factors Affecting Compliance in Gestational Diabetes Mellitus

Thesis submitted in partial fulfilment of the requirements of the MSc. In Clinical Psychology

UNIVERSITY COLLEGE LONDON
UNIVERSITY OF LONDON
LONDON, JULY 1996
"When you go after honey with a balloon, the great thing is not to let the bees know you are coming"

Winnie-the-Pooh by A.A.Milne
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1. ABSTRACT

Compliance with health recommendations is especially important for women with gestational diabetes mellitus (GDM), as there are health implications for both the mother and foetus. The present study examined whether psychological distress, social support or maternal attitudes affects compliance with the gestational diabetes protocol. The study also examined whether the GDM group (n=20) experienced higher levels of distress that a normal pregnancy comparison group (n=20). Furthermore, the study examined whether information given verbally to the GDM sample about their condition at clinical appointments was recalled and used effectively, i.e., is knowledge about Gestational diabetes, related to diabetic compliance. Results indicate that compliance was not correlated with measures of psychological distress, attitude towards the pregnancy or social support in this particular sample. Trait anxiety was found to be significantly higher in the gestational diabetes group. Knowledge increased over the period of study (six weeks) but did not correlate with compliance measures. Higher levels of social support, whilst not related to compliance in this sample, were associated with higher scores on the diabetic pregnancy knowledge questionnaire. In line with previous research, lower levels of social support were associated with higher levels of anxiety.
2. ACKNOWLEDGEMENTS

I would like to thank all of those who have helped and supported me throughout this study.

In particular I would like to thank my supervisors, David Murphy, for pointing me in the right direction, and Dr Nancy Pistrang for her tireless re-reading of the same document.

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To Maureen, Tony, Juan, Jo; for his helpful comments, Valerie, Dr Mary Rome and Anne Miles, thank you for your tolerance, enthusiastic co-operation and various other essential contributions without which it would have been even worse.
INTRODUCTION

Diabetes mellitus: the disease.

Diabetes Mellitus (DM) is a disorder of the metabolic regulatory systems which are responsible for the storing and subsequent utilisation of glucose, glucose being the main energy source released from food.

The term diabetes mellitus is derived from the Greek word 'diabetes' meaning syphon and is thus termed because of two diagnostic features: extreme thirst and excessive urination. The word 'mellitus', meaning like honey, was added in the seventeenth century when another diagnostic feature was noted, that of the sweetness of diabetic urine (Major, 1948). Major also cites a reference by Thomas Willis who writes in 1679 of the "pissing evil" and describes the urine as being "wonderfully sweet".

The formal medical description of Diabetes Mellitus (Dorland, 1989, pp.172) is rather less prosaic: "a metabolic disorder in which there is inability to oxidise carbohydrates, due to disturbance of the normal insulin mechanism, producing hyperglycaemia (increased glucose levels in the blood), glycosuria (the presence of glucose in the urine), polyuria (excessive secretion of urine), thirst, hunger, emaciation, weakness, acidosis (metabolic acidosis produced by accumulation of ketones in uncontrolled diabetes mellitus), sometimes leading to dyspnea (laboured or difficult breathing), lipemia (an excess of lipids in the blood), ketonuria (an excess of ketone bodies in the urine) and finally coma (state of profound unconsciousness from which the patient
cannot be aroused, even by powerful stimuli".

Prevalence and incidence of diabetes mellitus:

Diabetes Mellitus is considered to be a fairly common disease of affluent societies and on the increase (Berkun, 1982). Prevalence estimates of diabetes have risen more than three times since the 1980's. In 1995, the World Health Organisation (WHO) estimated that there were around 30 million people suffering from diabetes (WHO 1985). Some 90 per cent of this population have Non-Insulin Dependant Diabetes (NIDDM).

In 1989 the estimated figure was 50 million, and by 1991 WHO declared that an apparent epidemic of diabetes has occurred - or is occurring - in adult people throughout the world. The International Diabetes Federation estimated in 1994 that over 100 million people had diabetes, meaning that about 6 per cent of the adult population is affected. These averages do not include the millions of people who have impaired glucose tolerance (King & Rewers, 1991).

The world population is steadily aging and since NIDDM prevalence increases with age, one would expect the condition to also increase. WHO stressed in 1994 that diabetes will "continue to be a public health threat to beyond the year 2000 and without effective prevention strategies, to increase worldwide" (WHO, 1994). There has been up to a 50 per cent increase in the incidence of IDDM in northern countries and an overall global increase (Támas & Kerényi, 1995). This phenomenon is particularly evident in rapidly industrialising countries in the developing world and in minority communities in industrialised countries.
Currently, in western industrialised nations prevalence is estimated at 5 per cent of the adult population and rises steeply in particular communities of age groups to over 10 to 20 per cent (King & Rewers, 1993). NIDDM is most prevalent in developing countries where new westernised lifestyles and eating habits have had a great impact or in immigrant populations living in industrialised nations; prevalence rates of 20 to 30 per cent can be found in these settings. In the most severely affected communities more than half the population will develop diabetes if they live to an advanced age (Nakajima, 1991).

Since 1988 The World Health Organisation has been collecting comparable estimates on NIDDM prevalence in different communities worldwide. In 1993 the WHO published results from 75 populations in 32 countries (see Figure I, King & Rewers, 1993), and expressed concern that at least one out of two people who have diabetes remain undiagnosed, rising to four out of five in the developing world.

Within Europe there are an estimated 30 million people with diabetes and of these 80 to 90 per cent have NIDDM. In adults NIDDM prevalence varies between 3 and 10 per cent throughout Europe (King & Rewers, 1993). Diabetes affects approximately 1 to 3 per cent of the population of the United Kingdom, this figure rises to approximately 5 to 10 per cent of the population over 40 years (Berkun, 1992).

Gestational diabetes (GDM), is normally regarded as an acute version of diabetes, however, O'Sullivan reports a high incidence of diabetes mellitus among women who are retested up to 23 years after the diagnosis of GDM (O'Sullivan 1975, 1979, 1984).
Prevalence (%) of total glucose intolerance in selected populations in the age range of 30 to 64 years of age (WHO, January 1993).
More recently Henry & Beisher (1991), report that the incidence of diabetes mellitus on follow-up 15 to 17 years after the initial diagnosis of GDM was approximately 40 per cent. These figures are similar to those in O'Sullivan's 1984 study. In a 12 to 18 year follow-up of women with GDM, Mestman (1988), reported an even greater proportion (65.2 per cent) to be diabetic. The following account of both the disease and its complications may therefore apply to a substantial proportion of those women who, although initially only affected by GDM, then go on to develop diabetes mellitus in later life.

The cause of Diabetes is a malfunction in the metabolic regulatory system which is responsible for the utilisation and storage of the energy released from food. In a normal system, the main output of carbohydrate digestion and the main circulating sugar is in the form of glucose. Some glucose is available for immediate energy requirements and a proportion of this is stored as glycogen. The rest is converted into fat and stored as triglycerides (Green, 1982)

After a meal, glucose is the first source of energy, but in a fasting state, glycogen stores are used. When the body is in a state of starvation, triglycerides are located and turned into usable energy. This process is called gluconeogenesis and involves the production of ketone bodies which are an important energy source used in extreme conditions. The amount of glucose entering the blood stream and the amount leaving it, is what determines the blood glucose level at any one time. This balance is achieved by dietary intake, entry rate of glucose into muscle, adipose tissue and the glycostatic activity of the liver. In a healthy system glucose in the blood is closely
regulated between the levels of 3.5 mmol/l and 8.0 mmol/l. This regulation is made possible by the hormone insulin, which is produced in the pancreas. The small clusters of cells responsible for the production of insulin are termed the islets of Langerhans (Shillitoe, 1988).

This chronic disorder results in the inadequate production or inadequate utilisation of the hormone insulin. Insulin has several functions but is crucially important in promoting the cellular uptake of glucose following a meal. Following the intake of food in a normal system insulin levels rise. Within the islets of Langerhans the release of insulin occurs in two stages, there is a sudden rush when the reserves that are in storage are used, which is then followed by the slower manufacturing of and immediate release of new insulin. Insulin inhibits the glycogen breakdown and gluconeogenesis mentioned earlier. Insulin also helps glucose to enter into cells and helps to create a reservoir of glycogen and fat. The result is that the increase in the level of insulin in the system prevents a radical increase of glucose in the blood by promoting its conversion and storage. When the normal system is fasting, insulin levels fall, which stops the inhibition of gluconeogenesis and the breakdown of glycogen and maintains blood glucose levels (Green, 1982).

There are a number of factors which can unbalance the system described above. Insulin is affected by a number of hormones including corticosteroids, adrenaline, noradrenaline and glucagon. These types of hormones can raise levels of blood glucose by either acting on stored reserves of glucose or by the alteration of the rate at which the insulin is secreted by the pancreas. Certain types of stress including infection and
surgery can actually render the system temporarily unable to metabolise carbohydrate. Overweight can also inhibit the effectiveness of insulin as there can be a diminished response to glucose uptake when the fat cells are enlarged. The interested reader is referred to Shillitoe, 1988 and the effects of insulin disturbance are summarised in Figure II.

**Figure II: Summary of the physiological disturbances in insulin deficiency.**

<table>
<thead>
<tr>
<th>Insulin lack</th>
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<tbody>
<tr>
<td>Diminished glucose uptake by cells</td>
</tr>
<tr>
<td>Glycosuria</td>
</tr>
<tr>
<td>Osmotic diuresis</td>
</tr>
<tr>
<td>Dehydration</td>
</tr>
<tr>
<td>Shock</td>
</tr>
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<td>Hypotension</td>
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</table>

Two of the main consequences of a malfunction in the metabolic regulatory system are hyperglycaemia and hypoglycaemia, both avoidable when strict control is achieved. Hyperglycaemia is an increase in the glucose level in the blood. This causes changes in the blood cells which lead to dehydration and the common symptoms of untreated diabetes which are copious urination and extreme thirst. Eventually this can lead to an increase in the levels of ketone bodies and when the rate of production of ketones exceeds the rate of utilisation 'ketoacidosis' results with vomiting, giving rise to the possibility of eventual coma and death. In hypoglycaemia, the problem arises because glucose is leaving the blood stream faster than it is being replaced. Its occurrence is subject to individual variation. It is easily treatable with oral carbohydrate or intravenous glucose, Shillitoe cites Gale (Gale, 1980), who found it to be the most common metabolic emergency seen in casualty departments (Shillitoe, 1988). Failure to treat can also have very serious consequences leading to unconsciousness and eventual death.

Although other types are recognised, like gestational diabetes mellitus, for convenience DM is generally divided into two categories: Type I, formerly known as 'juvenile onset' or 'insulin dependant diabetes mellitus' (IDDM) and Type II, formerly known as 'maturity onset' or non-insulin dependant diabetes mellitus (NIDDM). Keen (1986) considers the terminology inaccurate however, until the underlying pathological processes are clarified.

Unlike many medical conditions, for which a physician prescribes a regime for the patient to follow until the condition is improved or cured, in most cases, diabetes is
an ongoing state with which the patient has to live, assume responsibility for, and
manage on a day to day basis.

The management of diabetes mellitus

The long term failure of adequate management of diabetes can have a number of
serious consequences (DCCT Research Group, 1990). Short term complications
include hypoglycaemic episodes and diabetic ketoacidosis whilst longer term
complications can take the form of retinopathy, nephropathy, neuropathy which are
associated respectively with blindness, kidney failure, foot ulcers, gangrene, and
erectile impotence (Bradley, 1994).

Essentially there are two aims to diabetic management. The first concerns an attempt
to restore the body to its correct physiology. This involves keeping blood glucose
levels in the diabetic as near as possible to those of the non-diabetic, in order to
reduce the risk of the consequences cited above. The second aim is to allow the
diabetic to live as near normal a life as possible (Krall & Beaser, 1989).

These aims are achieved by a variety of methods: medication with insulin or tablets,
monitoring the diet and to a certain extent by preventative methods. In order to
maintain optimum results these methods need to be consistently monitored by
measuring blood or urine glucose levels to obtain feedback. Good control is achieved
by following a planned total programme including balanced eating, acceptable blood
glucose levels and activity. Specifically the tools for treatment are as follows.
1) Education, is widely considered to be, not a part of treatment, but treatment itself. Education on diet, insulin dose, how often to inject and being taught to detect the signs and symptoms of potential problems is essential. Without a clear understanding of these, the diabetic is operating at a disadvantage, but the provision of education varies in quality and quantity. Well run programmes have shown impressive results, for example with blood glucose awareness training, subjects with IDDM have been show in several studies to improve not only their estimation accuracy but also their diabetic control compared with control groups (Cox, Gonder-Frederick, Julian, Cryer, Lee, Richards, & Clarke, 1991).

2) In the case of inadequate insulin (type I or IDDM), or if more insulin is required despite proper diet, (type II or NIDDM), then it may be necessary to use insulin. Insulin is still the mainstay of diabetic treatment whether the body is producing its own or receiving it artificially.

3) Diet, and the control of type and amount of food ingested is still the basis of all treatment of diabetes, regardless of type (I, II or GDM). Many patients who develop type II diabetes retain the ability to make some insulin and a proper diet makes it easier for the insulin to be effective. For the person with type I diabetes, the eating plan is also important. While it is often less restrictive than the program for those with type II, it provides guidelines for wider and better food choices.

4) Oral medication in the form of hypoglycaemic agents, can lower blood glucose levels. They can help stimulate the release of more insulin and help reduce resistance
to whatever insulin is available. They are used by perhaps 30 to 40 per cent of those with diabetes in the United States and perhaps as many as half the people with diabetes worldwide (Krall & Beaser 1989). It is unfortunate that they are not suitable or effective for all diabetes sufferers. Their effectiveness depends on the ability of the pancreas itself to still manufacture some insulin.

5) Activity in the form of exercise, is one of the original ways to control diabetes. It not only plays a role in general fitness but may reduce insulin requirements by making the insulin more effective, possibly by improving the function of the insulin receptors (Krall & Beaser, 1989).

The treatment of diabetes requires a careful balancing act and the variables of insulin or oral agents, activity and eating can all be manipulated by the individual. There are of course the other factors which influence the effect of any treatment programme in the form of psychological stress e.g. depression, anxiety and life events, together with timing, and food absorption that can also affect the diabetes (Nichols, 1993).

For those people with insulin dependant diabetes mellitus, taking insulin will be a life long task. For those manufacturing some of their own insulin it is difficult to predict whether a period of good glycaemic control coupled with some weight loss, if they are overweight, could allow for a reduction or even eventual cessation of insulin. For most it will be a life long preoccupation.

Diabetes is normally regarded as a chronic disease with serious consequences for the
individual sufferer when poorly managed. In the following section a type of diabetes which represents a separate category in the clinical classification of diabetes mellitus (WHO, 1985) and whose course can sometimes be regarded as acute, is discussed. In this following category the immediate concern is not so much for the individual but for the second, albeit 'invisible' patient.

**Definition of gestational diabetes mellitus**

Before the therapeutic use of insulin, the fetal survival rate for pregnancies complicated by overt diabetes was 40 per cent (White, 1978).

Intolerance of glucose that is first diagnosed during pregnancy is termed Gestational Diabetes Mellitus (GDM). GDM is a condition in which a pregnant women's body cannot produce enough insulin to use blood glucose efficiently. The definition commonly used until the 1980's was as follows: "for a diagnosis of Gestational Diabetes Mellitus (GDM) to be made, not only must the condition be first detected in pregnancy, but the carbohydrate tolerance must return to normal after pregnancy (Kerényi & Tamás, 1993, pp.15)". One finds however that most studies to date have not included systematic testing in the postnatal period (Kerényi & Tamás, 1993). According to WHO recommendations, the category of GDM should only be applied to women in whom glucose intolerance is first detected during pregnancy. This definition applies whether or not insulin was used for treatment or the condition persisted after pregnancy, therefore a re-classification is necessary post-partum (WHO, 1985).
Why pregnancy is capable of inducing gestational diabetes is still partly unknown (Kuhl & Andersen, 1988). Glucose tolerance deteriorates in all pregnant women (Kuhl, 1975), but only in 2 to 12 per cent of all pregnancies is the deterioration sufficiently large to fulfil the diagnostic criteria for gestational diabetes (Kuhl, Hornnes, & Andersen, 1984).

According to the World Health Organisation/International Diabetes Federation Guidelines on pregnancy outcome, "diabetes may be the most frequent pathological condition influencing the fate of the pregnant woman and her foetus.....and gestational diabetes mellitus complicates 2 to 12 per cent of all pregnancies" (Tamás, Hadden, Molsted-Pedersen, Weiss, de Leiva, Tomazic, Baranyi, & Kerényi, 1992, pp.39-41).

The incidence of GDM in Europe, when screening methods, criteria and the time of screening are not taken into consideration, ranges between 0.15 per cent and 11.4 per cent of the pregnant population.

The mother is usually unaware of the condition as the glucose levels are not high enough to produce any symptoms in her. The foetus can be affected however, as the mother’s glucose passes into the foetus through the placenta, the foetus produces extra insulin and then turns the extra glucose it does not need, into fat. This can result in an unusually large baby (macrosomia) and may cause delivery problems and further complications. For example, O’Sullivan et al report findings that suggest there is a 1.5 per cent of perinatal loss with women with normal oral glucose tolerance, compared to 6.4 per cent loss with abnormal oral glucose tolerance and further indicated an
increased perinatal mortality in the presence of a positive glucose tolerance test in
women over 25 years of age (O’Sullivan, 1975). Other complications can result once
the baby is born, as s/he can sometimes have difficulties controlling her/his own
glucose levels for a short time and it is necessary for these levels to be monitored.
There is still debate as to the exact threshold at which glucose intolerance adversely
affects the course of pregnancy and increases the risk of future diabetes in the mother
and child (Dornhorst, 1995).

With respect to etiology there are three subtypes of GDM, first the most rare is the
early auto immune beta-cell-destruction phase of insulin-dependent diabetes mellitus
(NIDDM). Secondly, and more common is previously undiagnosed abnormal glucose
tolerance and the third is pregnancy-induced glucose intolerance. This latter type
generally occurs from about the third trimester of pregnancy (26th/28th week)
onwards. After pregnancy, those with the first type described above, will have IDDM,
most within two years. Those women with the second type described above, will have
impaired glucose tolerance or non-insulin-dependent diabetes mellitus (NIDDM) and
those with the last type and focus of this study, will have normal glucose tolerance but
with a high risk of NIDDM in the future.

**Screening for and management of gestational diabetes mellitus**

Clinical history is increasingly held to be an insensitive measure in identifying women
at risk of GDM. There are however several risk factors in the history of pregnant
women which are often associated with gestational diabetes. Amongst these risk
factors are, a family history of diabetes on the mother's side, age over 30, obesity and a random plasma glucose over 6.7 mmol/l. Maternal history of previous still births, macrosomia and polyhydramnios (an excess of amniotic fluid) are also implicated. These risk factors are usually present in one-third of pregnant women but only two to three per cent of the pregnant population, examined on the bases of the above risk factors, prove to have GDM (Kerényi & Tamás, 1993). This is further complicated by the fact that some women, without any of these known risk factors, also go on to develop carbohydrate disturbances.

The World Health Organisation recommends that, depending on local health priorities, resources and facilities, serious consideration should be given to screening all pregnancies for glucose intolerance at the beginning of the third trimester of pregnancy (WHO, 1994). This is common practise in the UK.

Currently used screening methods, and diagnostic criteria tend to differ from hospital to hospital. The WHO recommends using a 50 g pre-screening challenge test and a 75 g Oral Glucose Tolerance Test (OGTT) and criteria recommended for use in non-pregnant adults (WHO, 1980, 1985 & 1994).

A random blood test on a non-diabetic person should show glucose levels of between 3.5 and 8.0 mmol/l. Fasting, non diabetic glucose levels would be expected to be between 3.5 mmol/l and 5.5 mmol/l of glucose per 100 mmol/l of blood. Following OGTT the levels should be less than 11.1 mmol/l, one hour following a OGTT and less than 7.8, two hours following OGTT.
Some experts fail to accept the criteria, considering it too mild and not mindful of the evidence of the possible adverse effects on the foetus, of even a minor disturbance of carbohydrate intolerance and advocate the 100 g OGTT. Screening, according to WHO criteria, should be performed by measuring blood glucose values two hours after a standard oral glucose test alone, or with a fasting value. Values in the range of impaired glucose tolerance should be confirmed with a further 75 g oral glucose tolerance test.

Pregnancies which are complicated by GDM, demand adherence to a complex regimen of self care behaviours which is critical to successful outcome. The diagnosis is usually based on the results of an oral glucose tolerance test. Despite the impression given in the above paragraph of consensus, there is no completely agreed upon point, at which hyperglycaemia becomes a pathological condition and different clinics will use varying end points (Dornhorst, 1995).

The management of GDM is intrusive, pervasive and requires self regulation of behaviour, involving diet and continuous Self Monitoring of Blood Glucose (SMBG), up to six times a day, for a successful outcome for both mother and child. Furthermore, more frequent visits to the ante natal clinic are mandatory. The main emphasis in terms of treatment is diet; a reduction in fat intake and the substitution of complex carbohydrates for refined carbohydrates. Calorie intake should be moderately restricted and exercise is recommended. It is important to control the concentration of postprandial plasma glucose concentrations, so that excess glucose is not passed on to the foetus; if this cannot be achieved by diet alone, insulin will be
Compliance to the recommendations deserves special consideration because gestational diabetes presents an increased risk for complications and uncertain foetal outcome. The concept of compliance with relation to diabetes will be reviewed in the following section.

**Psychological research into compliance**

Psychological principles are relevant in two main ways when considering the treatment of medical patients. On the one hand, psychological treatment can be used in the direct treatment of many conditions and, on the other, the use of psychological principles can enhance both communication, cooperation and compliance between patients and those participating in their care. It is the latter area which will now be considered.

In the literature, both the terms compliance and adherence have been used to describe the extent to which patients engage in behaviours that are seen as health promoting and that are recommended by health professionals (Sackett & Haynes, 1979), failure to do so is referred to as non-compliance or non-adherence.

A high proportion of medical patients is prescribed medication and the effectiveness of this depends on whether or not the patient follows the instructions. There is a large body of evidence which suggests that patients' levels of compliance are extremely poor. According to Ley (1982a), of patients prescribed medication, only about 50 per
cent of these actually take medication in the manner recommended by the prescriber.

An extensive series of studies on treatment compliance in diabetics shows equally poor levels, with 80 per cent of patients administering the wrong dosage of insulin, 77 per cent testing urine sugar levels incorrectly and misinterpreting the results, 75 per cent eating non-recommended foods and 75 per cent not eating with appropriate regularity (Watts, 1988). However, the way compliance has been assessed is also problematic, many studies relying on self-report which tends to lead to over estimates of compliance (Watts, 1988).

Kurtz (1990), comments that rates of non-adherence are staggeringly high, regardless of methodology, and verification of self-reports is complicated by social desirability to appear compliant. Research does however show, that if the patient is interviewed regarding compliance by a non-threatening person other than their doctor, valid indices of compliance can be obtained that correlate with more objective measures, such as physiological indices (Watts, 1988). Subjective measures of compliance made by physicians, have also been shown to correlate with actual patient performance (Yue, Dunn, Fowler, Pech, Forrest, Handelsman, & Turtle, 1984).

There has been a great deal of research into certain factors thought to be particularly relevant to compliance with medical recommendations, for example, satisfaction with care.

Research findings on satisfaction with care and its relation to compliance are
equivocal. A classic study carried out by Korsch and Negrete (1972) looked at 800 mothers attending the casualty department of a paediatric clinic. Medical advice was adhered to completely by only 49 per cent, adhered to in part by 39 per cent and 13 per cent did not comply with any of the advice. There was a clear relationship between level of compliance and the reported satisfaction with the medical consultation. Schatz, in an investigation of factors affecting compliance in diabetes, reports that satisfaction with care was an important factor in determining the control the patient chose to exert upon their (own) care (Schatz, 1988).

In a recent study, using anonymous self report questionnaires administered to diabetics, Kamien, Ward, Mansfield, Fatovich, Mathers, & Anstey (1995), found that although their diabetic population of 467 patients expressed satisfaction with their diabetes care from the GP, this did not affect compliance. The study showed that in fact, they lacked awareness of the risk factors and the complications associated with non-compliance.

With all forms of diabetes, there are difficulties with the concept of compliance. For a start the regime is infinitely variable and the patient is expected to change diet and insulin if applicable, in relation to other factors such as their exercise activity, illness and blood or urine results. Another issue is that adherence in diabetes is not a unidimensional construct, and adherence to one aspect of the regimen is not necessarily related to other self treatment behaviours (Glasgow, McCaul, & Schafer, 1987; Johnson, Freund, Silverstein, Hansen, & Malone, 1990). It has been shown for example that medication recommendations are generally followed, whereas changes
which require a change in life style like diet and exercise are more problematic (Glasgow, McCaul, & Schafer, 1987).

This has resulted in researchers breaking down the tasks involved in the self-care of diabetes into its component parts, rather than considering compliance as being a single entity and looking at compliance with exercise, Self Monitoring of Blood Glucose (SMBG), diet etc. separately.

Research on compliance to exercise has generally shown adherence to physical exercise is perceived as one of the most difficult tasks (Hanestad & Albrektsen, 1991). Irvine in her study of 69 patients found that exercise was infrequent and inadequate (Irvine, 1989). Recently, a large study by Kamiya, Ohsawa, Fujii, Nagai, Yamanouchi Oshida & Sato (1995), looked at the present state of exercise therapy for diabetes. They surveyed a sample of 570 diabetics which revealed that approximately 30 per cent of the patients did not follow their exercise regimen. The principal reasons given for low compliance were 'lack of time to do' and 'lack of mind to do'. The former was particularly numerous in male patients. Other reasons were 'lack of guidance by physicians'. These findings indicate that patients should be motivated adequately when they are diagnosed as having diabetes and subsequently encouraged to reinforce their intentions by the physician and/or medical staff.

Research on compliance to SMBG has revealed similar findings. Wing, Epstein, Nowalk, Scott, & Koeske (1985), compared patients self reported rates of compliance to SMBG with an objective measure based on a "marked-item" technique. They
followed 25 diabetics who monitored their blood glucose with "Chemstrips". Patients' self-report significantly overestimated actual compliance as assessed by the marked-item technique. Furthermore the self-report measure failed to identify 35 to 45 per cent of the non-compliant patients. Compliance decreased steadily over the course of the 37 week programme. This is particularly significant because the patients knew they were being monitored, and compliance was not increased even in the face of medical pressure to comply. It is worth pointing out that even in those populations which have been shown to do an adequate amount of SMBG, many do not use the home monitoring devices in a manner likely to allow rational modification to therapy (Mountier, Scott, & Beaven, 1982).

Dietary compliance is also reported to be one of the most difficult components of the regime, with patients reporting the most common reasons for non-adherence to be situational factors of eating out and inappropriate food offers from others (Ary, Toobert, Wilson, & Glasgow, 1986). Schlenk & Hart (1984) come to similar conclusions about the lack of adherence to dietary recommendation and Sulway, Tupling, Webb & Harris (1980), conclude that even an educational intervention does not change health behaviour, especially in the difficult area of dietary compliance.

In 1980, Cerkoney & Hart found that only 7 per cent of their sample of 30 diabetics, complied with all the points considered to be necessary for good diabetic control (Cerkoney & Hart, 1980). Schkenk & Hart 1984), published findings which suggest that, of their sample of 30 diabetics, not one complied with all the behaviours deemed essential for good diabetic control.
Researchers have subsequently looked into specific factors which might influence compliance and non-compliance such as psychological stress in the form of depression and anxiety, high and low social support and knowledge of the condition. Research findings on these factors will now be considered in turn.

Diabetes and stress may influence each other directly or indirectly. Research suggests that this might be via stress interfering with regimen adherence, undermining metabolic control or poor control might interfere with general functioning, exacerbating the effects of various stressors (Fisher, Delamater, Bertelson & Kirkley, 1982).

The impact of stress on adherence was manifest in self-reports of 57 diabetics regarding antecedents of eating too much or eating the wrong foods. Nineteen per cent of these transgressions are attributed to negative emotions and another 7 per cent to conflict (Kirkley, 1982). These findings highlight a role of stress in adherence to the diabetes regimen that may be similar to the impact of stress identified in studies of relapses in weight loss, alcoholism, drug addiction and smoking cessation (Marlatt & Gordon, 1980; Rosenthal & Marx, 1981).

Psychological stress manifested by depression and anxiety, has been associated with poor diabetes management (Cox & Gonder-Frederick, 1992). Given that even minor depressive episodes can give rise to reduced concentration and attention, reduced self esteem and self confidence and disturbed sleep and appetite (ICD-10, 1992) it is perhaps not surprising.
Korhonen, Huttunen, Aro, Hentinen, Ihalainen, Majander, Siitonen, Uusitupa, & Pyorala (1983), found that good diabetes control was related to a degree of self confidence and lack of signs of anxiety in the psychological tests their cohort completed. Direct effects of stress vary across individuals, but it is clear that stress can have an impact on blood glucose control independent of effects on self-management (Frenzel, McCaul, Glasgow & Schafer, 1988; Halford, Cuddihy, & Mortimer, 1990).

Certain psychologically stressful situations can reduce the effectiveness of self-management. Cohen, Vance, Runyan, & Horowitz (1960), reviewed 72 cases of diabetic acidosis and found that the most common precipitating factor was non-administration of insulin. In more than half these cases, patients attributed the omission to psychological stress.

Turkat (1982a), divided patients into three groups on the basis of their anxiety levels as revealed during a clinical interview. The patients in the highest anxiety group had significantly higher glycosylated haemoglobin levels ($HbA_{1c}$ or glycosylated haemoglobin assay one, is an assessment of average blood glucose over the six to eight weeks preceding the blood sample, between 4 and 7 per cent is regarded as good control), than the other groups.

Dupuis, Jones and Peterson (1980), administered the Hamilton Depression Scale (HDS), to a group of patients before commencing an intensive home blood glucose monitoring programme. On re-test eight months later, HDS scores were significantly lower and $HbA_{1c}$ levels had also reduced. Another study by Mazze, Lucido and
Shamoon (1984), similarly noted a close correspondence between metabolic control and scores on mood inventories, whilst not in the pathological range, those in poorest glycaemic control had significantly greater anxiety, depression and problems of daily living than those in good control. Lustman (1986a), reported that patients with a current psychiatric diagnosis had significantly higher HbA₁c levels than patients who had never had a psychiatric disorder. This association was due primarily to a diagnosis of depression, furthermore poor control itself was not related to increased symptom reporting.

A substantial portion of the research can support the idea of a relationship between glycemic control and mood, in particular depression. This does not however confirm the causal direction of this relationship. As noted before, it could be that high blood glucose causes an alteration in mood through direct physiological pathways, or secondly, depressed mood or high levels of anxiety might result in less accurate self-care with subsequent glycaemic disturbance. A study by Wilson, Ary, & Biglan (1986), showed that higher scores on anxiety and depression rating scales were associated with a reduced likelihood of self care behaviours being performed. The third possibility is that scores on mood rating scales have been contaminated by the fact that biological symptoms of depression and anxiety are also symptoms of disordered glycaemic control. These alternatives are of course not mutually exclusive and all may operate together.

A vast body of research in diverse health care settings, supports the notion that people with partners, friends and family members who provide emotional and material support
are found to be in better health than are people with fewer supportive social contacts. Susceptibility and adaptation to disease is influenced adversely by, among other factors, social and geographical isolation, interpersonal difficulties and minority group status (Turner, 1983). This is no less true for diabetics.

In a recent cross-sectional study, Garay-Sevilla, Nava, Malacara, Huerta, Diaz de Leon, Mena & Fajardo (1995), investigated factors associated with non-compliance to diet and medication with a population of 200 diabetics. They found that compliance to both diet and medication were highly significantly associated with social support (p = 0.002 for medication). They also found that social support was lower in the group that they described as having "chaotic control".

It appears that there may be sex differences regarding the benefits of a social support system. A particularly rigorous study by Kaplan & Hartwell (1987), measured the relationship between social support satisfaction and social support network size, using the Social Support Questionnaire on a population of 32 men and 44 women. Control of diabetes was measured by the glycosylated haemoglobin assay. They found that HbA1c was significantly correlated with social support satisfaction for women but negatively correlated with social support satisfaction for men. Social support network size, differentially predicted success in a program for men and women. For women, network size was significantly correlated with failure to attend sessions and with failure to complete a diary. It seems that social support has different functions for men and women faced with a serious disorder. Social support network size seems to adversely affect compliance to a program, whereas social support satisfaction has some
benefits for women. As satisfaction with social support is correlated with compliance to peer behaviours, it may be that social support satisfactory to women encourages self-management behaviours that lead to good control (Kaplan & Hartwell, 1987). In contrast, networks satisfactory to men may reinforce eating drinking and exercise behaviours that do not lead to good glycaemic control.

Social support appears to be a multidimensional construct including emotional, social, and functional dimensions (Brun & Philips, 1984), and it remains unclear which aspects of social support are crucial for effective self-management of diabetes. There appears to be no evidence as to whether it is continuous access to social support that is vital or whether being able to mobilize social support in certain situations is the decisive factor. Social support may enable the individual to mobilize other adaptive coping strategies or may buffer the effects of stress (Cohen & Wills, 1985) and the literature leaves it unclear as to which is the most important factor.

There are varying opinions as to the role of education in compliance and the research findings are contradictory. Watts found that on the whole there is little correlation between patients' general medical knowledge and compliance (Watts, 1980). Will, German, Schuman, Michael, Kurth, & Deeb (1994), suggest that the primary reason for non-adherence in their study of blindness prevention programmes for diabetics, was a lack of knowledge about the disease and they advocate more attempts to remove educational barriers. Joseph & Patterson (1994), found that there were no differences in diabetic control between patients who were knowledgeable about diabetes and those who were not.
More specifically, knowledge about the treatment regimen, rather than knowledge about the disease itself, has been shown to be the most important factor related to treatment compliance (Dunbar & Agras, 1980). Unfortunately, greater knowledge of the treatment regimen does not always lead to greater treatment compliance and, in turn, improved disease status. For example in hypertension research, Moriskey, Levine, Green, Shapiro, Russell, & Smith, (1983), found that educational interventions can improve blood pressure control, knowledge, and treatment compliance. With regards to GDM, Spirito, Ruggiero, Duckworth, Low, Coustan, McGarvey, & Khoury (1993), did find a positive relationship between knowledge of diabetes and dietary compliance and insulin reactions. However unsuccessful educational interventions are also to be found in the literature (Kirscht, Kirscht & Rodenstock, 1981).

A difficulty with looking at patient compliance with regard to education in diabetes, is that this suggests that the exact requirements have been specified. According to Glasgow, ".....prescriptions may never have been given, if they have been given, they may be extremely nonspecific (e.g., 'get some exercise', 'cut down on what you eat'), not clearly communicated to the patient, and/or not documented in medical records" (Glasgow, Wilson & McCaul, 1985, pp. 300-301).

Further research is needed to examine the effects of knowledge on compliance among women with GDM, particularly because research has shown that compliance decreases, as the length of time one has to comply with a medical regimen increases, (Dunbar & Agras, 1980).
Compliance in diabetic pregnancy and gestational diabetes mellitus

As can be seen in the previous sections, compliance can be affected by different factors. The factors affecting compliance to a gestational diabetes regimen are likely to differ in some aspects. There has been little research on compliance to a short term regime i.e. one which is only likely to be required for the duration of a pregnancy. Given that compliance is required for a short time only in GDM, that diagnosis is sudden, that the management tasks are novel, and that there is the presence of a 'second patient', compliance could be expected to be high.

Limited evidence suggests however, that compliance is not as good as might be expected. Langer and Mazze (1986), report in their study, which used a mixed group of women with both PD and GDM, that two thirds of the patients reported incorrect SMBG data. They were able to obtain these results by using Glucometer Reflectance Photometers (apparatus for measuring blood glucose levels) which were modified with a memory microchip capable of storing 440 glucose values with the corresponding time and date. The stored glucose values were used to measure the difference between self reported and actual blood glucose. The results of this study showed that self report data values were significantly lower and less variable that those recorded in the memory meters. Their results show that this apparently well motivated group were both unpredictable and unreliable in adhering to medical recommendations.

An extensive literature review has revealed two studies that have looked at the
psychological factors implicated in gestational diabetes (Sjogren, Robeus & Hansson, 1994) and one of these looks at compliance in gestational diabetes (Ruggiero, Spirito, Bond, Coustan, & McGarvey (1990). Sjogren et al (1994), looked at the psychological implications of gestational diabetes. This study did not use compliance as an outcome measure but they examined whether GDM influenced women's attitudes toward pregnancy, childbirth, their own health and that of the child. One hundred and thirteen Swedish women with GDM and 226 matched controls completed a questionnaire on psychosocial conditions at the time of pregnancy confirmation, health before and during the pregnancy and emotional experience of the pregnancy and childbirth. The GDM group reported less well being, psychological health and vigour during pregnancy and a less positive experience of childbirth compared to the control women. The GDM group also reported more worry about health during pregnancy, reported more physical health problems and more worry about health in general.

Ruggiero et al (1990), examined compliance with two daily self management tasks, diet and insulin administration, in 98 women with gestational diabetes. The influence of stress and regimen related social support on compliance was investigated. Stress levels were assessed by the administering of a life events checklist of 17 major life events and a measure of minor stressors. Also administered were the Diabetes Compliance Questionnaire (DCQ) and the Diabetes Social Support Questionnaire (DSSQ). Ruggiero found that 34 per cent did not comply with dietary requirements and 29 per cent did not comply with insulin requirements. The degree of reported social support with diet and insulin administration was moderate, with 45 and 40 per cent indicating that they frequently or never received support in complying with diet
and administration of insulin respectively. Ruggiero found a significant correlation between dietary compliance and social support with diet. They concluded that social support for specific regimen tasks facilitates compliance with the diabetes self care regimen in women with gestational diabetes but that further studies examining more objective measures of compliance were needed to confirm these findings.

In the Ruggiero et al (1990) study, no assessment was made of mood states (such as depression and anxiety), attitude towards the pregnancy or understanding of the risks, all of which have been postulated to have an impact on women's ability to adhere to the regime and motivation to comply.

**Theoretical rationale for the present study**

As noted in previous sections it seems that despite the risks, research with diabetic gravidas, i.e. women with pregestational diabetes, shows that, "a substantial, but as yet undefined, portion of this apparently well motivated group of women do not follow their diabetic protocol during pregnancy" (Zayfert, 1992, pp.292). Ruggiero et al (1990) found that compliance in a purely gestational diabetic group was, despite the need for only short term compliance, far from perfect.

Previous research in this area has gone some way in suggesting reasons as to why compliance is not better although there has been a paucity of research on factors affecting compliance in gestational diabetics. Sjogren et al (1994), suggest that gestational diabetes does have a psychological impact on the women's attitude towards
the pregnancy and increases worry about health, the baby's health and presumably levels of anxiety.

Omer (1986), found that state and trait anxiety, were linked to poorer outcome in the form of premature labour in a group of normal pregnancies and Ruggiero (1990), finds that fewer minor stressors were associated with greater compliance in GDM. With regards to depression Barglow, Hatcher, Wolston, Phelps, Burns and Depp (1981), surveyed 100 pregnant diabetics (Type I, Type II and GDM) and completed a full psychiatric evaluation on this sample. Their findings showed that two thirds of their population displayed significant psychopathology, with 33 showing evidence of clinically significant depression and 25 reporting anxiety reactions (seven reported psychotic symptoms). Cox & Gonder-Frederick (1992), do suggest that psychological stress manifested by depression and anxiety, is associated with poor diabetes management.

Social support has been found to be a major factor in aiding compliance in numerous studies (Ruggiero et al, 1990; Cohen & Wills, 1985), although there are also studies which find its importance remains inconclusive (Villar, Farnot, Barros, Vitora, Langer, & Belizan, 1992; Omer, 1986). The relationship of diabetes knowledge to regimen compliance has been highlighted by Spirito, Ruggiero, Duckworth, Low, Coustan, McGarvey, & Khoury (1993), who found that knowledge was positively related to dietary compliance, insulin administration and insulin reaction management recommendations, as well as fasting blood glucose levels. They suggest that efforts to increase knowledge of diabetes specific to pregnancy may result in some improvement
in selected aspects of the diabetic regimen.

Hypotheses of the present study

The present research to an extent, expands on the Ruggiero (1990) study looking at levels of social support but also at other factors which could influence compliance such as depression, anxiety and attitude towards the pregnancy, and knowledge of the condition. Awareness of these factors could not only have implications for our better understanding of the psychological effects of GDM but also could be of clinical relevance. The following questions and hypotheses were advanced in this study:

1) Do levels of social support, levels of psychological distress (depression and state/trait anxiety) and maternal attitudes towards pregnancy affect compliance with the diabetic protocol?

The first hypothesis is that low levels of social support, high levels of distress on the BDI, STAI and poor maternal attitude towards the pregnancy, will correlate with poor compliance to the diabetic regime as measured by poor SMBG on the nurse rating, higher birth weights and lower scoring on the Diabetes Compliance Questionnaire.

2) Are levels of distress significantly increased in GDM, when compared to a non-diabetic pregnant population?
The second hypothesis is that levels of distress on the BDI and the STAI will be significantly higher in women with GDM when compared to women with normal pregnancies, given the increased concern at undergoing a high-risk pregnancy.

3) Educational guidelines on GDM are given by medics and specialist nurses at the first appointment; is this information retained at 6 weeks follow-up, as measured by pre and post scores on the Diabetes in Pregnancy Knowledge Screen (DPKS) and are higher scores on the DPKS correlated with higher measures of compliance?

The third hypothesis is that there will be poor overall recall of the information on diabetic protocol given to the GDM women at the high risk pregnancy clinic on their first visit, and lower levels of GDM knowledge will correlate with lower levels of compliance.
METHOD

Design

The present study involved a longitudinal design, with a gestational diabetic group, surveyed at two time points, and a between groups comparison, comparing the gestational diabetic group with a normal pregnancy group, at one time point only. A total of 41 women completed questionnaires. All of the women approached, with the exception of one, agreed to take part in the normal pregnancy comparison group study. Three women were excluded from the gestational diabetic group because their command of the English language was insufficient to understand the questionnaires and three replacements were found. One woman gave birth prematurely before completing the time II questionnaires and another subject was recruited.

The gestational diabetic group (GDM group) completed questionnaires on psychological distress: Beck Depression Inventory, Spielberger State and Trait Anxiety (BDI, STAI) and the Diabetes in Pregnancy Knowledge Screen (DPKS), on their first appointment to the high-risk ante-natal clinic.

The following data were also collected from each woman in the GDM group: Attitude Towards Pregnancy (ATP), gestational stage, age of mother, ethnicity, education, occupation and estimated date of delivery.

Six weeks later at the same clinic the above questionnaires were administered again (BDI, STAI and DPKS) and two further measures were completed, the Diabetes Social Support Questionnaire (DSSQ) and the Diabetes Compliance Questionnaire (DCQ).
Between Groups Comparison: Women with normal pregnancies were compared on psychological measures of distress, attitude towards pregnancy and birthweights with the GDM group.

Two measures of distress, the Beck Depression Inventory, Spielberger State and Trait Anxiety (BDI, STAI) and the Attitude Towards Pregnancy Questionnaire (ATP) were administered to the normal pregnancy comparison group when they attended a routine ante-natal clinic visit. As with the GDM group factors such as the participants age, gestational age, educational level, ethnicity, occupation, estimated date of delivery were also recorded.

Participants

Table 1

Participant characteristics in the gestational diabetic and normal pregnancy comparison groups.

<table>
<thead>
<tr>
<th></th>
<th>GDM</th>
<th>Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age (years)</td>
<td>33.75 (5.43)</td>
<td>29.60 (5.85)</td>
</tr>
<tr>
<td>n=21</td>
<td></td>
<td>n=20</td>
</tr>
<tr>
<td>Gestation (weeks)</td>
<td>29.53 (2.59)</td>
<td>28.65 (6.60)</td>
</tr>
<tr>
<td>n=21</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Birth weight (Kg)</td>
<td>3.16 (0.56)</td>
<td>3.55 (0.40)</td>
</tr>
<tr>
<td>n=20</td>
<td></td>
<td>n=20</td>
</tr>
</tbody>
</table>

Table 1: Shows the mean age and standard deviation of both groups and the mean and standard deviation of their respective gestational stage at the first data collection stage.
Birthweights were collected at the end of the study and are also presented in the above table.

The sample of 40 participants was recruited from the high risk ante-natal clinic and the routine antenatal clinic at the Chelsea and Westminster Hospital, London.

Women attend the high risk ante-natal clinic when a routine mini oral glucose tolerance test (OGGT), given at the beginning of the third trimester of pregnancy, suggests that there may be an abnormal amount of glucose in the blood i.e more than 7/8 mmol/l of glucose per 100 mmol/l blood. Although a consecutive patient series, women were excluded on the basis of the following criteria: those who were unable to read, or those unable to understand the questionnaires when read to them because of English language difficulties. Occasionally some patients were found to be too advanced in the pregnancy to allow a six week follow-up and these were also excluded.

All women were seen in the waiting room of the clinic, and the interviewer was present as the women filled the questionnaires and provided clarifications if necessary. Ethnicity was described by the participants as follows: 50 per cent were white British and 50 per cent comprised of the following: one Iranian, one African, two Israeli, one Asian, and one Arab. Regarding their occupations, 30 per cent of the women described themselves as "housewives" and the remaining 70 per cent had professions requiring secondary and/or tertiary education.
Subjects in the normal pregnancy comparison group were also recruited as a consecutive patient series and selected on the basis of gestational age, i.e. in the third trimester of pregnancy. As above, women were excluded on the basis of an inability to read or an inability to understand the questionnaires when read to them because of English language difficulties.

The ethnicity of the normal pregnancy comparison group was described by the participants as follows: 70 per cent were white/British, and the remaining 30 per cent were made up of the following: two black/British, one black/Caribbean, one black/African, one Asian, one Australian. Regarding their occupations, 40 per cent of the normal pregnancy comparison group, described themselves as housewives, whilst 50 per cent of the women had professions requiring secondary and/or tertiary education. The remaining 10 per cent described themselves as unemployed.

**Measures**

All measures are included in Appendix 1.

**Beck Depression Inventory:** BDI (Beck, Ward, Mendelson, Mock, & Erbaugh, 1979).

The BDI consists of 21 items each containing four statements ranked in order of severity and patients are asked to choose the statement closest to their present state. Items have been selected to represent the affective, cognitive, motivational and physiological symptoms of depression. The items are scored from 0 to 3, with the sum
of the scores representing the total BDI score, ranging from 0 to 63. Generally, a total BDI score of 0-9 indicates a normal non-depressed state, 10-18 reflects a mild level of depression, 19-29 reflects moderate depression and 30-63 a severe level of depression. It is important to note that the BDI is not designed to yield a discrete diagnosis of depression but can provide the depth or severity of depressive symptomatology, essentially defined by the combination of the number, frequency and intensity of symptoms. The Beck Depression Index is well established for reliability and validity.

Spielberger State and Trait Anxiety Inventory: STAI (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983).

This scale consists of twenty adjectives, all synonyms or antonyms of 'anxious', each of which is rated on a four-point scale, 'not at all, somewhat, moderately and very much so'. This scale has been widely documented (Smith & Lay, 1974) and has shown high criterion validity in subjects under a wide range of stresses and both before and after behavioural treatment. High internal consistency has also been shown (Spielberger et al, 1983) and so theoretically the STAI should have a low standard error of measurement. However some subjects can be irritated by the presentation of similar adjectives as in the items 'I feel jittery' and 'I feel high strung' or 'I feel calm' and 'I feel relaxed'. Not surprisingly subjects give similar answers to the synonyms for anxiety and consistent answers for the antonyms but there is less correspondence between the two categories (Kendall et al, 1976). The authors of the STAI have produced norms for psychiatric patients and normal subjects. The STAI is
recommended for investigating changes within subjects only.


The DPKS has three versions: one devised for women with pregestational diabetes (14 items), one for women with gestational diabetes who are diet and insulin controlled (18 items) and one designed specifically for women with gestational diabetes mellitus who are only diet controlled (14 items). There are 8 items in common to all groups and in this study these 8 items were used. The items were designed by psychologists, nurse educators and an obstetrician to cover the specific teaching tasks recommended for diabetes educators working with pregnant women including diet, blood glucose testing, insulin administration and reactions, exercise, and sick day management. Spirito (1990), demonstrates adequate readability, internal consistency (α = 0.71), and test-retest reliability (r = 0.76) for the DPKS and suggests it is a useful clinical tool for diabetes educators working with pregnant women. Due to variation in number of items across different versions of the DPKS, scores are reported as a percentage of items correct for each of the forms.

Diabetes Social Support Questionnaire: DSSQ (Schlenk & Hart 1984).

The DSSQ is a seven item questionnaire in two sections, five relating to diet and two relating to insulin. The items relating to insulin were not included in this study due to low response rate. It is used to assess the patient's perception of social support from
family and friends regarding diabetes care for these two areas of diabetic management. The questionnaire consists of a five point, Likert-type scale, allowing the women to say if they receive social support, "always" to "never and does not apply". Despite being used in at least two studies there is no available reliability or validity data, it was found to be adequate in the Ruggiero et al (1990) study (personal communication, Dr A. Spirito), however the internal consistency as measured by Cronbach's alpha in this study was low: $\alpha = 0.48$ and results should be viewed with caution.

**Self-report Diabetes Compliance Questionnaire: DCQ (Schlenk & Hart, 1984).**

The DCQ contains nine items separated into two sections, related to diet (five items) and insulin (four items). The items relating to insulin were not included in this study due to low response rate. The answers to the questions are routinely covered when the women are first educated about GDM in the antenatal clinic. As above, this is a Likert-type scale which allows women to choose a response indicating whether they comply "always" to "never and does not apply" to the question. This measure was designed for a study which was investigating the best predictors of compliance in women with gestational diabetes and has not been widely used. Again there is no available reliability or validity data, it was said to be acceptable in the Ruggiero et al (1990) study (personal communication, Dr A. Spirito), however, in this study the questionnaire was found to have an unacceptably low level of consistency as measured by Cronbach's alpha. Given this finding, responses to the questions are considered on an individual basis and not as a whole questionnaire.

The ATP is a nine item questionnaire which examines pregnancy desirability and the mother's view of various aspects of her life situation and their appropriateness for the birth of a new baby. It features two additional questions which assess the level to which physical complaints have been present in the pregnancy. This is a five point Likert-type scale which allows women to choose a response which best describes their attitude from one to five. The questionnaire was designed specifically for a study which investigated the psychological variables implicated in premature labours and the authors demonstrate adequate readability, internal consistency and test-retest reliability.

Nurse Compliance Rating

This measure, constructed for the present study consists of a five point, Likert-type scale, allowing the women to be rated from "very poor" to "very good" compliance (1= very poor, 2= poor/average, 3= good, 4= good/average, 5= very good). The diabetes nurse rated the gestational diabetic woman twice. The first rating refers to how the woman complied with instructions (attendance at clinic, self monitoring of blood glucose, diet) within the first two or three weeks of her contact with the gestational diabetes clinic. The nurse also made a note of the blood glucose values charted by the participant over the course of the study, and the rating was made a second time at time II.
Procedure

Ethical approval:

A written proposal was submitted to The Riverside Research Ethics Committee based at The Chelsea and Westminster Hospital (Appendix II). Approval of the project by the Riverside Research Ethics Committee was granted in October 1995 on the condition that the patients were accompanied by the interviewer whilst filling in the questionnaires. A copy of the approval for this study can be seen in Appendix III.

Administration procedure for gestational diabetes group (GDM):

Time I:

Time I is defined as the first visit to the High-Risk ante natal clinic in the Chelsea and Westminster Hospital: The average gestational age of the women at time I was 29.53 weeks. The following data was collected from each subject; gestational stage, age of mother, ethnicity, education, occupation and estimated date of delivery. After reading a patient information sheet (Appendix IV) and signing the study consent (Appendix V), the GDM group received two questionnaires measuring levels of distress, the Beck Depression Inventory and Spielberger's State and Trait Anxiety Inventory. This group was also asked to complete the following questionnaires at this time: Diabetes in Pregnancy Knowledge Screen (DKPS) and a measure entitled Attitude Towards Pregnancy (ATP). After completion subjects were seen in the clinic by the obstetrician, the endocrinologist and the specialist diabetes nurse. Here they were
formally informed of the diagnosis of GDM and given verbal information on the condition. They were also instructed in the use of blood glucose monitoring equipment and told how many times they would be required to blood test, and how to record the results of the blood tests on sheets provided for that purpose (an example of this sheet can be seen in Appendix VI).

For the specific purposes of this study the diabetes care sister made a note of the testing instructions that each subject had been given to enable the experimenter to check adherence to the instructions. Follow-up ante-natal appointments were then arranged at weekly intervals.

**Time II:**

Time II is defined as six weeks after time I. The subjects were followed up at the high risk ante-natal clinic and the following measures were administered again: Beck Depression Inventory (BDI), Spielberger's State and Trait Anxiety Questionnaire (STAI), and Diabetes in Pregnancy Knowldege Screen (DPKS).

Two further measures were completed at this time, the Diabetes Social Support Questionnaire (DSSQ) and the Self-report Diabetes Compliance Questionnaire (DCQ). The Nurse Rating of Compliance was collected from the specialist nurse at this point.

Following delivery, the recorded birth weight of the baby was extracted from computerised hospital notes.
Administration procedure for normal pregnancy comparison group:

**Time I:**

At the routine antenatal clinic, the women were given a patient information sheet (Appendix IV) and a consent form (Appendix V). They were then asked to complete two measures of distress [the Beck Depression Inventory (BDI) and Spielberger's State/Trait Anxiety Questionnaire (STAI)] followed by the Attitude Towards Pregnancy Questionnaire (ATP). The mean gestational age of this group was 28.65 weeks. As with the GDM group factors such as the participants age, gestational age, educational level, ethnicity, occupation, estimated date of delivery were also recorded.
RESULTS

Relationships between variables at time I and relationships between variables at times I and II, were explored using Pearson's product moment correlation coefficients, whilst group differences were examined using t-tests and the Wilcoxon's matched-pairs signed ranks tests.

As a preliminary step, correlations were used to see if there were any relationships between the Spielberger State and Trait Anxiety Inventory, the Beck Depression Inventory, and the Attitude Towards Pregnancy in both groups. Correlations were also used between the above measures, and the Diabetes in Pregnancy Knowledge Screen in the gestational diabetic group. There were no associations between levels of social support, psychological distress, or maternal attitude towards pregnancy and the Diabetes in Pregnancy Knowledge Screen (DPKS) at time I. As would be expected, Beck Depression Inventory scores were highly correlated with state/trait anxiety scores on the Spielberger questionnaire. The correlational analysis can be seen following in table two.
Table 2

Correlations between variables at time 1 (SD in parentheses).

<table>
<thead>
<tr>
<th></th>
<th>Mean/Std. dev.</th>
<th>BDI 1</th>
<th>STAIS 1</th>
<th>STAIT 1</th>
<th>ATP 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BDI 1</strong></td>
<td>12.00 (7.2) n=41</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>STAIS 1</strong></td>
<td>44.00 (9.28) n=41</td>
<td>.66***</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>STAIT 1</strong></td>
<td>46.38 (9.53) n=41</td>
<td>.72***</td>
<td>.81***</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>ATP 1</strong></td>
<td>31.00 (4.53) n=40</td>
<td>-.12</td>
<td>-.23</td>
<td>-.27</td>
<td>-</td>
</tr>
<tr>
<td><strong>DPKS 1</strong></td>
<td>54.42 (25.40) n=21</td>
<td>-.19</td>
<td>-.05</td>
<td>-.18</td>
<td>-.16</td>
</tr>
</tbody>
</table>

* p<.05; ** p<.01; *** p<.001.

BDI 1: Beck Depression Inventory, time I.

STAIS 1: Spielberger State Anxiety Questionnaire, time I.

STAIT 1: Spielberger Trait Anxiety Questionnaire, time I.

ATP 1: Attitude Towards Pregnancy, time I.

DPKS 1: Diabetic Pregnancy Knowledge Scale, time I.

Table 2: Shows the means, standard deviations and Pearson's product moment correlation coefficients between variables at time 1. It can be seen that there were no associations between levels of psychological distress, or maternal attitude towards pregnancy and the Diabetes in Pregnancy Knowledge Screen (DPKS) at time 1.

With regard to the first hypothesis, the Self-report Diabetes Compliance Questionnaire
revealed an unacceptably low internal consistency, and, therefore it was not possible to compute correlations between the Self-report Diabetes Compliance Questionnaire and the other variables under investigation. The analysis did however reveal that the scores on the Diabetes in Pregnancy Knowledge Screen at time I, were negatively correlated with trait anxiety at time II and positively correlated with social support at time II, meaning that greater knowledge was associated with lower trait anxiety and higher social support. There was also a trend, though non-significant, towards an association between the Diabetes in Pregnancy Knowledge Screen at time I and state anxiety. These results can be observed in the table three.

Table 3

Correlations between variables at times I and II.

<table>
<thead>
<tr>
<th></th>
<th>BDI 2</th>
<th>STAIS 2</th>
<th>STAIT 2</th>
<th>DPKS 2</th>
<th>DC 2</th>
<th>DSS 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDI 1</td>
<td>.71***</td>
<td>.41</td>
<td>.16</td>
<td>.14</td>
<td>-.04</td>
<td>.09</td>
</tr>
<tr>
<td>STAIS 1</td>
<td>.41</td>
<td>.56*</td>
<td>.31</td>
<td>-.16</td>
<td>-.16</td>
<td>.02</td>
</tr>
<tr>
<td>STAIT 1</td>
<td>.49*</td>
<td>.45*</td>
<td>.37</td>
<td>-.15</td>
<td>.21</td>
<td>-.07</td>
</tr>
<tr>
<td>ATP 1</td>
<td>.25</td>
<td>.11</td>
<td>-.03</td>
<td>-.24</td>
<td>-.16</td>
<td>-.04</td>
</tr>
<tr>
<td>DPKS 1</td>
<td>-.32</td>
<td>-.33</td>
<td>-.46*</td>
<td>.79***</td>
<td>.12</td>
<td>.66**</td>
</tr>
</tbody>
</table>

*p<.05; ** p<.01; *** p<.001.

DC 2: = Self-report Diabetes Compliance Questionnaire, time II.

DSS 2 = Diabetes Social Support Questionnaire, time II.
Table 3: This table shows Pearson's product moment correlation coefficients between variables, indicating that the scores on the Diabetes in Pregnancy Knowledge Screen at time I, were negatively correlated with trait anxiety at time II and positively correlated with social support at time II.

Continuing the investigation of the first hypothesis, the data collected at time II from the gestational diabetic group, were analyzed. Associations were sought between the Social Support measure, levels of distress, Attitude To Pregnancy, the Diabetes in Pregnancy Knowledge Screen and the Self-report Diabetes Compliance questionnaire at time II. As before results from the Self-report Diabetes Compliance questionnaire were disregarded. The remaining results demonstrated that both state and trait anxiety measures, showed a negative correlation with the diabetes social support questionnaire, indicating that low levels of social support were associated with higher levels of anxiety. The diabetes Social Support questionnaire showed a positive correlation with the Diabetic Pregnancy Knowledge Screen suggesting that higher levels of social support were associated with more knowledge about the condition. The correlations can be observed below in table four.
Table 4

Correlations between variables at time II.

<table>
<thead>
<tr>
<th></th>
<th>BDI 2</th>
<th>STAIS 2</th>
<th>STAIT 2</th>
<th>DPKS 2</th>
<th>DC 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDI 2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>STAIS 2</td>
<td>.53*</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>STAIT 2</td>
<td>.49*</td>
<td>.84***</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>DPKS 2</td>
<td>-.08</td>
<td>-.36</td>
<td>-.47*</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>DC 2</td>
<td>.11</td>
<td>-.23</td>
<td>-.06</td>
<td>.33</td>
<td>-</td>
</tr>
<tr>
<td>DSS 2</td>
<td>-.13</td>
<td>-.58**</td>
<td>-.62**</td>
<td>.56**</td>
<td>-.02</td>
</tr>
</tbody>
</table>

* p<.05; ** p<.01; *** p<.001.

Table 4: Shows Pearson's product moment correlation coefficients between variables at time II, demonstrating that state and trait anxiety measures, showed a negative correlation with the diabetes social support questionnaire, and the diabetes Social Support questionnaire showed a positive correlation with the Diabetic Pregnancy Knowledge Screen.

Replies to questions on the Self-report Diabetes Compliance were considered on an individual basis and not on the questionnaire as a whole, given the unacceptably low level of internal consistency of this measure. Insulin items were not analyzed due to low response rate. In table five, it can be seen that consistent with previous research findings (Ruggiero et al, 1990), seventy-five per cent of the sample reported being compliant, with timing of meals and keeping to an appropriate diet when eating out (allegedly, a common area of difficulty). Questions three and four indicate high non-compliance with these items; sixty to sixty-five percent of the sample reported
"frequently"/"always" eating and drinking contra-indicated items. Again, consistent with previous research only 40 per cent of the sample stated that they complied with items related to food with exercise.

Table 5

Self-reported Diabetes Compliance questionnaire.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Frequency of &quot;frequently&quot;/&quot;always&quot; compliant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eating out</td>
<td>3.95</td>
<td>15 (75%)</td>
</tr>
<tr>
<td>Time of food</td>
<td>4.10</td>
<td>15 (75%)</td>
</tr>
<tr>
<td>Avoid food</td>
<td>3.65</td>
<td>12 (60%)</td>
</tr>
<tr>
<td>Avoid drink</td>
<td>3.75</td>
<td>13 (65%)</td>
</tr>
<tr>
<td>Food/exercise</td>
<td>3.25</td>
<td>08 (40%)</td>
</tr>
</tbody>
</table>

Table 5: because of a lack of internal consistency, the items in this questionnaire are considered on an individual basis. The above table shows the mean score for each reply. The frequency of "frequently"/"always" replies to the above questions are presented with the corresponding percentage.

Concerning hypothesis number two, there was a highly significant difference in trait anxiety between the two groups, with the Gestational Diabetic group obtaining higher scores relative to the normal pregnancy group. There was a trend towards higher levels of state anxiety and depression in the Gestational Diabetic group but these differences
did not reach conventional levels of significance. As can be seen in table six, there were no other significant differences between the two groups.

Table 6

T-tests and mean scores (SD in parentheses) of the measures completed by both groups.

<table>
<thead>
<tr>
<th></th>
<th>GDM grp.</th>
<th>Normal pregnancy</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDI 1</td>
<td>12.00 (7.2)</td>
<td>8.20 (5.48)</td>
<td>(39)= 1.89</td>
</tr>
<tr>
<td>STAIS 1</td>
<td>44.00 (9.28)</td>
<td>38.55 (11.10)</td>
<td>(39)= 1.71</td>
</tr>
<tr>
<td>STAIT 1</td>
<td>46.38 (9.53)</td>
<td>37.35 (9.20)</td>
<td>(39)= 3.09**</td>
</tr>
<tr>
<td>ATP 1</td>
<td>31.00 (4.53)</td>
<td>32.50 (6.57)</td>
<td>(38)= 0.84</td>
</tr>
</tbody>
</table>

* p<.05; ** p<.01; *** p<.001.

Table 6: In this table, the state/trait anxiety and depression scores of the Gestational Diabetic and normal pregnancy group were compared with a t-test. The table shows the means, standard deviations and t values, of the scores obtained from both groups at time I, which demonstrate a highly significant difference in trait anxiety between the two groups. No other significant differences were found between the two groups.

As to the third hypothesis, scores obtained on the Diabetes in Pregnancy Knowledge Screen at time I were compared with those obtained at time II. To compare these scores a Wilcoxon matched-pairs signed ranks test was used, as the data was not normally distributed. Contrary to hypothesis three, which predicted that knowledge would not be retained, a significant difference in knowledge was found, with the
Gestational Diabetic group not only retaining, but obtaining higher knowledge scores at time II, than at time I (Wilcoxon matched-pairs signed ranks test = 2.70, \( p < .01 \), two tailed).

As a difference was found between knowledge scores at time I and time II, the data were analyzed to see if this increase in knowledge coincided with a decrease in distress. A t-test was performed to see if there was a difference in scores on the distress questionnaires between times I and II. The results in table seven below, show a trend towards decreasing levels of state/trait anxiety and depression scores in the gestational diabetic group at time II, but these differences did not reach conventional levels of significance.

**Table 7**

* **T-tests and means of distress scores at times I and II (SD in parentheses).**

<table>
<thead>
<tr>
<th></th>
<th>time I</th>
<th>time II</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDI</td>
<td>12.00 (7.20)</td>
<td>11.25 (5.94)</td>
<td>(19)= 1.23</td>
</tr>
<tr>
<td>STAIS</td>
<td>44.00 (9.28)</td>
<td>42.95 (8.58)</td>
<td>(19)= 0.68</td>
</tr>
<tr>
<td>STAIT</td>
<td>46.38 (9.53)</td>
<td>43.15 (8.70)</td>
<td>(19)= 1.79</td>
</tr>
</tbody>
</table>

\* \( p < .05 \); \* \* \( p < .01 \); \* \* \* \( p < .001 \).

**Table 7:** In this table it can be seen that when distress scores at times I and II were compared, no significant differences were found between levels of state/trait anxiety or depression.
In order to investigate whether compliance changed during the course of the study, the first scores on the Nurse Compliance Rating at time I were compared with those obtained at time II. A Wilcoxon matched-pairs signed ranks test was used, as the data was not normally distributed, to compare the first with the second ratings. A significant difference in Nurse Compliance Rating was found (Wilcoxon matched-pairs signed ranks test = 2.67, p<.01, two tailed), with group compliance improving over the six weeks study period.

Summary of results

With regards to the first hypothesis, psychological distress was not significantly correlated with Nurse ratings of compliance, neither was attitude towards pregnancy or birth-weight. It was not possible to see if psychological distress was correlated with the Self-report Diabetes Compliance Questionnaire as this measure was found to have an unacceptably low internal consistency.

The results only partly confirmed the second hypothesis in that a highly significant difference was found on the time I measures, the gestational diabetic group scoring higher on trait anxiety. There was a trend toward higher state anxiety and depression, but this did not reach significance.

Concerning the third hypothesis and contrary to predictions, there was a highly significant difference between the scores on the Diabetes in Pregnancy Knowledge Screen, which showed an increase in diabetes knowledge at time II.
Perhaps counter-intuitively, birthweights in the normal comparison group were shown to be significantly higher ($t(38) = 2.50, p < 0.05$) than found in the gestational diabetic group, this finding will be further commented on in the discussion section.
DISCUSSION

The present research, to a certain extent, replicates and expands on the Ruggiero study (Ruggiero, Spirito, Bond, Coustan, & McGarvey, 1990), on factors affecting compliance in gestational diabetes mellitus (GDM).

The aims of the study were firstly, to investigate whether levels of social support, psychological distress and maternal attitudes towards the pregnancy affect compliance with a diabetic protocol. The second aim was to ascertain whether women diagnosed with gestational diabetes experienced higher levels of psychological distress than those undergoing normal pregnancies. Thirdly, the aim was to examine whether information about gestational diabetes, given verbally to patients, is retained throughout the required period and whether this had an impact on ability to comply with the diabetic protocol.

Women attending a high risk ante-natal clinic (GDM group) and women attending a routine ante-natal clinic were compared on psychological measures of distress, and attitude towards pregnancy. The Gestational Diabetes group was surveyed at two time points on measures of distress and knowledge of their condition, furthermore at time II they were asked to fill in measures reflecting their levels of social support and a measure designed to assess how compliant they were with the diabetic protocol. A specialist nurse rated them on compliance to instructions and birthweights were collected at the end of the study.
The results did not provide support for the three main research questions. Social support, psychological distress, maternal attitudes and birth-weight were not significantly correlated with the Nurse rating of compliance. The Gestational Diabetes group did differ significantly from the comparison group on trait anxiety at time I, but not significantly on state anxiety or depression. Contrary to the third prediction a highly significant difference was noted between Diabetes in Pregnancy Knowledge Screen scores at times I and II, indicating that the gestational diabetic group know more at time II than at time I.

The findings of the present study

Analysis of the data did not provide support for hypothesis I, only partly for hypothesis II and did not support hypothesis III. However a number of other significant findings emerged which will be discussed in detail.

Regarding the first hypothesis and contrary to previous research findings, no association was found between social support and nurse rated compliance; unusually, the women in this sample appear to have been compliant regardless of levels of social support.

Other authors have found that social support accounted for more than 50 per cent of the variance in compliance (Schlenk, 1984), and Ruggiero (1990) for example, found social support for specific tasks facilitated compliance with the diabetes regimen in women with gestational diabetes. These findings are not replicated by this study. It
may be that in this particular case, concern for the fetus outweighed whether or not one had social support. On the whole the women in this sample had a highly positive attitude to their pregnancy. Maternal attitude has been positively correlated in other studies to physician ratings of patient manageability (Lederman & Lederman, 1978). That is, those patients who are judged as having a positive attitude are more likely to do as directed by their doctors. The attitude to pregnancy was not significantly associated with nurse ratings of compliance in this study, although there was a tenuous trend in the expected direction.

A correlation between social support and diabetic knowledge at times I and II was found. This seems to replicate findings by Kaplan and Hartwell (1987), who found that satisfactory social support seems to encourage self-management behaviours that lead to good diabetic control. In this case, presence of social support may have helped the women to adapt to the diagnosis, learn and retain knowledge. Another finding in the literature is that social support may help the individual to mobilise other adaptive coping strategies or may buffer the effects of stress. It is plausible that the significant and negative correlation between social support and state and trait anxiety at time II is indeed due to the buffering effect of social support in some women.

It can therefore be assumed that the findings were consistent with other research, in that the study found social support to be an important variable. In this case however, the importance of social support was only indirectly related to the hypotheses.

Distress had been hypothesised to have an effect on compliance but no association was
found. However this does not provide conclusive evidence that distress does not affect compliance and could indicate that the measures used were not appropriate to the sample. As noted above, the internal consistency of the compliance questionnaire was unfortunately highly unreliable. If this sample were indeed subject to lack of social support and undetected distress, the effects of this could be ameliorated by the intensive input and support of the clinic medics, nurses and midwives. It seems that the high Nurse Compliance Rating observed in this sample might be due to the intensive monitoring that the women receive in this particular clinic.

The second hypothesis predicted that the Gestational Diabetes group would show higher levels of psychological distress than the normal comparison group, due to the increased concern at undergoing a high-risk pregnancy. Trait anxiety scores were significantly higher in the Gestational Diabetics than in the normal pregnancy comparison group. There was a trend towards higher state anxiety and depression scores in the Gestational Diabetes group, but these were not statistically significant.

It is interesting to note that the average BDI score (12) in the Gestational Diabetic group, does in fact fall into the category of mild depression. There are a number of competing explanations for these findings. Firstly that distress levels do indeed increase, albeit slightly, as a result of being informed of a high risk pregnancy, on the other hand, a slight rise in distress might be accounted for simply by being informed that increased antenatal visits will be required, as opposed to be concerned about the pregnancy. After all a large proportion of this sample were women in outside employment and arranging extra, time consuming, ante-natal appointments may itself
be a source of anxiety. Another explanation is that the Gestational Diabetic group contained slightly older mothers who may have had more concerns about the pregnancy per se, given the increased risk of complications in later pregnancies; the slight rise in anxiety may be due to this latter factor. It is also possible that depression scores are higher albeit, not significantly, given that the Beck Depression Inventory includes the somatic elements of depression, with higher scores being given to items such as poor sleep, low appetite and loss of interest in sex; a sample of pregnant women might respond to these items as being a by-product of the pregnancy and not of mood. This finding of course would apply to both groups.

The possibility that distress was under-detected at time I must also be considered either because a) the questionnaires were not sensitive enough to access the distress present in this group, as mentioned above or that b) women are not yet aware on the first clinic visit of the full implications of the diagnosis. If there was undetected distress in this group it could be that this is alleviated by time II anyway, given that the pregnancy is to be monitored in a large, specialist clinic, by reputation a centre of excellence, thus the women are immediately reassured that the condition is not unusual and that they are in the most appropriate place.

The third hypothesis predicted that there would be poor overall recall of the information given to the women at the high risk pregnancy clinic on their first visit, as measured by the Diabetes in Pregnancy Knowledge Screen. Furthermore lower levels of knowledge would correlate with lower levels of compliance. The analysis did not provide evidence to support this hypothesis. A significant difference was found
between the knowledge scores at time I and II, with the participants scoring higher at
time II on the Diabetic Pregnancy Knowledge Screen than they did at time I. There
were no significant correlations between the Diabetes in Pregnancy Knowledge Screen
and the Nurse Rating of Compliance. Correlations could not be computed between this
latter variable and the Self Report Diabetes Compliance Questionnaire.

It seems possible that the original hypothesis underestimates the fact that the frequency
of ante-natal visits has allowed for constant repetition of information or instructions
if required. Perhaps more importantly the weekly visits provide the opportunity for
constant feedback on results which allows the women to correct or modify their
behaviour on a weekly basis if necessary.

Duration of illness has been suggested as an important variable related to knowledge
among individuals with diabetes (Dunn, Bryson, Hoskins, Alford, Handelsman, 1984
& Turtle and Hess & Davis, 1983). It seems that for this well motivated group,
acquisition of knowledge has been unusually rapid over a relatively short duration of
illness. Spirito et al (1990), found that women with gestational diabetes obtained low
numbers correct on knowledge questionnaires, the average, getting 50 per cent correct.
They assumed this was because the women were asked to integrate a substantial
amount of information in a relatively short period of time. Furthermore they suggest
that there are some patients who have greater difficulty learning about diabetes during
pregnancy and that therefore they should be "targeted for extra educational efforts
during pregnancy" (Spirito et al, 1990, pp. 716).
The above study used an American, younger and larger sample. No information is provided on how often these women were seen at clinic. Clearly these poor results are not replicated in the current study, which could be the result of large differences in demographic variables and/or patient management. Another factor to be taken into account is that two of the Gestational Diabetic group subjects were nurses and both scored highly on the screen; in a small sample size this could have had an effect on the overall results. In the absence of other explanations, one could speculate that it is the intensive input by the approachable and non-threatening staff at the ante-natal clinic that provides an ideal learning environment and therefore it is the environment itself, which is promoting the easy acquisition of knowledge in this particular case.

An important, although not surprising finding from this study, is the association between social support and knowledge times I and II. One could speculate that it is the social support received at the clinic, both from other women and from staff which is facilitating the acquisition and retention of information. Alternatively with partners increasingly attending ante-natal clinics, there are often two or three people present during consultations to hear recommendations concerning the management of the gestational diabetes. Partners may be instrumental in reinforcing clinic instructions and encourage self-care behaviours. However, as social support is not associated with nurse ratings of compliance it seems that the woman herself is making an individual and informed decision as to which elements of the regime she is going to comply with.

Interestingly, there was a significant negative correlation between knowledge and trait...
anxiety and a trend though, non-significant, between knowledge and state anxiety. It may be that individuals with higher trait anxiety levels are more motivated to learn and enquire about their condition and that this increase in knowledge lessens anxiety. Whilst the trait anxiety questionnaire scores are assumed to reflect stable characteristics in the individual it is plausible that they fluctuate over time as result of the circumstances under which they are completed.

The compliance of the Gestational Diabetic group was judged, on the whole, acceptable by the diabetes nurse and improved significantly over the course of the study. Findings regarding regularity of food intake and keeping to the diet when eating out are similar to those of Ruggiero (1990), who found 66 and 71 per cent of patients reporting that they frequently or always, comply with these requirements.

The results regarding exercise replicate other research findings (Ruggiero, 1990; Hanestad & Albrektsen, 1991), with only 40 per cent reporting that they frequently or always followed recommendations.

In this case it appears that comments by Kurtz (1990), i.e. that rates of non-adherence are staggeringly high, regardless of methodology do not apply to this particular sample.

Kurtz also notes that verification of self-reports is complicated by social desirability to appear compliant, however the Gestational Diabetic sample in this group readily admit to areas of non-compliance with diet and exercise. This finding may be
consistent with research which shows, that if the patient is interviewed regarding compliance by a non-threatening person other than their doctor, valid indices of compliance can be obtained that correlate with more objective measures, such as physiological indices etc. (Watts, 1988).

Various studies on subjective measures of compliance made by physicians, have also been shown to correlate with actual patient performance (Yue, Dunn, Fowler, Pech, Forrest, Handelsman, & Turtle, 1984), which was also replicated in this study with the Nurse Rating of Compliance. It seems plausible that the good compliance in this group was due to the relatively short duration of the need to be compliant and that this study is consistent with research which suggests that short term regimens are associated with better compliance (Haynes, Taylor, & Sackett, 1979).

There was an unexpected finding in that birth-weights in the Gestational Diabetic group were found to be significantly lower than in the normal comparison group. As mentioned in the introduction section, one of the consequences of poorly controlled gestational diabetes is macrosomia or a baby which is unusually large for dates. In the clinic where this research took place, the approximate weight at which a baby would be considered macrosomic (the exact figure can vary between hospitals), is 4 kgs. Whilst neither of the means of the different groups of babies reached this weight, the mean in the normal comparison group was significantly higher.

The above finding could be a function of the relatively small numbers available for analysis or alternatively a result of women from certain ethnic minorities (25 per cent
in the comparison group) having naturally occurring smaller babies. However it is an interesting finding, given the debate and concern that if gestational diabetes is too tightly controlled it could increasingly lead to small for dates babies (Langer, Levy, Brustman, Anyaegbunam, Merkatz & Divon, 1989).

**Strengths and limitations of the study**

One of the strengths of this study is that it is essentially a multidisciplinary undertaking and so benefits from the interest and input of the other professionals involved.

This study also benefits from being longitudinal and seems to be one of only a handful that have investigated the psychological impact of developing gestational diabetes mellitus. Whilst many studies have recognised the value of social support in pregnancy, the impact that a lack of social support may have on psychological distress seems to have been largely ignored.

Some research studies which state that they are looking at psychological wellbeing, have even designed interventions which provide psychosocial support in an attempt to improve maternal health during high risk pregnancies. Villar's study, for example, concludes that there was no protective effect of the psychosocial support programme amongst mothers with high risk pregnancies (Villar et al, 1992). However, no data was collected on current psychological state at the beginning or indeed at the end of the
study. Despite its limitations, the present study recognises that the current psychological functioning of the women will either enhance or diminish any attempts at improving compliance, provision of education, provision of support and ultimately affect pregnancy outcome.

As with any investigation there are limitations to this study, and any conclusions must be tentative given the low numbers of subjects involved. It must also be taken into account that part of the design was retrospective and a large part of the data correlational, with causal directions unspecified. Furthermore much of the data is self-report. It is unfortunate that the questionnaire selected to measure compliance was found to have an unacceptably low level of internal consistency and hence invalidates some of the findings. Whilst the results on the compliance questionnaire could not be considered reliable as a whole, the answers to individual items were thought to yield useful data. Similarly unfortunate was the low internal consistency of the social support measure and it is clear that any further research in this area would have to use more reliable instruments.

Further research using questionnaires which are more sensitive to a pregnant population might reveal significant differences in levels of distress. For example, the Hospital Anxiety and Depression Scale (HADS), which is short and relies less on somatic symptomatology or one which is specifically designed for a pregnant population. Clearly a better designed compliance questionnaire with demonstrated internal consistency is called for and one which is more responsive to the women's perception of availability of social support. With these three considerations in mind
it would be interesting to conduct a similar study which is backed up by more objective measures such as the glycosylated haemoglobin assay (HbA1c). This measures blood glucose measures over time and hence gives an totally objective measure of compliance to compare both with clinician ratings and self-report data.

Due to seasonal differences in amount of women presenting at the clinic, recruiting subjects was time consuming and ultimately not as fruitful as one would have hoped, hence lower numbers than anticipated were recruited. It is also unfortunate that the study being questionnaire based, could not accommodate women who did not speak English, a potentially valuable source of data.

Clinical implications

The findings replicate previous research that cite social support as an important variable in diabetic compliance. What remains unclear is which aspects of social support are the most important. If it is a partner or significant other attending antenatal appointments then this attendance could be explicitly encouraged, particularly in the case of high risk pregnancies.

Although diabetic knowledge was quite comprehensive by the end of the study, perhaps the present study points towards the need for early intervention in the form of either written guidelines within the first two or three weeks or a one-off educational group with hand-outs translated into languages representative of a multicultural society.
Calculating the effectiveness of educating people on diabetes at this point, is particularly important given the increased risk in the gestational diabetic of developing diabetes later on. Ensuring a comprehensive grounding in the management of diabetes could fulfil a preventative role, in that it could help reduce the high rates of non-compliance for those who do go to develop non-insulin and insulin-dependant diabetes mellitus at a later date.

Clearly the question on distress in gestational diabetes is not completely resolved. This remains an important area to consider and it is conceivable that more sensitive instruments could yield increased levels. To a certain extent whether depression or anxiety precedes or is a result of the nature of the pregnancy is irrelevant. Studies on the incidence of ante-natal depression have revealed that it is actually higher than thought. Kumar (1982), for example, reported an incidence of depression or anxiety of 15 per cent in Great Britain. Kitamura argues that antenatal depression is a type of depressive illness which appears through reaction to stressful situations, in their study the stress they are referring to is simply a normal pregnancy (Kitamura, Sugawara, Sugawara, Toda, & Shima, 1996). If one assumes that developing a medical condition which may compromise a pregnancy is another source of stress then particular vigilance should be exercised in the case of high risk pregnancies when both stressors are present.
REFERENCES


Appendix I

Copies of all measures employed in this research.
Beck Depression Inventory

This questionnaire consists of 21 groups of statements (indicated by letters A to U). After reading each group of statements carefully, circle the number (0, 1, 2 or 3) next to the one statement in each group which best describes the way you have been feeling the past week, including today. If several statements within a group seem to apply equally well, circle each one. Be sure to read all the statements in each group before making your choice.

A.

0 I do not feel sad
1 I feel sad
2 I am sad all the time and I can't snap out of it
3 I am so sad or unhappy that I can't stand it

B.

0 I am not particularly discouraged about the future
1 I feel discouraged about the future
2 I feel that I have nothing to look forward to
3 I feel that the future is hopeless and that things cannot improve

C.

0 I do not feel like a failure
1 I feel that I have failed more than the average person
2 As I look back on my life all I can see is a lot of failures
3 I feel I am a complete failure as a person

D.

0 I get as much satisfaction out of things as I used to
1 I don't enjoy things the way I used to
2 I don't get real satisfaction out of anything anymore
3 I am dissatisfied or bored with everything

E.

0 I don't feel particularly guilty
1 I feel guilty a good part of the time
2 I feel quite guilty most of the time
3 I feel guilty all of the time

F.

0 I don't feel I am being punished
1 I feel I may be punished
2 I expect to be punished
3 I feel I am being punished
**G.**

0  I don't feel disappointed in myself  
1  I am disappointed with myself  
2  I am disgusted with myself  
3  I hate myself  

**H.**

0  I don't feel I am any worse that anybody else  
1  I am critical of myself for my weaknesses or mistakes  
2  I blame myself all the time for my faults  
3  I blame myself for everything bad that happens  

**I.**

0  I don't have any thoughts of killing myself  
1  I have thoughts of killing myself but I would not carry them out  
2  I would like to kill myself  
3  I would kill myself if I had the chance  

**J.**

0  I don't cry any more than usual  
1  I cry more now than I used to  
2  I cry all the time now  
3  I used to be able to cry but now I can't cry even though I want to  

**K.**

0  I am no more irritated now than I ever am  
1  I get annoyed or irritated more easily than I used to  
2  I feel irritated all the time now  
3  I don't get irritated at all by the things that used to irritate me  

**L.**

0  I have not lost interest in other people  
1  I am less interested in other people than I used to be  
2  I have lost most of my interest in other people  
3  I have lost all of my interest in other people  

**M.**

0  I make decisions about as well as I ever could  
1  I put off making decisions more that I used to  
2  I have greater difficulty in making decisions that before  
3  I can't make decisions at all anymore  

**N.**

0  I don't feel I look any worse than I used to  
1  I am worried that I am looking old or unattractive  
2  I feel that there are permanent changes to my appearance that make me look unattractive  
3  I believe that I look ugly  

85
O.
0 I can work about as well as before
1 It takes an extra effort to get started at doing something
2 I have to push myself very hard to do anything
3 I can't do any work at all

P.
0 I can sleep as well as usual
1 I don't sleep as well as I used to
2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep
3 I wake up several hours earlier than I used to and cannot get back to sleep

Q.
0 I don't get more tired than usual
1 I get tired more easily than I used to
2 I get tired from doing almost anything
3 I am too tired to do anything

R.
0 My appetite is no worse than usual
1 My appetite is not as good as it used to be
2 My appetite is much worse now
3 I have no appetite at all anymore

S.
0 I have not lost much weight, if any, lately
1 I have lost more than 5 pounds (2 Kilos)
2 I have lost more than 10 pounds (4 Kilos)
3 I have lost more than 15 pounds (7 Kilos)

I am purposely trying to lose weight by eating less: Yes------ No------

T.
0 I am no more worried about my health than usual
1 I am worried about physical problems such as aches and pains; or upset stomach; or constipation
2 I am very worried about physical problems and it's hard to think of much else
3 I am so worried about my physical problems that I cannot think about anything else

U.
0 I have not noticed any recent changes in my interest in sex
1 I am less interested in sex than I used to be
2 I am much less interested in sex now
3 I have lost interest in sex completely
A number of statements which people use to describe themselves are given below. Read each statement carefully, and then indicate, using the scale below, how you feel right now, that is at this moment. Circle whichever number best indicates how you feel right now. There are no right or wrong answers. Do not spend too much time on any one statement.

The response choices are: 1 = Not at all, 2 = Somewhat, 3 = Moderately, 4 = Very much. Please circle the most appropriate number.

<table>
<thead>
<tr>
<th>Number</th>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<tbody>
<tr>
<td>1</td>
<td>I feel calm</td>
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<td>2</td>
<td>I feel secure</td>
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<td>3</td>
<td>I am tense</td>
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<td>4</td>
<td>I am regretful</td>
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<td>5</td>
<td>I feel at ease</td>
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<td>6</td>
<td>I feel upset</td>
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<td>7</td>
<td>I am presently worrying over possible misfortunes</td>
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<td>8</td>
<td>I feel rested</td>
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<tr>
<td>9</td>
<td>I feel anxious</td>
<td></td>
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<td>10</td>
<td>I feel comfortable</td>
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<td>11</td>
<td>I feel self confident</td>
<td></td>
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<td>12</td>
<td>I feel nervous</td>
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<td>13</td>
<td>I am jittery</td>
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<td>14</td>
<td>I feel &quot;high strung&quot;</td>
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<tr>
<td>15</td>
<td>I am relaxed</td>
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<tr>
<td>16</td>
<td>I feel content</td>
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<tr>
<td>17</td>
<td>I am worried</td>
<td></td>
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<tr>
<td>18</td>
<td>I feel over exited and &quot;rattled&quot;</td>
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<tr>
<td>19</td>
<td>I feel joyful</td>
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<tr>
<td>20</td>
<td>I feel pleasant</td>
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</tbody>
</table>
Spielberger Trait Anxiety Questionnaire

A number of statements which people use to describe themselves are given below. Read each statement carefully, and then indicate, using the scale below, how you have been feeling generally in the past few weeks. The response choices are: 1 = Not at all, 2 = Somewhat, 3 = Moderately, 4 = Very much. Please circle the most appropriate number.

1. I feel pleasant 1 2 3 4
2. I tire quickly 1 2 3 4
3. I feel like crying 1 2 3 4
4. I wish I could be as happy as others seem to be 1 2 3 4
5. I am losing out on things because I can't make up my mind soon enough 1 2 3 4
6. I feel rested 1 2 3 4
7. I am "cool, calm and collected" 1 2 3 4
8. I feel difficulties are piling up so that I cannot overcome them 1 2 3 4
9. I worry too much over something that really doesn't matter 1 2 3 4
10. I am happy 1 2 3 4
11. I am inclined to take things hard 1 2 3 4
12. I lack self confidence 1 2 3 4
13. I feel secure 1 2 3 4
14. I try to avoid facing a crisis or difficulty 1 2 3 4
15. I feel blue 1 2 3 4
16. I am content 1 2 3 4
17. Some unimportant things run through my mind and bother me 1 2 3 4
18. I take disappointments so keenly that I can't put them out of my mind 1 2 3 4
19. I am a steady person 1 2 3 4
20. I get in a state of tension or turmoil as I think over my recent concerns and interests 1 2 3 4
Appendix 1

Chelsea and Westminster Hospital
Charing Cross Hospital-Diabetes Day Centre
Diabetes Occurring in Pregnancy Study

Attitudes Towards Pregnancy Questionnaire

Please read each statement carefully, and then indicate, using the scale below, the number that most accurately describes your opinion.

The response choices are: 1 = Very highly, 2 = Highly, 3 = Not so highly, 4 = A little, 5 = Not at all. Please circle the most appropriate number.

1. How much did you desire the present pregnancy?
   1  2  3  4  5

2. How much did you worry that the present pregnancy might disturb your life pattern?
   1  2  3  4  5

3. How appropriate was your family situation for the birth of a new baby?
   1  2  3  4  5

4. How appropriate was your economic situation for the birth?
   1  2  3  4  5

5. How ready did you feel to become a mother?
   1  2  3  4  5

6. Were you afraid of the delivery?
   1  2  3  4  5

7. How much did you worry that there might be something wrong with the baby?
   1  2  3  4  5

8. How much did this pregnancy add to your feelings as a woman?
   1  2  3  4  5

9. How much did your partner desire this pregnancy?
   1  2  3  4  5

A. How much did you suffer from nausea or vomiting in this pregnancy?
   1  2  3  4  5

B. How much did you suffer from other physical difficulties?
   1  2  3  4  5

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Appendix I

Chelsea and Westminster Hospital
Charing Cross Hospital-Diabetes Day Centre
Diabetes Occurring in Pregnancy Study

Diabetes Social Support Questionnaire

The response choices are: 5 always, 4 frequently, 3 sometimes, 2 occasionally, 1 never, and does not apply. Please circle the most appropriate number.

Diet Items:

1. My family or friends remind me to follow my diet.
   1  2  3  4  5

2. The people with whom I live plan meals to include my diabetes diet pattern.
   1  2  3  4  5

3. The people with whom I live adjust their eating and activity schedules to allow for consistency in my diabetes regimen.
   1  2  3  4  5

4. My family or friends encourage me to eat more when I get more exercise than usual.
   1  2  3  4  5

5. My family or friends tell me it is OK to eat foods not on my diet.
   1  2  3  4  5

Insulin Items:

1. My family or friends insist that I take my insulin dose, based on my self-monitored glucose results.
   1  2  3  4  5

2. My family or friends would give me insulin if I were too sick to administer it myself.
   1  2  3  4  5
Diabetes Compliance Questionnaire

The response choices are: 5 always, 4 frequently, 3 sometimes, 2 occasionally, 1 never, and does not apply. Please circle the most appropriate number.

Diet Items:

1. I stay on my diet when I eat out:
   
   1 2 3 4 5

2. I eat within 1/2 an hour of the usual time for each meal:
   
   1 2 3 4 5

3. I eat foods that I should avoid on my diet:
   
   1 2 3 4 5

4. I drink drinks that I should avoid on my diet:
   
   1 2 3 4 5

5. I eat more on those days when I get more exercise than usual.
   
   1 2 3 4 5

Insulin Items:

1. I make adjustments in my insulin dose (or call in to the hospital) based on my blood glucose results.
   
   1 2 3 4 5

2. I rotate my insulin injection sites every day.
   
   1 2 3 4 5

3. I take my insulin dose even when I get sick with a fever or when I am nauseated and/or vomiting.
   
   1 2 3 4 5

4. I receive my insulin injections within 1/2 an hour of the usual time every day.
   
   1 2 3 4 5
Chelsea and Westminster Hospital
Charing Cross Hospital-Diabetes Day Centre
Diabetes Occurring in Pregnancy Study

Diabetes in Pregnancy Knowledge Screen

Below are questions about diabetes during pregnancy. Answering these questions will help us determine your current knowledge about diabetes during pregnancy and help us provide the best possible information and care.

1. If you were planning vigorous exercise, (e.g., swimming, playing tennis), what changes should you make in your daily diabetes routine? (circle all that apply)
   a. Decrease insulin
   b. Carefully time when to do your exercising
   c. Increase amount of carbohydrates (e.g., bread, fruits) you eat
   d. Increase the amount of protein (e.g., meat, cheese) you eat
   e. I don't know

2. On days when you are sick what changes should you take to control your diabetes?
   a. Increase the monitoring of your blood glucose.
   b. Increase your insulin
   c. Call your doctor
   d. I don't know

3. The normal range for blood sugar during pregnancy is:
   a. 40 to 150 mg/dl or 2.5 to 8 mM
   b. 60 to 120 mg/dl or 3.5 to 6.5 mM
   c. 100 to 200 mg/dl or 5.5 to 11 mM
   d. I don't know

4. A specific meal plan has been devised for you by the dietician. Which of the following statements about your meal plan are correct. Circle all true statements.
   a. You should eat everything on your diet sheet
   b. You can reduce the amount of food you eat if you are not hungry
   c. You should control the amount of food you eat all the time
   d. You can eat your meals at any time of the day as long as you eat everything on your diet sheet
   e. I don't know

5. Margarine is mainly:
   a. Protein
   b. Carbohydrate
   c. Fat
   d. Mineral and vitamin
   e. I don't know
6. Rice is mainly:
   a. Protein
   b. Carbohydrate
   c. Fat
   d. Mineral and vitamin
   e. I don't Know

7. If you have problems controlling your blood sugar during pregnancy, what are some of the possible effects on your baby after birth? (circle all that apply)
   a. Could be born with low blood sugar (hypoglycaemia)
   b. Could be a large baby making delivery very difficult
   c. Could have breathing problems after birth
   d. I don't know
Appendix II

Copy of the proposal submitted to Riverside Research Ethics Committee, Chelsea and Westminster Hospital
1. Name of Project:

Factors affecting compliance in Gestational Diabetes Mellitus (GDM)

2. Summary:

Compliance with medical recommendations is especially important for women with Gestational Diabetes Mellitus or diabetes occurring in pregnancy. This condition carries serious health implications for both mother and baby. The present study is to investigate those factors which makes compliance with the dietary and self-monitoring of blood glucose (SMBG) requirements, difficult for some women. Zayfert (1992) suggests that quite a large proportion of this apparently well motivated group of women do not follow the diabetic protocol during pregnancy.

Research by Ruggiero (1990) indicates that factors such as stress and social support may affect compliance. It is also possible that compliance is affected by emotional states such as depression and anxiety, which could be screened for.

Patients with GDM are given information about their condition and its consequences, whether or not they are able to use this information appropriately is also to be investigated.

Hopefully data from studies of this type will lead to a greater understanding of the difficulties facing women with GDM and will facilitate and inform the approach to assessment, management and the overall care of this population.

References: See next page

Date of Submission: 20.09.95

Name: Louise De Haro

Address: Dept. of Clinical Health Psychology Charing Cross Hospital

Contact Tel & Bleep Nos: 0181 846 1514

Clinical Team in which Investigator works:

Dept. Clinical Health Psychology

Other Clinical Teams/Depts involved In Research:

Dept. of Obstetrics and Gynaecology C&W
Dept. of Endocrinology CX

Name and signature of Consultant, GP or Community Physician in overall charge:

Prof. Steer
Appendix III

Copy of the approval of the study by Riverside Research Ethics Committee,
Chelsea and Westminster Hospital
Dear Ms de Haro

Our ref: RREC 0845 - Factors affecting compliance in gestational diabetes mellitus (GDM).

I am writing to inform you that the above study has been considered and approved by Chairman's Action.

Please note the following conditions which form part of this approval:

[1] This approval is for one year only. For projects with an expected duration of more than one year, a letter from the principal investigator will be required in order to further extend consent. This will enable the Committee to maintain a full record of research.

[2] Any changes to the protocol must be notified to the Committee. Such changes may not be implemented without the Committee's approval.

[3] The Committee should be notified immediately of any serious adverse events or if the entire study is terminated prematurely.

[4] You are responsible for consulting with colleagues and/or other groups who may be involved or affected by the research, e.g., extra work for laboratories. Approval by the Committee for your project does not remove your responsibility to negotiate such factors with your colleagues.
Our ref: RREC 0845 - Factors affecting compliance in gestational diabetes mellitus (GDM).

[5] You must ensure that nursing and other staff are made aware that research in progress on patients with whom they are concerned has been approved by the Committee.

[6] Pharmacy must be told about any drugs and all drug trials, and must be given the responsibility of receiving and dispensing any trial drug.

[7] The Committee must be advised when a project is concluded and should be sent one copy of any publication arising from your study, or a summary if there is to be no publication.

May I take this opportunity to wish you well in your research. However, if any doubts or problems of an unexpected nature arise, please feel free to contact me at any time.

Your sincerely

Nigel Harcourt-Webster
Chairman - RREC

<table>
<thead>
<tr>
<th>Seen and Approved</th>
<th>Signed</th>
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<tbody>
<tr>
<td>Submission</td>
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<td>Protocol</td>
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<td>Information Sheet</td>
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<td>Consent Form</td>
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<td>Questionnaires</td>
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<td>CTX/DDX/Licence</td>
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</table>
Ms. Louise De Haro,
Research Coordinator,
Department of Clinical Health Psychology,
Charing Cross Hospital,
Fulham Palace Road,
London W6 SRF

Your Ref:--/--
My Ref:JNH-W/jnh-w

5th October 1995

Dear Ms. De Haro,

Factors affecting compliance in Gestational Diabetes Mellitus (GDM).

(Ethics Submission No: 0845).

Thank you for the submission of the 20th September 1995 with the attached Protocol, Patient Information Sheet, Consent Form and the various Questionnaires.

I have found no ethical issues in your proposal; however I consider the Questionnaires to be heavy going for someone not used to such documents! Further the overall tenor tends to be gloomy whereas many pregnant ladies are in various stages of happiness if not elation.

I suggest that at the first filling in of these documents assistance is offered in their completion; that would enable the sheer irritation engendered by some questions to be ameliorated and a better outcome ensured.

The formal Letter of Approval will follow in a few days. If any problems arise please let me know.

With kind regards.

Yours sincerely,

J.N. HARcourt-Webster, MD, FRCPath.
Appendix IV

Patient Information Sheets used by both Groups.
Appendix IV

Chelsea and Westminster Hospital
Charing Cross Hospital-Diabetes Day Centre
Diabetes Occurring in Pregnancy Study

Patient Information Sheet

The study for which we are requesting your help is on the type of diabetes which occurs in pregnancy, you may have heard it called "Gestational Diabetes Mellitus" (GDM).

GDM is a condition in which a pregnant woman's body cannot produce enough insulin to use the sugar in her blood efficiently, so, it is defined by abnormal sugar levels in the blood during pregnancy, which were normal before and which will usually be normal after pregnancy.

Treatment, as your doctor and diabetes nurse will have advised you, consists on monitoring your blood sugar levels and a change in diet. The dietician will advise you on a diet that is high in starchy foods and low in sugar and fats. In some cases the diet is not enough to control the diabetes and in this case insulin injections may be necessary.

Research has shown that emotional states can effect the control of diabetes, and we are also interested to know how much patients learn about diabetes over the course of their pregnancy and whether they are able to use this information to help them deal with their diabetes appropriately.

To collect the information necessary you will be asked to fill out a number of questionnaires, on two occasions. You will be able to do this on your scheduled appointments to the clinic and it should not take more than 20 minutes of your time.

We hope that the information gathered from studies of this type will lead to a greater understanding of the difficulties facing women with diabetes in pregnancy and will facilitate and improve our approach to their assessment, management and care in the future.

We would be very grateful for your help with this project, however you do not have to take part in this study if you do not want to. If you decide to take part you may withdraw at any time without having to give a reason. Your decision whether to take part or not will not affect your care and management in any way.

Research coordinator: Louise De Haro
If you have any further questions about this research project, please do not hesitate to contact me on this number: Charing Cross Hospital, Dept of Clinical Health Psychology: 0181 846 1514
The study for which we are requesting your help is on a type of diabetes which occurs in pregnancy, you may have heard it called "Gestational Diabetes Mellitus" (GDM).

Research has shown that emotional states can effect the control of diabetes, and we have already surveyed a number of pregnant women who have developed this complication.

We would now like to look at a number of women who are undergoing normal pregnancies and compare their emotional wellbeing with the women already surveyed.

To collect the information necessary you are requested to fill out three questionnaires, it should not take more than 10 minutes of your time.

We hope that the information gathered from studies of this type will lead to a greater understanding of the difficulties facing women with diabetes in pregnancy and will facilitate and improve our approach to their assessment, management and care in the future.

This study has been fully approved by The Chelsea and Westminster Hospital Ethics Committee. All the answers you give will be treated confidentially and participating patients will remain anonymous. The study does not include any procedures which could cause discomfort. Participation in this study is voluntary and you have the right to withdraw from the study at any time should you so wish. This will not affect your treatment in any way.

Research coordinator: Louise De Haro
If you have any further questions about this research project, please do not hesitate to contact me on this number: Charing Cross Hospital, Dept of Clinical Health Psychology: 0181 846 1514
Appendix V

Copy of the consent form used by the two different participant samples.
Appendix V

Chelsea and Westminster Hospital
Charing Cross Hospital-Diabetes Day Centre
Diabetes Occurring in Pregnancy Study

Consent Form-Comparison Group

To be completed by the patient:

1. Have you read the information sheet on the above study? Yes/No

2. Do you understand that you are free to withdraw from the study:
   -At any time
   -Without giving a reason
   -Without affecting your medical care? Yes/No

3. Do you agree to take part in this study? Yes/No

Signed..................................Date..............................

Name in Block Letters..................................................

This study has been fully approved by The Chelsea and Westminster Hospital Ethics Committee. All the answers you give will be treated confidentially and participating patients will remain anonymous. The study does not include any procedures which could cause discomfort. Participation in this study is voluntary and you have the right to withdraw from the study at any time should you so wish. This will not affect your treatment in any way.

Research coordinator: Louise De Haro
If you have any further questions about this research project, please do not hesitate to contact me on this number: Charing Cross Hospital, Dept of Clinical Health Psychology: 0181 846 1514

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Appendix V

Chelsea and Westminster Hospital
Charing Cross Hospital—Diabetes Day Centre

Diabetes Occurring in Pregnancy Study

Consent Form

To be completed by the patient:

1. Have you read the information sheet on the above study? Yes/No
2. Have you had the opportunity to ask questions? Yes/No
3. Have you received enough information about the study? Yes/No
4. Do you understand that you are free to withdraw from the study:
   - At any time
   - Without giving a reason
   - Without affecting your medical care? Yes/No
5. Do you agree to take part in this study? Yes/No

Signed..................................Date........................................

Name in Block Letters...........................................................

This study has been fully approved by The Chelsea and Westminster Hospital Ethics Committee. All the answers you give will be treated confidentially and participating patients will remain anonymous. The study does not include any procedures which could cause discomfort. Participation in this study is voluntary and you have the right to withdraw from the study at any time should you so wish. This will not affect your treatment in any way.

Research coordinator: Louise De Haro, Dept. of Clinical Health Psychology
Charing Cross Hospital Telephone Number: 0181 846 1514
Appendix VI

Copy of the chart used by patients to record blood glucose readings.
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